Appendix G
List of Technical Studies

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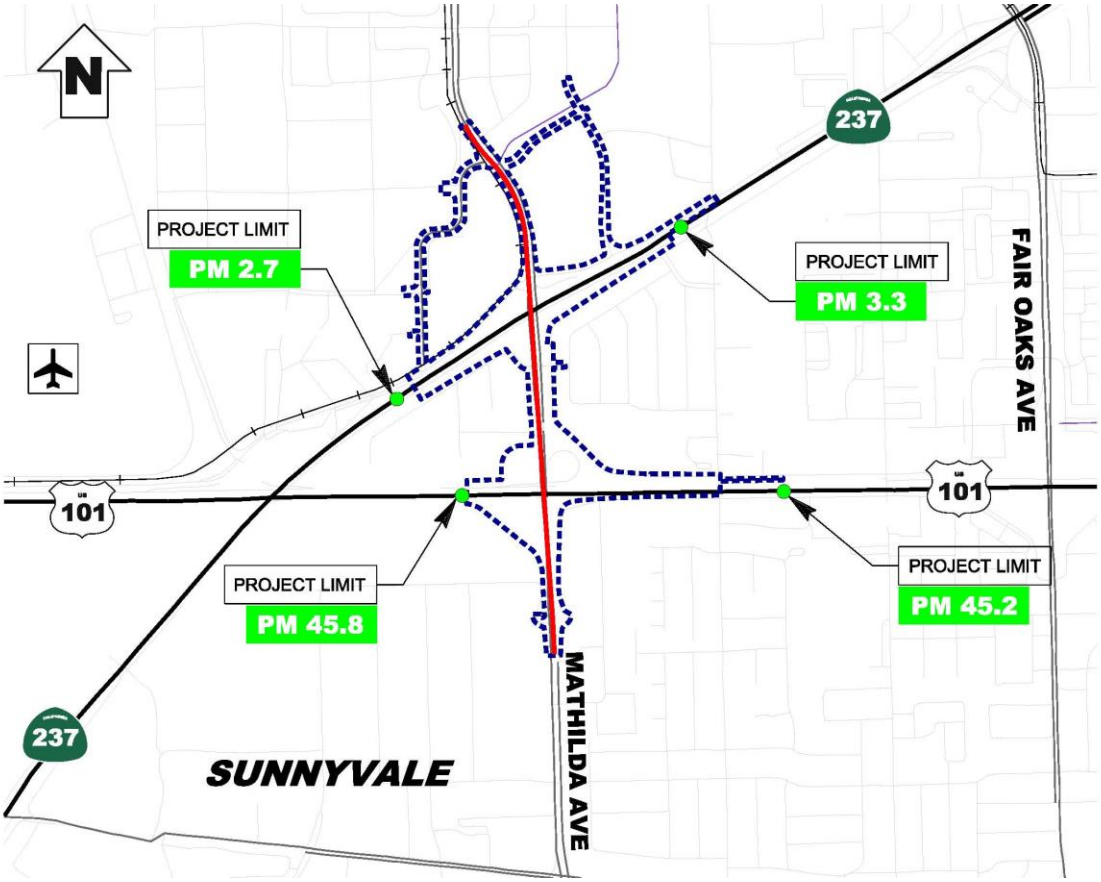
Air Quality Study Report	ICF International
Historic Resources Compliance Report/ Archaeological Survey Report	ICF International
Community Impact Assessment	ICF International
Initial Site Assessment	BASELINE Environmental Consulting
Natural Environment Study – Minimal Impacts	ICF International
Noise Study Report	ICF International
Paleontological Identification Report	ICF International
Preliminary Geological Assessment	BASELINE Environmental Consulting
Summary of Floodplain Encroachment Traffic	WRECO
Operations Assessment Report	Fehr and Peers
Visual Impact Assessment (Minor)	ICF International
Water Quality Assessment Report	WRECO
Wetland Assessment Technical Memorandum	ICF International

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

Air Quality Study Report

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:

ICF International

Dated: May 2016

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Air Quality Study Report

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT

on Mathilda Avenue from Almanor Avenue to Innovation Way; on SR 237 from 0.3 mile south of US 101/SR 237 Junction to 0.3 mile east of Mathilda Avenue Undercrossing; and on US 101 from 0.3 mile south of Mathilda Avenue to SR 237/US 101/SR 237 Junction in the City of Sunnyvale, Santa Clara County

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

May 2016

U.S. DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA
and
Cooperating Agency: Santa Clara Valley Transportation Authority

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Statement of Compliance: Produced in compliance with California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this project.

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List of Acronyms and Abbreviations

AADT	annual average daily traffic
AB	Assembly Bill
ARB	California Air Resources Board
BAAQMD	Bay Area Air Quality Management District
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
California CAA	California Clean Air Act
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH4	methane
CO	carbon monoxide
EIR	Environmental Impact Report
EO	Executive Order
EPA	U.S Environmental Protection Agency
FCAA	Federal Clean Air Act
FHWA	Federal Highway Administration
FTIP	Federal Transportation Improvement Program
General Plan	City of Sunnyvale's General Plan
GHG	greenhouse gas
HOV	high-occupancy vehicle
H2S	hydrogen sulfide
I-880	Interstate 880
LOS	level of service
mph	miles per hour
MPO	Metropolitan Planning Organization
MSAT	mobile source air toxics
MTC	Metropolitan Transportation Commission
N2O	nitrous oxide
NAAQs	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NO2	nitrogen dioxide
NOX	oxides of nitrogen
O3	ozone
Pb	lead
PG&E	Pacific Gas & Electric
PM	post mile or Particulate Matter (depending on context)
POAQC	Projects of Air Quality Concern
ppm	parts per million
Project	Mathilda Avenue Improvements at SR 237 and US 101 Project
ROG	reactive organic gases
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SIP	State Implementation Plan
SO2	sulfur dioxide

SOX	sulfur oxide
SR 237	State Route 237
US 101	U.S. Highway 101
VMT	vehicle miles traveled
VTA	Santa Clara Valley Transportation Authority

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Chapter 1 – Executive Summary

1.1 Purpose of the Air Quality Study Report

This report was prepared for the Mathilda Avenue Improvements at SR 237 and US 101 Project. The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue/Ahwanee Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 mile east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.5 mile south of the Mathilda Avenue overcrossing (PM 45.2) to 0.3 mile south of the SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately one mile.

This report is intended to support the preparation of California Environmental Quality Act (CEQA) documentation for Caltrans. Caltrans is the CEQA lead agency for the Project. This report also supports efforts to obtain agreements, permits, and concurrence needed to construct the Project. This report evaluates the effects of the project on air quality resources and climate change, based on system-wide measures of effectiveness and intersection traffic volumes under existing (2013), opening year (2018), and design year (2040) conditions as reported in the *Traffic Analysis Operations Report: Mathilda Avenue Improvements between SR 237 and US 101 Project* (Fehr & Peers 2016a).

Three alternatives, including the No-Build Alternative, are analyzed in this document. The design features for the two Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges with Mathilda Avenue. This includes modification to on- and off-ramps; removal, addition, and signalization of intersections; and provision of new left-turn lanes. In addition, the Build Alternatives would require modification to bicycle and pedestrian facilities, utilities, storm water treatment facilities, street lighting, ramp metering, signage, retaining walls, and light rail crossing facilities. The Project is found in the 2013 Regional Transportation Plan (RTP) titled *Plan Bay Area* (2040 RTP) (Metropolitan Transportation Commission 2014). Engineering for the Project is programmed in the Metropolitan Transportation Commission (MTC) financially constrained 2015 Transportation Improvement Program (TIP).

1.2 Scope and Content of the Report

This report describes the Project's regulatory and environmental setting, the environmental consequences of the Project, and measures to avoid, minimize, or mitigate adverse impacts of the Project on air quality resources. This report is organized as described here.

- Chapter 1, *Introduction*, introduces the report and describes the purpose, scope, and content of the report, as well as provides a summary of the Project impacts; avoidance, minimization and/or mitigation measures; and significance conclusions that are discussed later in the report.
- Chapter 2, *Project Description*, describes the Project's characteristics, including location, purpose, need, and the alternatives associated with the Project.

- Chapter 3, *Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures*, describes the regulatory and physical setting, discloses the environmental effects of the alternatives and the methods used to evaluate them, and identifies measures to avoid, minimize, and/or mitigate adverse effects associated with the alternatives.
- Chapter 4, *References Cited*, describes the printed references and personal communications used to prepare this report.

1.3 Summary

Table 1-1 provides a summary of the impacts, significance conclusions, and avoidance, minimization, and/or mitigation measures discussed in this report.

Table 1-1. Summary of Analysis, Conclusions, and Avoidance, Minimization, and/or Mitigation Measures Associated with the Project

Analysis	Conclusions	Avoidance, Minimization, and/or Mitigation Measures
Conformity of the Regional Transportation Plan with the State Implementation Plan	The Project is listed in the conforming 2015 Transportation Improvement Program and the 2040 Regional Transportation Plan/Sustainable Communities Strategy.	None Required
Potential Violations of Carbon Monoxide (CO) California Ambient Air Quality Standards (CAAQS)	The Build Alternatives are not anticipated to exceed 1- or 8-hour CO CAAQS under 2018 or 2040 conditions.	None Required
Potential Violations of particulate matter (PM) 10 and PM2.5 CAAQS	Santa Clara County is currently classified as a nonattainment area with regards to the PM10 and PM2.5 CAAQS. However, due to no increase in truck percentages between the No Build and Build Alternatives, as well a total decrease in delay during both AM and PM peak hours, the Project does not meet the criteria for how a Project of Air Quality Concern is defined under the FCAA.	None Required
Potential for Generation of Mobile Source Air Toxics (MSAT) Emissions	The Build Alternatives associated with this Project would result in a decrease in traffic volumes when compared to No Build conditions and would not result in increases in any MSAT emissions under either Build Alternative for 2018 or 2040 conditions when compared to the No Build Alternative. Thus based on Federal Highway Association's 2012 MSAT guidance, this Project is considered to have No Meaningful Potential MSAT Effects, and a quantitative analysis of MSAT emissions is not required.	None Required

Analysis	Conclusions	Avoidance, Minimization, and/or Mitigation Measures
Generation of Operation-Related Emissions of reactive organic gases (ROG), oxides of nitrogen (NO_X), CO, PM10, and PM2.5.	Both Build Alternatives would result in decreases in ROG, NO_X, CO, PM10, and PM2.5 between existing (2013) and opening (2018) year conditions. Both Build Alternatives would result in decreases in ROG, NO_X, CO, and PM2.5, with an increase in PM10 emissions, between existing (2013) and design (2040) year conditions. Compared to No Build conditions in 2018, Build Alternative 1 shows a decrease in all pollutants, except for no change in ROG emissions. Build Alternative 2 would result in a slight increase in ROG emissions, no change in PM2.5 emissions, and decreases in NOx, CO, and PM10 emissions. Compared to No Build conditions in 2040, Build Alternative 1 shows a decrease in all pollutants while Alternative 2 would result in a slight increase in NO_X emissions, no change in ROG emissions, and decreases in CO, PM10, and PM2.5 emissions.	None Required
Potential Temporary Increase in ROG, NO_X, CO, PM 10, and PM2.5 Emissions during Grading and Construction Activities	The Project would result in temporary increases in ROG, NO_X, CO, PM10, and PM2.5 during construction.	Addressed by construction-related air pollution and dust control measures in Caltrans Standard Specifications Section 14 and BAAQMD Feasible Control Measures for Construction Emissions of Particulate Matter.
Potential for Generation of Greenhouse Gas (GHG) Emissions	The Project would result in minor increases in GHG emissions during construction but decreases in GHG emissions during long-term operation. Operational emissions decreases are a result of more fuel efficient vehicles in future years as well as an increase in VMT in more fuel efficient speed bins in future years as a result of the Project.	None Required

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Chapter 2 – Project Description

2.1 Introduction

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale (City), is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue/Ahwanee Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 mile east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.5 mile south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 mile south of SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately 1 mile. **Figure 1** shows the location of the Project.

The Project is subject to state environmental review requirements and is being prepared in compliance with the California Environmental Quality Act (CEQA). Caltrans is the lead agency under CEQA. The Project is included in the 2015 Federal Statewide Transportation Improvement Program (ID No. SCL130001). The Project is included in the Metropolitan Transportation Commission (MTC) *Plan Bay Area*, adopted July 18, 2013 (Project No. 240554). The Project is also identified in the VTA's Valley Transportation Plan 2040 under ID H43 and in the City of Sunnyvale's Capital Improvement Program for Fiscal Year 2013/2014 as Project No. 826890.

The City has committed local funding to the development of the Project. Other funding sources have yet to be determined, but may include a combination of state and/or local transportation funds.

2.2 Project Background

The State Route 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges are primary access points on the state highway system for the City of Sunnyvale and important local destinations, such as downtown Sunnyvale, the Sunnyvale Caltrain station to the south, and an expanding high-tech business district to the north. The Project is also located within the "Golden Triangle," an area bordered by US 101, SR 237, and Interstate 880 (I-880) that includes parts of Sunnyvale, Santa Clara, North San Jose, and Milpitas. The Golden Triangle is named for the high concentration of employment centers within this area. US 101, SR 237, and I-880 are heavily used commute corridors to destinations within and beyond the Golden Triangle.

2.2.1 Mathilda Avenue

Within the Project area, Mathilda Avenue is a six-lane divided local roadway. Mathilda Avenue serves as the main access route to residential communities on the east side of Mathilda Avenue and is the only access route to the landlocked area within the US 101/SR 237/Mathilda Avenue triangle via Ross Drive. Mathilda Avenue is also one of City of Sunnyvale's designated truck routes for trucks that weigh more than 3 tons. The speed limit is 45 miles per hour (mph). On-street parking is prohibited within the Project area. Approximately 45,000 vehicles travel on Mathilda Avenue south of SR 237 on an average weekday.

2.2.2 SR 237

SR 237 (Calaveras Boulevard) east of I-880 is primarily a six-lane divided roadway. Within the Project area, SR 237 provides two mixed-flow lanes in each direction. On eastbound SR 237, a high-occupancy vehicle (HOV) lane is provided east of Mathilda Avenue, which becomes an HOV/express lane from east of Zanker Road to the eastbound SR 237/northbound I-880 direct connector ramp. On westbound SR 237, an HOV/express lane that begins at the southbound I-880/westbound SR 237 direct connector ramp becomes an HOV lane from North First Street to just east of Fair Oaks Avenue. Within the Project area, auxiliary lanes are provided in each direction between US 101 and Mathilda Avenue on SR 237. There is also an auxiliary lane on westbound SR 237 between Fair Oaks Avenue and Mathilda Avenue. SR 237 is a link for trucking between the southern part of the San Francisco Peninsula and the East Bay, providing the first connection south of the Dumbarton Bridge. SR 237 east of Mathilda Avenue currently carries approximately 90,000 vehicles daily.

The SR 237/Mathilda Avenue interchange is a full "tight" diamond interchange that accommodates all ramp movements, with access to and from east and westbound SR 237. All ramp termini are signalized. The westbound SR 237 on-ramp has existing ramp metering equipment installed; however, there is no existing ramp metering equipment installed for the eastbound SR 237 on-ramp.

2.2.3 US 101

Within the Project area, US 101 provides three mixed-flow lanes plus one HOV lane in each direction, while an auxiliary lane is also provided in the southbound direction between SR 237 and Mathilda Avenue. US 101 south of Mathilda Avenue currently carries approximately 154,000 vehicles daily.

The Moffett Park Drive/US 101 northbound on-ramp is a one-lane on-ramp, located along Moffett Park Drive west of the Mathilda Avenue/Moffett Park Drive intersection. This on-ramp merges with the westbound SR 237 off-ramp that connects to northbound US 101. The ramp terminus is signalized, and the on-ramp is not metered.

The US 101/Mathilda Avenue interchange is a partial cloverleaf interchange with access to all but two movements: southbound Mathilda Avenue to northbound US 101 and southbound US 101 to northbound Mathilda Avenue. None of the ramp termini are signalized; however, all of the on-ramps are metered.

2.2.4 Transit Facilities in the Project Area

Two VTA light rail transit stations, Moffett Park and Lockheed Martin, are located within the Project area and serve the business district north of SR 237. VTA also operates a local bus service with four bus stops on Mathilda Avenue. The Sunnyvale Caltrain Station is located in downtown Sunnyvale, adjacent to West Evelyn Avenue. These transit facilities serve passengers who would otherwise use the local roadways and state highway system for commuting purposes.

2.3 Project Purpose and Need

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Due to the close proximity of the SR 237 and US 101 interchanges (less than 1 mile), modification of one interchange would affect the other.

Specifically, the purposes of the Project are to:

- Reduce congestion and improve traffic operations along Mathilda Avenue and at the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges.
- Improve mobility for all travel modes in the area, including motor vehicles, transit, bicycles, and pedestrians.
- Provide standard crosswalks and sidewalks along Mathilda Avenue, improving access to local destinations such as Moffett Park, the VTA light rail transit stations, and downtown Sunnyvale.

The Project is needed for the following reasons:

- Regional growth and new local development, combined with inefficient roadway operations, have resulted in substantial traffic congestion on Mathilda Avenue.
- Efficient access for all travel modes into and out of downtown Sunnyvale and development to the north of SR 237 is critical to a healthy and sustainable economy. Congestion on Mathilda Avenue adversely affects the economic vitality of the City of Sunnyvale.

Overall, the Project is needed to address several issues in the Project area, including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, improvement of local roadway and freeway ramp operations, and provision of access to current and future economic development.

2.4 Project Alternatives

The Project alternatives that were developed to meet the purpose and need of the Project include Alternative 1, Alternative 2, and the No-Build Alternative (refer to **Figures 2a** and **2b**). The Build Alternatives would provide for all turning movements on Mathilda Avenue at the US 101 and SR 237 interchanges. No new freeway connections are proposed. No modifications to existing structures are required to accommodate the Project improvements. Under the No-Build Alternative, no changes would be made to the existing local roadway or freeway ramps within the Project limits. No construction activities would occur, and there would be no change in the operation of existing facilities.

The design features of the two Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges at Mathilda Avenue. The Build Alternatives include design variations for reconfigured roadways and intersections as well as the construction of new signalized intersections. Proposed improvements included in both Build Alternatives south of Ross Drive along Mathilda Avenue and at the US 101 interchange are identical. These improvements include new bicycle and pedestrian facilities, utility relocations, new storm water treatment facilities, enhanced lighting, ramp metering modifications, overhead signage modifications, and a new retaining wall. In addition to the improvements listed above, Build Alternative 2 includes a diverging diamond interchange[1] design north of Ross Drive on Mathilda Avenue (**Figure 3**).

[1] A diverging diamond interchange, also called a double crossover diamond interchange, is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (a signal phase allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

2.4.1 Roadway Improvements

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction on Mathilda Avenue.
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp.
- Realign and widen northbound US 101 ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp.
- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue.
- Modify Mathilda Avenue/Ross Drive signal intersection.
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.[2]
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection.
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration.
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration (see **Figure 2b** and **Figure 3**). Eastbound Moffett Park Drive between Innovation Way and Mathilda Avenue would be diverted to Innovation Way to access Mathilda Avenue.

2.4.2 Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consist of both Class II and Class III bikeways[3], based on available pavement widths within the Project limits, and connect to the existing Class III bikeway north of Innovation Way and the Class I bikeway adjacent to the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered, based on available pavement widths within the Project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the Project limits, with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

2.4.3 Utility Relocations

The Build Alternatives would include utility relocations, as necessary, to construct the above-described improvements. Build Alternative 1 would require relocation of Verizon telecommunication

[2] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place development project.

[3] Class I bikeway is a bicycle path (completely separate from the roadway). Class II bikeway is a bicycle lane (buffered from roadway). Class III bikeway is bicycle route (“sharrow”) [Source: Highway Design Manual Index 1002.1]

lines and relocation of a City 8-inch recycled water line along the current alignment of Moffett Park Drive east of Mathilda Avenue. Build Alternative 2 would require relocation of a 6-inch PG&E underground gas line and a 12 kilovolt PG&E underground electrical line along the current alignment of Moffett Park Drive west of Mathilda Avenue. Both Build Alternatives could require adjustments to three PG&E electrical pole wires to accommodate ramp modifications at the Mathilda Avenue/US 101 interchange. Utility covers would be adjusted to grade in areas of pavement rehabilitation.

2.4.4 Storm Water Treatment

The proposed interchange ramp modifications are expected to result in the fill or removal of existing ditches, modification or relocation of existing longitudinal drainage structures, and construction of new drainage structures. The Build Alternative's drainage design would maintain existing drainage patterns; however, during construction, temporary drainage facilities may be required to redirect runoff from construction areas.

The storm water treatment facilities for both Build Alternatives may include biofiltration strips, biofiltration swales, bioretention basins, and/or detention basins within the state right-of-way near the on- and off-ramps and within City of Sunnyvale right-of-way along the roadway.

2.4.5 Enhanced Lighting

The Build Alternatives would both provide enhanced lighting to improve roadway visibility for drivers during nighttime hours. Overhead lighting would be maintained or installed at all ramps. The lights would either be supported on a cast-in-drilled-hole pile, with a typical diameter of 2.5 feet and depth of 5 feet, or mounted on a structure above grade.

2.4.6 Ramp Metering

Ramp metering facilities already exist at the northbound US 101 loop on-ramp, southbound US 101 ramps, and westbound SR 237 on-ramp. Because these ramps would be modified and realigned under both Build Alternatives, the affected ramp metering equipment would also be modified.

2.4.7 Overhead Signage

Updated overhead signs in each direction on SR 237 and US 101 would inform motorists of the approaching on- and off- ramps associated with the Project. The overhead sign structure mounted to the Mathilda Avenue overcrossing on northbound US 101 would be removed because it applies to the existing loop off-ramp, which is being relocated and integrated as both a west and east Mathilda Avenue access route from northbound US 101. The northbound US 101 off-ramp sign would be impacted by the off-ramp widening; therefore, it would be removed and replaced just south of the Borregas Bicycle/Pedestrian Overcrossing.

2.4.8 Light Rail Facilities

VTA light rail transit facilities that cross the Moffett Park Drive/Innovation Way and Mathilda Avenue/Innovation Way intersections would be coordinated with traffic signal modifications, which would be location specific. The final locations for new traffic signals would be determined during subsequent design phases.

2.4.9 Retaining Walls and Sound Barriers

The Project would require construction of three retaining walls to minimize the amount of earthwork and right-of-way acquisitions required. The location of proposed retaining walls are at the southbound US 101 diagonal off-ramp/southbound US 101 loop on-ramp, the northbound US 101 off-ramp/northbound US 101 loop on-ramp, and along the west side of Mathilda Avenue. Retaining walls will be aesthetically treated to blend into the surrounding environment and match nearby adjacent walls.

To accommodate proposed realignment and widening of the northbound US 101 off-ramp to Mathilda Avenue, the Project would remove and replace approximately 1,000 feet of the existing 10-foot high noise barrier adjacent to the ramp and West Weddell Drive. The replacement wall would be supported on a retaining wall and located at the widened edge of pavement. Noise barriers will be textured and/ or stained to blend into the surrounding environment, match nearby adjacent walls, and reduce glare and potential for graffiti.

2.4.10 Construction and Staging Areas

Construction of either of the Build Alternatives would take approximately 1 year. A combination of day and night work is anticipated. Weekend work is not anticipated. Short-term lane and ramp closures would be necessary to facilitate construction. Prior to construction, a Traffic Management Plan would be prepared to minimize or prevent delay and inconvenience to the traveling public. The Traffic Management Plan would address all traffic-related aspects of construction, pedestrian access and safety, and bicycle access and safety. Staging/laydown areas for equipment and materials would be needed during Project construction. Construction staging areas would be located within the state right-of-way adjacent to Mathilda Avenue. Potential locations are shown on **Figure 4** and include:

- Within the northbound US 101 loop off-ramp
- Between the northbound US 101 diagonal off-ramp and northbound loop on-ramp
- Within the southbound US 101 loop on-ramp
- Between the southbound US 101 loop on-ramp and diagonal off-ramp
- Between the westbound SR 237 ramps and Moffett Park Drive

Chapter 3 – Affected Environment

3.1 Physical Setting

Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. The following discussion describes relevant characteristics of the air basin and offers an overview of conditions affecting pollutant ambient air concentrations in the basin.

3.1.1 Climate and Topography

The Project lies within the Santa Clara Valley region of the San Francisco Bay Area Air Basin. The northwest-southeast oriented Santa Clara Valley is bounded by the Santa Cruz Mountains to the west, the Diablo Range to the east, the San Francisco Bay to the north and the convergence of the Gabilan Range and the Diablo Range to the south. Temperatures are warm in summer, under mostly clear skies, although a relatively large diurnal range results in cool nights. Winter temperatures are mild, except for very cool but generally frostless mornings. At the northern end of the Santa Clara Valley, the San Jose Airport mean maximum temperatures range from the high 70s to the low 80s Fahrenheit during the summer to the high 50s to the low 60s during the winter, and mean minimum temperatures range from the high 50s during the summer to the low 40s during the winter. Further inland where the moderating effect of the Bay is not as strong, temperature extremes are greater. Rainfall amounts are modest, ranging from 13 inches in the lowlands to 20 inches in the hills.

Figure 5 indicates the predominant wind direction in the region based on meteorological data from Moffett Federal Airfield in Sunnyvale, about one mile west of the Project (California Air Resources Board 2015). The center of Figure 5 denotes the weather station at Moffett Federal Airfield. The wind patterns in the Valley are influenced greatly by the terrain, resulting in a prevailing flow roughly parallel to the Valley's northwest-southeast axis with a north-northwesterly sea breeze extending up the valley during the afternoon and early evening and a light south-southeasterly drainage flow occurring during the late evening and early morning. In summer a convergence zone is sometimes observed in the southern end of the Valley between Gilroy and Morgan Hill, when air flowing from the Monterey Bay through the Pajaro Gap gets channeled northward into the south end of the Santa Clara Valley and meets with the prevailing north-northwesterlies. Speeds are greatest in the spring and summer, and least in the fall and winter seasons. Nighttime and early morning hours have light winds and are frequently calm in all seasons, while summer afternoon and evenings are quite breezy. Strong winds are rare, coming only with an occasional winter storm.

The air pollution potential of the Santa Clara Valley is high. The valley has a large population and the largest complex of mobile sources in the Bay Area making it a major source of carbon monoxide (CO), particulate, and photochemical air pollution. In addition, photochemical precursors from San Francisco, San Mateo, and Alameda counties can be carried along by the prevailing winds to the Santa Clara Valley, making it also a major ozone receptor. Geographically, the valley tends to channel pollutants to the southeast with its northwest/southeast orientation, and concentrate pollutants by its narrowing to the southeast. Meteorologically, on high-ozone low-inversion summer days, the pollutants can be recirculated by the prevailing northwesterlies in the afternoon and the light drainage flow in the late evening and early morning, increasing the impact of emissions significantly. On high particulate and CO days during late fall and winter, clear, calm, and cold conditions associated with a strong surface-based temperature inversion prevail.

3.2 Regulatory Setting

The Project is located in the Santa Clara County portion of the Bay Area Air Quality Management District (BAAQMD). The BAAQMD has jurisdiction over air quality issues in the seven Bay Area counties—Alameda, Contra Costa, Marin, San Francisco, San Mateo, Santa Clara, and Napa—and portions of southwestern Solano and southern Sonoma counties. The BAAQMD administers air quality regulations developed at the federal, state, and local levels. Federal, state, and local air quality regulations applicable to the Build Alternatives are described below.

3.2.1 Federal Air Quality Standards

The Federal Clean Air Act (FCAA), as amended in 1990, is the federal law that governs air quality. The California Clean Air Act (California CAA) of 1988 is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB), set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). At the state level, these standards are called California Ambient Air Quality Standards (CAAQS). NAAQS and CAAQS ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: CO, nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller [PM10] and particles of 2.5 micrometers and smaller [PM2.5]), lead (Pb), and sulfur dioxide (SO_2). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and CAAQS are set at a level that protects public health with a margin of safety and are subject to periodic review and revision. The NAAQS and CAAQS are listed together in Table 3-1. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and state air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA) and CEQA. In addition to this type of environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

Table 3-1. National and California Ambient Air Quality Standards Applicable in California

			Standard (ppm)		Standard (µg/m^3)		Violation Criteria	
Pollutant	**Symbol**	**Average Time**	**California**	**National**	**California**	**National**	**California**	**National**
Ozone	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.070	137	137	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual arithmetic mean	0.030	0.053	57	100	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.18	0.100	339	188	If exceeded	NA
Sulfur dioxide	SO_2	Annual arithmetic mean	NA	0.030	NA	NA	NA	If exceeded
		24 hours	0.04	0.14	105	NA	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	75	655	196	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable Particulate Matter (PM)	PM10	Annual arithmetic mean	NA	NA	20	NA	If exceeded	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual arithmetic mean	NA	NA	12	12.0	If exceeded	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	35	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded

Pollutant	Symbol	Average Time	Standard (ppm)		Standard (µg/m^3)		Violation Criteria	
			California	National	California	National	California	National
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded on more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA
		Rolling 3-month average	NA	NA	NA	0.15	If equaled or exceeded	Averaged over a rolling 3-month period

Source: California Air Resources Board 2015

Notes: All standards are based on measurements at 25ºC and 1 atmosphere pressure; national standards shown are the primary (health effects) standards; ppm = parts per million; µg/m3 = micrograms per cubic meter; NA = not applicable.

3.2.2 FCAA Conformity Requirements for Transportation

FCAA Section 176(c) prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of FCAA requirements related to the NAAQS. The Transportation Conformity Act takes place on two levels: the regional, or planning and programming, level, and the project level. A project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and maintenance (former non-attainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 CFR 93 govern the conformity process.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the standards set for CO, NO_2, ozone, and particulate matter (PM10 and PM2.5), and in some areas sulfur dioxide (SO_2). California is nonattainment or maintenance for all of these transportation-related criteria pollutants except SO_2, and also has a nonattainment area for lead. However, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all of the transportation projects planned for a region over a period of at least 20 years for the RTP and 4 years for the FTIP. RTP and FTIP conformity is based on use of travel demand and air quality models to determine whether or not implementation of those projects would conform to emission budgets or other tests showing that requirements of the FCAA and SIP are met. If the Metropolitan Planning Organization (MPO) and the Federal Highway Administration (FHWA) make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design, concept, scope, and open to traffic schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires hot-spot analysis if an area is nonattainment or maintenance for CO and/or particulate matter (PM10 and PM2.5). A region is nonattainment if one or more monitoring stations in the region measures violation of the relevant standard, and the EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by the EPA, and are then called maintenance areas. Conformity does include some specific procedural and documentation standards for projects that require a hot-spot analysis. In general, projects must not cause the hot-spot-related CO standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

The concept of transportation conformity was introduced in the FCAA 1977 amendments. Transportation conformity requires that no federal dollars be used to fund a transportation project unless it can be clearly demonstrated that the project would not cause or contribute to violations of the NAAQS. Conformity requirements were made substantially more rigorous in the 1990 CAAA, and the transportation conformity regulation that details implementation of the new requirements was issued in November 1993.

The U.S. Department of Transportation and EPA developed guidance for determining conformity of transportation plans, programs, and projects in November 1993 in the Transportation Conformity Rule (*40 Code of Federal Regulations* [*CFR] 51* and *40 CFR 93*). The demonstration of conformity to the SIP is the responsibility of the local MPO, which is also responsible for preparing RTPs and associated demonstration of SIP conformity. Section 93.114 of the Transportation Conformity Rule, states that "there must be a currently conforming regional transportation plan and transportation improvement plan at the time of project approval."

MTC is the designated federal MPO and state regional transportation planning agency for Santa Clara County. As such, the MTC coordinates the region's major transportation projects and programs, and promotes regionalism in transportation investment decisions.

The RTP and FTIP list projects whose emissions are within the budget planned in the SIP, with the goal of attaining NAAQS. The FTIP is also in accord with the EPA's Transportation Conformity Rule as it pertains to attainment of air quality standards in the BAAQMD. The federally required RTP and FTIP are comprehensive listings of all transportation projects that receive federal funds or that are subject to a federally required action, such as a review for impacts on air quality.

The FTIP sets forth the MTC's investment priorities for transit and transit-related improvements, highways, roadways, and other surface transportation improvements in the Santa Clara County region. The MTC prepares and adopts the FTIP every two years. In addition to (1) demonstrating that a project has been identified in an approved RTP or FTIP and incorporated in an EPA-approved SIP or (2) demonstrating that a project is exempt from conformity requirements, agencies constructing transportation projects must demonstrate that they do not exacerbate an existing NAAQS violation or create a new exceedance.

The Project is proposed to be partially funded by the City of Sunnyvale and other local sources. The Project is found in the 2013 RTP titled *Plan Bay Area* (2040 RTP), Online Project Database as Project ID 240443 (Metropolitan Transportation Commission 2014). The FHWA and Federal Transit Administration found the 2040 RTP to be in conformity with the SIP on July 18, 2013. The Project is also included in MTC's financially constrained 2015 Transportation Improvement Program (TIP) as TIP ID SCL130001. The TIP has been updated to be consistent with the RTP as part of the 2015 TIP process. Considering that MTC is only required to adopt a new TIP once every four years, and the 2013 TIP was approved by FHWA and Federal Transit Administration on August 12, 2013, MTC performed a simple update of the 2013 TIP to incorporate MTC's TIP into the FTIP. The four-year time period of the 2015 TIP (Fiscal Year [FY] 2014-15 through FY 2017–18) is within the six-year time period (FY 2012–13 through FY 2017–18) previously adopted by MTC for the 2013 TIP. Since the 2015 TIP period is entirely contained within the period previously approved by MTC, there are few projects being added that have not previously received a TIP action. The 2015 TIP is simply updating the project costs, scopes, and schedules, and identifying two years of project funding (FY 2012–13 and 2013–14) as prior years, with corresponding updates to other elements of the TIP. The design concept and scope of either Build Alternative is consistent with the project description in the 2040 RTP and the 2015 TIP, and the assumptions in MTC's regional emissions analysis.

The design concept and scope of the Mathilda Avenue Improvements Project is consistent with the project description in the most recent 2040 RTP and the 2015 TIP. The design concept and scope of the Project are consistent with the project listings in the 2040 RTP and 2015 TIP and would not interfere with timely implementation of Transportation Control Measures.

Attainment Status

The EPA has classified all of Santa Clara County as being a marginal nonattainment area for 8-hour ozone NAAQS and nonattainment for PM2.5, as shown in Table 3-2. For CO NAAQS, the EPA has classified Santa Clara County as a moderate maintenance area (≤ 12.7 parts per million [ppm]) (U.S. Environmental Protection Agency 2015). For PM10 NAAQS the EPA has designated Santa Clara County as an unclassified area.

Table 3-2. Attainment Status of Santa Clara County

	Attainment Status	
Pollutant	**State**	**Federal**
8-hour Ozone	Nonattainment	Marginal Nonattainment
Carbon Monoxide	Attainment	Moderate Maintenance
Particulate Matter (PM)10	Nonattainment	Unclassified
PM2.5	Nonattainment	Nonattainment

3.2.3 State Air Quality Standards

Responsibility for achieving CAAQS (see Table 3-1), which, for certain pollutants and averaging periods, are more stringent than federal standards, is placed on the California Air Resources Board (ARB) and local air pollution control districts. State standards are achieved through district-level air quality management plans that are incorporated into the SIP.

ARB traditionally has established state air quality standards, maintained oversight authority in air quality planning, developed programs for reducing emissions from motor vehicles, developed air emission inventories, collected air quality and meteorological data, and approved SIPs. Responsibilities of air districts include overseeing stationary source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required under CEQA.

The California CAA of 1988 substantially added to the authority and responsibilities of air districts. The California CAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement Transportation Control Measures.

The California CAA focuses on attainment of the CAAQS and requires designation of attainment and nonattainment areas with respect to these standards. The act also requires that local and regional air districts expeditiously adopt and prepare an air quality attainment plan (Clean Air Plan) if the district violates state air quality standards for ozone, CO, SO_2, or NO_2. These plans are specifically designed to attain state standards and must be designed to achieve an annual 5 percent reduction in district-wide emissions of each nonattainment pollutant or its precursors. No locally prepared attainment plans are required for areas that violate the state PM10 standards; ARB is responsible for developing plans and projects that achieve compliance with the state PM10 standards.

ARB has classified Santa Clara County as a nonattainment area for 1- and 8-hour ozone, PM10, and PM2.5 CAAQS, as shown in Table 3-2 (California Air Resources Board 2014). For CO CAAQS, ARB has classified Santa Clara County as an attainment area.

The California CAA requires that the CAAQS be met as expeditiously as practicable, but, unlike the FCAA, does not set precise attainment deadlines. Instead, the act establishes increasingly stringent requirements for areas that will require more time to achieve the standards.

The California CAA emphasizes the control of "indirect and area-wide sources" of air pollutant emissions. The act gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish Transportation Control Measures. The California CAA does not define the terms *indirect sources* and *area-wide sources*. However, Section 110 of the FCAA defines an indirect source as

> a facility, building, structure, installation, real property, road, or highway which attracts, or may attract, mobile sources of pollution. Such term includes parking lots, parking garages, and other facilities subject to any measure for management of parking supply….

Transportation Control Measures are defined in the California CAA as "any strategy to reduce trips, vehicle use, vehicle miles traveled, vehicle idling, or traffic congestion for the purpose of reducing vehicle emissions."

3.2.4 Climate Change Regulatory Requirements

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gases (GHGs), particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change by the United Nations and World Meteorological Organization's in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs related to human activity that include carbon dioxide (CO_2), methane, nitrous oxide, tetrafluoromethane, hexafluoroethane, sulfur hexafluoride, HFC-23 (fluoroform), HFC-134a (1, 1, 1, 2 –tetrafluoroethane), and HFC-152a (difluoroethane).

There are typically two terms used when discussing the impacts of climate change. "Greenhouse Gas (GHG) Mitigation" is a term for reducing GHG emissions in order to reduce or "mitigate" the impacts of climate change. "Adaptation," refers to the effort of planning for and adapting to impacts due to climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels).[4]

Transportation sources (passenger cars, light duty trucks, other trucks, buses, and motorcycles) in the state of California make up the largest source (second to electricity generation) of GHG emitting sources. Conversely, the main source of GHG emissions in the United States is electricity generation followed by transportation. The dominant GHG emitted is CO_2, mostly from fossil fuel combustion.

[4] http://climatechange.transportation.org/ghg_mitigation/

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improve system and operation efficiencies, 2) reduce growth of vehicle miles traveled (VMT), 3) transition to lower GHG fuels, and 4) improve vehicle technologies. To be most effective, all four should be pursued collectively.[5] The following regulatory setting section outlines state and federal efforts to comprehensively reduce GHG emissions from transportation sources.

State

With the passage of several pieces of legislation including State Senate and Assembly Bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change at the state level.

Assembly Bill (AB) 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases (AB 1493), 2002: requires the ARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the EPA Administrator granted a CAA waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017–2025.

Executive Order (EO) S-3-05: signed on June 1, 2005, by Governor Arnold Schwarzenegger, the goal of this EO is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020, and 3) 80 percent below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of AB 32.

AB32 (AB 32), the Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." EO S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

EO S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency and state agencies with regard to climate change.

EO S-01-07: Governor Schwarzenegger set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill (SB) 97 (Chapter 185, 2007): required the Governor's Office of Planning and Research to develop recommended amendments to the State of California Environmental Quality Act Guidelines for addressing GHG emissions. The Amendments became effective on March 18, 2010.

SB 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires ARB to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization for each region must then develop a Sustainable Communities Strategy that integrates transportation, land use, and housing policies to plan for the achievement of the emissions target for their region.

[5] http://www.fhwa.dot.gov/environment/climate_change/mitigation/

SB 391, Chapter 585, 2009 California Transportation Plan: This bill requires the state's long-range transportation plan to meet California's climate change goals under AB 32.

Federal

Although climate change and GHG reduction are a concern at the federal level, currently no regulations or legislation have been enacted specifically addressing GHG emissions reductions and climate change at the project level. Neither the EPA nor the FHWA has issued explicit guidance or methods to conduct project-level GHG analysis.[6] FHWA supports the approach that climate change considerations should be integrated throughout the transportation decision-making process, from planning through project development and delivery. Addressing climate change mitigation and adaptation up front in the planning process will assist in decision-making and improve efficiency at the program level, and will inform the analysis and stewardship needs of project-level decision-making. Climate change considerations can be integrated into many planning factors, such as supporting economic vitality and global efficiency, increasing safety and mobility, enhancing the environment, promoting energy conservation, and improving the quality of life.

The four strategies outlined by FHWA to lessen climate change impacts correlate with efforts that the state is undertaking to deal with transportation and climate change. These strategies include improved transportation system efficiency, cleaner fuels, cleaner vehicles, and a reduction in travel activity.

Climate change and its associated effects are being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514, *Federal Leadership in Environmental, Energy and Economic Performance*.

EO 13514 (October 5, 2009): This order is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

The EPA's authority to regulate GHG emissions stems from the U.S. Supreme Court decision in *Massachusetts v. EPA* (2007). The Supreme Court ruled that GHGs meet the definition of air pollutants under the existing FCAA and must be regulated if these gases could be reasonably anticipated to endanger public health or welfare. Responding to the Court's ruling, the EPA finalized an endangerment finding in December 2009. Based on scientific evidence, it found that six GHGs constitute a threat to public health and welfare. Thus, it is the Supreme Court's interpretation of the existing Act and the EPA's assessment of the scientific evidence that form the basis for the EPA's regulatory actions. The EPA, in conjunction with the National Highway Traffic Safety Administration issued the first of a series of GHG emission standards for new cars and light-duty vehicles in April 2010.[7]

The EPA and the National Highway Traffic Safety Administration are taking coordinated steps to enable the production of a new generation of clean vehicles with reduced GHG emissions and improved fuel efficiency from on-road vehicles and engines. These next steps include developing the first-ever GHG regulations for heavy-duty engines and vehicles, as well as additional light-duty vehicle GHG regulations.

[6] To date, no national standards have been established regarding mobile source GHGs, nor has the EPA established any ambient standards, criteria, or thresholds for GHGs resulting from mobile sources.
[7] http://www.c2es.org/federal/executive/epa/greenhouse-gas-regulation-faq

The final combined standards that made up the first phase of this national program apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012–2016. The standards implemented by this program are expected to reduce GHG emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012–2016).

On August 28, 2012, the EPA and the National Highway Traffic Safety Administration issued a joint Final Rulemaking to extend the National Program for fuel economy standards to model year 2017–2025 passenger vehicles. Over the lifetime of the model year 2017–2025 standards this program is projected to save approximately 2 billion metric tons of GHG emissions and 4 billion barrels of oil.

The complementary EPA and National Highway Traffic Safety Administration standards that make up the Heavy-Duty National Program apply to combination tractors (semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles (including buses and refuse or utility trucks). Together, these standards will cut GHG emissions and domestic oil use significantly. This program responds to President Barack Obama's 2010 request to jointly establish GHG emissions and fuel efficiency standards for the medium- and heavy-duty highway vehicle sector. The agencies estimate that the combined standards will reduce CO_2 emissions by about 270 million metric tons and save about 530 million barrels of oil over the life of model year 2014–2018 heavy-duty vehicles.

3.2.5 Existing Air Quality Conditions

Existing air quality conditions in the Project area can be characterized in terms of the ambient air quality standards that the federal and state governments have established for various pollutants (see Table 3-1) and by monitoring data collected in the region. The existing AQ environment can be characterized by monitoring data from the nearest representative monitoring station, which are run by the ARB, EPA, and BAAQMD. There are only 6 monitoring stations located within Santa Clara County, and the nearest stations were used to characterize the Project area. These stations are used by the ARB and EPA to determine whether the County and Air Basin meet state and federal AQ standards and to determine the region's attainment status related to these standards. Data from these monitoring stations must meet certain criteria in order to comply with and be used for these purposes. Monitoring data concentrations are typically expressed in terms of ppm or µg/m3. The nearest air quality monitoring station to the vicinity of the Project area is located in the City of Cupertino on Voss Avenue. This station is about 6.0 miles southwest of the Project site and monitored for all criteria pollutants until 2014, except for CO, which was monitored until 2013. The closest monitoring station that monitors for all criteria pollutants through the most current reporting year of 2014 is located in the City of San Jose on Jackson Street, about 7.5 miles southeast of the Project site. Table 3-3 summarizes air quality monitoring data from the Cupertino and San Jose monitoring stations during the last 3 years for which complete data are available (2012–2014).

Table 3-3 indicates that the San Jose monitoring station exceeded the state 1-hour ozone standard once in 2012 and the state and national 8-hour standards once for each standard during 2013. The Cupertino monitoring station also experienced an exceedance of the state and national 8-hour standard once during 2013. The San Jose station has exceeded the state PM10 standard and the federal PM2.5 standard in multiple instances for all reported years during the 3-year monitoring period, while no violations of the state or federal CO standards have occurred at these monitoring stations during this 3-year monitoring period.

Table 3-3. Ambient Air Quality Monitoring Data Measured at the Voss Avenue (Cupertino) and Jackson Street (San Jose) Monitoring Stations

Pollutant Standards	Cupertino			San Jose		
	2012	2013	2014	2012	2013	2014
1-Hour Ozone						
Maximum 1-hour concentration (ppm)	0.083	0.091	--	0.101	0.093	0.089
1-hour California designation value	0.13	0.09	--	0.09	0.09	0.09
1-hour expected peak day concentration	--	0.085	--	0.093	0.087	0.088
Number of days standard exceeded[a]						
CAAQS 1-hour (>0.09 ppm)	0	0	--	1	0	0
8-Hour Ozone						
National maximum 8-hour concentration (ppm)	0.066	0.077	--	0.062	0.079	0.066
National second-highest 8-hour concentration (ppm)	0.062	0.069	--	0.060	0.066	0.066
State maximum 8-hour concentration (ppm)	0.067	0.078	--	0.063	0.080	0.066
State second-highest 8-hour concentration (ppm)	0.062	0.070	--	0.061	0.067	0.066
8-hour national designation value	--	0.062	--	0.061	0.058	0.060
8-hour California designation value	0.092	0.070	--	0.070	0.067	0.067
8-hour expected peak day concentration	--	0.071	--	0.070	0.067	0.070
Number of days standard exceeded[a]						
NAAQS 8-hour (>0.075 ppm)	0	1	--	0	1	0
CAAQS 8-hour (>0.070 ppm)	0	1	--	0	1	0
Carbon Monoxide (CO)						
National[b] maximum 8-hour concentration (ppm)	0.73	–	–	1.86	2.5	1.9
National[b] second-highest 8-hour concentration (ppm)	0.71	–	–	1.85	2.1	1.9
California[c] maximum 8-hour concentration (ppm)	0.73	–	–	1.86	--	--
California[c] second-highest 8-hour concentration (ppm)	0.71	–	–	1.85	--	--
Expected peak day concentration (ppm)	0.98	–	–	2.18	--	--
Number of days standard exceeded[a]						
NAAQS 8-hour (≥9 ppm)	0	–	–	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	–	–	0	--	--
Particulate Matter (PM10)[d]						
National[b] maximum 24-hour concentration (μg/m^3)	39.1	31.0	–	56.5	55.8	56.4
National[b] second-highest 24-hour concentration (μg/m^3)	33.2	27.8	–	46.1	53.7	52.0
State[c] maximum 24-hour concentration (μg/m^3)	41.5	33.5	–	59.6	58.1	54.7
State[c] second-highest 24-hour concentration (μg/m^3)	33.4	29.5	–	48.8	57.1	49.6
State annual average concentration (μg/m^3)[e]	13.5	14.5	–	18.8	22.2	20.0
National annual average concentration (μg/m^3)	13.1	14.0	–	18.8	21.6	19.5
Number of days standard exceeded[a]						
NAAQS 24-hour (>150 μg/m^3)[f]	0.0	0.0	–	0.0	0.0	0.0
CAAQS 24-hour (>50 μg/m^3)[f]	0.0	0.0	–	2.9	15.2	3.1

Pollutant Standards	Cupertino			San Jose		
	2012	2013	2014	2012	2013	2014
Particulate Matter (PM2.5)						
National[b] maximum 24-hour concentration (μg/m^3)	–	–	–	38.4	57.7	60.4
National[b] second-highest 24-hour concentration (μg/m^3)	–	–	–	36.6	45.9	37.3
State[c] maximum 24-hour concentration (μg/m^3)	27.5	38.9	–	38.4	57.7	60.4
State[c] second-highest 24-hour concentration (μg/m^3)	26.6	31.0	–	36.6	45.9	37.3
National annual designation value (μg/m^3)	–	–	–	--	10.3	10.0
National annual average concentration (μg/m^3)	–	–	–	9.1	11.8	8.4
State annual designation value (μg/m^3)	–	9	–	10	12	12
State annual average concentration (μg/m^3) [e]	–	8.5	–	--	12.4	8.4
Number of days standard exceeded[a]						
NAAQS 24-hour (>35 μg/m^3)	–	–	–	2.1	4.0	2.0

Sources: California Air Resources Board 2016; U.S. Environmental Protection Agency 2016.

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
– = insufficient data available to determine the value.
ppm = parts per million
μg/m^3 = micrograms per cubic meter

[a] An exceedance is not necessarily a violation.

[b] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.

[c] State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California approved samplers.

[d] Measurements usually are collected every 6 days.

[e] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[f] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

3.2.6 Description of Pollutants

The following is a general description of the pollutants for which there are standards (criteria pollutants) and ambient measurements: Ozone, and its precursors, reactive organic gases (ROG) and oxides of nitrogen (NO_X); sulfates; visibility reducing particles; NO_2; and PM10 and PM2.5 are considered to be regional pollutants because they or their precursors affect air quality on a regional scale—NO_2 reacts photochemically with reactive organic gases to form ozone, while PM10 and PM2.5 can form from chemical reaction of atmospheric chemicals, including NO_X, sulfates, nitrates, and ammonia. These processes can occur at some distance downwind of the source of pollutants. Pollutants such as CO, SO_2, lead, and PM10 are considered to be local pollutants because they tend to disperse rapidly with distance from the source. Although PM10 and PM2.5 are considered to be regional pollutants, they can also be localized pollutants, as direct emissions of PM10 from automobile exhaust can accumulate in the air locally near the emission source.

Ozone

Ozone is a respiratory irritant that increases susceptibility to respiratory infections. It is also an oxidant that can cause substantial damage to vegetation and other materials.

Ozone is not emitted directly into the air but is formed by a photochemical reaction in the atmosphere. The ozone precursors ROG and NO_X react in the atmosphere in the presence of sunlight

to form ozone. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem.

Carbon Monoxide

CO is a public health concern because it combines readily with hemoglobin and reduces the amount of oxygen transported in the bloodstream. CO can cause health problems such as fatigue, headache, confusion, dizziness, and even death.

Motor vehicles are the dominant source of CO emissions in most areas. High CO levels develop primarily during winter when periods of light winds combine with the formation of ground-level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures.

Inhalable Particulate Matter

Particulates can damage human health and retard plant growth. Health concerns associated with suspended particulate matter focus on those particles small enough to reach the lungs when inhaled. Particulates also reduce visibility and corrode materials.

PM10 sources in Solano County comprise both rural and urban sources, including agricultural burning, tilling of agricultural fields, industrial emissions, dust suspended by vehicle traffic, and secondary aerosols formed by reactions in the atmosphere.

The federal and state ambient air quality standard for particulate matter applies to two classes of particulates: PM2.5 and PM10.

Carbon Dioxide

CO_2 is the most important anthropogenic GHG and accounts for more than 75 percent of all anthropogenic GHG emissions. Its long atmospheric lifetime (on the order of decades to centuries) ensures that atmospheric concentrations of CO_2 will remain elevated for decades after GHG mitigation efforts to reduce GHG concentrations are promulgated (Intergovernmental Panel on Climate Change 2007).

Increasing concentrations of CO_2 in the atmosphere are primarily a result of emissions from the burning of fossil fuels, gas flaring, cement production, and land use changes. Three quarters of anthropogenic CO_2 emissions are the result of fossil fuel burning (and to a very small extent, cement production), and approximately one quarter of emissions are the result of land use change (Intergovernmental Panel on Climate Change 2007).

Anthropogenic emissions of CO_2 have increased concentrations in the atmosphere most notably since the industrial revolution; the concentration of CO_2 has increased from about 280 ppm to 390 ppm from 1750 to 2011 (Intergovernmental Panel on Climate Change 2013:161). The Intergovernmental Panel on Climate Change estimates that the present atmospheric concentration of CO_2 has not been exceeded in the last nearly 1 million years (Intergovernmental Panel on Climate Change 2007:100).

Nitrogen Dioxide

Nitrogen oxides are a family of highly reactive gases that are primary precursors to the formation of ground-level ozone, reacting in the atmosphere to form acid rain. NO_X, a mixture of NO and NO_2, are produced from natural sources, motor vehicles, and other fuel combustion processes. NO is colorless and odorless and is oxidized in the atmosphere to form NO_2. NO_2 is an odorous, brown, acidic, highly corrosive gas that can affect human health and the environment. NO_X are critical components of photochemical smog. NO_2 produces the yellowish-brown color of the smog. The EPA has set an NAAQS standard for NO_2 but not for NO.

NO_X can irritate the lungs, cause lung damage, and lower resistance to respiratory infections such as influenza. The effects of short-term exposure are still unclear, but continued or frequent exposure to concentrations that are typically much higher than those normally found in the ambient air may cause increased incidence of acute respiratory illness in children. Health effects associated with NO_X are an increase in the incidence of chronic bronchitis and lung irritation. Chronic exposure to NO_2 may lead to eye and mucus membrane aggravation along with pulmonary dysfunction. NO_X can cause fading of textile dyes and additives, deterioration of cotton and nylon, and corrosion of metals due to the production of particulate nitrates. Airborne NO_X can impair visibility. NO_X is a major component of acid deposition in California. NO_X may affect both terrestrial and aquatic ecosystems. NO_X in the air is a potentially significant contributor to a number of environmental effects, such as acid rain and eutrophication in coastal waters. Eutrophication occurs when a body of water suffers an increase in nutrients that reduces the amount of oxygen in the water, producing an environment that is destructive to fish and other animal life.

Sulfur Oxides

SO_X gases are a family of colorless, pungent gases, which include SO_2 and are formed primarily by combustion of sulfur-containing fossil fuels (mainly coal and oil), metal smelting, and other industrial processes. SO_X can react to form sulfates, which significantly reduce visibility. SO_X is a precursor to particulate matter formation, which is in nonattainment in the Project area.

The major health concerns associated with exposure to high concentrations of SO_X include effects related to breathing, respiratory illness, alterations in pulmonary defenses, and aggravation of existing cardiovascular disease. Major subgroups of the population that are most sensitive to SO_X include individuals with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema), as well as children and the elderly. Emissions of SO_X can also damage the foliage of trees and agricultural crops. Together, SO_X and NO_X are the major precursors to acid rain, which is associated with the acidification of lakes and streams and accelerated corrosion of buildings and monuments.

Lead

Lead is a metal that is a natural constituent of air, water, and the biosphere. Lead is neither created nor destroyed in the environment, so it essentially persists forever. Lead was used several decades ago to increase the octane rating in automotive fuel. Because gasoline-powered automobile engines were a major source of airborne lead through the use of leaded fuels and the use of leaded fuel has been mostly phased out, the ambient concentrations of lead have dropped dramatically.

Short-term exposure to high levels of lead can cause vomiting, diarrhea, convulsions, coma, or even death. However, even small amounts of lead can be harmful, especially to infants, young

children, and pregnant women. Symptoms of long-term exposure to lower lead levels may be less noticeable but are still serious. Anemia is common, and damage to the nervous system may cause impaired mental function. Other symptoms are appetite loss, abdominal pain, constipation, fatigue, sleeplessness, irritability, and headache. Continued excessive exposure, as in an industrial setting, can affect the kidneys.

Lead exposure is most serious for young children because they absorb lead more easily than adults and are more susceptible to its harmful effects. Even low-level exposure may harm the intellectual development, behavior, size, and hearing of infants. During pregnancy, especially in the last trimester, lead can cross the placenta and affect the fetus. Female workers exposed to high levels of lead have more miscarriages and stillbirths.

Toxic Air Contaminants/Mobile Source Air Toxics

Toxic air contaminants are pollutants that may result in an increase in mortality or serious illness, or that may pose a present or potential hazard to human health. Health effects of toxic air contaminants include cancer, birth defects, neurological damage, damage to the body's natural defense system, and diseases that lead to death. In 1998, following a 10-year scientific assessment process, ARB identified particulate matter from diesel-fueled engines as a toxic air contaminant. Compared to other air toxics that ARB has identified and controlled, diesel particulate matter emissions are estimated to be responsible for about 70 percent of the total ambient air toxics risk (California Air Resources Board 2000).

The CAAA made controlling air toxic emissions a national priority, by which Congress mandated that the EPA regulate 188 air toxics. These substances are also known as hazardous air pollutants. In the EPA's latest rule, *Control of Emissions of Hazardous Air Pollutants from Mobile Sources* (*Federal Registry, Vol. 72, No. 37, page 8430, February 2007)* it identified a group of 93 compounds emitted from mobile sources that are listed in their Integrated Risk Information System. This system is a comprehensive database of specific substances known to cause human health effects. In addition, the EPA identified the following seven compounds as priority mobile source air toxics (MSATs):

- Acrolein.
- Benzene.
- 1,3-Butadiene.
- Diesel particulate matter/diesel exhaust organic gases.
- Formaldehyde.
- Naphthalene.
- Polycyclic organic matter.

While FHWA considers these the priority MSATs, the list is subject to change and may be adjusted in consideration of future rules.

To address emissions of MSATs, the EPA has issued a number of regulations, including the 2007 rule mentioned above, that will dramatically decrease MSATs through cleaner fuels and cleaner engines.

The issue of air toxics is an emerging area of analysis and continuing research. Although much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques available for assessing project-specific health impacts from MSATs are currently limited. Given the emerging state of the science and of project-level analysis techniques, there are no established criteria for determining when MSAT emissions should be considered a significant issue in the context of NEPA.

FHWA released guidance for factoring mobile source health risks into project-level decision making under NEPA in December 2012 (U.S. Federal Highway Administration 2012). However, the EPA has not established regulatory concentration targets for the seven relevant MSAT pollutants appropriate for use in the project development process. The FHWA recommends MSAT analyses be conducted using the EPA's latest version of the Motor Vehicle Emissions Simulator model, released on October 30, 2012, which estimates on- and off-road MSAT emissions from motor vehicles. FHWA's guidance advises the assessment of MSATs in NEPA documents (U.S. Federal Highway Administration 2012).

3.2.7 Sensitive Receptors

BAAQMD generally defines a sensitive receptor as a facility or land use that houses or attracts members of the population, such as children, the elderly, and people with illnesses, who are particularly sensitive to the effects of air pollutants.

The Project area is located within an existing urban environment that is home to a number of sensitive receptors. Sensitive receptors in the vicinity of the Project area that could be affected by the Project are identified in **Figure 6** and summarized below. Figure 6 does not include the locations of scattered or individual sensitive receptors. Note the sensitive receptors indicated in Figure 6 are not representative of the receptors modeled in the CO hot-spot analysis presented in Impact AQ-2. Land use compatibility issues relative to the siting of pollution-emitting sources or the siting of sensitive receptors must be considered. In the case of schools, state law requires that siting decisions consider the potential for toxic or harmful air emissions in the surrounding area.

Residential

- Single-family residences 25 feet east of the Project site.
- Multi-family residences 50 feet east of the southern part of the Project site.
- Mobile home residences 150 feet southeast of the eastern part of the Project site.

Educational

- Columbia Middle School 920 feet southeast of the eastern part of the Project site.
- Foothill De Anza Community College Campus at Onizuka (opening in late 2016) 30 feet from the western part of the Project site.

Recreational

- Orchard Gardens Park 220 feet east of the eastern part of the Project site.
- Columbia Park 615 feet southeast of the eastern part of the Project site
- John W. Christian Greenbelt 350 feet north of the eastern part of the Project site.

3.3 Environmental Consequences

3.3.1 Methods

The Build Alternatives would generate construction-related and operational emissions. The methodology used to evaluate construction and operational effects is described below.

Operational Impact Assessment Methodology

The primary operational emissions associated with the Build Alternatives are CO, PM10, PM2.5, the ozone precursors ROG and NO_X, and CO_2 emitted as vehicle exhaust. The evaluation of transportation conformity with regards to criteria pollutants was done by evaluating the inclusion of the Project in the most recent RTP and TIP. In addition, the effects of criteria pollutants (ozone precursors, CO, PM10, and PM2.5), as well as CO_2 emissions, were quantified with Caltrans' [CT-EMFAC emission modeling program (version 6.0) and traffic data provided by the Project traffic engineers, Fehr & Peers (Fehr & Peers 2016). The effects of localized CO hot-spot emissions were evaluated through CO dispersion modeling using the *Transportation Project-Level Carbon Monoxide Protocol* developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997) and traffic data provided by the Project traffic engineers, Fehr & Peers (Fehr & Peers 2016a, 2016b). The effects of localized PM were evaluated using the EPA and FHWA's guidance manual, *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* (Federal Highway Administration and U.S. Environmental Protection Agency 2006). MSAT emissions were evaluated using the FHWA's *Interim Guidance on Mobile Source Air Toxic Analysis in NEPA documents* (Federal Highway Administration 2012).

Inclusion in RTP and TIP

The Build Alternatives are located in a marginal nonattainment area with regards to the federal 8-hour ozone standard. Because ozone and its precursors are regional pollutants, the Project must be evaluated under the transportation conformity requirements described earlier. An affirmative regional conformity determination must be made before the Project can proceed. Such a determination is not required if the Project is described in an approved RTP and/or TIP and the Project has not been altered in design concept or scope.

Project-Level Hot-Spot

Carbon Monoxide

A CO hot-spot analysis is based on the CO Protocol developed for Caltrans by the Institute of Transportation Studies at the University of California, Davis (Garza et al. 1997). This CO protocol details a qualitative step-by-step procedure to determine whether Project-related CO concentrations have a potential to generate new air quality violations, worsen existing violations, or delay attainment of CAAQS for CO.

PM2.5

As previously indicated, Santa Clara County is designated by the ARB as a nonattainment area for the state PM10 and PM2.5 standards.

On March 10, 2006, the EPA published a final rule that establishes the transportation conformity criteria and procedures for determining which transportation projects must be analyzed for local

air quality impacts in PM2.5 and PM10 nonattainment and maintenance areas. The final rule requires PM2.5 hot-spot analyses to be performed for Projects of Air Quality Concern (POAQC) or any other project identified by the PM2.5 SIP as a localized air quality concern. Section 93.123(b)(1) of the Conformity Rule defines the following projects that require a PM2.5 or PM10 hot-spot analysis (Table 3-4).

Table 3-4. POAQCs as Defined by Section 93.123(b)(1) of the Conformity Rule

Section 93.123(b)(1) Subsection	Type of Project
i	New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.
ii	Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.
iii	New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.
iv	Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.
v	Projects in or affecting locations, areas, or categories of sites which are identified in the PM2.5 or PM10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

Source: 40 CFR 93.123(b)(1)
LOS= level of service

In November 2015, the EPA issued a guidance document titled *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* (U.S. Environmental Protection Agency 2015c). This guidance details the procedure to conduct quantitative hot-spot analyses to determine whether project-related particulate emissions have a potential to generate new air quality violations, worsen existing violations, or delay attainment of ambient air quality standards for PM2.5 or PM10. Because the Project is not subject to federal NEPA or transportation conformity requirements, project-level PM10 and PM2.5 hot-spot analyses that includes interagency consultation through MTC's Air Quality Conformity Task Force is not required for the proposed Project (Brazil pers. Comm.). However, because the Project area is designated as a nonattainment area for the State PM10 and PM2.5 standards, the determination of whether the Project is or is not a POAQC is used to evaluate PM hot-spots for CEQA purposes.

For the assessment of PM hotspots, the final rule is that a hot-spot analysis is to be performed only for POAQCs. POAQCs are certain highway and transit projects that involve significant levels of diesel traffic or any other project identified in the PM2.5 or PM10 SIP as a localized air quality concern. The following list provides examples of POAQCs.

- A project on a new highway or expressway that serves a significant volume of diesel truck traffic, such as facilities with greater than 125,000 annual average daily traffic (AADT) where 8 percent or more of such AADT is diesel truck traffic.
- New exit ramps and other highway facility improvements to connect a highway or expressway to a major freight, bus, or intermodal terminal.

- Expansion of an existing highway or other facility that affects a congested intersection (operated at level of service (LOS) D, E, or F) that has a significant increase in the number of diesel trucks.
- Similar highway projects that involve a significant increase in the number of diesel transit busses and/or diesel trucks.

The EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that would be considered a POAQC under Section 93.123(b)(1)iii and iv listed above.

- A major new bus or intermodal terminal that is considered to be a "regionally significant project."
- An existing bus or intermodal terminal that has a large vehicle fleet where the number of diesel buses increases by 50 percent or more, as measured by bus arrivals.

The EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that would not be considered a POAQC under Section 93.123(b)(1)i and ii listed above.

- Any new or expanded highway project that primarily services gasoline vehicle traffic (i.e., does not involve a significant number or increase in the number of diesel vehicles), including such projects involving congested intersections operating at LOS D, E, or F.
- An intersection channelization project or interchange configuration project that involves either turn lanes or slots, or lanes or movements that are physically separated. These kinds of projects improve freeway operations by smoothing traffic flow and vehicle speeds by improving weave and merge operations, which would not be expected to create or worsen PM2.5 or PM10 violations.
- Intersection channelization projects, traffic circles or roundabouts, intersection signalization projects at individual intersections, and interchange reconfiguration projects that are designed to improve traffic flow and vehicle speeds, and do not involve any increases in idling. Thus, they would be expected to have a neutral or positive influence on PM2.5 or PM10 emissions.

The EPA noted in the March 2006 final rule that the examples below are considered to be the most likely projects that would not be considered a POAQC under Section 93.123(b)(1)iii and iv listed above:

- A new or expanded bus terminal that is serviced by non-diesel vehicles (e.g., compressed natural gas) or hybrid-electric vehicles.
- A 50 percent increase in daily arrivals at a small terminal (e.g., a facility with 10 buses in the peak hour).

For projects identified as not being a POAQC, quantitative PM2.5 and PM10 (for regions without an approved conformity SIP) hot-spot analyses are not required. For these types of projects, state and local project sponsors should briefly document that hot-spot requirements were met without a hot-spot analysis, since such projects have been found to not be of air quality concern under *40 CFR 93.123(b)(1).* Because this analysis assumes the area is classified as an nonattainment area for the state PM10 and PM2.5 standards, a determination is required to be made as to whether it would result in a PM10 or PM2.5 hotspot.

Mobile-Source Air Toxics

The FHWA has issued an updated interim guidance using a tiered approach on how MSATs should be addressed in NEPA documents for highway projects (Federal Highway Administration 2012). Depending on the specific project circumstances, FHWA has identified the following three levels of analysis.

1. No analysis for exempt projects or projects that have no potential for meaningful MSAT effects.
2. Qualitative analysis for projects with low potential MSAT effects.
3. Quantitative analysis to differentiate alternatives for projects with higher potential MSAT effects.

Exempt Projects or Projects with No Meaningful Potential MSAT Effects

The types of projects included in this category—those that are exempt or have no meaningful potential MSAT effects—are listed below.

- Projects qualifying as a categorical exclusion under 23 CFR 771.117(c).
- Projects exempt under the FCAA Conformity Rule under 40 CFR 93.126.
- Other projects with no meaningful impacts on traffic volumes or vehicle mix.

For projects that are categorically excluded under 23 CFR 771.117(c), or are exempt from all conformity requirements under the FCAA pursuant to 40 CFR 93.126, no analysis or discussion of MSAT is necessary. Documentation sufficient to demonstrate that the project qualifies as a categorical exclusion or exempt project will suffice. For other projects with no or negligible traffic impacts, regardless of the class of NEPA environmental document, no MSAT analysis is recommended.[8] However, the project record should document the basis for the determination of "no meaningful potential impacts" with a brief description of the factors considered.

Projects with Low Potential MSAT Effects

The types of projects included in this category—projects with low potential MSAT effects—are those that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase MSAT emissions. This category covers a broad range of projects.

FHWA anticipates that most highway projects that need an MSAT assessment will fall into this category. Any projects not meeting the criteria for exempt projects or projects without meaningful potential effects (discussed above) or projects with higher potential MSAT effects (discussed below) should be included in this category. Examples of these types of projects are minor widening projects, new interchanges, replacing a signalized intersection on a surface street, or projects where design year traffic is projected to be less than 140,000 to 150,000 AADT.

For these projects, a qualitative assessment of emissions projections should be conducted. This qualitative assessment would compare, in narrative form, the expected effect of the project on traffic volumes, vehicle mix, or routing of traffic and the associated changes in MSAT for the

[8] The types of projects categorically excluded under 23 CFR 771.117(d) or exempt from project-level conformity requirements under 40 CFR 93.127 do not warrant an automatic exemption from an MSAT analysis, but they usually will have no meaningful impact.

project alternatives, including the No Build Alternative, based on VMT, vehicle mix, and speed. It would also discuss national trend data projecting substantial overall reductions in emissions due to stricter engine and fuel regulations issued by the EPA. Because the emission effects of these projects typically are low, we expect there would be no appreciable difference in overall MSAT emissions among the various alternatives.

Projects with Higher Potential MSAT Effects

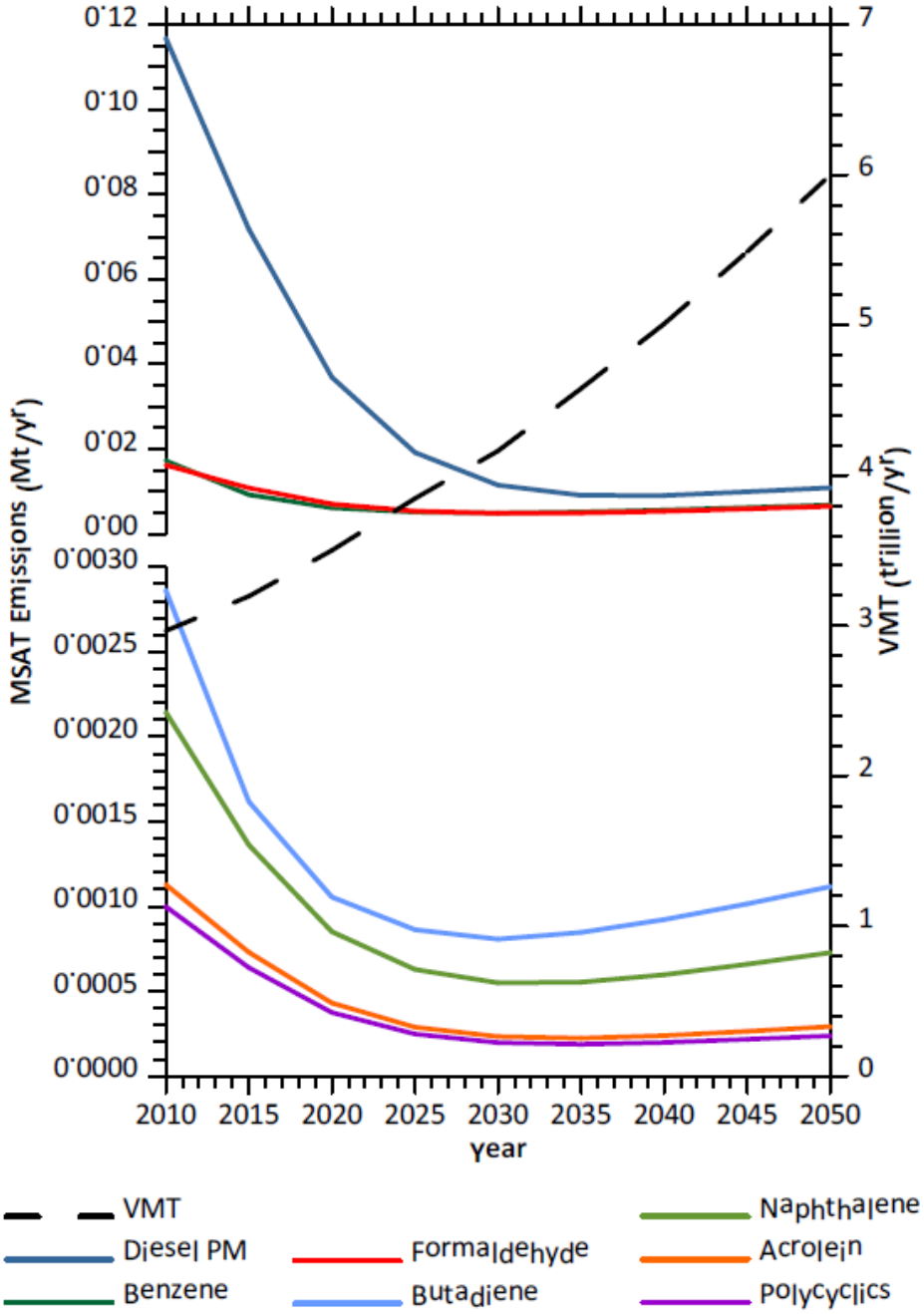
This category includes projects that have the potential for meaningful differences in MSAT emissions among project alternatives. It is expected a limited number of projects would meet the criteria to fall into this category, which are as follows.

- Projects that create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter in a single location, involving a significant number of diesel vehicles for new projects or accommodating a significant increase in the number of diesel vehicles for expansion projects.
- Projects that create new capacity or add significant capacity to urban highways, such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000[9], or greater, by the design year.
- Projects that are proposed to be located in proximity to populated areas.

Projects falling within this category should be more rigorously assessed for impacts, including a quantitative analysis to forecast local-specific emission trends of the priority MSAT for each alternative. Based on regulations now in effect, an analysis of national trends with the EPA's Motor Vehicle Emissions Simulator model, as shown in **Figure 7** even if VMT increases by 102 percent as assumed from 2010 to 2050, a combined reduction of 83 percent in the total annual emissions for the priority MSAT is projected for the same time period.

[9] Using the EPA's Motor Vehicle Emissions Simulator 2010b emissions model, FHWA staff determined that this range of AADT would result in emissions significantly lower than the California CAA definition of a major hazardous air pollutant source, i.e., 25 tons per year for all hazardous air pollutants or 10 tons per year for any single hazardous air pollutant. Variations in conditions such as congestion or vehicle mix could warrant a different range for AADT; if this range does not seem appropriate for a project, project proponents can consult with the contacts from Office of Natural Environment and Office of Project Development and Environmental Review identified in the FHWA interim MSAT guidance (U.S. Federal Highway Administration 2012).

Figure 7. Projected National MSAT Emission Trends 2010–2050 For Vehicles Operating On Roadways Using the EPA's Motor Vehicle Emissions Simulator 2010b Model



Note: Trends for specific locations may be different, depending on locally derived information representing vehicle-miles travelled, vehicle speeds, vehicle mix, fuels, emission control programs, meteorology, and other factors

Applicable Project MSAT Category Assessment

The purpose of this Project is to reduce congestion and improve traffic operations on Mathilda Avenue at SR 237 and US 101 by reconfiguring the US 101 and SR 237 interchanges with Mathilda Avenue. This includes modification to on- and off-ramps; removal, addition, and signalization of intersections; and provision of new left-turn lanes. This Project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. The Build Alternatives associated with this Project would result in a decrease in traffic volumes when compared to No Build conditions, as shown in Table 3-5, but would not result in changes in vehicle mix, basic Project location, or any other factor that would cause an increase in MSAT impacts of the Build Alternatives from that of the No-Build Alternative. An evaluation of MSAT emissions was performed using traffic data provided by the Project traffic engineers, Fehr & Peers, and the CT-EMFAC model v6.0.

Mass Emissions and Dispersion Modeling

Predicting the ambient air quality impacts of pollutant emissions requires an assessment of the transport, dispersion, chemical transformation, and removal processes that affect pollutant emissions after their release from a source. Gaussian dispersion models are frequently used for such analyses. The term *Gaussian dispersion* refers to a general type of mathematical equation used to describe the horizontal and vertical distribution of pollutants downwind from an emission source.

Gaussian dispersion models treat pollutant emissions as being carried downwind in a defined plume, subject to horizontal and vertical mixing with the surrounding atmosphere. The plume spreads horizontally and vertically with a reduction in pollutant concentrations as it travels downwind. Mixing with the surrounding atmosphere is greatest at the edge of the plume, resulting in lower pollutant concentrations outward (horizontally and vertically) from the center of the plume. This decrease in concentration outward from the center of the plume is treated as following a Gaussian ("normal") statistical distribution. Horizontal and vertical mixing generally occur at different rates. Because turbulent motions in the atmosphere occur on a variety of spatial and time scales, vertical and horizontal mixing also vary with distance downwind from the emission source.

CT-EMFAC Model. CT-EMFAC v6.0 is a California-specific project-level analysis tool developed for Caltrans by the University of California, Davis to model criteria pollutant, MSAT, and CO_2 emissions from on-road mobile sources. The model uses the latest version of ARB California Mobile Source Emission Inventory and Emission Factors model, EMFAC2014, to quantify running exhaust and running loss emissions using user-input traffic data, including peak-hour and off-peak-hour VMT data allocated into 5-mph speed bins. Running exhaust emissions are emitted from the vehicle tailpipe while the vehicle is traveling, while running loss emissions are evaporative total organic gases emissions that occur when hot fuel vapors escape from the fuel system or overwhelm the carbon canister while the vehicle is operating. CT-EMFAC will estimate emission factors and project-level emissions for the following pollutants:

- **Criteria pollutants:** Ozone precursors (total organic gases and NO_X)**,** CO, sulfur oxides, PM10, and PM2.5.
- **Greenhouse gases:** CO_2.
- **Mobile Source Air Toxics:** diesel particulate matter, formaldehyde, napththalene, benzene, 1,3-butadiene, polycyclic organic matter, and acrolein.

The CALINE4 Model. The ambient air quality effects of traffic emissions were evaluated using the CALINE4 v2.1 dispersion model (Benson 1989). CALINE4 is a Gaussian dispersion model specifically designed to evaluate air quality impacts of roadway projects. Each roadway link analyzed in the model is treated as a sequence of short segments. Each segment of a roadway link is treated as a separate emission source producing a plume of pollutants which disperses downwind. Pollutant concentrations at any specific location are calculated using the total contribution from overlapping pollution plumes originating from the sequence of roadway segments.

When winds are essentially parallel to a roadway link, pollution plumes from all roadway segments overlap. This produces high concentrations near the roadway (near the center of the overlapping pollution plumes) and low concentrations well away from the roadway (at the edges of the overlapping pollution plumes). When winds are at an angle to the roadway link, pollution plumes from distant roadway segments make essentially no contribution to the pollution concentration observed at a receptor location. Under such crosswind situations, pollutant concentrations near the highway are lower than under parallel wind conditions (fewer overlapping plume contributions), while pollutant concentrations away from the highway may be greater than would occur with parallel winds (near the center of at least some pollution plumes).

The CALINE4 model employs a "mixing cell" approach to estimating pollutant concentrations over the roadway itself. The size of the mixing cell over each roadway segment is based on the width of the traffic lanes of the highway (generally 12 feet per lane) plus an additional turbulence zone on either side (generally 10 feet on each side). Parking lanes and roadway shoulders are not counted as traffic lanes. The height of the mixing cell is calculated by the model.

Pollutants emitted along a highway link are treated as being well-mixed within the mixing cell volume due to mechanical turbulence from moving vehicles and convective mixing due to the temperature of vehicle exhaust gases. Pollutant concentrations downwind from the mixing cell are calculated using horizontal and vertical dispersion rates, which are a function of various meteorological and ground surface conditions.

Criteria Pollutant Emission Modeling

The estimation of criteria pollutant emissions associated with the Build Alternatives was conducted using the CT-EMFAC model and vehicle activity data provided by the Project traffic engineer, Fehr & Peers (see Appendix B).

Roadway and Traffic Conditions. Modeled traffic volumes and operating conditions were obtained from the traffic data prepared by the Project traffic engineers, Fehr & Peers (see Appendix B). Emission of the ozone precursors ROG and NO_X and emission of CO, PM10, PM2.5, and CO_2 were modeled for existing year (2013), opening year (2018) with and without the Project, and design-future year (2040) with and without Project conditions. Fehr & Peers provided AM and PM peak hour VMT data, non-peak hour VMT data, and VMT distribution by 5-mph speed bins (5 mph to 70 mph). VMT data included vehicle activity for affected roadways in the immediate Project region. The traffic data used for emissions modeling is summarized in Tables 3-6 through 3-8.

Table 3-5. Criteria Pollutant, MSAT, and CO_2 Modeling VMT Data Alternatives Comparison

Comparison of VMT by Alternatives	Increase in Daily VMT	Increase in Annual VMT[a]
Comparison of 2018 Build Conditions to Existing Conditions		
2018 No Build—Existing	180,183	62,523,364
2018 Build Alternative 1—Existing	164,333	57,023,689
2018 Build Alternative 2—Existing	172,310	59,791,476
Comparison of 2040 Build Conditions to Existing Conditions		
2040 No Build—Existing	694,990	241,161,552
2040 Build Alternative 1—Existing	633,857	219,948,514
2040 Build Alternative 2—Existing	664,623	230,624,266
Comparison of 2018 Build Conditions to 2018 No Build Conditions		
2018 Build Alternative 1—2018 No Build	-15,849	-5,499,676
2018 Build Alternative 2—2018 No Build	-7,873	-2,731,889
Comparison of 2040 Build Conditions to 2040 No Build Conditions		
2040 Build Alternative 1—2040 No Build	-61,133	-21,213,037
2040 Build Alternative 2—2040 No Build	-30,367	-10,537,286

[a] Annual VMT values derived from Daily VMT values multiplied by 347, per ARB methodology (California Air Resources Board 2008).

Source: Brooke pers. comm.

Table 3-6. VMT by Speed Bin—AM Peak Period*

Bin Name	Bin Actual	2013		2018 No Project		2018 Build 1		2018 Build 2		2040 No Build		2040 Build 1		2040 Build 2	
		VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%
5	0.00-5.00	98	0.0%	197	0.0%	204	0.0%	633	0.2%	478	0.1%	507	0.1%	2160	0.4%
10	5.01-10.00	303	0.1%	969	0.2%	611	0.1%	962	0.2%	2873	0.6%	1491	0.3%	2846	0.6%
15	10.01 - 15.00	3865	1.0%	4692	1.1%	4868	1.2%	4872	1.2%	7056	1.4%	7733	1.5%	7750	1.5%
20	15.01-20.00	4359	1.1%	5105	1.2%	5556	1.3%	4915	1.2%	7234	1.4%	8974	1.8%	6504	1.3%
25	20.01-25.00	28136	7.3%	34157	8.2%	37802	9.1%	39490	9.5%	51360	10.2%	65420	13.0%	71930	14.1%
30	25.01-30.00	14053	3.6%	26750	6.4%	23258	5.6%	22197	5.3%	63026	12.5%	49556	9.9%	45463	8.9%
35	30.01-35.00	88827	23.0%	104724	25.1%	106108	25.5%	106660	25.5%	150142	29.8%	155480	30.9%	157612	31.0%
40	35.01-40.00	22993	6.0%	24439	5.9%	24696	5.9%	24934	6.0%	28572	5.7%	29564	5.9%	30480	6.0%
45	40.01-45.00	79868	20.7%	75581	18.1%	70605	17.0%	72381	17.3%	63332	12.6%	44140	8.8%	50988	10.0%
50	45.01-50.00	66085	17.1%	52539	12.6%	53832	12.9%	54645	13.1%	13834	2.7%	18822	3.7%	21960	4.3%
55	50.01-55.00	39173	10.2%	44915	10.8%	45511	10.9%	41483	9.9%	61320	12.2%	63619	12.7%	48083	9.4%
60	55.01-60.00	38039	9.9%	42535	10.2%	43024	10.3%	44607	10.7%	55379	11.0%	57268	11.4%	63374	12.4%
65	60.01-65.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
70	65.01-70.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL		385800.19	100.0%	416601.68	100.0%	416075.11	100.0%	417779.48	100.0%	504605.92	100.0%	502574.87	100.0%	509148.88	100.0%

*AM Peak Period is between 5:00 a.m. and 9:00 a.m.
VMT: vehicle miles traveled

Table 3-7. VMT by Speed Bin—PM Peak Period*

Bin Name	Bin Actual	2013		2018 No Project		2018 Build 1		2018 Build 2		2040 No Build		2040 Build 1		2040 Build 2	
		VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%
5	0.00-5.00	293	0.1%	577	0.1%	783	0.2%	941	0.2%	1388	0.2%	2183	0.4%	2795	0.5%
10	5.01-10.00	251	0.1%	1134	0.2%	1105	0.2%	1101	0.2%	3656	0.6%	3545	0.6%	3527	0.6%
15	10.01 - 15.00	5136	1.2%	7087	1.5%	7009	1.5%	7757	1.7%	12663	2.2%	12359	2.2%	15246	2.7%
20	15.01-20.00	5358	1.3%	11279	2.4%	8687	1.9%	7830	1.7%	28194	4.8%	18199	3.2%	14892	2.6%
25	20.01-25.00	34060	8.0%	60324	12.9%	57483	12.4%	57049	12.3%	135364	23.1%	124405	21.9%	122731	21.3%
30	25.01-30.00	15062	3.5%	27008	5.8%	30406	6.6%	32192	6.9%	61140	10.4%	74247	13.1%	81135	14.1%
35	30.01-35.00	157544	37.0%	158957	34.0%	158170	34.2%	157845	34.0%	162994	27.8%	159958	28.1%	158706	27.6%
40	35.01-40.00	92567	21.7%	82453	17.6%	80275	17.3%	77890	16.8%	53556	9.1%	45157	7.9%	35957	6.3%
45	40.01-45.00	39088	9.2%	35692	7.6%	36547	7.9%	39032	8.4%	25988	4.4%	29287	5.2%	38874	6.8%
50	45.01-50.00	36831	8.6%	30609	6.5%	31729	6.9%	31825	6.8%	12830	2.2%	17152	3.0%	17521	3.0%
55	50.01-55.00	12584	3.0%	17225	3.7%	15374	3.3%	15901	3.4%	30486	5.2%	23346	4.1%	25378	4.4%
60	55.01-60.00	27254	6.4%	35481	7.6%	35366	7.6%	35318	7.6%	58986	10.0%	58545	10.3%	58358	10.1%
65	60.01-65.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
70	65.01-70.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL		426027.71	100.0%	467824.69	100.0%	462934.24	100.0%	464681.68	100.0%	587244.6	100.0%	568381.46	100.0%	575121.59	100.0%

*PM Peak Period is between 3:00 p.m. and 7:00 p.m.
VMT: vehicle miles traveled

Table 3-8. VMT by Speed Bin—Non-Peak*

Bin Name	Bin Actual	2013		2018 No Project		2018 Build 1		2018 Build 2		2040 No Build		2040 Build 1		2040 Build 2	
		VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%	VMT	%
5	0.00-5.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
10	5.01-10.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
15	10.01 - 15.00	11037	1.0%	15477	1.3%	14926	1.3%	15384	1.3%	28162	1.9%	26036	1.8%	27805	1.9%
20	15.01-20.00	13792	1.3%	15073	1.3%	15263	1.3%	15468	1.3%	18734	1.2%	19467	1.3%	20256	1.4%
25	20.01-25.00	88317	8.1%	111797	9.3%	114091	9.6%	114626	9.6%	178882	11.8%	187731	12.8%	189793	12.7%
30	25.01-30.00	35346	3.2%	35978	3.0%	36751	3.1%	36883	3.1%	37782	2.5%	40767	2.8%	41276	2.8%
35	30.01-35.00	236677	21.6%	266257	22.1%	261711	21.9%	262209	21.9%	350770	23.2%	333236	22.6%	335156	22.5%
40	35.01-40.00	5117	0.5%	6967	0.6%	7178	0.6%	7111	0.6%	12254	0.8%	13067	0.9%	12808	0.9%
45	40.01-45.00	0	0.0%	1227	0.1%	1223	0.1%	1223	0.1%	4731	0.3%	4716	0.3%	4717	0.3%
50	45.01-50.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
55	50.01-55.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
60	55.01-60.00	706296	64.4%	751391	62.4%	742591	62.2%	745355	62.2%	880234	58.2%	846291	57.5%	856952	57.6%
65	60.01-65.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
70	65.01-70.00	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0	0.0%
TOTAL		1096582	100.0%	1204166.2	100.0%	1193734	100.0%	1198258.5	100.0%	1511549.4	100.0%	1471311	100.0%	1488762.7	100.0%

*Non-Peak is defined as between 9:00 a.m. and 3:00 p.m., and 7:00 p.m. and 5:00 a.m.
VMT: vehicle miles traveled

Vehicle Emission Rates. Vehicle emission rates were determined using the Caltrans' CT-EMFAC model version 6.0. VMT distribution by speed bin data was prepared by the Project traffic engineers, Fehr & Peers and is presented in Tables 3-6 through 3-8 (see Appendix B). The CT-EMFAC program assumed the San Francisco Bay Area Air Basin Santa Clara County regional traffic data, operating annually. Truck percentages on US 101 and SR 237 were also based on traffic data prepared by the Project traffic engineers, Fehr & Peers (see Appendix B). Appendix A presents the CT-EMFAC emission factor and emission calculation output files.

Carbon Monoxide Modeling Procedures

Roadway and Traffic Conditions. CO hotspots were evaluated at roadway intersections within the Project area. Existing year (2013), opening year (2018) No Build and Build Alternatives 1 and 2, and design-future year (2040) No Build and Build Alternatives 1 and 2 conditions were modeled. Modeled traffic volumes and operating conditions were obtained from the traffic data prepared by the Project traffic engineers, Fehr & Peers (Fehr & Peers 2016b). Ambient CO concentrations near the roadway under future Project conditions were modeled using CALINE4 (Benson 1989). Only the p.m. peak hour traffic was modeled, as the LOS and delays would generally be worse in the p.m. peak hour than in the a.m. peak hour. CO intersection modeling was conducted for the following intersections (under the specified Project build conditions):

- Mathilda Avenue and Moffett Park Drive (Existing and No Build).
- Mathilda Avenue and 237 westbound ramps (Existing and No Build).
- Mathilda Avenue and Moffett Park Drive-237 westbound off-ramp (Build Alternative 1).
- Mathilda Ave and 237 westbound on-ramp (Build Alternative 1).
- Mathilda Ave and 101 northbound ramps (Existing and No Build).
- Mathilda Ave and 101 northbound ramps (Build Alternatives 1 and 2)
- Mathilda Ave and 101 southbound ramps (Existing and No Build).
- Mathilda Ave and 101 southbound ramps (Build Alternatives 1 and 2).
- Mathilda Ave and Almanor Ave-Ahwanee Ave (Existing, No Build and Build Alternatives 1 and 2).
- Innovation Way and Juniper Networks Drive (Existing, No Build and Build Alternatives 1 and 2).
- Bordeaux Drive and Innovation Way (Existing and No Build).
- Bordeaux Drive and Innovation Way (Build Alternatives 1 and 2).

These intersections and segments were chosen because they were identified in the traffic analysis prepared by Fehr & Peers as the greatest impacted intersections and segments (i.e., highest traffic volumes and worst levels of congestion/delay) in the vicinity of the Project area (Fehr & Peers 2016a).

Vehicle Emission Rates. Vehicle emission rates were determined using ARB's EMFAC2014 emission rate program. Traffic speeds were based on data prepared by the Project traffic engineers, Fehr & Peers (see Appendix B). For intersection modeling, free flow traffic speeds were adjusted to a speed of 5.0 mph for vehicles entering and exiting intersection segments to represent a worst-case scenario, as 5.0 mph is the lowest speed EMFAC allows. Modeling procedures followed the guidelines recommended in Appendix B of the CO Protocol (Garza et al. 1997). The program assumed Santa Clara County regional traffic data, averaged for each subarea, operating during the winter months. A mean January temperature of 3.9° Celsius was assumed. Appendix A presents the EMFAC2014 and CALINE4 model output files.

Receptor Locations. For intersection modeling, CO concentrations were estimated at 4 receptor locations located at each of the intersections analyzed, for a total of 48 receptors. The receptors were placed at the edge of the mixing zone from the corner of each intersection, accounting for the intersection dimensions as determined by the number of lanes in each direction. The mixing zone is defined by a 3-meter buffer from the outer edge of a roadway. Receptors were modeled at the edge of the mixing zone to represent a worst-case scenario as the nearest location in which a receptor could potentially be located adjacent to a traveled roadway. The modeled receptors (Receptors 1–48) are not representative of the actual sensitive receptors indicated in Figure 6 and represent receptors located at the nearest possible location at the intersection of the modeled mixing zones. Receptors were chosen based on the CO Protocol (Garza et al. 1997). Receptor heights were set at 5.9 feet (or 1.8 meters).

Meteorological Conditions. Meteorological inputs to the CALINE4 model were determined using methodology recommended in Appendix B of the CO Protocol (Garza et al. 1997). The meteorological conditions used in the modeling represent a calm winter period. Worst-case wind angles were modeled to determine a worst-case concentration for each receptor. The meteorological inputs include: 0.5 meters per second wind speed, ground-level temperature inversion (atmospheric stability class G), wind direction standard deviation equal to 5 degrees, ambient temperature of 3.9° Celsius, and a mixing height of 1,000 meters.

Background Concentrations and 8-Hour Values. To account for sources of CO not included in the modeling, a background concentration of 2.63 ppm was added to the modeled cumulative 1-hour values, while a background concentration of 2.10 ppm was added to the modeled cumulative 8-hour values. Background concentration data for 1- and 8-hour CO values were obtained from the EPA's Air Data webpage (U.S. Environmental Protection Agency 2016). Maximum monitored 1- and 8-hour CO values from the nearest monitoring station with reported CO monitoring values (San Jose) for the years 2012–2014 were averaged to obtain a background concentration. 8-hour modeled values were calculated from the 1-hour values using a persistence factor of 0.7. Background concentrations for opening year (2018) with and without Project, and design-future year (2040) with and without Project conditions were assumed to be the same as those for the current year. Actual 1- and 8-hour background concentrations in future years would likely be lower than those used in the CO modeling analysis because the trend in CO emissions and concentrations is decreasing because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Construction Impact Assessment Methodology

Construction activity is a source of dust and exhaust emissions that can have substantial temporary impacts on local air quality (i.e., exceeding state air quality standards for ozone, CO, PM10, and PM2.5). Such emissions would result from earthmoving and use of heavy equipment, as well as land clearing, ground excavation, cut-and-fill operations, and roadway construction. Emissions

can vary substantially from day to day, depending on the level of activity, the specific operations, and the prevailing weather. A major portion of dust emissions for the Build Alternatives would likely be caused by construction traffic on temporary areas.

Construction Emissions Modeling

The Road Construction Emissions Model

Construction emissions of ROG, NO_X, CO, PM10, PM2.5, and CO_2 were estimated using the Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (Version 7.1.5.1). The road construction model is a public-domain spreadsheet model formatted as a series of individual worksheets available to estimate construction-related emissions for roadway projects. The model enables users to estimate emissions using a minimum amount of project-specific information. The model estimates emissions for load hauling (on-road heavy-duty vehicle trips), worker commute trips, construction site fugitive dust (PM10 and PM2.5), and off-road construction vehicles. This analysis is based on anticipated construction equipment calculated by the Road Construction Emissions Model, which estimates construction equipment based on project size, duration of construction activities, and level of daily construction activities.

While exhaust emissions are estimated for each activity, fugitive dust estimates are currently limited to major dust-generating activities, which include grubbing/land clearing and grading/excavation. In addition, dust estimates do not account for control measures required by BAAQMD.

Construction activity for the Project is expected to occur over 12 months. Model defaults were used to define the phasing of construction activities, with the four phases titled Grubbing/Land Clearing, Grading/Excavation, Drainage/Utilities/Sub-Grade, and Paving. Table 3-9 summarizes the construction phasing assumed in the modeling, including the schedule and primary construction activities. Construction phases would occur sequentially starting in 2018. Table 3-9 identifies the length, area, and soil import/export assumptions for the entire Project. It was assumed that a maximum of 2.5 acres of the phase area would be disturbed on a daily basis. Equipment and vehicles required to construct each phase were developed using model defaults and the Project-specific data summarized in Table 3-9, as well as input from the Project engineers (Lee pers. comm.).

Table 3-9. Construction Modeling Assumptions for Project

Phase	Activity	Start Year	Months	Length (Miles)	Area (Acres)	Soil (cubic yards per day)
1	Grubbing/Land Clearing	2018	1.2	0.85	22.00	200.00
2	Grading/Excavation		4.8			
3	Drainage/Utilities/Sub-Grade		4.2			
4	Paving		1.8			

Source: Lee pers. comm.

3.3.2 Impacts

This section discusses air quality impacts that could result from Project implementation.

Conformity of the Regional Transportation Plan with the State Implementation Plan

The Project is listed in the 2015 TIP (TIP ID SCL130001). The 2015 TIP was updated on December 15, 2014, and the approved changes will not impact MTC's financial constraint or the region's air quality conformity. In addition, the Project is listed in the currently conforming 2040 RTP/SCS *Plan Bay Area 2013* Online Project Database as Project ID 240443. Accordingly, the regional emissions modeling that was conducted for the 2040 RTP/SCS ensures that, prior to preparation of the final environmental document for the Project, the design, concept, and scope for the Project will be consistent with the description in the 2040 RTP/SCS and the "open to traffic" assumptions in MTC's regional emissions analysis. The Project's regional conformity determination requirement is satisfied.

Potential Violations of Carbon Monoxide CAAQS

Existing year (2013), opening year (2018) No Build and Build Alternatives, and design-future year (2040) No Build and Build Alternatives conditions were modeled to evaluate CO concentrations relative to the CAAQS. As previously discussed, emissions of CO concentrations are estimated for roadway intersections within the Project area. These roadway intersections and segments were modeled because they represent the roadway intersections and segments in the vicinity of the Project area with the highest traffic volumes and worst levels of congestion/delay. Table 3-10 summarizes the results of the intersection and segment CO modeling, respectively, and indicate that CO concentrations are not anticipated to exceed the 1- or 8- hour CAAQS which are 20 ppm and 9 ppm, respectively, under any of the Build Alternatives or the No-Build Alternative.

Table 3-10. CO Modeling Concentration Results (Parts per Million)

Intersection	Receptor[a]	Existing (2013)		Opening Year (2018) No Build		Opening Year (2018) Build Alternative 1		Opening Year (2018) Build Alternative 2		Design Year (2040) No Build		Design Year (2040) Build Alternative 1		Design Year (2040) Build Alternative 2	
		1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]
3A. Mathilda Avenue/Moffett Park Drive (Existing/No Build)	1	**4.73**	**3.57**	**3.83**	**2.94**	N/A	N/A	N/A	N/A	**3.63**	**2.80**	N/A	N/A	N/A	N/A
	2	**4.43**	**3.36**	**3.63**	**2.80**	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A	N/A	N/A
	3	**5.03**	**3.78**	**3.93**	**3.01**	N/A	N/A	N/A	N/A	**3.83**	**2.94**	N/A	N/A	N/A	N/A
	4	**4.23**	**3.22**	**3.63**	**2.80**	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A	N/A	N/A
3B. Mathilda Ave/SR 237 westbound Ramps (Existing/No Build)	5	**4.53**	**3.43**	**4.23**	**3.22**	N/A	N/A	N/A	N/A	**3.83**	**2.94**	N/A	N/A	N/A	N/A
	6	**5.33**	**3.99**	**3.53**	**2.73**	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A	N/A	N/A
	7	**5.23**	**3.92**	**4.13**	**3.15**	N/A	N/A	N/A	N/A	**4.03**	**3.08**	N/A	N/A	N/A	N/A
	8	**5.03**	**3.78**	**3.53**	**2.73**	N/A	N/A	N/A	N/A	**3.63**	**2.80**	N/A	N/A	N/A	N/A
3A. Mathilda Avenue/Moffett Park Drive-SR 237 westbound Off-Ramp (Build Alternative 1)	9	N/A	N/A	N/A	N/A	**4.53**	**3.43**	N/A	N/A	N/A	N/A	**4.23**	**3.22**	N/A	N/A
	10	N/A	N/A	N/A	N/A	**3.73**	**2.87**	N/A	N/A	N/A	N/A	**3.63**	**2.80**	N/A	N/A
	11	N/A	N/A	N/A	N/A	**4.43**	**3.36**	N/A	N/A	N/A	N/A	**4.03**	**3.08**	N/A	N/A
	12	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A
3B. Mathilda Avenue/SR 237 westbound On-Ramp (Build Alternative 1)	13	N/A	N/A	N/A	N/A	**4.43**	**3.36**	N/A	N/A	N/A	N/A	**4.13**	**3.15**	N/A	N/A
	14	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A	N/A	N/A	**3.33**	**2.59**	N/A	N/A
	15	N/A	N/A	N/A	N/A	**4.53**	**3.43**	N/A	N/A	N/A	N/A	**4.13**	**3.15**	N/A	N/A
	16	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A	N/A	N/A	**3.43**	**2.66**	N/A	N/A
6. Mathilda Avenue/US 101 northbound Ramps (Existing/No Build)	17	**6.53**	**4.83**	**4.83**	**3.64**	N/A	N/A	N/A	N/A	**4.43**	**3.36**	N/A	N/A	N/A	N/A
	18	**4.53**	**3.43**	**3.73**	**2.87**	N/A	N/A	N/A	N/A	**3.53**	**2.73**	N/A	N/A	N/A	N/A
	19	**6.33**	**4.69**	**4.73**	**3.57**	N/A	N/A	N/A	N/A	**4.33**	**3.29**	N/A	N/A	N/A	N/A
	20	**4.83**	**3.64**	**3.83**	**2.94**	N/A	N/A	N/A	N/A	**3.63**	**2.80**	N/A	N/A	N/A	N/A
7. Mathilda Avenue/US 101 southbound Ramps (Existing/No Build)	21	**6.63**	**4.90**	**4.93**	**3.71**	N/A	N/A	N/A	N/A	**4.53**	**3.43**	N/A	N/A	N/A	N/A
	22	**5.23**	**3.92**	**4.13**	**3.15**	N/A	N/A	N/A	N/A	**3.93**	**3.01**	N/A	N/A	N/A	N/A
	23	**5.63**	**4.20**	**4.33**	**3.29**	N/A	N/A	N/A	N/A	**4.03**	**3.08**	N/A	N/A	N/A	N/A
	24	**5.03**	**3.78**	**3.93**	**3.01**	N/A	N/A	N/A	N/A	**3.73**	**2.87**	N/A	N/A	N/A	N/A

Intersection	Receptor[a]	Existing (2013)		Opening Year (2018) No Build		Opening Year (2018) Build Alternative 1		Opening Year (2018) Build Alternative 2		Design Year (2040) No Build		Design Year (2040) Build Alternative 1		Design Year (2040) Build Alternative 2	
		1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]	1-hr CO[b]	8-hr CO[c]
6. Mathilda Avenue/US 101 northbound Ramps (Build Alternatives 1 and 2)	25	N/A	N/A	N/A	N/A	**4.03**	**3.08**	**3.93**	**3.01**	N/A	N/A	**3.73**	**2.87**	**3.63**	**2.80**
	26	N/A	N/A	N/A	N/A	**4.03**	**3.08**	**4.03**	**3.08**	N/A	N/A	**3.83**	**2.94**	**3.83**	**2.94**
	27	N/A	N/A	N/A	N/A	**4.43**	**3.36**	**4.33**	**3.29**	N/A	N/A	**4.13**	**3.15**	**3.93**	**3.01**
	28	N/A	N/A	N/A	N/A	**4.03**	**3.08**	**3.93**	**3.01**	N/A	N/A	**3.83**	**2.94**	**3.73**	**2.87**
7. Mathilda Avenue/US 101 southbound Ramps (Build Alternatives 1 and 2)	29	N/A	N/A	N/A	N/A	**4.83**	**3.64**	**4.83**	**3.64**	N/A	N/A	**4.53**	**3.43**	**4.43**	**3.36**
	30	N/A	N/A	N/A	N/A	**4.13**	**3.15**	**4.03**	**3.08**	N/A	N/A	**3.93**	**3.01**	**3.93**	**3.01**
	31	N/A	N/A	N/A	N/A	**4.83**	**3.64**	**4.73**	**3.57**	N/A	N/A	**4.53**	**3.43**	**4.33**	**3.29**
	32	N/A	N/A	N/A	N/A	**4.03**	**3.08**	**3.93**	**3.01**	N/A	N/A	**3.83**	**2.94**	**3.83**	**2.94**
8. Mathilda Avenue/ Almanor Avenue/ Ahwanee Avenue	33	**5.43**	**4.06**	**4.23**	**3.22**	**4.23**	**3.22**	**4.13**	**3.15**	**3.93**	**3.01**	**3.93**	**3.01**	**3.73**	**2.87**
	34	**5.13**	**3.85**	**4.03**	**3.08**	**4.03**	**3.08**	**4.03**	**3.08**	**3.83**	**2.94**	**3.83**	**2.94**	**3.63**	**2.80**
	35	**5.63**	**4.20**	**4.33**	**3.29**	**4.33**	**3.29**	**4.23**	**3.22**	**4.03**	**3.08**	**4.03**	**3.08**	**3.73**	**2.87**
	36	**4.43**	**3.36**	**3.63**	**2.80**	**3.63**	**2.80**	**3.63**	**2.80**	**3.53**	**2.73**	**3.53**	**2.73**	**3.43**	**2.66**
12. Innovation Way/Juniper Networks Drive	37	**3.23**	**2.52**	**3.03**	**2.38**	**3.13**	**2.45**	**3.33**	**2.59**	**3.03**	**2.38**	**3.13**	**2.45**	**3.23**	**2.52**
	38	**3.63**	**2.80**	**3.23**	**2.52**	**3.23**	**2.52**	**3.53**	**2.73**	**3.13**	**2.45**	**3.23**	**2.52**	**3.33**	**2.59**
	39	**3.33**	**2.59**	**3.13**	**2.45**	**3.13**	**2.45**	**3.33**	**2.59**	**3.13**	**2.45**	**3.23**	**2.52**	**3.33**	**2.59**
	40	**3.33**	**2.59**	**3.03**	**2.38**	**3.13**	**2.45**	**3.23**	**2.52**	**3.13**	**2.45**	**3.13**	**2.45**	**3.23**	**2.52**
13. Bordeaux Drive/Innovation Way (Existing/No Build)	41	**2.93**	**2.31**	**2.83**	**2.24**	N/A	N/A	N/A	N/A	**2.73**	**2.17**	N/A	N/A	N/A	N/A
	42	**2.83**	**2.24**	**2.73**	**2.17**	N/A	N/A	N/A	N/A	**2.73**	**2.17**	N/A	N/A	N/A	N/A
	43	**2.93**	**2.31**	**2.83**	**2.24**	N/A	N/A	N/A	N/A	**2.73**	**2.17**	N/A	N/A	N/A	N/A
	44	**2.83**	**2.24**	**2.73**	**2.17**	N/A	N/A	N/A	N/A	**2.73**	**2.17**	N/A	N/A	N/A	N/A
13. Bordeaux Drive/Innovation Way (Build Alternatives 1 and 2)	45	N/A	N/A	N/A	N/A	**3.03**	**2.38**	**3.03**	**2.38**	N/A	N/A	**3.03**	**2.38**	**3.03**	**2.38**
	46	N/A	N/A	N/A	N/A	**3.13**	**2.45**	**3.13**	**2.45**	N/A	N/A	**3.13**	**2.45**	**3.13**	**2.45**
	47	N/A	N/A	N/A	N/A	**2.93**	**2.31**	**2.93**	**2.31**	N/A	N/A	**2.93**	**2.31**	**2.93**	**2.31**
	48	N/A	N/A	N/A	N/A	**3.03**	**2.38**	**3.03**	**2.38**	N/A	N/A	**3.03**	**2.38**	**3.03**	**2.38**

a Receptors are located at 3 meters from the intersection, at each of the four corners. All intersections modeled have two intersecting roadways.
b Average 1-hour background concentration between 2012 and 2014 was 2.63 ppm (U.S. Environmental Protection Agency 2016).
c Average 8-hour background concentration between 2012 and 2014 was 2.10 ppm (U.S. Environmental Protection Agency 2016).

Potential Violations of PM10 and PM2.5 CAAQS

The EPA's transportation conformity rules stipulate that transportation projects considered a POAQC, or any other project that is identified by the PM2.5 SIP as a localized air quality concern, must be analyzed for local air quality impacts (i.e., hot-spots) in PM2.5 nonattainment and maintenance areas. As previously indicated, Santa Clara County is designated by the ARB as a nonattainment area for the PM10 and PM2.5 CAAQS standard. As previously indicated, the project is not subject to federal NEPA or transportation conformity requirements and interagency consultation through MTC's Air Quality Conformity Task Force is not required for the proposed project, as confirmed by MTC staff (Brazil pers. Comm.).Therefore, a project-level PM10 and PM2.5 analysis using EPA's POAQC guidance is performed to ensure the project would not result in a PM10 nor PM2.5 hot-spot and result in an exceedance of the PM10 or PM2.5 CAAQS.

As discussed in Section 3.2, *Regulatory Setting*, a quantitative hot-spot analysis is only required for projects identified as a POAQC, as defined in 40 CFR 93.123(b)(1). As described below, the Project does not meet any of the project types considered to be POAQC by the EPA's final rule. Accordingly, the Project is not considered to be a POAQC, and project-level particulate matter conformity determination requirements are thus satisfied. While the Project is not subject to PM conformity requirements, Caltrans uses the POAQC analysis process to determine whether the Project would result in a potential PM hot-spot under CEQA.

(i) **New highway projects that have a significant number of diesel vehicles, and expanded highway projects that have a significant increase in the number of diesel vehicles.** Appendix B from the EPA's *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM2.5 and PM10 Nonattainment and Maintenance Areas* provides guidance on what types of projects may be projects of local air quality concern 40 CFR 93.123(b)(1). Appendix B indicates that a facility with an ADT of 125,000 and 8 percent trucks (10,000 truck ADT) are likely considered a POAQC. The Project would improve operations on Mathilda Avenue through the US 101 and SR 237 interchanges to reduce existing and future traffic congestion. For existing freeway facilities, the effect of a project on truck volumes is normally the main point on which this criterion is judged. Table 3-11 indicates that AADT on the four road segments on and around SR 65 under design year (2040) conditions, which represents the year with maximum AADT, will vary between approximately 51,000 and 65,000 on SR 237 and approximately 87,000 and 102,000 on US 101, depending on the direction of traffic flow. Heavy-duty trucks comprise 3.86 percent of US 101 AADT and 2.95 percent of SR 237 AADT, resulting in a truck AADT of 3,366 to 3,914 on US 101 and 1,520 to 1,913 on SR 237 (Fehr & Peers 2016). Truck percentages on SR 237 and US 101 would remain constant for all years of analysis and for all Build or No Build Alternatives (i.e., the Project would not affect truck percentages between the Build and No Build Alternatives). Truck volumes proportionally increase as total AADT increases with time but predicted truck volumes would be well below the EPA's guidance criteria of 8 percent or 10,000 vehicles per day (maximum truck volume is 3,914). Accordingly, the Build Alternatives would not serve a significant number of diesel vehicles or result in a significant increase in diesel vehicles.

(ii) **Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of**

increased traffic volumes from a significant number of diesel vehicles related to the project. Peak-hour LOS and delay at study area intersections under existing (2013), opening (2018), and design year (2040) conditions are presented in Tables 5-2 and 6-1 in the Final Traffic Operations Analysis Report for the Mathilda Avenue Improvements Project (Fehr & Peers 2016a).. Table 5-2 indicates three degradations in opening year LOS between No Build and Build Alternative 1 and four degradations in opening year LOS between No Build and Build Alternative 2. However, Table 5-2 indicates six improvements each in opening year LOS between No Build and Build Alternatives 1 and 2. Table 5-2 also indicates total vehicle hours of delay during the AM peak hour would decrease from 1,319 under opening year No Build conditions to 493 hours and 773 hours for Build Alternative 1 and Build Alternative 2 conditions, respectively. Also, Table 5-2 indicates total vehicle hours of delay during the PM peak hour would decrease from 1,504 under opening year No Build conditions to 1,285 hours and 1,107 hours for Build Alternative 1 and Build Alternative 2 conditions, respectively. Table 6-1 indicates four degradations in design year LOS between No Build and Build Alternative 1 and two degradations in design year LOS between No Build and Build Alternative 2. However, Table 6-1 indicates two improvements in design year LOS between No Build and Build Alternative 1 and zero improvements in design year LOS between No Build and Build Alternative 2. However, Table 6-1 also indicates total vehicle hours of delay during the AM peak hour would decrease from 2,989 under design year No Build conditions to 1,948 hours and 2,582 hours for Build Alternative 1 and Build Alternative 2 conditions, respectively. Also, Table 6-1 indicates total vehicle hours of delay during the PM peak hour would decrease from 3,830 under design year No Build conditions to 3,130 hours and 3,262 hours for Build Alternative 1 and Build Alternative 2 conditions, respectively.

(iii) **New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location**. The Project does not include new bus or rail terminals and transfer points.

(iv) **Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location**. The Project does not include expanded bus or rail terminals and transfer points.

(v) **Projects in or affecting locations, areas, or categories of sites which are identified in the PM2.5 or PM10 applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation**. Currently, there is no SIP for the federal PM2.5 standard.

Table 3-11. AADT Volumes and Truck Percentages

	Existing Conditions (2013)			Opening Year (2018)			Design Year (2040)		
Segments	**AADT**	**Truck AADT**	**% Truck**	**AADT**	**Truck AADT**	**% Truck**	**AADT**	**Truck AADT**	**% Truck**
US 101 Northbound	78352	3,025	3.86%	80647	3,113	3.86%	87205	3,367	3.86%
US 101 Southbound	75943	2,932	3.86%	82541	3,187	3.86%	101393	3,914	3.86%
US 101 TOTAL	**154295**	**5,956**	**3.86%**	**163188**	**6,300**	**3.86%**	**188598**	**7,280**	**3.86%**
SR 237 Westbound	60933	1,798	2.95%	61945	1,828	2.95%	64835	1,913	2.95%
SR 237 Eastbound	39206	1,157	2.95%	42406	1,251	2.95%	51547	1,521	2.95%
SR 237 TOTAL	**100139**	**2,955**	**2.95%**	**104351**	**3,079**	**2.95%**	**116382**	**3,434**	**2.95%**

Source: Brooke pers. comm.
AADT = annual average daily traffic

Based on the discussion above, the Project would not be considered a POAQC, as defined by 40 CFR 93.123(b)(1). Therefore, the Project is not anticipated to result in a PM hot-spot.

Potential for Generation of MSAT Emissions

The area of air toxics analysis is a new and emerging issue and is a continuing area of research. Currently, there are limited tools and techniques available for assessing project-specific health impacts from MSATs, as there are no established criteria for determining when MSAT emissions should be considered a significant issue in the NEPA context.

To comply with Council on Environmental Quality regulations (*40 CFR 1502.22[b]*) regarding incomplete or unavailable information, Appendix C contains discussion regarding how air toxics analysis is an emerging field and current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that would result from a transportation project in a way that would be useful to decision-makers. Also in compliance with *40 CFR 150.22(b),* Appendix C contains a summary of current studies regarding the health impacts of MSATs.

The purpose of this Project is to reduce congestion and improve traffic operations on Mathilda Avenue at SR 237 and US 101 by reconfiguring the US 101 and SR 237 interchanges with Mathilda Avenue. This includes modification to on- and off-ramps; removal, addition, and signalization of intersections; and provision of new left-turn lanes. This Project has been determined to generate minimal air quality impacts for CAAA criteria pollutants and has not been linked with any special MSAT concerns. The Build Alternatives associated with this Project would result in a decrease in traffic volumes when compared to No Build conditions, as shown in Table 3-5, but would not result in changes in vehicle mix, basic project location, or any other factor that would cause an increase in MSAT impacts of the Build Alternatives from that of the No-Build Alternative.

Table 3-12 indicates that implementation of the Build Alternatives would not result in increases in any MSAT emissions under either Build Alternative for 2018 or 2040 conditions when compared to the No Build Alternative. Therefore, this Project would have no meaningful potential MSAT effects.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSAT emissions to decline significantly over the next several decades. Based on regulations now in effect, an analysis of national trends with the EPA's Motor Vehicle Emissions Simulator model forecasts a combined reduction of over 80 percent in the total annual emission rate for the priority MSAT from 2010 to 2050 while vehicle-miles of travel are projected to increase by over 100 percent. This will both reduce the background level of MSAT as well as the possibility of even minor MSAT emissions from this Project.

Table 3-12. Mathilda Avenue Improvements Project MSAT Emissions (pounds per day)

Scenario	Naphthalene	Acrolein	Benzene	1, 3-Butadiene	Formaldehyde	Diesel Particulate Matter	Polycyclic Organic Matter
2013 Existing	0	0	10	2	16	29	0
2018 No-Build Alt	0	0	5	1	6	6	0
2018 Build Alt 1	0	0	5	1	6	6	0
2018 Build Alt 2	0	0	5	1	6	6	0
2040 No-Build Alt	0	0	3	1	5	1	0
2040 Build Alt 1	0	0	3	1	5	1	0
2040 Build Alt 2	0	0	3	1	5	1	0
Comparison of Build Alternatives to Existing Conditions							
2018 No-Build Alt	0	0	-6	-1	-9	-24	0
2018 Build Alt 1	0	0	-6	-1	-9	-24	0
2018 Build Alt 2	0	0	-6	-1	-9	-24	0
2040 No-Build Alt	-0.2	-0.3	-7.1	-1.5	-11.0	-28.1	-0.3
2040 Build Alt 1	-0.2	-0.3	-7.1	-1.5	-11.1	-28.1	-0.3
2040 Build Alt 2	-0.2	-0.3	-7.1	-1.5	-11.0	-28.1	-0.3
Comparison of Build Alternatives to No Build Conditions							
2018 Build Alt 1	0	0	0	0	0	0	0
2018 Build Alt 2	0	0	0	0	0	0	0
2040 Build Alt 1	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0
2040 Build Alt 2	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note: Emissions calculations based on CT-EMFAC v6.0.
Alt = Alternative

Potential for Generation of Operation-Related Emissions of reactive organic gases (ROG), oxides of nitrogen (NO_X), Carbon Monoxide, and Particulate Matter

Long-term air quality impacts are those associated with motor vehicles operating on the roadway network, predominantly those operating in the Project vicinity. Emission of ROG, NO_X, CO, PM10, PM2.5, and CO_2 for existing year (2013), opening year (2018) No Build and Build Alternatives, and design-future year (2040) No Build and Build Alternative Project conditions were evaluated through modeling conducted using Caltrans' CT-EMFAC model and vehicle activity data provided by the Project traffic engineer, Fehr & Peers (see Appendix B).

Table 3-13 summarizes the modeled yearly emissions. The differences in emissions between with- and without-Project conditions represent emissions generated directly as a result of implementation of the Build Alternatives. Vehicular emission rates are anticipated to lessen in future years due to continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Table 3-13. Mathilda Avenue Improvements Project-Related Criteria Pollutant Emissions (pounds per day)

Scenario	ROG	NO_X	CO	PM10	PM2.5
2013 Existing	313	2,070	7,727	243	117
2018 No-Build Alternative	147	977	3,991	237	101
2018 Build Alternative 1	147	970	3,962	235	100
2018 Build Alternative 2	148	975	3,980	236	101
2040 No-Build Alternative	100	350	2,217	283	115
2040 Build Alternative 1	98	343	2,169	277	113
2040 Build Alternative 2	100	351	2,200	280	114
Comparison of Build Alternatives to Existing					
2018 No-Build Alternative	-166	-1,093	-3,737	-6	-16
2018 Build Alternative 1	-166	-1,100	-3,765	-8	-17
2018 Build Alternative 2	-165	-1,096	-3,747	-7	-16
2040 No-Build Alternative	-213	-1,720	-5,511	40	-2
2040 Build Alternative 1	-215	-1,727	-5,558	34	-5
2040 Build Alternative 2	-213	-1,719	-5,527	37	-3
Comparison of Build Alternatives to No Build Conditions					
2018 Build Alternative 1	0	-7	-28	-2	-1
2018 Build Alternative 2	1	-2	-10	-1	0
2040 Build Alternative 1	-2	-7	-47	-7	-3
2040 Build Alternative 2	0	1	-17	-3	-1
BAAQMD Threshold	54	54	-	82	54

Note: Emissions calculations based on CT-EMFAC v6.0.

Emissions associated with implementation of the Project were obtained by comparing future with-Project emissions to future without-Project emissions for both the opening year (2018) and design-future year (2040) scenarios. Because Caltrans has statewide jurisdiction, and the setting for projects varies so extensively across the state, Caltrans has not and has no intention to develop thresholds of significance for CEQA. Further, because most air district thresholds have not been established by regulation or by delegation down from a federal or state agency with regulatory authority over Caltrans, Caltrans is not required to adopt those thresholds in Caltrans' documents. Nevertheless, Project-level operational emissions are presented in Table 3-13. BAAQMD's adopted thresholds of significance for Project-level operational-related criteria pollutant emissions are presented for informational purposes.

In 2018, Build Alternatives 1 and 2 would result in decreases in all pollutants compared to existing conditions. Compared to No Build conditions in 2018, Build Alternative 1 shows a decrease in all pollutants, except for no change in ROG emissions. Build Alternative 2 would result in a slight increase in ROG emissions, no change in PM2.5 emissions, and decreases in NO_X, CO, and PM10 emissions.

In 2040, Build Alternatives 1 and 2 would result in decreases in all pollutants, except for an increase in PM10 emissions, compared to existing conditions. Compared to No Build conditions in 2040, Build Alternative 1 shows a decrease in all pollutants while Alternative 2 would result in a slight increase in NO_X emissions, no change in ROG emissions and decreases in CO, PM10, and PM2.5 emissions.

Potential for Temporary Increase in Ozone Precursors (ROG and NO_X), CO, and PM10 Emissions during Grading and Construction Activities

Implementation of all Build Alternatives would result in the construction of widened and reconfigured roads as well as intersection improvements. Temporary construction emissions would result from grubbing/land clearing, grading/excavation, drainage/utilities/subgrade construction, and paving activities and construction worker commuting patterns. Pollutant emissions would vary daily, depending on the level of activity, specific operations, and prevailing weather.

The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (Version 7.1.5.1) was used to estimate construction-related ozone precursors ROG and NO_X, CO, PM10, PM2.5, and CO_2 emissions from construction activities. Construction is expected to begin in 2018 with a construction period lasting approximately 12 months. It was assumed that construction activities would occur for 8 hours per day over this period. The total Project length was assumed to be 0.85 miles, and total area of disturbed ground for either Build Alternative was assumed to be 22 acres. The maximum amount of acreage disturbed per day was assumed to be 2.5 acres. It was also assumed that 200 cubic yards of soil per day would be imported with an average haul truck capacity of 10 cubic yards.

The emissions shown in Table 3-14 assume no concurrent construction activities. To provide a realistic, yet conservative scenario, maximum daily emissions were estimated assuming all equipment would operate at the same time during the individual construction phases. Because of this conservative assumption, actual emissions could be less than those forecasted. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive build-out schedule (i.e., fewer daily emissions occurring over a longer time interval).

Table 3-14 summarizes maximum daily emissions levels for the proposed construction year 2018. Because Caltrans has statewide jurisdiction, and the setting for projects varies so extensively across the state, Caltrans has not and has no intention to develop thresholds of significance for CEQA. Further, because most air district thresholds have not been established by regulation or by delegation down from a federal or state agency with regulatory authority over Caltrans, Caltrans is not required to adopt those thresholds in Caltrans' documents. Nevertheless, BAAQMD thresholds of significance are provided for reference.

Table 3-14. Worst-Case Construction Emission Estimates (pounds per day)

Project Phases	ROG	CO	NO_X	Total PM10	Exhaust PM10	Fugitive Dust PM10	Total PM2.5	Exhaust PM2.5	Fugitive Dust PM2.5
Grubbing/Land Clearing	1.4	11.0	15.4	25.7	0.7	25.0	5.8	0.6	5.2
Grading/ Excavation	8.4	50.9	96.0	29.5	4.5	25.0	9.2	4.0	5.2
Drainage/Utilities/ Sub-Grade	4.7	28.6	43.5	27.5	2.5	25.0	7.4	2.2	5.2
Paving	2.1	14.8	19.1	1.2	1.2	-	1.1	1.1	-
Maximum (pounds/day)	8.4	50.9	96.0	29.5	4.5	25.0	9.2	4.0	5.2
BAAQMD Threshold	54	-	54	-	82	BMPs	-	54	BMPs
Total (tons/ construction project)	0.7	4.4	7.7	3.2	0.4	2.8	0.9	0.3	0.6

ROG = reactive organic acids; CO = carbon monoxide; No_x = oxides of nitrogen; PM = particulate matter; BMPs = best management practices

Construction activities are subject to requirements found in the *Standard Specifications for Construction of Local Streets and Roads* (California Department of Transportation 2010), Section 14-9.02, which includes specifications relating to air pollution control by complying with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statutes provided in Government Code Section 11017 (Public Contract Code §10231) while standard specification Section 14-9.03 addresses dust control and palliative requirements. Implementation of Caltrans' standard specification and measures to control dust during construction would help to minimize air quality impacts from construction activities.

Naturally Occurring Asbestos

According to the California Department of Conservation's 2000 publication, *A General Location Guide for Ultramafic Rock in California*, there are no geologic features normally associated with naturally occurring asbestos (i.e., serpentine rock or ultramafic rock near fault zones) in or near the Project area (California Department of Conservation 2000). As such, there is no potential for impacts related to naturally occurring asbestos emissions during construction activities. However, construction activities that involve the demolition of any building or structure containing asbestos would be subject to the EPAs National Emissions Standards for Hazardous Air Pollutants and ARB's Airborne Toxic Control Measures.

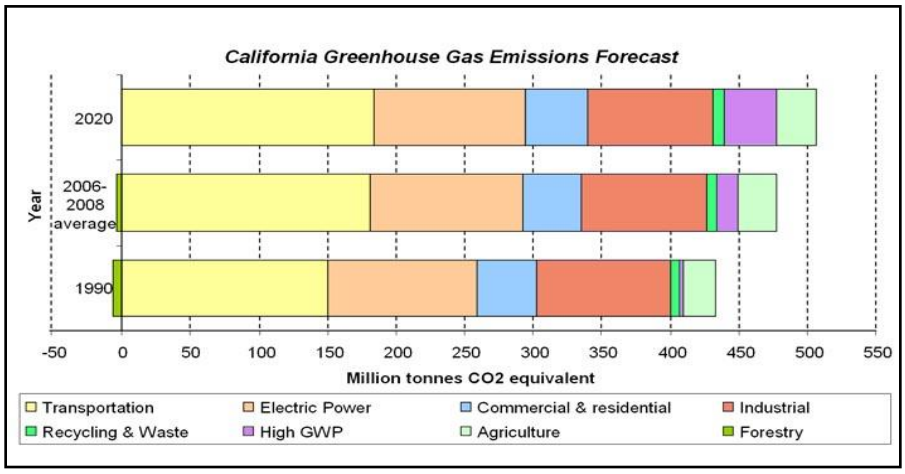
Potential for Generation of Greenhouse Gas Emissions

An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may participate in a potential impact through its incremental contribution combined with the contributions of all other sources of GHG.[10] In assessing cumulative impacts, it must be determined

[10] This approach is supported by the AEP: Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents (March

if a project's incremental effect is "cumulatively considerable" (see CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult if not impossible task.

The AB 32 Scoping Plan contains the main strategies California will use to reduce GHG. As part of its supporting documentation for the Draft Scoping Plan, ARB released the GHG inventory for California (Forecast last updated: 28 October 2010) (Figure 8). The forecast is an estimate of the emissions expected to occur in the year 2020 if none of the foreseeable measures included in the Scoping Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.



Source: http://www.arb.ca.gov/cc/inventory/data/forecast.htm

Figure 8. California Greenhouse Gas Forecast

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006 (see Climate Action Program at Caltrans, December 2006).[11]

3.3.3 Operational Emissions

Future year GHG emissions associated with implementation of the Project were obtained by comparing future with-Project emissions to future no-Project emissions for both the opening (2018) and design (2040) years. It is important to note that CO_2 emissions are useful only for a comparison between Build Alternatives. The numbers are not necessarily an accurate reflection of what the true CO_2 emissions will be because CO_2 emissions are dependent on factors that are not part

5, 2007), as well as the SCAQMD (Chapter 6: The CEQA Guide, April 2011) and the US Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

[11] Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

of the emissions model, such as the fuel mix[12], rate of acceleration, and the aerodynamics and efficiency of the vehicles.

Future year GHG emissions associated with implementation of the Build Alternatives were obtained by comparing future with-Project emissions to future no-Project emissions for both the opening (2018) and design (2040) years. Table 3-15 presents Project-level emissions and indicates that under 2018 and 2040 conditions implementation of the Build Alternatives is anticipated to result in decreases in CO_2 emissions when compared to the future No Build conditions. These increases are attributed to decreases in VMT between the no-Project and with-Project conditions.

Table 3-15. Estimated Greenhouse Gas Emissions from Operation of Mathilda Avenue Improvements Project (metric tons per year)

		Emissions		
Year	**Annual VMT**	**CO_2**	**Other[a]**	**CO_2e**
2013 Baseline	662,218,242	266,191	13,310	279,501
2018 No-Build Alternative	724,741,607	250,062	12,503	262,565
2018 Build Alternative 1	719,241,931	248,217	12,411	260,628
2018 Build Alternative 2	722,009,718	249,446	12,472	261,919
2040 No-Build Alternative	903,379,794	211,441	10,572	222,014
2040 Build Alternative 1	882,166,756	206,746	10,337	217,083
2040 Build Alternative 2	892,842,508	209,850	10,493	220,343
Comparison to Existing				
2018 No-Build Alternative	62,523,365	-16,129	-806	-16,936
2018 Build Alternative 1	57,023,689	-17,974	-899	-18,873
2018 Build Alternative 2	59,791,476	-16,745	-837	-17,582
2040 No-Build Alternative	241,161,552	-54,750	-2,737	-57,487
2040 Build Alternative 1	219,948,514	-59,445	-2,972	-62,417
2040 Build Alternative 2	230,624,266	-56,341	-2,817	-59,158
Comparison to No Build				
2018 Build Alternative 1	-5,499,676	-1,845	-92	-1,937
2018 Build Alternative 2	-2,731,889	-615	-31	-646
2040 Build Alternative 1	-21,213,037	-4,695	-235	-4,930
2040 Build Alternative 2	-10,537,286	-1,591	-80	-1,671

[a] Includes methane (CH_4), nitrous oxide (N_2O), and other trace GHGs emissions emitted by typical passenger vehicles (U.S. Environmental Protection Agency 2015).
CO_2e = carbon dioxide equivalent

MTC's 2040 RTP includes performance objectives to reduce per-capita delay while improving roadway safety. As indicated in the EIR prepared for MTC's 2040 RTP, the RTP would help to reduce congestion by reducing vehicle hours of delay and increasing average network speed. If implemented, the Project would be consistent with the RTP in this regards as it is anticipated to help to reduce congestion by reducing vehicle hours of delay and increasing average network speed. The Project also includes various mitigation measures, detailed below, that will reduce the Project's GHG's emissions.

[12] EMFAC model emission rates are only for direct engine-out CO_2 emissions, not for full fuel cycle. In addition, fuel cycle emission rates can vary dramatically depending on the amount of additives, such as ethanol, and the source of the fuel components.

Transportation accounts for 40 percent of the Bay Area's GHG emissions. The MTC understands the urgent need to address climate change. The MTC coordinates regional planning efforts with the BAAQMD, Association of Bay Area Governments, the Bay Conservation and Development Commission, as part of the Joint Policy Committee. The Transportation Climate Action Campaign within the Joint Policy Committee seeks to enable climate friendly behaviors, reduce the Bay Area's carbon footprint, and lay the groundwork for ongoing future climate change initiatives . (MTC 2016).

In late 2009, MTC programmed $80 million over a 3-year period to implement the Climate Initiatives Program. In partnership with the BAAQMD, MTC is developing a region-wide campaign for the Climate Initiatives Public Outreach Program to reduce transportation-related GHG emissions through a public education and branding campaign that will educate and encourage the public to make transportation choices that reduce GHG emissions.

The EIR for the 2040 RTP states that while increases in VMT over the planning period are contributing somewhat to the significant cumulative impact of global climate change, the Project's contribution to the significant cumulative impact of global climate change is not cumulatively considerable. MTC's RTP identifies four criteria related to the emissions of GHGs to determine if the RTP would have a potentially significant adverse impact.

1. Fail to reduce per capita passenger vehicle and light duty truck CO_2 emissions by seven percent by 2020 and by 15 percent by 2035 as compared to 2005 baseline, per SB 375.

The RTP was found to be consistent with SB 375, as modeled CO_2 emissions met the SB 375 targeted reductions for per capita car and light duty truck emissions. In fact, the RTP was found to result in greater emission reductions than the SB 375 targets.

2. Result in a net increase in direct and indirect GHG emissions in 2040 when compared to existing conditions.

Forecast GHG emissions are expected to decline with the implementation of the RTP when considering scoping plan reductions for electricity and natural gas, recycling and waste, and implementation of Pavley and the LCFS regulations. Overall emissions in 2040 are expected to be less than under existing conditions.

3. Substantially impede attainment of goals set forth in EO S-3-05 and EO B-16-2012.

Because the goals of EOs S-3-05 and B-16-2012 are more than 35 years into the future, the RTP assessment considered the following factors:

- Per capita car and light duty truck emissions decline from 2005 through 2040, and are expected to continue to decline into the future;
- Total GHG emissions from land use and transportation are expected to decline from 2010 through 2040, and are expected to continue to decline into the future;
- New innovations in technology and science are expected, along with continued market shift towards green building and zero emission vehicles; and
- The RTP and SCS must be updated every 4 years, providing frequent opportunities to reevaluate progress towards executive order achievement. Therefore, the Bay Area is heading in the direction of achieving the executive order goals, and does not impede achievement of these identified goals.

4. Substantially conflict with any other applicable plan, policy or regulation adopted for the purpose of reducing the emissions of GHGs.

The RTP was found to be consistent with state goals and mandates. Further, it is not expected that the RTP would conflict with local CAPs or GHG reduction plans as they are complimentary efforts towards the reduction of GHG emissions in line with state goals and mandates. Therefore, the RTP is expected to be consistent with other GHG reduction plans.

Within the RTP are various funded regional policy efforts that address the Bay Area's contribution to global climate change, including the Bay Area Regional Agency Climate Protection Program, the Transportation Climate Action Campaign, and the Bay Area 2010 Clean Air Plan.

MTC, as part of their mitigation, commits to working with the Association of Bay Area Governments, the Bay Conservation and Development Commission, and the BAAQMD, through the Joint Policy Committee, to develop green construction policies and best practices that encourage that will reduce impacts related to GHG emissions. Individual projects carried out as part of the RTP shall consider adopting appropriate best practice measures (BMPs) that would minimize or eliminate cumulatively considerable impacts related to climate change. BMPs may include using alternative fueled (e.g., biodiesel, electric) construction vehicles/equipment for at least 15 percent of the fleet; using local building materials for at least 10 percent; and recycling or reusing at least 50 percent of construction waste or demolition materials. One of the main strategies in the Department's Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. Consistent with Caltrans requirements, a discussion of how the modal choice for the project was made in the early planning phases of the project is included as part of this analysis. There were 18 initial interchange alternatives considered in order to reduce congestion and GHG emissions through increased efficiency of the local transportation system. Project alternatives were screened based on the ability of each alternative to meet the Project's defined purpose and need, potential for environmental impacts, cost, and ability to provide adequate traffic operation improvements. Transportation Demand Management, Transportation System Management, and Mass Transit alternatives were considered but eliminated from further discussion because the Build Alternatives already include measures to improve accessibility for other modes of travel (bicycle and pedestrian facilities) and would improve traffic signal coordination. Furthermore, implementation of other measures typically included as part of Transportation Demand Management and Transportation System Management alternatives, as well as a stand-alone Mass Transit alternative, would not meet the Project purpose and need.

3.3.4 Construction Emissions

Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model (Version 7.1.5.1) was used to estimate CO_2 emissions from construction activities. The Road Construction Emissions Model does not include emission factors for CH_4 or nitrous oxide (N_2O) for off-road diesel equipment. Emissions of CH_4 and N_2O from diesel-powered equipment were determined by scaling the CO_2 emissions quantified by the ratio of CH_4/CO_2 (0.000056) and N_2O/CO_2 (0.000025) (Climate Registry 2015).

Table 3-16 summarizes estimated GHG emissions generated by on-site construction equipment over the 12-month construction period. These emissions would be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through inno-

vations in plans and specifications and by implementing better traffic management during construction phases. In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events. Measures to reduce construction emissions include maintenance of construction equipment and vehicles, limiting of construction vehicle idling time, and scheduling and routing of construction traffic to reduce engine emissions.

While there are minor short-term construction-related GHG emissions, the operational analysis indicates the Project would result in a net decrease in GHG emissions (Table 3-15) that would ultimately offset these temporary increases in construction GHG emissions.

Table 3-16. GHG Emissions from Construction of Project (metric tons per year)

Diesel Equipment			
CO_2	CH_4	N_2O	CO_2e
971.1	0.05	0.02	977.8

CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent

3.3.5 AB 32 Compliance

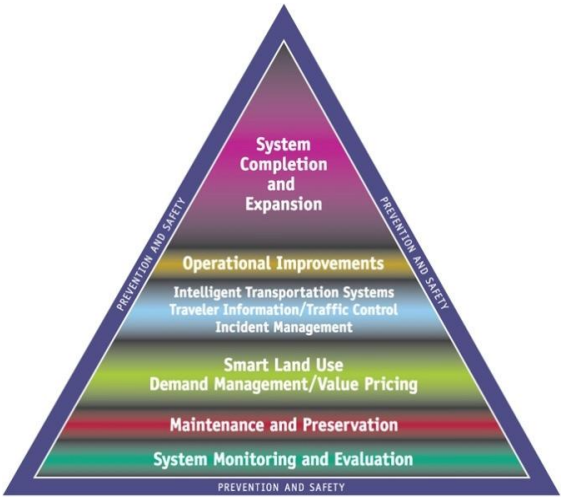


Figure 9: Mobility Pyramid

Caltrans continues to be involved on the Governor's Climate Action Team as the ARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies Caltrans is using to help meet the targets in AB 32 come from Former Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO_2 reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in **Figure 9**: The Mobility Pyramid.

Caltrans is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, transit-oriented communities, and high-density housing along transit corridors. Caltrans works closely with local jurisdictions on planning activities, but does not have local land use planning authority. Caltrans also assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; Caltrans is doing this by supporting on-going research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the EPA and ARB.

Caltrans is also working towards enhancing the state's transportation planning process to respond to future challenges. Similar to requirements for RTPs under SB 375 (Steinberg 2008), SB 391

(Liu 2009) requires the state's long-range transportation plan to meet California's climate change goals under AB 32.

The California Transportation Plan is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. The California Transportation Plan defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the California Transportation Plan is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the California Transportation Plan 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the state's transportation needs.

Table 3-17 summarizes Caltrans and other statewide efforts that it is implementing to reduce GHG emissions. More detailed information about each strategy is included in the Climate Action Program at Caltrans (December 2006).

Caltrans Director's Policy 30 Climate Change (June 22, 2012) is intended to establish a policy that will ensure coordinated efforts to incorporate climate change into Caltrans decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)[13] provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce GHG emissions resulting from agency operations.

The following measures will also be included in the Project to reduce the GHG emissions and potential climate change impacts from the Project:

1. Landscaping reduces surface warming and, through photosynthesis, decreases CO_2. The Project proposes replanting to the extent feasible where existing landscaping occurs. All areas of ground disturbance due to construction activities will receive permanent erosion control utilizing native seeds and plants. If trees cannot be replaced within the Project site, in-lieu fees will be paid to an appropriate fund so that trees can be planted elsewhere within the City of Sunnyvale limits. These trees will help offset any potential CO_2 emissions increase.
2. According to Caltrans Standard Specifications, the contractor must comply with all local Air Pollution Control District's rules, ordinances, and regulations for air quality restrictions. BAAQMD recommends idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.

[13] http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

Table 3-17. Climate Change/Carbon Dioxide (CO_2) Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO_2 Savings Million Metric Tons	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System Deployment	Strategic Growth Plan	Caltrans	Regions	State Intelligent Transportation System; Congestion Management Plan	0.07	2.17
Mainstream Energy & Greenhouse Gas into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, California Environmental Protection Agency, Programmatic Agreement, Air Resources Board (ARB), California Energy Commission		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services		Fleet Replacement	0.0045	0.0065
				Biodiesel (B) 20		0.045
				B100		0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries		2.5% limestone cement mix	1.2	4.2
				25% fly ash cement mix > 50% fly ash/slag mix	0.36	3.6
Goods Movement	Office of Goods Movement	California Environmental Protection Agency, ARB, Business, Transportation and Housing Agency, Metropolitan Planning Organizations		Goods Movement Action Plan	Not Estimated	Not Estimated
				Total	**2.72**	**18.18**

3.3.6 Adaptation Strategies

Adaptation strategies refer to how Caltrans and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts on the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the Council on Environmental Quality, the Office of Science and Technology Policy, and the National Oceanic and Atmospheric Administration, released its interagency task force progress report on October 28, 2011[14], outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks.

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts on habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08 which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop. The California Climate Adaptation Strategy (Dec 2009)[15], which summarizes the best-known science on climate change impacts on California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to

[14] http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation
[15] http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF

be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report[16] to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon, and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts on state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, the Coastal Ocean Climate Action Team updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data

All projects that have filed a Notice of Preparation as of the date of the EO S-13-08, and/or are programmed for construction funding through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The Project is outside the coastal zone and direct impacts on transportation facilities due to projected sea-level rise are not expected.

EO S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. Caltrans continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, Caltrans is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, Caltrans has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, Caltrans will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

[16] *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at: http://www.nap.edu/catalog.php?record_id=13389.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. Caltrans is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

3.4 Avoidance, Minimization, and/or Mitigation Measures

Implement California Department of Transportation Standard Specification Section 14

To control the generation of construction-related air pollutants and dust, the Project proponent will follow Standard Specification Section 14, "Environmental Stewardship," which addresses the contractor's responsibility on many items of concern, such as air pollution; protection of lakes, streams, reservoirs, and other water bodies; use of pesticides; safety; sanitation; convenience for the public; and damage or injury to any person or property as a result of any construction operation. Section 14-9.02, which includes specifications relating to air pollution control by complying with air pollution control rules, regulations, ordinances, and statutes that apply to work performed under the contract, including air pollution control rules, regulations, ordinances, and statutes provided in Government Code Section 11017 (Public Contract Code Section 10231). Section 14-9.03 is directed at controlling dust.

Implement Basic and Additional Control Measures for Construction Emissions of Fugitive Dust

Additional measures to control dust required by the BAAQMD (see Table 3-18) shall be implemented to the extent practicable when the measures have not already been incorporated and do not conflict with requirements of Caltran's Standard Specifications, Special Provisions, National Pollutant Discharge Elimination System permit, and the Biological Opinions, Clean Water Act Section 404 permit, Clean Water Act Section 401 Certification, and other permits issued for the Project.

Table 3-18. BAAQMD Feasible Control Measures for Construction Emissions of Particulate Matter

Basic Construction Mitigation Measures Recommended for ALL Projects
1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
3. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
4. All vehicle speeds on unpaved roads shall be limited to 15 mph.
5. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
6. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Additional Construction Mitigation Measures Recommended for Projects with Construction Emissions Above the Threshold
1. All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12%. Moisture content can be verified by lab samples or moisture probe.
2. All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph.
3. Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50% air porosity.
4. Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established.
5. The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time.
6. All trucks and equipment, including their tires, shall be washed off prior to leaving the site.
7. Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel.
8. Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than 1%.
Source: Bay Area Air Quality Management District 2011.

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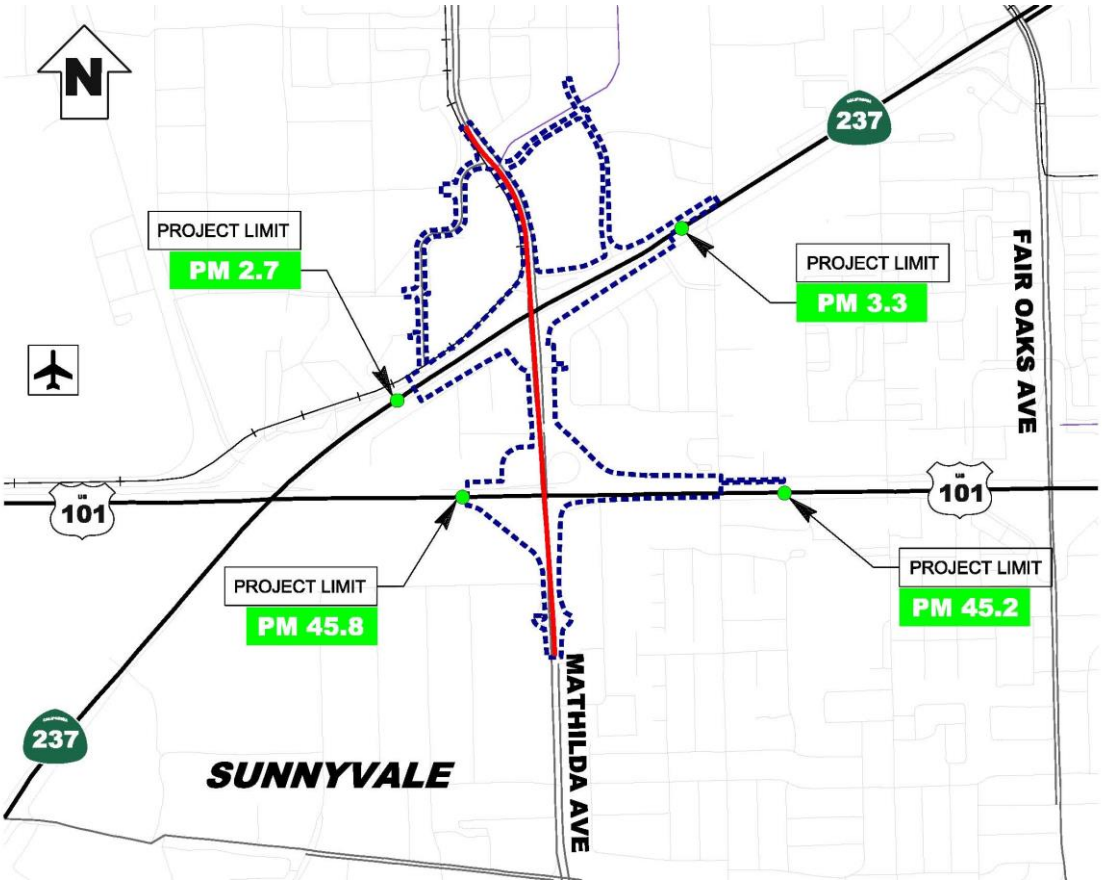
EA 04-4H2900/Project ID 0413000204

Community Impact Assessment

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:

ICF, International

Dated: May 2016

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Community Impact Assessment

for the

MATHILDA AVENUE IMPROVEMENTS AT S R 237 AND US 101 PROJECT

on Mathilda Avenue from Almanor Avenue to Innovation Way; on SR 237 from 0.3 mile south of US 101/SR 237 Junction to 0.3 mile east of Mathilda Avenue Undercrossing; and on US 101 from 0.3 mile south of Mathilda Avenue to SR 237/US 101/SR 237 Junction in the City of Sunnyvale, Santa Clara County

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

May 2016

CALIFORNIA DEPARTMENT OF TRANSPORTATION
and
Cooperating Agency: Santa Clara Valley Transportation Authority

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Statement of Compliance: Produced in compliance with California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this project.

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List of Acronyms and Abbreviations

ABAG	Association of Bay Area Governments
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CIA	Community Impact Assessment
CT	census tract
DDI	Diverging Diamond Interchange
EIR	Environmental Impact Report
General Plan	City of Sunnyvale's General Plan
HOV	high-occupancy vehicle
I-880	Interstate 880
ICF	ICF International
LRT	light-rail transit
mph	miles per hour
PG&E	Pacific Gas & Electric
PM	post mile
Project	Mathilda Avenue Improvements at SR 237 and US 101 Project
ROW	right-of-way
SR 237	State Route 237
TCE	temporary construction easement
TMP	Traffic Management Plan
US 101	U.S. Highway 101
VTA	Santa Clara Valley Transportation Authority

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Chapter 1 – Executive Summary

The purpose of this Community Impact Assessment (CIA) is to evaluate community impacts as a result of the Mathilda Avenue Improvements at SR 237 and US 101 Project (Project). This CIA was prepared by ICF International (ICF) with review and approval by the California Department of Transportation (Caltrans). This document is intended to serve as a supporting technical memorandum for the Project's Environmental Impact Report (EIR).

This CIA follows the guidance provided in Caltrans' Standard Environmental Reference, including the *Community Impact Assessment Standard Environmental Reference: Environmental Handbook Volume 4* (Caltrans 2011), and the CIA work plan prepared in September 2015.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then a social or economic change may be considered in determining whether the physical change is significant. Since this Project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the Project's effects.

As discussed in the following chapters, the Project would not result in long-term adverse impacts on the population or communities within the Project study area. Generally, the adverse impacts resulting from the Project would be temporary and related to construction delays and detours. The majority of the Project would be constructed within existing Caltrans and City of Sunnyvale right-of-way (ROW) with one partial permanent ROW acquisition required from the Sheraton Hotel at 1108 N. Mathilda Avenue. Upon completion of construction, the Project would result in beneficial impacts on the community by easing existing congestion and providing enhanced pedestrian and bicycle access, which would result in improved connection to community centers and businesses.

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Chapter 2 – Project Description

2.1 Introduction

Caltrans, in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue/Ahwanee Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 mile east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.5 mile south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 mile south of SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately one mile. **Figure 1** shows the location of the Project.

The Project is subject to state environmental review requirements and is being prepared in compliance with CEQA. Caltrans is the lead agency under CEQA. The Project is included in the 2015 Federal Statewide Transportation Improvement Program (ID No. SCL130001). The Project is included in the Metropolitan Transportation Commission *Plan Bay Area*, adopted July 18, 2013 (Project No. 240554). The Project is also identified in the VTA's Valley Transportation Plan 2040 under ID H43 and in the City of Sunnyvale's Capital Improvement Program for Fiscal Year 2013/2014 as Project No. 826890.

The City has committed local funding to the development of the Project. Other funding sources have yet to be determined, but may include a combination of state and/or local transportation funds.

2.2 Project Background

The SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges are primary access points on the state highway system for the City of Sunnyvale and important local destinations, such as downtown Sunnyvale, the Sunnyvale Caltrain station to the south, and an expanding high-tech business district to the north. The Project is also located within the "Golden Triangle," an area bordered by US 101, SR 237, and Interstate 880 (I-880) that includes parts of Sunnyvale, Santa Clara, North San Jose, and Milpitas. The Golden Triangle is named for the high concentration of employment centers within this area. US 101, SR 237, and I-880 are heavily used commute corridors to destinations within and beyond the Golden Triangle.

2.2.1 Mathilda Avenue

Within the Project area, Mathilda Avenue is a six-lane divided local roadway. Mathilda Avenue serves as the main access route to residential communities on the east side of Mathilda Avenue and is the only access route to the landlocked area within the US 101/SR 237/Mathilda Avenue triangle via Ross Drive. Mathilda Avenue is also one of City of Sunnyvale's designated truck routes for trucks that weigh more than three tons. The speed limit is 45 miles per hour (mph). On-street parking is prohibited within the Project area. Approximately 45,000 vehicles travel on Mathilda Avenue south of SR 237 on an average weekday.

Existing congestion and delay on Mathilda Avenue within the Project area is associated with the following roadway deficiencies:

- Four closely spaced signalized intersections along Mathilda Avenue (Ross Drive, eastbound SR 237 ramp termini, westbound SR 237 ramp termini, and Moffett Park Drive) at and adjacent to the SR 237 interchange provide inadequate storage for queuing vehicles, and limited green time for conflicting turning movements.

- Uncontrolled ramp movements at the US 101 interchange ramps at Mathilda Avenue and their close proximity to signalized intersections (Ross Drive and Almanor Avenue/Ahwanee Avenue) provide limited distance for traffic to move into the desired lane of travel. This is further exacerbated by queues during peak periods at adjacent signalized intersections. Furthermore, the distribution of queues across available travel lanes is uneven, since some turning movement volumes are heavier than others.

- The US 101/SR 237 interchange to the west of the Project area does not provide for all turning movements. As a result, Mathilda Avenue carries both local and regional (freeway) traffic in both directions between US 101 and SR 237. Westbound SR 237 to southbound US 101 drivers utilize southbound Mathilda Avenue, and northbound US 101 to eastbound SR 237 drivers utilize northbound Mathilda Avenue.

- The US 101/Mathilda Avenue interchange does not provide for all turning movements. As a result, southbound Mathilda Avenue to northbound US 101 and southbound US 101 to northbound Mathilda Avenue drivers shift to the SR 237/Mathilda Avenue interchange or other routes.

- Southbound Mathilda Avenue reduces from three lanes to two lanes between Ross Drive and the northbound US 101 loop off-ramp merge lane, which results in a bottleneck for through traffic.

- The northbound US 101 loop ramps have a cloverleaf configuration. The short distance between the ramps results in traffic entering and exiting the freeway at much slower speeds, and this in turn affects freeway operations.

High levels of traffic congestion and inefficient operations adversely affect pedestrian, bicycle, and transit access within the Project area. Existing bicycle and pedestrian facilities in the area include the following deficiencies:

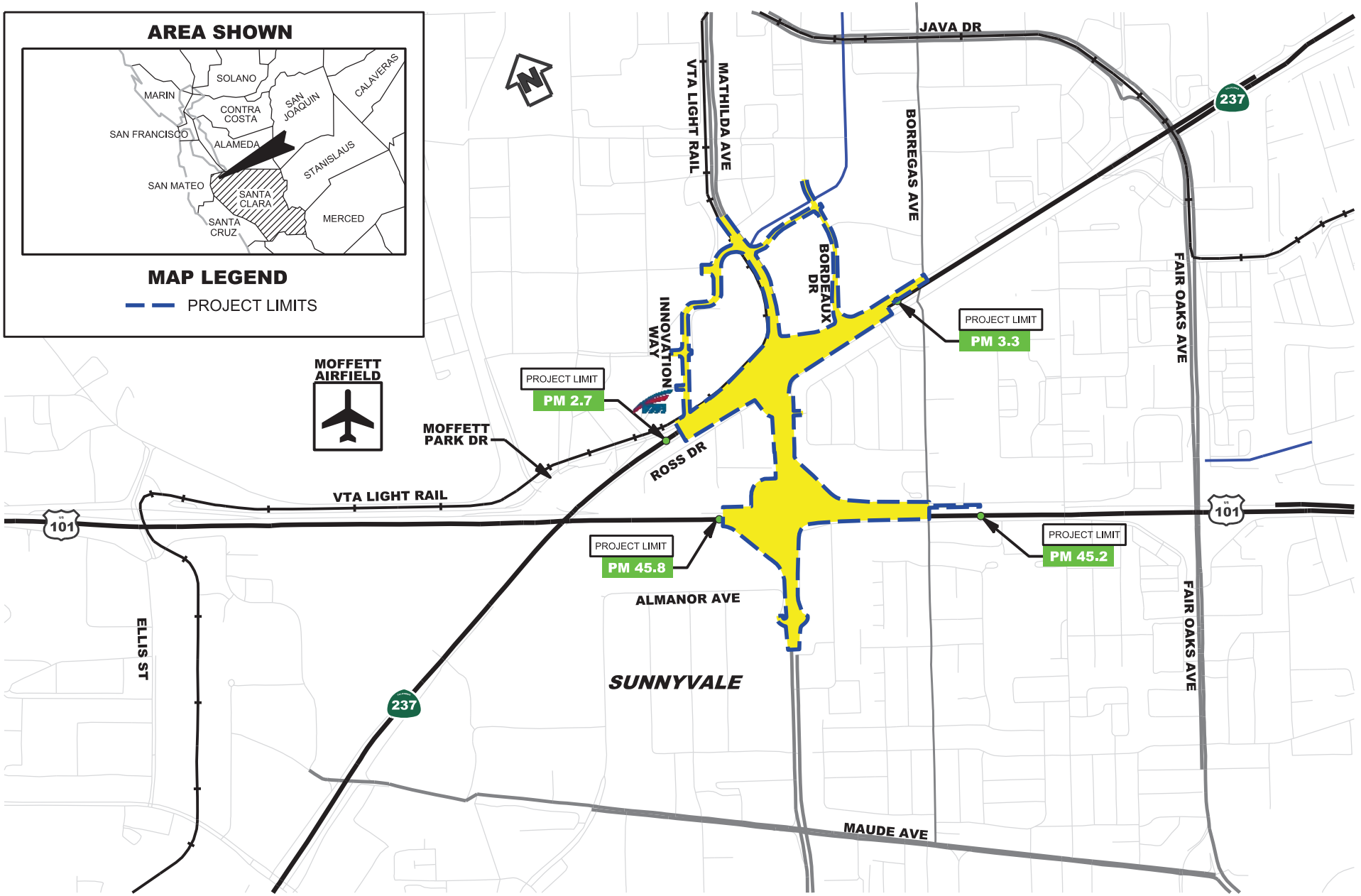
- No sidewalk or crosswalks along the west side of Mathilda Avenue are provided at the following locations:

    - Between Almanor Avenue/Ahwanee Avenue and the southbound US 101 off-ramp.

    - Between the northbound US 101 loop-off-ramp and Moffett Park Drive.

- Crosswalks at the US 101 ramps along the west side of Mathilda Avenue are not signalized.

- Using the crosswalk south of Ross Drive to access bus stops on both sides of Mathilda Avenue is a safety concern for local residents, particularly for the elderly and children.



Prepared By: WMH

Mathilda Avenue Improvement at SR 237 and US 101

PROJECT LOCATION MAP

Figure 1

- No designated bicycle facilities are provided along Mathilda Avenue in the Project area.
- Bicycle lanes on Moffett Park Drive between Bordeaux Drive and Innovation Way are discontinuous.

2.2.2 SR 237

SR 237 (Calaveras Boulevard) east of I-880 is primarily a six-lane divided roadway. Within the Project area, SR 237 provides two mixed-flow lanes in each direction. On eastbound SR 237, a high-occupancy vehicle (HOV) lane is provided east of Mathilda Avenue, which becomes an HOV/express lane from east of Zanker Road to the eastbound SR 237/northbound I-880 direct connector ramp. On westbound SR 237, an HOV/express lane that begins at the southbound I-880/westbound SR 237 direct connector ramp becomes an HOV lane from North First Street to just east of Fair Oaks Avenue. Within the Project area, auxiliary lanes are provided in each direction between US 101 and Mathilda Avenue on SR 237. There is also an auxiliary lane on westbound SR 237 between Fair Oaks Avenue and Mathilda Avenue. SR 237 is a link for trucking between the southern part of the San Francisco Peninsula and the East Bay, providing the first connection south of the Dumbarton Bridge. SR 237 east of Mathilda Avenue currently carries approximately 90,000 vehicles daily.

The SR 237/Mathilda Avenue interchange is a full "tight" diamond interchange[1] that accommodates all ramp movements, with access to and from east and westbound SR 237. All ramp termini are signalized. The westbound SR 237 on-ramp has existing ramp metering equipment installed; however, there is no existing ramp metering equipment installed for the eastbound SR 237 on-ramp.

2.2.3 US 101

Within the Project area, US 101 provides three mixed-flow lanes plus one HOV lane in each direction, while an auxiliary lane is also provided in the southbound direction between SR 237 and Mathilda Avenue. US 101 south of Mathilda Avenue currently carries approximately 154,000 vehicles daily.

The Moffett Park Drive/US 101 northbound on-ramp is a one-lane on-ramp, located along Moffett Park Drive west of the Mathilda Avenue/Moffett Park Drive intersection. This on-ramp merges with the westbound SR 237 off-ramp that connects to northbound US 101. The ramp terminus is signalized, and the on-ramp is not metered.

The US 101/Mathilda Avenue interchange is a partial cloverleaf interchange with access to all but two movements: southbound Mathilda Avenue to northbound US 101 and southbound US 101 to northbound Mathilda Avenue. None of the ramp termini are signalized; however, all of the on-ramps are metered.

[1]A full "tight" diamond interchange, also known as a compressed diamond interchange, has two closely spaced signalized intersections at the crossing of the freeway/highway ramp terminals (in this case, SR 237) and the side street (in this case, Mathilda Avenue). This interchange type is typically used in urban and suburban areas where ROW is a constraint.

2.2.4 Transit Facilities in the Project Area

Two VTA light rail transit (LRT) stations, Moffett Park and Lockheed Martin, are located within the Project area and serve the business district north of SR 237. VTA also operates a local bus service with four bus stops on Mathilda Avenue. The Sunnyvale Caltrain Station is located in downtown Sunnyvale, adjacent to West Evelyn Avenue.

2.3 Project Purpose and Need

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Due to the close proximity of the SR 237 and US 101 interchanges (less than one mile), modification of one interchange would affect the other.

Specifically, the purposes of the Project are to:

- Reduce congestion and improve traffic operations along Mathilda Avenue and at the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges.
- Improve mobility for all travel modes in the area, including motor vehicles, transit, bicycles, and pedestrians.
- Provide standard crosswalks and sidewalks along Mathilda Avenue, improving access to local destinations such as Moffett Park, the VTA LRT stations, and downtown Sunnyvale.

The Project is needed for the following reasons:

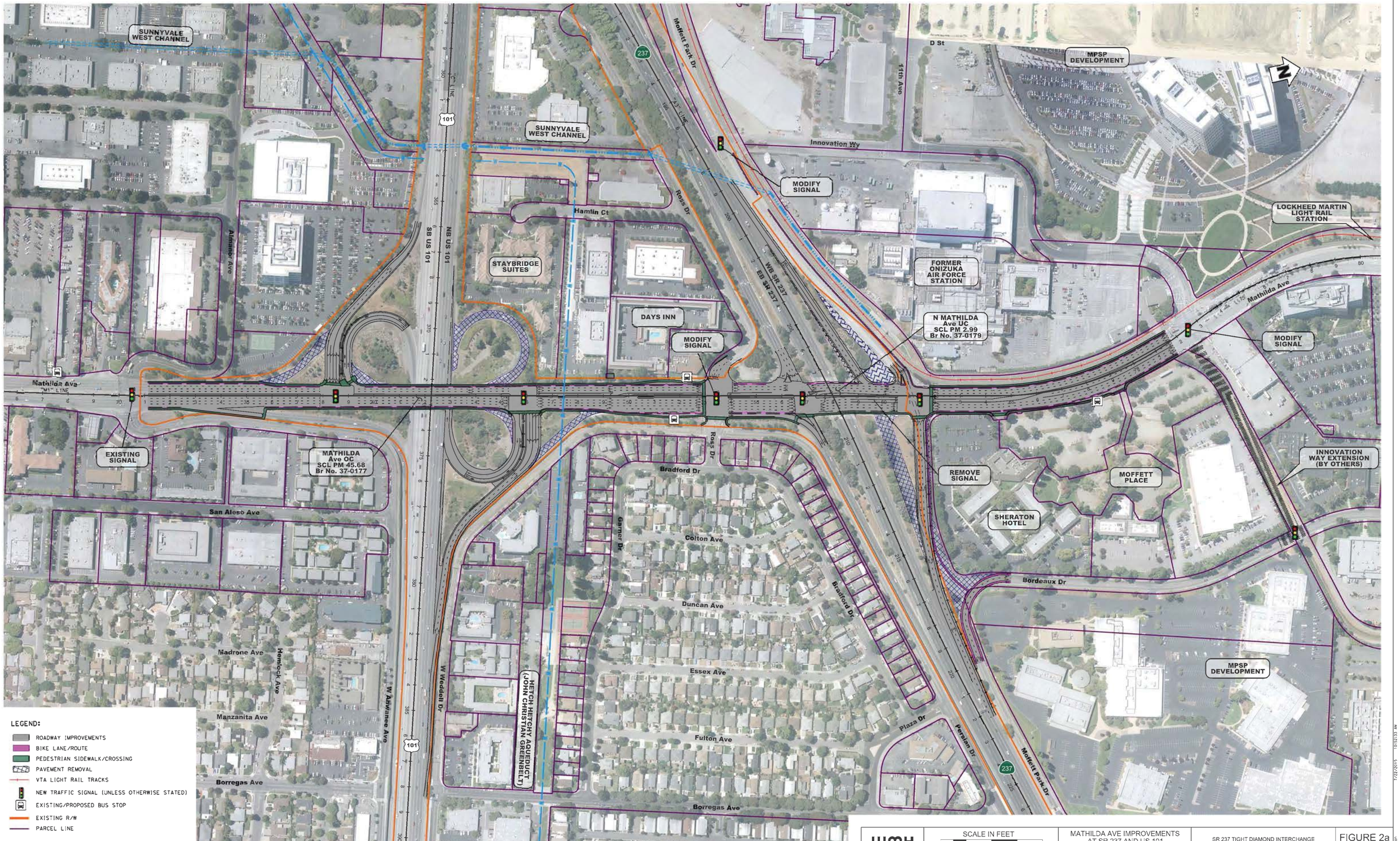
- Regional growth and new local development, combined with inefficient roadway operations, have resulted in substantial traffic congestion on Mathilda Avenue; and
- Efficient access for all travel modes into and out of downtown Sunnyvale and development to the north of SR 237 is critical to a healthy and sustainable economy. Congestion on Mathilda Avenue adversely affects the economic vitality of the City of Sunnyvale.

Overall, the Project is needed to address several issues in the Project area, including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, improvement of local roadway and freeway ramp operations, and provision of access to current and future economic development.

2.4 Project Alternatives

The Project alternatives that were developed to meet the purpose and need of the Project include Alternative 1 (refer to **Figure 2a**), Alternative 2 (refer to **Figure 2b**), and the No-Build Alternative. The Build Alternatives would provide for all turning movements on Mathilda Avenue at the US 101 and SR 237 interchanges. No new freeway connections are proposed. No modifications to existing structures are required to accommodate the proposed Project improvements. Under the No-Build Alternative, no changes would be made to the existing local roadway or freeway ramps within the Project limits. No construction activities would occur, and there would be no change in the operation of existing facilities.

The design features of the two Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges at Mathilda Avenue. The Build Alternatives include design variations for reconfigured roadways and intersections as well as the construction of new signalized intersections. Proposed improvements included in both Build Alternatives south of Ross Drive along Mathilda



LEGEND:

- ROADWAY IMPROVEMENTS
- BIKE LANE/ROUTE
- PEDESTRIAN SIDEWALK/CROSSING
- PAVEMENT REMOVAL
- VTA LIGHT RAIL TRACKS
- NEW TRAFFIC SIGNAL (UNLESS OTHERWISE STATED)
- EXISTING/PROPOSED BUS STOP
- EXISTING R/W
- PARCEL LINE

WMH

SCALE IN FEET
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MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2.7/3.3
SCL 101 - PM 45.4/45.8

SR 237 TIGHT DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 2a
JULY 2015

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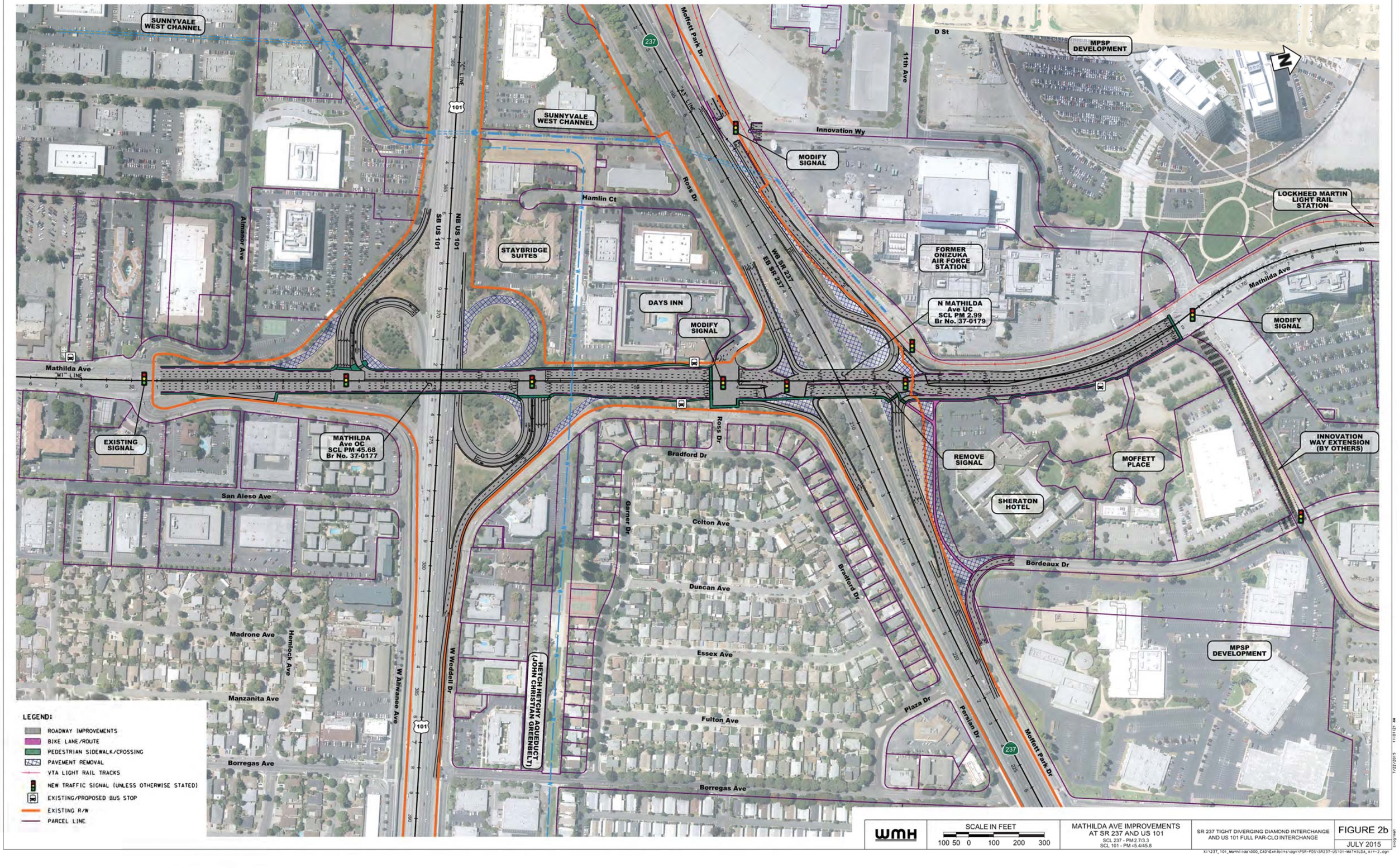

WMH	SCALE IN FEET 100 50 0 100 200 300	MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101 SCL 237 - PM 2.7/3.3 SCL 101 - PM 45.4/45.8	SR 237 TIGHT DIVERGING DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE	FIGURE 2b JULY 2015

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Avenue and at the US 101 interchange are identical. These improvements include new bicycle and pedestrian facilities, utility relocations, new stormwater treatment facilities, enhanced lighting, ramp metering modifications, overhead signage modifications, and a new retaining wall. In addition to the improvements listed above, Build Alternative 2 includes a diverging diamond interchange[2] (DDI) design north of Ross Drive on Mathilda Avenue (**Figure 3**).

2.4.1 Roadway Improvements

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction on Mathilda Avenue.
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp.
- Realign and widen northbound US 101 ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp.
- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue.
- Modify Mathilda Avenue/Ross Drive signal intersection.
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.[3]
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection.
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration.
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration (refer to **Figure 2b** and **Figure 3**). Eastbound Moffett Park Drive between Innovation Way and Mathilda Avenue would be diverted to Innovation Way to access Mathilda Avenue.

2.4.2 Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consist of both Class II and Class III bikeways[4], based on available pavement

[2] A diverging diamond interchange, also called a double crossover diamond interchange, is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (a signal phase allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

[3] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place development project.

[4] Class I bikeway is a bicycle path (completely separate from the roadway). Class II bikeway is a bicycle lane (buffered from roadway). Class III bikeway is bicycle route ("sharrow") [Source: Highway Design Manual Index 1002.1]

widths within the Project limits, and connect to the existing Class III bikeway north of Innovation Way and the Class I bikeway adjacent to the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered, based on available pavement widths within the Project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the Project limits, with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

2.4.3 Utility Relocations

The Build Alternatives would include utility relocations, as necessary, to construct the above-described improvements. Build Alternative 1 would require relocation of Verizon telecommunication lines and relocation of a City eight-inch recycled water line along the current alignment of Moffett Park Drive east of Mathilda Avenue. Build Alternative 2 would require relocation of a six-inch PG&E underground gas line and a 12kV PG&E underground electrical line along the current alignment of Moffett Park Drive west of Mathilda Avenue. Both Build Alternatives could require adjustments to three PG&E electrical pole wires to accommodate ramp modifications at the Mathilda Avenue/US 101 interchange. Utility covers would be adjusted to grade in areas of pavement rehabilitation.

2.4.4 Stormwater Treatment

The proposed interchange ramp modifications are expected to result in the fill or removal of existing ditches, modification or relocation of existing longitudinal drainage structures, and construction of new drainage structures. The Build Alternative's drainage design would maintain existing drainage patterns; however, during construction, temporary drainage facilities may be required to redirect runoff from construction areas.

The stormwater treatment facilities for both Build Alternatives may include biofiltration strips, biofiltration swales, bioretention basins, and/or detention basins within the state ROW near the on- and off-ramps and within City of Sunnyvale ROW along the roadway.

2.4.5 Enhanced Lighting

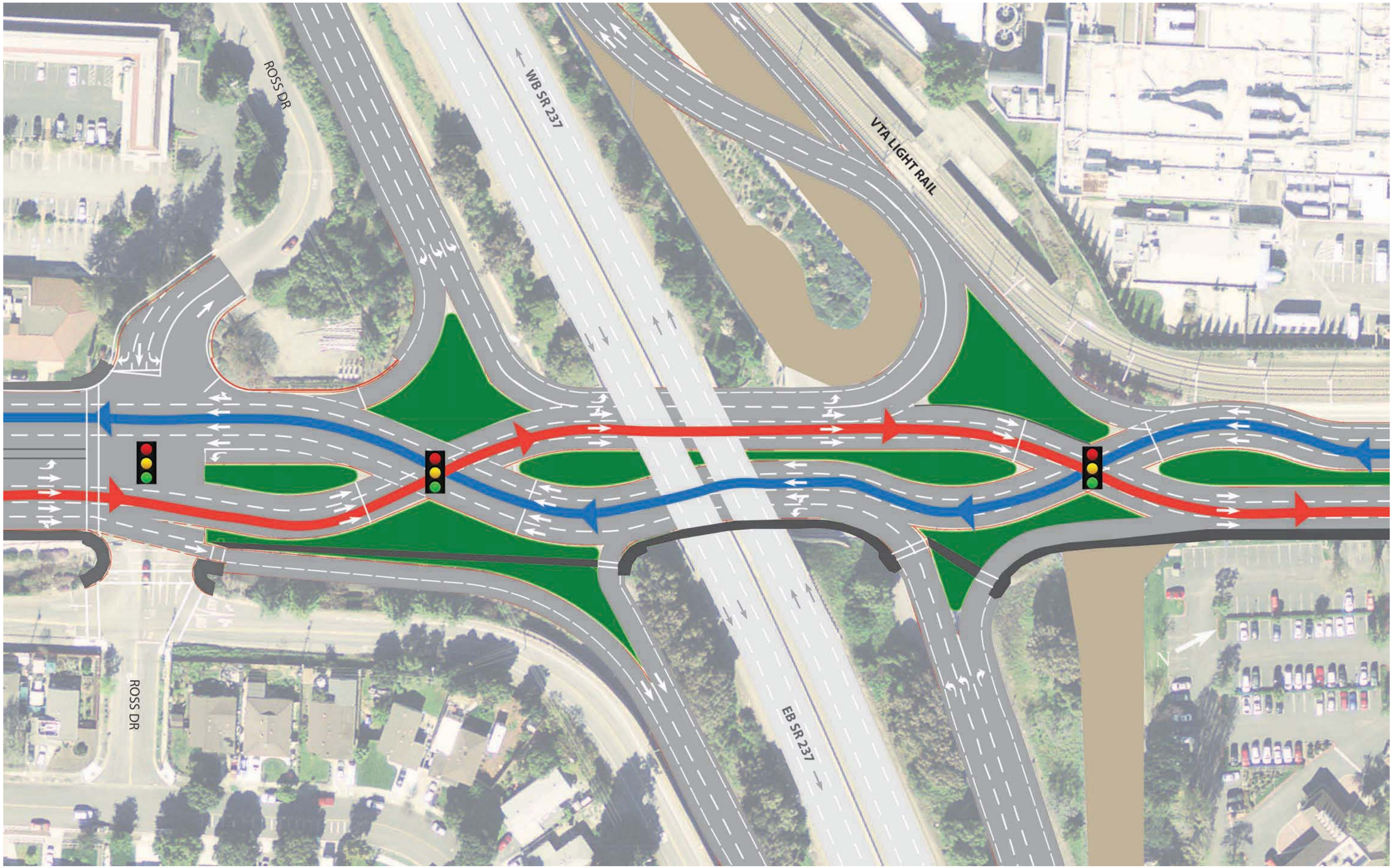
The Build Alternatives would both provide enhanced lighting to improve roadway visibility for drivers during nighttime hours. Overhead lighting would be maintained or installed at all ramps. The lights would either be supported on a cast-in-drilled-hole pile, with a typical diameter of 2.5 feet and depth of 5 feet, or mounted on a structure above grade.

2.4.6 Ramp Metering

Ramp metering facilities already exist at the northbound US 101 loop on-ramp, southbound US 101 ramps, and westbound SR 237 on-ramp. Because these ramps would be modified and realigned under both Build Alternatives, the affected ramp metering equipment would also be modified.

2.4.7 Overhead Signage

Updated overhead signs in each direction on SR 237 and US 101 would inform motorists of the approaching on- and off- ramps associated with the Project. The overhead sign structure mounted



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to the Mathilda Avenue overcrossing on northbound US 101 would be removed because it applies to the existing loop off-ramp, which is being relocated and integrated as both a west and east Mathilda Avenue access route from northbound US 101. The northbound US 101 off-ramp sign would be impacted by the off-ramp widening, therefore, it would be removed and replaced just south of the Borregas Bicycle/Pedestrian Overcrossing.

2.4.8 Light Rail Facilities

VTA LRT facilities that cross the Moffett Park Drive/Innovation Way and Mathilda Avenue/Innovation Way intersections would be coordinated with traffic signal modifications, which would be location specific. The final locations for new traffic signals would be determined during subsequent design phases.

2.4.9 Retaining Walls and Sound Barriers

The Project would require construction of three retaining walls to minimize the amount of earthwork and right of way acquisitions required. The location of proposed retaining walls are at the southbound US 101 diagonal off-ramp/ southbound US 101 loop on-ramp, the northbound US 101 off-ramp/ northbound US 101 loop on-ramp, and along the west side of Mathilda Avenue. Retaining walls will be aesthetically treated to blend into the surrounding environment and match nearby adjacent walls.

To accommodate proposed realignment and widening of the northbound US 101 off-ramp to Mathilda Avenue, the Project would remove and replace approximately 1,000 feet of the existing 10-feet high noise barrier adjacent to the ramp and West Weddell Drive. The replacement wall would be supported on a retaining wall and located at the widened edge of pavement. Noise barriers will be textured and/ or stained to blend into the surrounding environment, match nearby adjacent walls, and reduce glare and potential for graffiti.

2.4.10 Construction and Staging Areas

Construction of either of the Build Alternatives would take approximately one year. A combination of day and night work is anticipated. Weekend work is not anticipated. Short-term lane and ramp closures would be necessary to facilitate construction. Prior to construction, a Traffic Management Plan (TMP) would be prepared to minimize or prevent delay and inconvenience to the traveling public. The TMP would address all traffic-related aspects of construction, pedestrian access and safety, and bicycle access and safety. Staging/laydown areas for equipment and materials would be needed during Project construction. Construction staging areas would be located within the state ROW adjacent to Mathilda Avenue. Potential locations are shown on **Figure 4** and include:

- Within the northbound US 101 loop off-ramp,
- Between the northbound US 101 diagonal off-ramp and northbound loop on-ramp,
- Within the southbound US 101 loop on-ramp,
- Between the southbound US 101 loop on-ramp and diagonal off-ramp, and
- Between the westbound SR 237 ramps and Moffett Park Drive.

2.5 Summary of Public Involvement Activities

In 2014, a City Council Study Session was held in the City of Sunnyvale to seek input on the proposed Project. The session was attended by City Councilmembers, staff from the City of Sunnyvale and VTA, and members of the public. Appendix A includes a summary of the meeting.

A Notice of Preparation to prepare an EIR/ Environmental Assessment (EA)[5] was circulated from August 18, 2015 to September 16, 2015. An environmental scoping meeting was held at the Columbia Middle School in the City of Sunnyvale on August 27, 2015. Approximately 4,600 notices for the scoping meeting were mailed to residences and businesses within a 0.25 mile radius of the Project footprint. . A public meeting flyer was hand distributed to businesses along Mathilda Avenue from Almanor Avenue to Innovation Way and the City of Sunnyvale Public Library. A meeting notice was posted on the VTA website, VTA Headways Blog, VTA Twitter feed, and VTA Facebook page, and sent to local media outlets. Notices were published in five newspapers (Sunnyvale Sun, Viet Nam Daily, Philippines Today, Sing Tao Daily, and El Observador). A project factsheet was translated in five languages (Spanish, Chinese, Vietnamese, Korean, and Tagalog) and posted on the Project website. An email notification about the scoping meeting was sent to agencies, organizations, and individual stakeholders. The meeting notice was published in VTA's August Take-One passenger newsletter. The scoping meeting was attended by approximately 37 persons. A total of 21 public comments were received during the scoping period. These comments included recommendations from both members of the public and local jurisdictions to consider bicycle, pedestrian, and vehicle safety; bicycle and pedestrian routes; the Moffett Park Drive closure; air quality; and connections to local transit. Subsequently, the Project was presented to the VTA Bicycle and Pedestrian Committee on October 7, 2015. Refer to Appendix A for a list of public meetings held for the Project and a copy of notices prepared for the scoping meeting.

Public input on the Project will be further solicited during the review period for the Draft EIR (anticipated July 2016), which will last for a minimum of 45 days. The public will be notified of the release of the Draft EIR through a number of methods, including, but not limited to:

- Postings on the Caltrans and VTA websites;
- Mailing announcements to interested agencies, residents, and businesses within 0.25 miles of the Project area;;
- Notice placements in the Sunnyvale Public Library;
- Email notifications to local and regional jurisdictions, and stakeholders including neighborhood associations and business groups from the scoping period;
- Postings on social media, including Twitter and Facebook, and VTA's Headways blog.
- Publishing announcements in newspapers, including non-English papers, as was done for the scoping meeting (above); and
- Sending out news releases to media outlets.

[5] An EA was originally proposed for the Mathilda Avenue Improvements Project; however, later in the project development process, it was determined that no federal funding would be pursued to construct the project and that no federal approvals or environmental permits were needed. As a result, the project sponsors and the CEQA lead agency determined no NEPA clearance would be pursued.

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Figure 4
Potential Construction Staging Areas
Mathilda Avenue Improvements at SR 237 and US 101 Project

- During this review period, a public meeting will be held to share information about the Project and to receive comments on the Draft EIR from interested parties. All formal comments will be addressed and responded to in the published Final EIR (anticipated January 2017).

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Chapter 3 – Affected Environment

3.1 Study Area

The study area for the purposes of this analysis comprises the four census tracts in the 2010 U.S. Census located adjacent to the Project area (census tracts 5046.02, 5048.03, 5090.00, and 5091.02). **Figure 5** depicts the study area and shows the location of the census tracts in relation to the Project. Generally, this study area represents the geographical extent of the community adjacent to the Project area, and the area in which any potential Project effects on the community may occur.

3.2 Existing Land Use

Within the City of Sunnyvale, Mathilda Avenue is a six-lane divided roadway between US 101 and SR 237. Mathilda Avenue is a moderately developed arterial roadway with residential development primarily east of the Project area and commercial and industrial uses primarily west of the Project area (refer to **Figure 6**). The northern portion of the Project area, to both sides of Mathilda Avenue and north of SR 237, includes a hotel, the Moffett Place re-development area, the former Onizuka Air Force Station (currently under development), and Sunnyvale Fire Station #5. The Sunnyvale Fire Station #5 is to be relocated as part of a separate project, and prior to construction of the Project. The Moffett Federal Airfield is located just to the west of the western-most point of the Project area, adjacent to the SR 237/US 101 interchange. The Project area is served by two VTA LRT stations, Moffett Park and Lockheed Martin, which are located within the Project area and serve the business district north of SR 237. In addition, VTA operates a local bus service with four bus stops on Mathilda Avenue. Refer to **Figure 7** for existing land uses within the Project area.

3.2.1 Sunnyvale

As described above, land uses along the Project area in the City of Sunnyvale generally consist of commercial and single-family residential uses. The single-family residential uses are concentrated on the east end of the Project area, while the commercial uses are concentrated on the west end of the Project area.

The Project is consistent with *Plan Bay Area*, the regional transportation plan (ABAG and MTC 2013), the City of Sunnyvale's General Plan (General Plan), the *City of Sunnyvale Moffet Park Specific Plan*, and the *City of Sunnyvale 2006 Bicycle Plan* and *Santa Clara Countywide Bicycle Plan* (Santa Clara County 2008). *Plan Bay Area* identifies the need for improvements to the 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges, which are consistent with the Project. The General Plan was updated in July 2011 and guides the City's growth and change through 2025. Specifically, the purpose of the General Plan is to provide guiding goals, policies, and direction for physical development in the City so that the City successfully emerges as a vibrant, innovative, and attractive community in which both residents and businesses can thrive. The General Plan designates a large portion of the Project area as Low Density Residential, High Density Residential, Industry, and Industrial Intensification. The General Plan designates the Project area as a potential growth area including office, industrial, and mixed uses. Enhancements envisioned as part of the General Plan include gateway improvements at SR 237, US 101, and Mathilda Avenue at US 101.

The City of Sunnyvale prepared the *Moffett Park Specific Plan* in 2013 that includes a portion of the Project area, north of SR 237. The purpose of this Specific Plan is to maximize Moffett Park

development with corporate headquarters, office, and research/development facilities of high technology companies that will represent the next wave of economic growth in Silicon Valley. The Specific Plan also identifies three sub-districts that the City plans for enhancement: MP-TOD (parcels within 0.25 mile of an existing LRT station), MP-I (industrial areas beyond 0.25 mile of an existing transit station), and MP-C (provides support for commercial services). The Project area is within each of the sub-districts. Enhancements envisioned as part of the Specific Plan include additional arterial connections to the Plan area, localized roadway improvements, and intersection improvements.

The *City of Sunnyvale 2006 Bicycle Plan* lists goals that include facilitating bicycling during the transportation planning process and accommodating bicycle needs in future roadway and land development projects. The *Santa Clara Countywide Bicycle Plan* provides policy framework that includes providing bicycle/pedestrian connections to commercial and residential areas. As such, bicycle and pedestrian improvements included in the Project would be consistent with both the City and County bicycle plans.

3.3 Community Characteristics

3.3.1 Demographic Profile

Data for the census tracts and the City of Sunnyvale were gathered to present a demographic profile of the community. Table 3-1 summarizes the make-up of the population in the Project study area.

Table 3-1. Population of Census Tracts in Project Study Area

Geography/ Census Tract (CT)	Total Population	Hispanic or Latino	White	Black or African American	American Indian and Alaska Native	Asian	Native Hawaiian and Other Pacific Islander	Some Other Race	Two or More Races
CT 5091.02	4,900	468	1,692	157	0	2,756	0	35	260
CT 5090.00	8,386	4,236	5,301	342	15	1,485	126	906	211
CT 5048.03	5,793	663	1,954	225	0	3,309	0	101	204
CT 5046.02	1,835	1,045	1,053	23	10	453	0	274	22
Study Area Total	*20,914*	*6,412*	*10,000*	*747*	*25*	*8,003*	*126*	*1,316*	*697*
City of Sunnyvale	145,921	26,268	70,035	2,886	363	60,528	942	5,620	5,547

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates[6]
*Data are based on a sample and are subject to sampling variability.

[6] American Community Survey data was used as 2010 Census data is over five years old and American Community Survey data is based on the Census data, but is an ongoing statistical survey that samples a small percentage of the population every year.

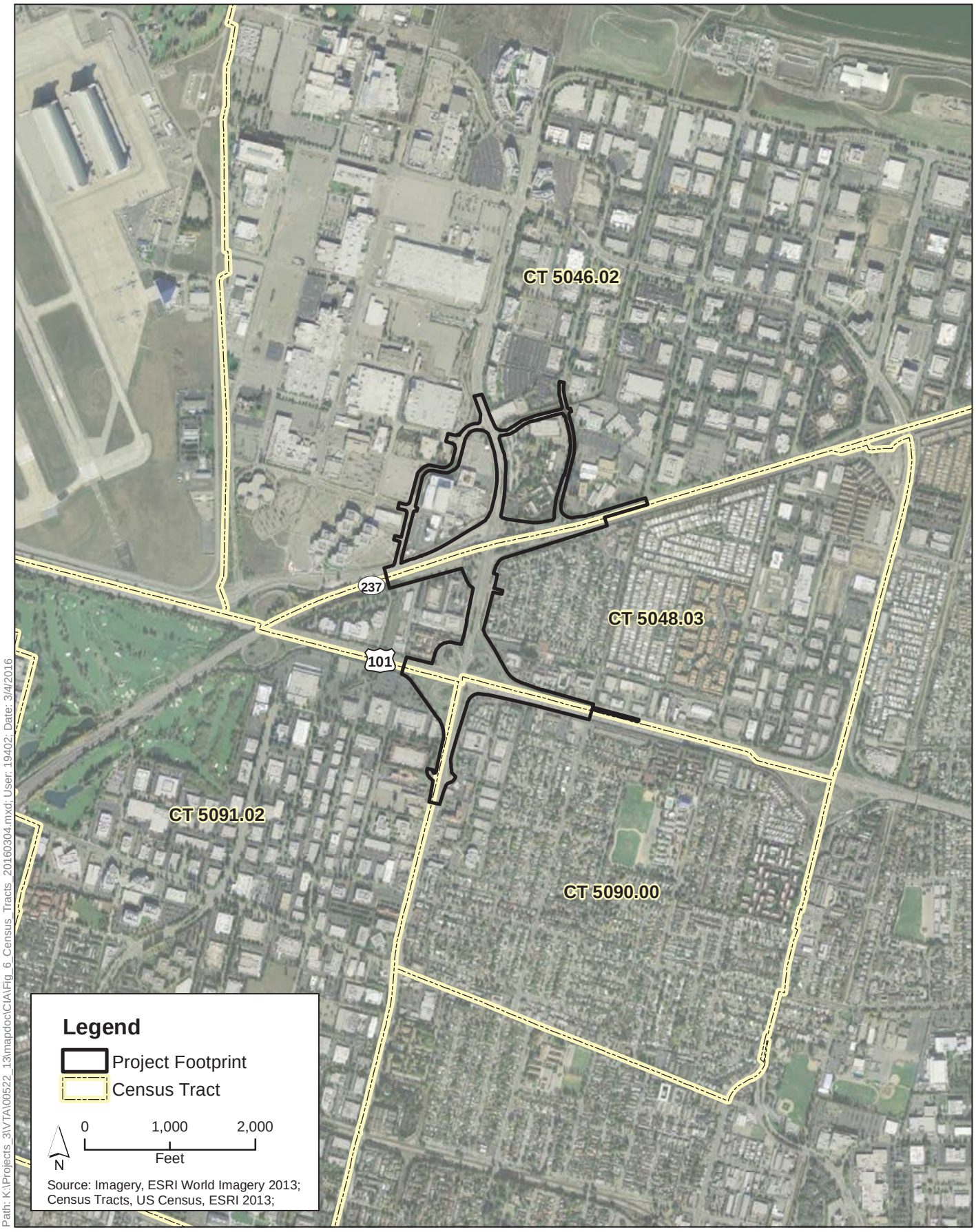

Figure 5
Study Area Limits and Census Tracts
Mathilda Avenue Improvements at SR 237 and US 101 Project

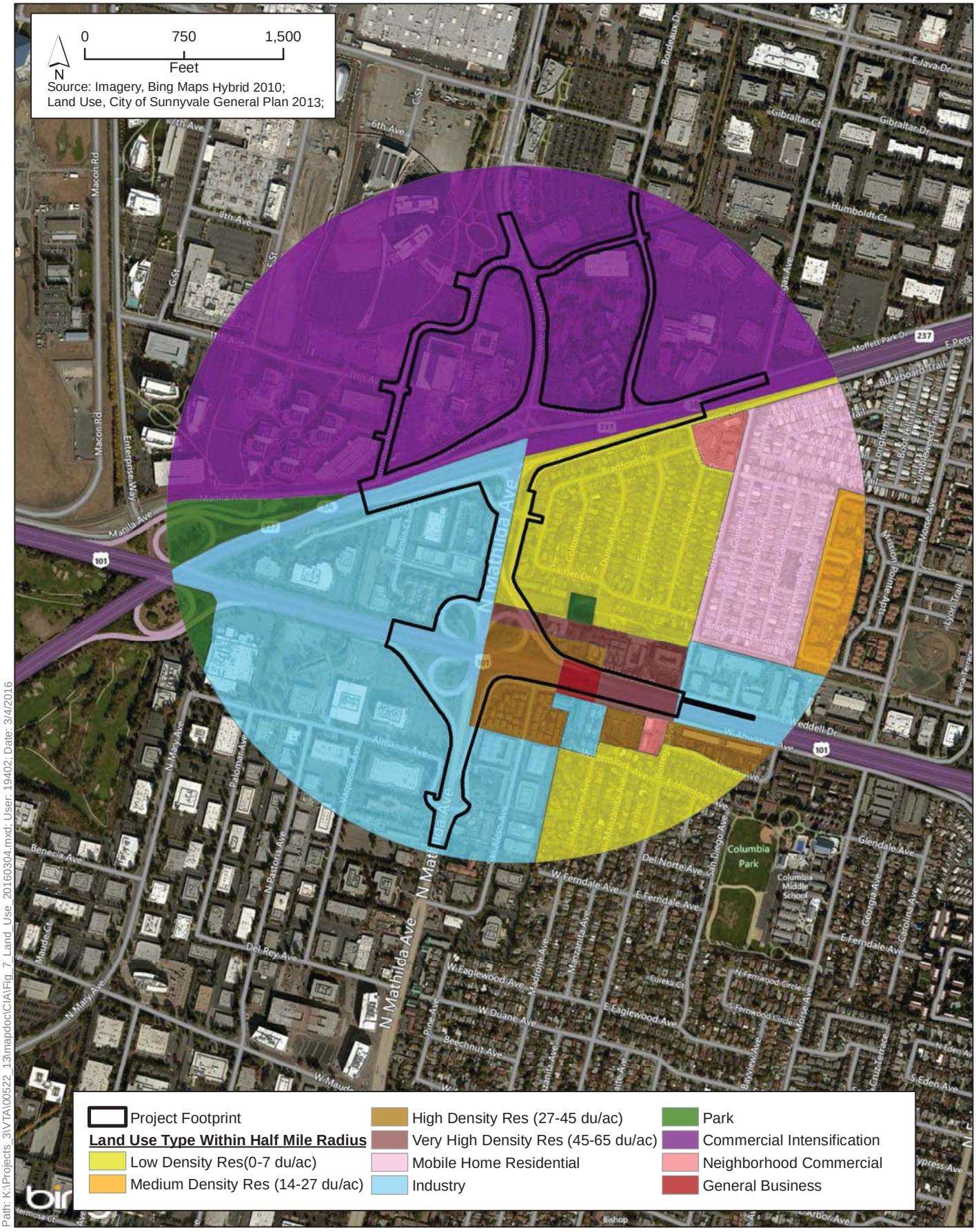

Figure 6
Study Area Land Uses
Mathilda Avenue Improvements at SR 237 and US 101 Project

Figure 7
Existing Land Uses
Mathilda Avenue Improvements at SR 237 and US 101 Project

Table 3-2 summarizes the income statics for the population in the Project study area.

Table 3-2. Income Data for Census Tracts in Project Study Area

Geography/ Census Tract (CT)	Total Population	Median Household Income	Per Capita Income	Percentage of Population with Income Below Poverty Level	Number of Population with Income Below Poverty Level[1]
CT 5091.02	4,900	$119,938	$63,149	0%	0
CT 5090.00	8,386	$73,333	$29,393	7.3%	612
CT 5048.03	5,793	$100,458	$52,208	5.3%	307
CT 5046.02	1,835	$76,705	$29,929	9.5%	174
Study Area Total	*20,914*	*x*	*x*	*5.2%*	*1,093*
City of Sunnyvale	145,921	$103,257	$48,203	4.8%	7,004

Source: U.S. Census Bureau, 2010-2014 American Community Survey 5-Year Estimates
[1]Rounded to the nearest whole number.
*Data are based on a sample and are subject to sampling variability.
x = data not available

3.3.2 Neighborhood Characteristics

Within the study area, Mathilda Avenue is a major local arterial roadway that provides access to US 101 and SR 237 in the City. The study area can generally be characterized as suburban, commercial, and industrial in character. The eastern side of the Project study area is predominantly single-family residential (between US 101 and SR 237) and commercial land uses with several industrial land uses along US 101. The western side of the Project area is predominantly industrial and commercial land uses, including several hotels, an office building, and a warehouse.

3.3.3 Community Facilities

Community facilities within a ¼ mile of the Project area include the Lockheed Martin and Moffett Park LRT stations, four churches, four parks, a community center, three schools and a college. Table 3-3 summarizes community facilities near the Project area and **Figure 8** identifies the location of the facilities relative to the Project area.

Table 3-3. Project Area Land Uses and Community Facilities

Community Facility	Distance from Project Area*	Corresponding Identification Number on Figure 8
Foothill De Anza Community College	Within Project Area	2
John W. Christian Greenbelt	0.05 miles	15
The Rock Church	0.08 miles	5
Lockheed Martin LRT Station	0.10 miles	3
Orchard Gardens Park	0.10 miles	4
Columbia Park	0.15 miles	14
Moffett Park LRT Station	0.20 miles	1
Seven Seas Park	0.20 miles	6
New Hope International Church	0.20 miles	7
The 1st Morning Light Chinese Christian Church	0.20 miles	8
Iranian Assembly of God Church	0.20 miles	9
Columbia Neighborhood Center	0.20 miles	10
Madrone School	0.20 miles	11
Spark Charter School	0.25 miles	12
Columbia Middle School	0.25 miles	13

Source: Google Earth Pro 2013.
*As measured from the nearest Project boundary.
**John W. Christian Greenbelt and Columbia Park are identified with polygons on Figure 8.

Emergency Services

Other than Sunnyvale Fire Station #5, there are no emergency service provider facilities located within a ½ mile of the Project area. Table 3-4 lists the City's emergency service providers and their proximity to the Project area.

Table 3-4. Emergency Service Facilities

Facility Name	Address	Distance from the Project Area
Police		
Department of Public Safety-Sunnyvale Police Department	700 All American Way	1.6 miles
Fire		
Sunnyvale Fire Station #1	171 N. Mathilda Avenue	1.0 mile
Sunnyvale Fire Station #2	795 E. Arques Avenue	1.3 miles
Sunnyvale Fire Station #3	910 Ticonderoga Drive	3.0 miles
Sunnyvale Fire Station #4	996 S. Wolfe Road	2.8 miles
Sunnyvale Fire Station #5	11120 Innovation Way	Within Project Area
Sunnyvale Fire Station #6	1282 N. Lawrence Station Road	1.7 miles

Sources: Google Earth Pro, 2013; City of Sunnyvale, 2015.

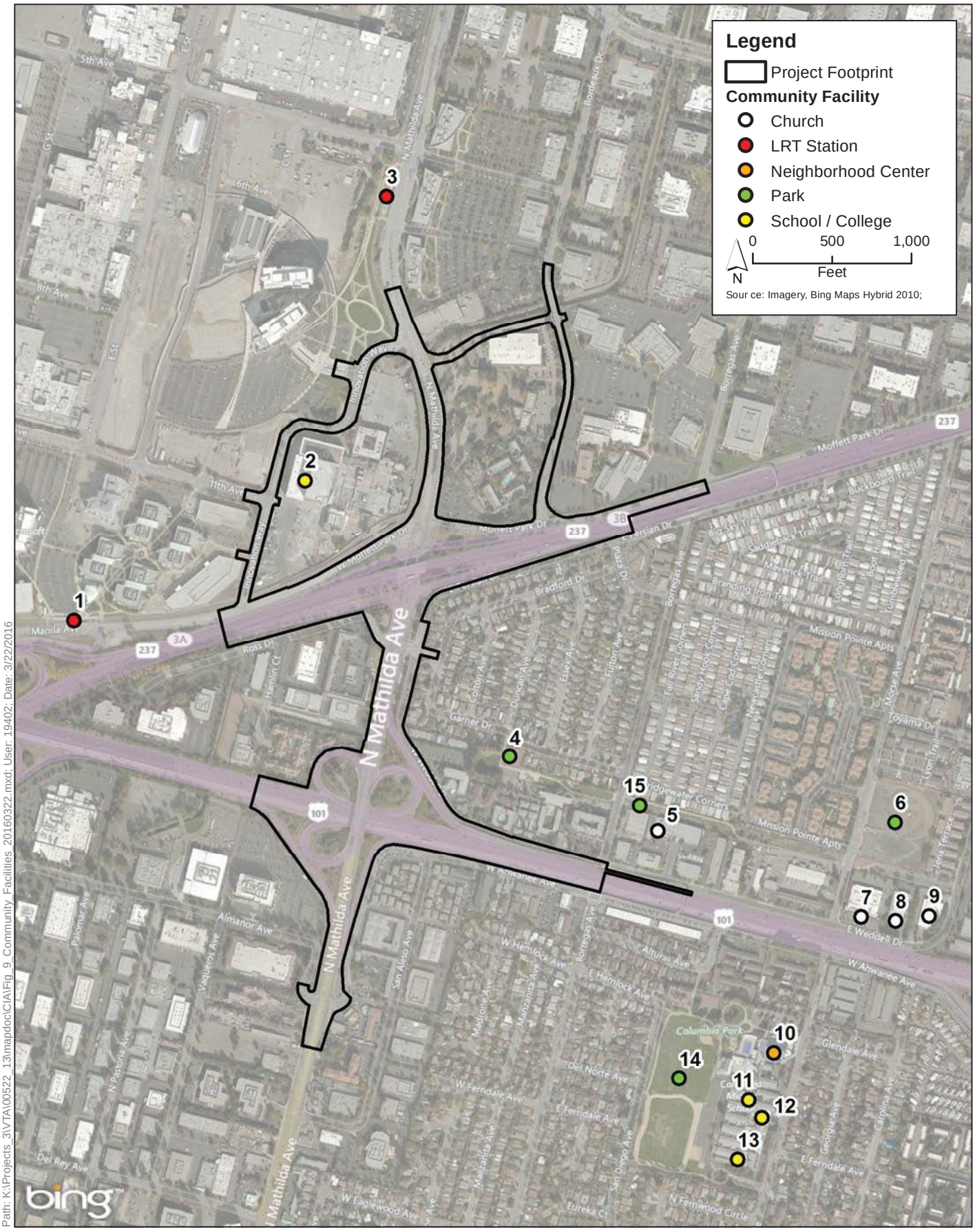

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Figure 8
Community Facilities
Mathilda Avenue Improvements at SR 237 and US 101 Project

Chapter 4 – Impact Analysis

The following discussion is intended to describe the potential impacts on the community that may result from construction and operation of the Project. The Project features that have the highest potential to result in impacts are described as follows.

Construction Impacts: Construction activities would require temporary construction easements and include activities related to: utility relocations; installation of stormwater treatment facilities; enhanced lighting; ramp reconfiguration; overhead signage replacement; and removal, modification, or installation of traffic signals. In addition, short-term lane and ramp closures are anticipated. Refer to Section 4.1.1, Impacts Common to all Build Alternatives for further discussion on construction activities.

Operation Impacts: A permanent partial ROW acquisition of the Sheraton Hotel would occur under both the Build Alternatives. The Build Alternatives were designed to reduce existing traffic congestion and improve mobility for all users in the Project area. As reported in the Traffic Operations Analysis Report (Fehr and Peers 2016), in most cases, both Build Alternatives show a reduction in average travel time and an increase in average travel speed on Mathilda Avenue in 2018 (opening year) when compared to No Build conditions. An overall reduction in peak hour delay and queueing on local streets and freeway ramps is also seen with Both Build Alternatives compared to the No Build Alternative.

Build Alternative 1 would result in a northbound delay reduction of approximately 6 minutes during the morning (8:00 AM) and evening (5:00 PM) peak hours. In the southbound direction, Build Alternative 1 would reduce delays by over 0.5 minutes in the morning peak hour and increase travel times by approximately 1 minute during the evening peak hour.

Build Alternative 2 would result in a northbound delay reduction of over 3.5 minutes and 5.5 minutes during the morning and evening peak hours, respectively. In the southbound direction, Build Alternative 2 would reduce delays by over 1.5 minutes and 3.5 minutes during the morning and evening peak hour, respectively.

The following sections address potential impacts to land use, community cohesion, local community facilities and services, and required ROW acquisitions and temporary construction easements.

4.1 Land Use Impacts

Potential land use impacts associated with the Project would be related to the following issues:

- The compatibility of the Project with existing and planned land uses.
- The consistency of the Project with state, regional, and local plans and programs.
- The type and number of property acquisitions required for the Project.

Potential land use impacts are discussed below.

4.1.1 Impacts Common to all Build Alternatives

Each Build Alternative would result in changes at the same locations that would include the removal of ramps; modification and widening of existing ramps; traffic signal removal, modification, or installation; roadway improvements; reconfiguring Moffett Park Drive; and intersection improvements.

Construction Impacts

Construction of either Build Alternative would take approximately one year and would require traffic control for a period of approximately seven to eight months. Long term closures of freeway mainline shoulders, and freeway on- and off-ramp shoulders are expected, as are short term closures of freeway lanes, ramps, and local roads. Detours, traffic shifts, and lane restriping would be utilized to maintain access and improve worker safety. As such, extensive delays are not anticipated; however, efforts will be made to further minimize the potential for delays through traffic management measures that will be defined in the TMP (to be prepared prior to construction), which would be implemented to provide residents, businesses, motorists, transit users, and emergency service providers with advance notice of construction activities and durations, temporary closures, detours, and access issues during construction.

The Project would require temporary construction easements and would result in a partial permanent ROW acquisition; however, no residential or business relocations would be required. Construction work along curbs, such as sidewalk and crosswalk alterations, would result in inconveniences to adjacent businesses and properties; however, all businesses would remain open and accessible during construction. In addition, the forthcoming TMP would provide bicyclists and pedestrians with alternative paths during construction, and signs would be posted to direct bicyclists and pedestrians to intersections where they may cross.

Operation Impacts

Under both of the Build Alternatives, the Project would be compatible with existing land uses, as the SR 237/Mathilda Avenue and the US 101/Mathilda Avenue interchanges are existing primary access points on the state highway system for the City. The Project would retain existing transportation land uses for Project elements, including traffic signal removal, modification, or installation, and bicycle and pedestrian enhancements. One partial permanent ROW acquisition would occur as a result of the Project; however, no relocations of buildings and structures are anticipated. Accordingly, no changes in land use or zoning are anticipated as part of the Project.

Plan Bay Area and the City's General Plan identify SR 237, US 101, and Mathilda Avenue at US 101 as locations in need of gateway improvements. In addition, the *Moffett Park Specific Plan* identifies Mathilda Avenue as a major arterial roadway that requires traffic congestion relief, particularly at the SR 237 and US 101 interchanges. The bicycle and pedestrian improvements are also consistent with the City and County bicycle plans. As such, the Project would be consistent with the expressed goals of these planning documents.

4.1.2 Impacts Specific to Alternative 1

There would be no impacts specific to Alternative 1.

4.1.3 Impacts Specific to Alternative 2

There would be no impacts specific to Alternative 2.

4.2 Community Impacts

Potential community impacts associated with the Project would be related to the following issues:

- Dividing an established community or neighborhood.
- Altering a community or neighborhood to a point that it no longer maintains its cohesion or character.
- Restricting access or otherwise altering the way in which a community uses its facilities.
- Acquiring or displacing community serving businesses and displacing residents.

4.2.1 Community Character and Cohesion

Income data and demographic information from Section 3.3, *Community Characteristics*, demonstrate that 4.8 percent of the population in the City of Sunnyvale is below poverty level and 5.2 percent of the population in the Study Area is below the poverty level. Furthermore, the City of Sunnyvale has a 52.0 percent minority population, while the Study Area has a 52.2 percent minority population.

Construction

The Project would be constructed almost entirely within existing City of Sunnyvale and Caltrans' ROW. While some temporary construction easements may be required for curb removal and utility relocation work (refer to Section 4.4, *Right-of-Way Acquisitions*), access to local neighborhoods, facilities, and businesses along the Project area would be maintained throughout construction.

Impacts resulting from the Project involve construction-related disruptions associated with operation of construction equipment in the area, partial and/or complete lane and ramp closures, construction work conducted along sidewalks and pedestrian crossings, noise and vibration, light and glare, and construction emissions. These impacts would be temporary, amounting to inconveniences to motorists, bicyclists, and pedestrians in the vicinity of construction activities.

Because through traffic, bicycle, and pedestrian circulation would be maintained in each direction during construction, Project construction would not result in any new barriers that would impede community interaction. Impacts related to construction would be localized to the maximum extent possible so that at any given time construction impacts would affect only a small portion of the Project area. Accordingly, construction would have no effect on long-term community character and cohesion beyond typical temporary construction impacts described above. Furthermore, a TMP would be developed in cooperation with the City of Sunnyvale, Santa Clara County, and Caltrans prior to construction. Bicyclists and pedestrians would be provided with alternative paths during construction, signs would be posted to direct bicyclists and pedestrians to intersections where they may cross, and access to local businesses in the Project area would be maintained.

Construction activities associated with both of the Build Alternatives would result in some temporary disruptions to businesses because construction equipment and construction-related noise, dust, and traffic would be noticeable to patrons of businesses in the vicinity of construction work.

However, implementation of Caltrans' standard specification and measures to control dust during construction would help to minimize air quality impacts from construction activities. Additionally, as described in the Noise Study Report (ICF International 2016) developed for the Project, vibration-reducing construction measures to limit groundborne vibration at nearby structures and residences would be used to minimize any exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Further, noise-reduction construction practices would be implemented to minimize any temporary or periodic increase in ambient noise levels in the Project vicinity so that it would not result in a substantial increase above existing levels.

As described above and in Section 4.4, *Right-of-Way Acquisitions*, temporary construction easements that may be required would not result in the displacement of any people, housing, or businesses. Access to any housing or businesses in the Project area potentially affected by construction activities would be maintained at all times, and construction work is not anticipated to result in effects severe enough to disrupt regular business.

Operation of the Project

The proposed changes under the Project would improve access and mobility to the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges, and along Mathilda in between both interchanges. The Project would provide enhanced bicycle facilities including a Class I bikeway between Bordeaux Drive and Mathilda Avenue, and Class II and Class III bikeways between Mathilda Avenue and Innovation Way based on available pavement widths. Under both of the Build Alternatives, Moffett Park Drive access on the east side of Mathilda Avenue would be closed, replaced with a Class I bikeway, and traffic would be shifted to Bordeaux Drive and Innovation Way. However, Moffett Park Drive access west of Mathilda Avenue would remain open. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the Project limits, with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized. The Project area would also include enhanced lighting and updated overhead signage. Accordingly, Project implementation would have beneficial impacts to the cohesion of the communities along the Project area.

As described in the Noise Study Report (ICF International 2016), the Project would not result in a significant increase in ambient noise levels. Further, as described in the Air Quality Study Report (ICF International 2016) developed for the Project, in 2018, Build Alternatives 1 and 2 would result in decreases in all pollutants compared to existing conditions. The Project would not expose sensitive receptors (i.e., schools, residences, parks) to substantial pollutant concentrations, nor would the Project create objectionable odors affecting a substantial number of people.

Impacts Specific to Alternative 1

There would be no impacts specific to Alternative 1.

Impacts Specific to Alternative 2

There would be no impacts specific to Alternative 2.

4.3 Community Facilities

4.3.1 Impacts Common to all Build Alternatives

Construction Period

The Project could affect access to community facilities and businesses during construction primarily related to operation of construction equipment, partial and/or complete lane and ramp closures, noise and vibration, light and glare, and dust. Because Project construction activities would be temporary, no long-term or permanent adverse effect on nearby community facilities is expected to result. To minimize impacts during construction, Caltrans and VTA will regularly inform the community about construction activities through implementation of a TMP. Construction activities would be coordinated with local police and fire departments to ensure that emergency service and response times remain unaffected during construction. The TMP would require coordination and development of alternate emergency response routes as needed. Similarly, the TMP would require maintenance of emergency access to all properties throughout the construction period.

Operation of the Project

Because the Project would operate within the existing transportation ROW and none of the community facilities or businesses would be relocated as a result of any Build Alternative, no long-term operational effects on identified community facilities or businesses would occur. Updated overhead signage would be installed to inform motorists of the approaching on- and off-ramps associated with the Project. Emergency vehicles would be unrestricted in their ability to access any property along the Project area. Since the Project would not remove any parking within the Project area, there would be no adverse effects attributable to loss of parking.

4.3.2 Impacts Specific to Alternative 1

There would be no impacts specific to Alternative 1.

4.3.3 Impacts Specific to Alternative 2

There would be no impacts specific to Alternative 2.

4.4 Right-of-Way Acquisitions

Conceptual engineering has been completed for the Project Build Alternatives. When a preferred alternative is selected, preliminary and final engineering will begin. Conceptual engineering provides sufficient information to determine if full or partial property acquisitions are necessary, however, it is possible that the location of all the temporary and permanent construction easements may change as design is refined. Depending on sidewalk widths and property lines, temporary construction easements may be required in the northern portion of the Project area to modify the traffic signal along Moffett Park Drive where the Project is outside of the transportation ROW. Both Build Alternatives would require partial acquisition of the Sheraton Hotel at 1108 North Mathilda Avenue. This partial acquisition would not affect any buildings associated with the property, but would close access to the Sheraton Hotel along Moffett Park Drive. The hotel would still be accessible along North Mathilda Avenue and Bordeaux Drive. Access to all properties within the Project area would be maintained during construction. Tables 4-1 and 4-2 list potential ROW

acquisitions and temporary construction easements required for construction of each Build Alternative. **Figures 9a and 9b** show the location of the potential ROW acquisitions and temporary construction easements.

Table 4-1. Build Alternative 1 Right-of-Way Requirements

Assessor Parcel Number (APN)	Property Owner	Temporary Construction Easement (TCE)	Public Access Easement	Partial Fee Take	Other Easements
204-01-013	PSS Enterprises Inc. 776 N. Mathilda Ave. Sunnyvale, CA 94085	200 square feet (sf)/ 0.005 acre (ac)			-
110-08-025	Pappas, Louis G and Effie 502 Ross Dr. Sunnyvale, CA 94089	324 sf/ 0.007 ac			-
110-27-025	W2005 New Century Hotel Portfolio LP 1108 N. Mathilda Ave. Sunnyvale, CA 94089	11,293 sf/ 0.259 ac		2,383 sf/ 0.055 ac	-
N/A Moffett Park Dr East of Mathilda	City of Sunnyvale 456 W. Olive Ave. Sunnyvale, CA 94086	-			43,774 sf/ 1.005 ac
N/A Innovation Way	Foothill De Anza Community College 12345 El Monte Road Los Altos Hills, CA 94022	-	170,875 sf/ 3.923 ac		170,875 sf/ 3.923 ac
N/A Innovation Way	Moffett Place LLC 1183 Borregas Ave Sunnyvale, CA 94089		41,226 sf/ 0.946 ac		41,226 sf/ 0.946 ac
N/A Moffett Park Dr West of Mathilda	City of Sunnyvale 456 W. Olive Ave Sunnyvale, CA 94086				4,798 sf/ 0.11 ac

Table 4-2. Build Alternative 2 Right-of-Way Requirements

Assessor Parcel Number (APN)	Property Owner	Temporary Construction Easement (TCE)	Public Access Easement	Partial Fee Take	Other Easements
204-01-013	PSS Enterprises Inc. 776 N. Mathilda Ave. Sunnyvale, CA 94085	200 square feet (sf)/ 0.005 acre (ac)			-
110-08-025	Pappas, Louis G and Effie 502 Ross Dr. Sunnyvale, CA 94089	324 sf/ 0.007 ac			-
110-27-025	W2005 New Century Hotel Portfolio LP 1108 N. Mathilda Ave. Sunnyvale, CA 94089	11,373 sf/ 0.261 ac		2,779 sf/ 0.064 ac	-
N/A Moffett Park Dr East of Mathilda	City of Sunnyvale 456 W. Olive Ave. Sunnyvale, CA 94086	-			30,849 sf/ 0.708 ac
N/A Innovation Way	Foothill De Anza Community College 12345 El Monte Road Los Altos Hills, CA 94022	-	170,875 sf/ 3.923 ac		170,875 sf/ 3.923 ac
N/A Innovation Way	Moffett Place LLC 1183 Borregas Ave Sunnyvale, CA 94089		41,226 sf/ 0.946 ac		41,226 sf/ 0.946 ac

Utility relocation may also require some temporary construction easements, and potentially permanent easements, in addition to the ROW requirements presented in Tables 4-1 and 4-2. However, temporary or permanent easements as a result of utility relocation would be minimal and would not result in displacements of residences or businesses.

Implementation of any of the Build Alternatives would not affect any existing housing; therefore, no replacement housing would be necessary. Implementation of any of the Build Alternatives would not affect any existing businesses; therefore, no business relocations would be necessary.

Impacts Specific to Alternative 1

ROW impacts related to Build Alternative 1 are included in Table 4-1 and shown in Figure 9a. Impacts are comparable to Build Alternative 2.

Impacts Specific to Alternative 2

ROW impacts related to Build Alternative 2 are included in Table 4-2 and shown in Figure 9b. Impacts are comparable to Build Alternative 1.

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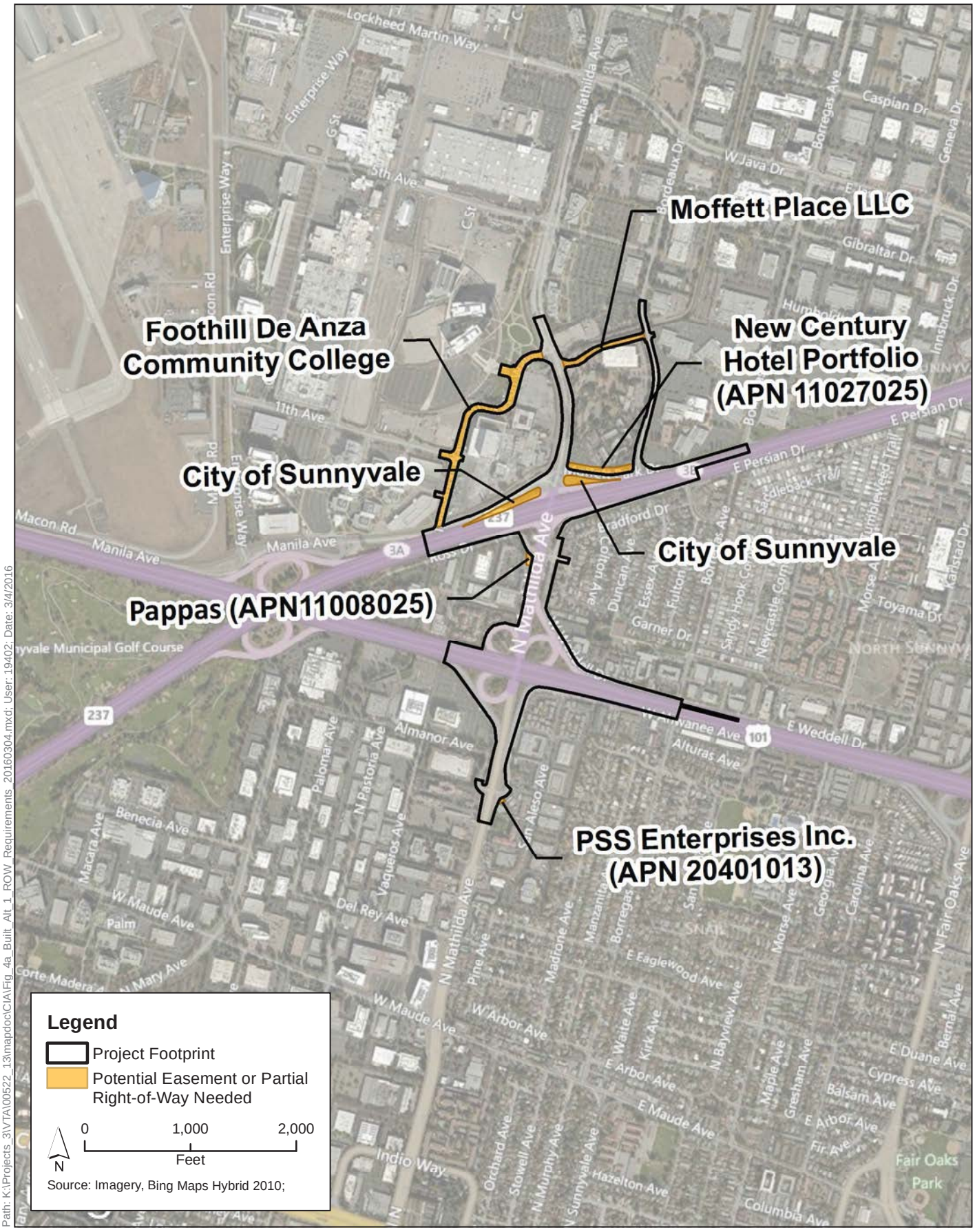

Figure 9a
Right-of-Way Requirements (Build Alternative 1)
Mathilda Avenue Improvements at SR 237 and US 101 Project

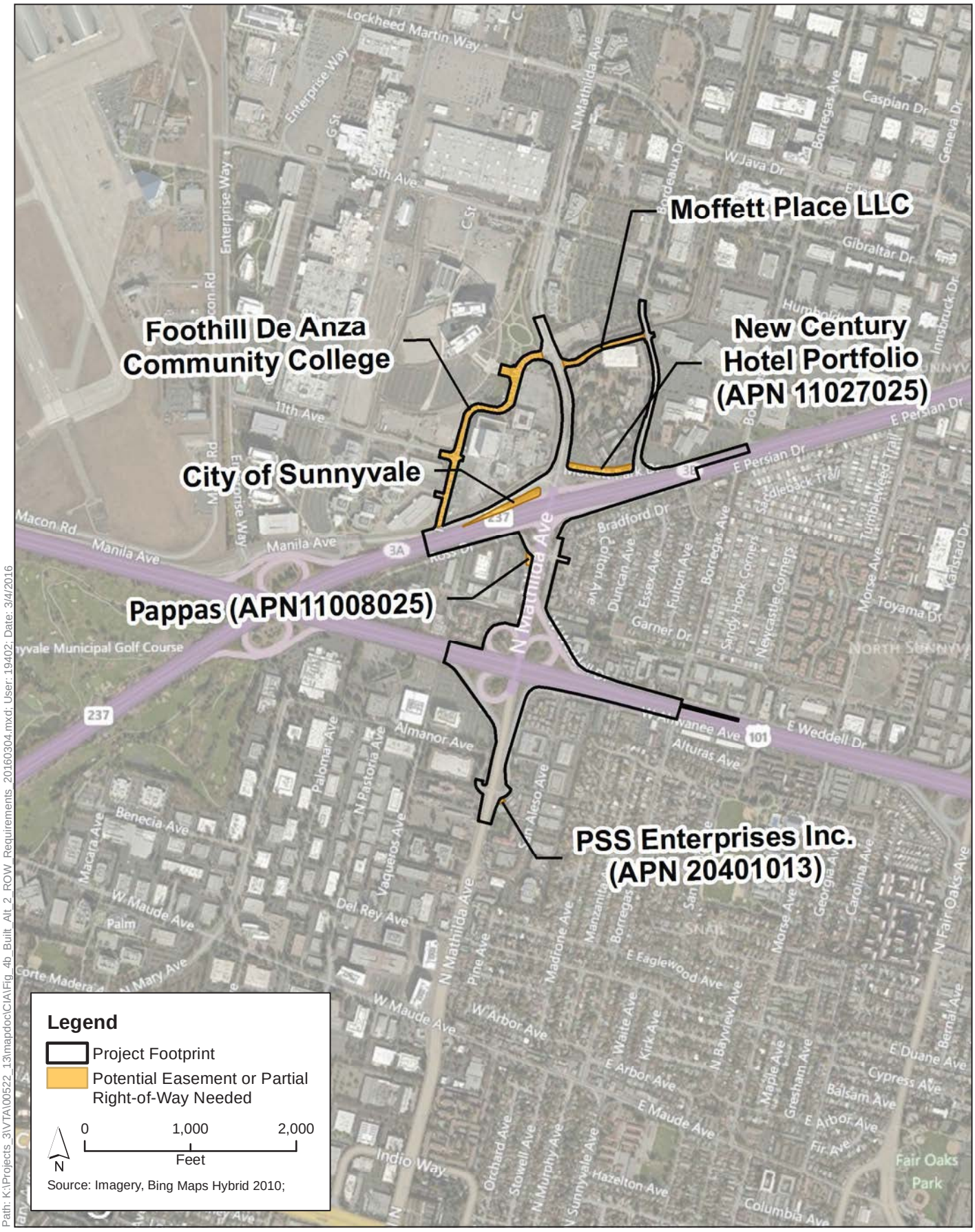

Figure 9b
Right-of-Way Requirements (Build Alternative 2)
Mathilda Avenue Improvements at SR 237 and US 101 Project

Chapter 5 – Avoidance, Minimization, and/or Mitigation

Avoidance, minimization, and/or mitigation measures proposed for air quality, noise, and traffic would result in minimizing and/or mitigating potential impacts related to the surrounding community. These measures include:

- A TMP would be developed in cooperation with the City of Sunnyvale, Santa Clara County, and Caltrans prior to construction. A component of the TMP would include public outreach. Efforts would be made to regularly inform the community about construction activities through notices, press releases, and the use of changeable message signs.

- Implementation of Caltrans' standard specification and measures to control dust during construction would help to minimize air quality impacts from construction activities.

- Vibration-reducing construction measures to limit groundborne vibration at nearby structures and residences would be used to minimize any exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

- Noise-reduction construction practices would be implemented to minimize any temporary or periodic increase in ambient noise levels in the Project vicinity so that it would not result in a substantial increase above existing levels.

The above measures would serve to reduce any construction-related impacts to the community within the Project area and no mitigation specific to community impacts is required.

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Chapter 6 – Conclusion

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Overall, the Project is needed to address several issues in the Project area, including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, improvement of local roadway and freeway ramp operations, and provision of access to current and future economic development.

The percentage of the population living below the poverty level is 4.8 percent in the City of Sunnyvale and 5.2 percent in the Project study area. Furthermore, the City of Sunnyvale has a 52.0 percent minority population, while the Study Area has a 52.2 percent minority population. The Project would not result in long-term adverse impacts on the population or communities within the Project study area. Generally, the only adverse impacts resulting from the Project would be temporary and during the construction period as a result of temporary disruptions to businesses because construction equipment and construction-related noise, dust, and traffic would be noticeable to patrons of businesses in the vicinity of construction work. Implementation of Caltrans' standard specification and measures to control dust during construction would help to minimize air quality impacts from construction activities. Vibration-reducing construction measures to limit groundborne vibration at nearby structures and residences would be used to minimize any exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Further, noise-reduction construction practices would be implemented to minimize any temporary or periodic increase in ambient noise levels in the Project vicinity so that it would not result in a substantial increase above existing levels. A TMP would be implemented to minimized traffic impacts during construction.

The majority of the Project would be constructed within existing Caltrans and City of Sunnyvale ROW, requiring only one partial permanent ROW acquisition from the Sheraton Hotel at 1108 North Mathilda Avenue. Businesses and residences in the Project vicinity could experience temporary impacts resulting from increased dust and noise, diminished access, and general inconveniences during the construction period; however, these impacts would be temporary. These impacts would be further minimized through implementation of a TMP.

The Project would be consistent with the local general plans and specific plans and would be compatible with surrounding land uses. The Project would not result in an adverse impact on the public services and community facilities in the Project corridor. The Project would not result in a significant increase in ambient noise levels. The Project would not expose sensitive receptors (i.e., schools, residences, parks) to substantial pollutant concentrations, nor would the Project create objectionable odors affecting a substantial number of people. Upon completion of construction, the Project would result in beneficial impacts on the community by easing existing congestion and providing enhanced pedestrian and bicycle access, improved connection to community centers and businesses. Both Build Alternatives show a reduction in average travel time and an increase in average travel speed on Mathilda Avenue in 2018 (opening year) when compared to No Build conditions.

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Chapter 7 – References

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Appendix A

Public Meetings Held

The Project was presented at the following meetings. A summary of each meeting is provided below.

Meeting	Date	Location	Parties in attendance	Summary
Sunnyvale City Council Study Session	June 10, 2014	Sunnyvale City Council 456 West Olive Avenue, Sunnyvale	Sunnyvale City Councilmembers, City of Sunnyvale, VTA, WMH Corporation, members of the public	The Project was presented at the Sunnyvale City Council and described the Project location, background, purpose, funding, development process, alternatives considered, challenges, and the DDI alternative. Comments from the public included: • A request to incorporate Complete Streets concepts into design; • Concern about long traffic signal cycles with the DDI alternative; • A request for more details on accommodation of bicycles; • Concern about construction impacts to businesses near Mathilda Avenue and US 101; and • Support of all alternatives presented.
Public Scoping Meeting and Open House (flyer and fact sheets attached)	August 27, 2015	Columbia Middle School 739 Morse Avenue, Sunnyvale	Caltrans District 4 staff, VTA, WMH Corporation, City of Sunnyvale, members of the public	The Project was presented at a public scoping meeting and open house. The meeting provided an opportunity for the public to learn more about the Project and to provide input on the scope of the improvements. Twenty-one total comments were received: 19 were from members of the public, one comment letter was received from the California Transportation Commission, and one comment letter was received from the County of Santa Clara. Comments included: • General safety concerns about pedestrian and bicycle access; • Concern about impeding company bus traffic; • Concern about long traffic signal cycles and too many stop lights; • Concern about air quality from traffic congestion; • Support of VTA increasing bus and LRT transit options; • A request to submit a Complete Streets checklist; • A request to not close Moffett Park Drive; and • Concern that closing the Moffett Park Drive connection would force bicyclists onto SR 237.

VTA Bicycle and Pedestrian Committee	October 7, 2015	VTA River Oaks Campus Conference Room B-104 3331 North First Street, San Jose	Caltrans District 4 staff; VTA; City of Sunnyvale; WMH Corporation; Bicycle, Pedestrian Advisory Committee	The Project was presented to the Bicycle and Pedestrian Committee on October 7, 2015.
Public Meeting during Public Comment Period of the Draft EIR	Anticipated in summer 2016	TBD	Pending	Pending

Mathilda Avenue Improvements at SR 237 and US 101 Project

- **Receive a project overview and schedule.**
- **Receive a summarized project description.**
- **Give your comments on the environmental issues that will be discussed in the environmental document.**

Thursday, August 27, 2015

5:30 p.m. - 7:00 p.m.

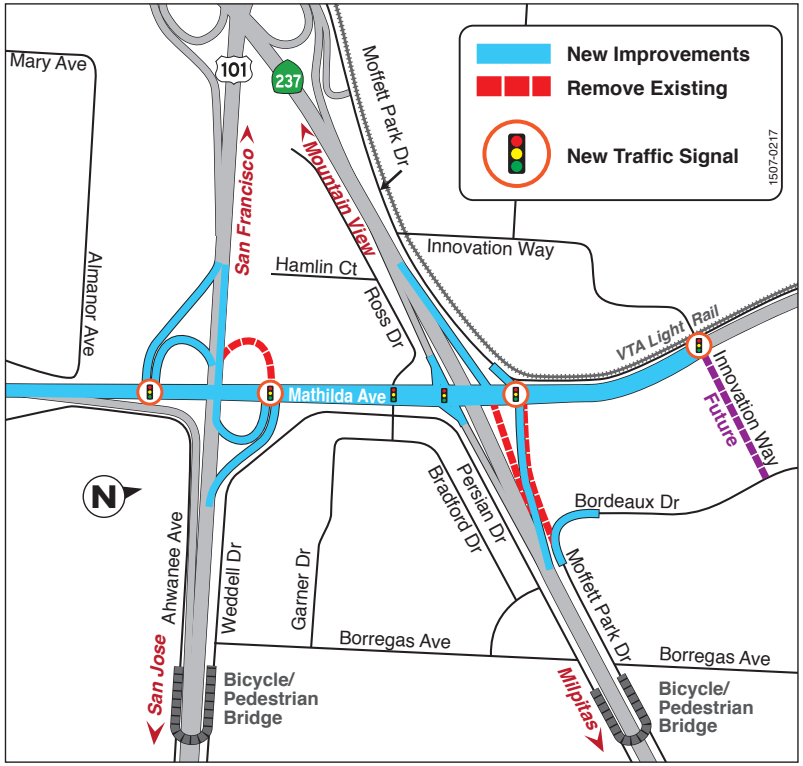
Columbia Middle School - Staff Lounge
739 Morse Avenue
Sunnyvale, CA 94085

Take VTA Bus Lines: 22, 26, 55, 62, and 522

For more information, please contact VTA Community Outreach at (408) 321-7575. The deadline for receiving comments on the project scope is September 15, 2015, by 5 p.m. Comments can be sent by email to *MathildaAve@vta.org* or by mail to:

VTA Environmental Programs and
Resources Management
Attn: Lani Ho
3331 North First Street, Bldg. B-2
San Jose, CA 95134-1927

Si desea más información en su idioma, por favor comuníquese con el Programa de Alcance a la Comunidad de VTA al (408) 321-7575.



Nếu quý vị muốn thông tin đã được dịch sang tiếng Việt, xin liên lạc Ban Tiếp Ngoại Cộng Đồng của VTA tại số (408) 321-7575.

1507-0218

SANTA CLARA
Valley Transportation Authority
3331 North First Street · San Jose, CA 95134-1927

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Learn about the Mathilda Avenue Improvements at SR 237 and US 101 Project at a Public Scoping Meeting/Open House for the Environmental Impact Report/ Environmental Assessment.

We Want to Hear From You!

Come learn about the Mathilda Avenue improvements at SR 237 and U.S. 101 at a Public Scoping Meeting for the Environmental Impact Report.

The purpose of the project is to reduce congestion on Mathilda Avenue, improve mobility for all travel modes, and provide better access to local destinations.

Thursday, August 27
Columbia Middle School (Staff Lounge)
739 Morse Avenue, Sunnyvale 94085
5:30 p.m. to 7 p.m.
VTA Bus Line 55 is within walking distance of this location

The deadline for receiving comments on the project scope is 5 p.m. on September 15. For more information, please contact VTA Community Outreach at (408) 321-7575. Comments can be sent by email to *MathildaAve@vta.org* or by mail to:

VTA Environmental Programs and
Resources Management, Attn: Lani Ho
3331 North First Street, Bldg. B-2
San Jose, CA 95134-1927

National Night Out

Join VTA at this year's National Night Out on Tuesday, August 4. National Night out is a crime and drug prevention event that is sponsored nationally by the National Association of Town Watch and co-sponsored by local organizations.

This year is the 36th anniversary of this event with over 37 million people across the country expected to participate. VTA will be participating in National Night Out at the **Mayfair Community Center, 2039 Kammerer Avenue, San Jose from 4 p.m. to 7 p.m.**

Learn about safety and city services and all the transportation options available to the community. More than 20 public agencies and non-profit groups will be available to share their information.

Don't miss this once-a-year event and come celebrate our community.

This location is served by VTA Bus Lines 22, 70, and 77.

Convivio Comunitario Nacional

Únase con VTA para participar en el Convivio Comunitario Nacional el martes, 4 de agosto. El Convivio Comunitario es un evento para ayudar a prevenir el crimen y abuso de drogas y es patrocinado a nivel nacional por "National Association of Town Watch" y copatrocinado por organizaciones locales.

Este evento se ha celebrado durante los últimos 36 años y se espera que participen más de 37 millones de personas. VTA estará presente en el Centro Comunitario Mayfair, 2039 Kammerer Avenue en San José de 4 p.m. a 7 p.m.

Aprenda acerca de la seguridad y los servicios que ofrece la ciudad de San José, además de todas las opciones que hay disponibles para la comunidad. Habrá más de 20 agencias públicas y agencias no lucrativas que estarán disponibles para compartir información.

¡No se pierda este evento ya que es sólo una vez al año!

Tome las líneas de autobús de VTA 22, 70, o 77, para llegar a este evento.

VTA's Upgraded IVR Coming Soon

To provide even better customer service, we will be making significant improvements to our automated route information phone system. New features include the ability to look up route times by bus stop number, text-to-speech functionality in English and Spanish, and more! The menu will change slightly, so remember to listen carefully when you call VTA Customer Service.

39th Almaden Valley Art & Wine Festival

Presented by the Almaden Valley Women's Club, the annual Almaden Valley Art & Wine Festival will be held in beautiful Almaden Lake Park, on Sunday, September 20, from 10 a.m. to 6 p.m. Admission is free.

Voted one of the best festivals in San Jose, the Almaden Valley Art & Wine Festival features a large selection of local artisans, entertainment by popular bands throughout the day on our main stage, boutique wines from Northern California vineyards, a variety of food offerings to taste including gourmet food trucks, a Kids-Zone with crafts, carnival games, and rides, souvenir wine and beer glasses, a silent auction, and much more.

Festival attendees are encouraged to use public transit and ride bicycles – please contact VTA for your customized trip plan.

This location is served by VTA Light Rail and Bus Line 64.

Need a Hand? Just Ask!

In response to new ADA rules, VTA will begin to further accommodate passengers with disabilities using bus and light rail services by making reasonable modifications to operating policies, practices, and procedures upon request.

Reasonable modifications may include helping passengers insert money into fare boxes, allowing passengers to eat, drink or take medicine aboard a transit vehicle to avoid a medical problem, and permitting passengers to board separately from their mobility devices when the passenger can control the movement of the device.

Passengers may request modifications in advance or at the time they are needed. Passengers are not required to say "Reasonable Modification" when asking for an accommodation. VTA staff will work with passengers to find an alternative approach to accommodate their accessibility needs if a request for a policy, practice, or procedural modification cannot be fulfilled.

To make a request for a reasonable accommodation, please contact VTA Customer Service. Visit *vta.org/reasonablemod* for more information.

Help Us Enhance Your Walking Experience

VTA would like to learn how your walk to the bus stop or train station could be improved. Your answers will help us create a **Pedestrian Access to Transit Plan**. We will use this plan to work with cities on improving pedestrian access to bus stops and train stations.

Please take a moment to complete the survey at *vta.org/pedestrian-plan*.

VTA Customer Service Call Center .....(408) 321-2300

From 650 area code and South Santa Clara County toll area.....(800) 894-9908

- *Listen to recorded route and schedule information*
  - *24 hours a day in English and Spanish*
- *Speak with an Information Service Representative*
  - *Weekdays: 6 a.m. – 7 p.m., Saturday: 7:30 a.m. – 4 p.m.*

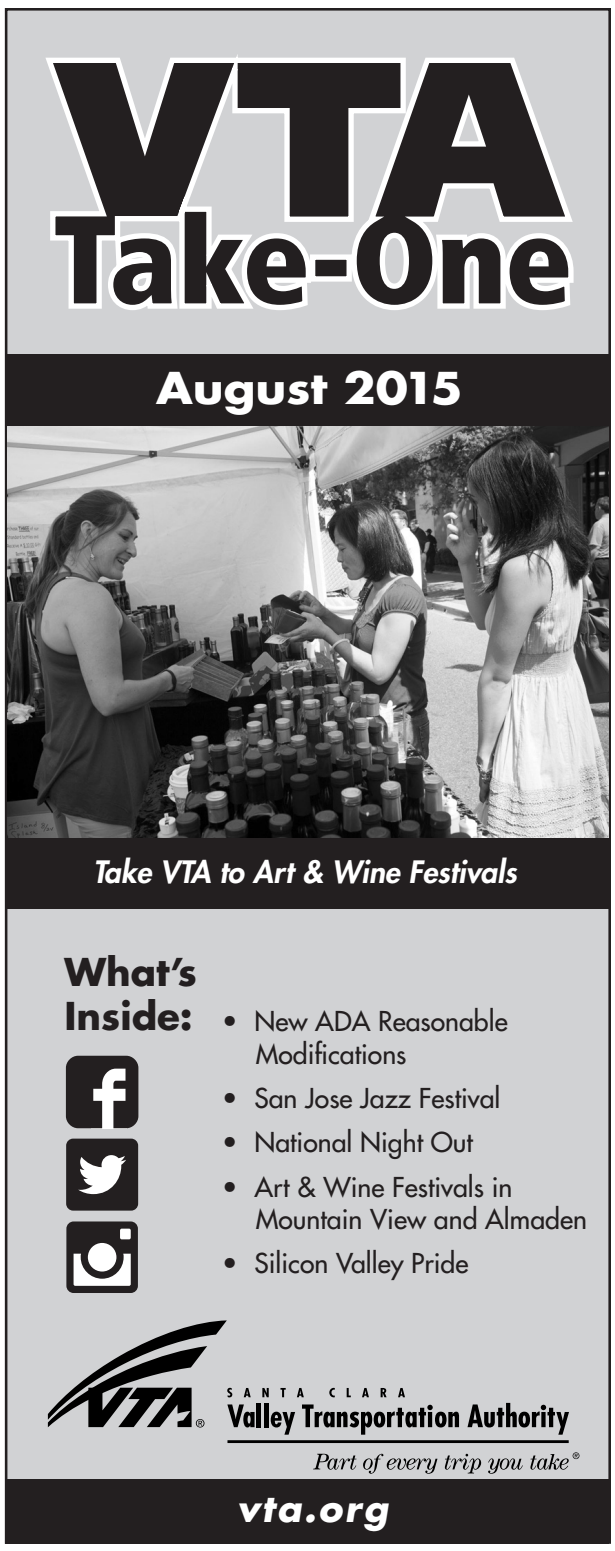
Hearing Impaired TTY only .....(408) 321-2330

VTA Website ..... *vta.org*

VTA Downtown Customer Service Center
55-A West Santa Clara St., San Jose, CA 95113
Weekdays: 9 a.m. – 6 p.m., closed weekends and most holidays

VTA River Oaks Administrative Offices
3331 N. First St., San Jose, CA 95134
Weekdays: 8 a.m. – 4:30 p.m., closed weekends

Printed on recycled paper using soy-based inks 1507-0206 12M



Mountain View Art & Wine Festival

September 12 and 13
10 a.m. to 6 p.m.

Festival insiders know the Mountain View Art & Wine Festival is the crème de la crème on the Bay Area festival scene. Voted "Best Festival in the South Bay" multiple times by readers of *Metro* and still hitting on all cylinders better than ever, this year's 44th annual festival promises to be a "festival like no other."

Come experience an authentic and moveable feast for the senses:

- The cool, vibrant, multicultural Castro Street vibe
- An all-new premium wine tasting pavilion – "Wine Haven, Taste of the Mountains Passport Days"
- Exceptional handcrafted work by 600 of America's top artists and craft makers
- Stellar live music on stage and street throughout downtown plus the return of mega-hit "Salsa Sunday"
- Fabulous food and drink
- The Comcast Pigskin Party Lounge with giant screen TV
- Artisan specialty food purveyors
- Home and garden exhibits
- Health and wellness displays
- An organic and green products showcase
- Tons of fun and games for kids with ultra-thrilling bungee jumping, roll-on-water "waterballerz" and other amazing attractions
- An affordable, sun-splashed, memorable, leisure-filled weekend

Widely considered one of America's top art festivals, huge throngs of art lovers are expected to pour onto Castro Street in Silicon Valley's epicentre for this "Cultural Community Celebration" presented by the Chamber of Commerce Mountain View. Admission is free.

This location is served by VTA Light Rail (exit at the Mountain View Transit Center) and VTA Bus Lines 22, 35, and 522.

San Jose Jazz Summer Fest

August 7 to August 9

The San Jose Jazz Festival started on one stage in 1990 and has grown into one of the nation's most important music festivals, featuring 100+ performances of the best in jazz, blues, R&B, funk, New Orleans, zydeco, and more. In recent years, the Fest has become renowned for its top-flight Latin artists, presented on stages throughout the event. Summer Fest is not just a place to sit and listen; the 12 indoor and outdoor stages provide a variety of experiences and music. The Fest's centerpiece is the Kaiser Permanente Main Stage located in the Plaza de Cesar Chavez Park, fronting the Fairmont San Jose, but the tight footprint of the Fest makes it easy to sample everything the Fest has to offer. You'll also want to take part in "Big Easy Parade" on Saturday.

There's something for everyone and, even with its awesome scale and breadth, the Fest has remained one of the most affordable events of its kind. And there's more than just music—the Fest is the perfect summer experience, with fantastic weather, great food, wine, and microbrews; music-themed film screenings and a jazz mass; a family fun zone with great activities for the kids and evening activities for the grown-ups like Fest+ concerts and a free club crawl.

VTA is excited to partner with the San Jose Jazz for the Summer Fest and encourage you to use public transportation in traveling to and from the festival.

For more information about the Summer Fest, visit *jazzfest.sanjosejazz.org*.

Chacho's Taco Festival

Love tacos? Don't miss Chacho's Annual Taco Festival at St. James Park on Saturday, August 15 from 11 a.m. to 8 p.m. Enjoy live music, food trucks, and yummy tacos!

You'll get to see the number one taco eating champion at the Taco Eating Contest. Last year's winner ate 101 tacos in eight minutes during the festival. That's about one taco every five seconds! Don't miss the exciting competition and delicious tacos in downtown San Jose.

Log on *chachostacofestival.com* for ticket and event information.

This location is served by VTA Light Rail (exit at St. James Light Rail Station) and VTA Bus Lines 22, 23, 66, 72, 73, 82, 181, 323, and 522.

Second Harvest Food Bank – Access Made Easy

Sadly, many community members in Santa Clara County are unsure of where or when they will find their next meal. That's why Second Harvest Food Bank of Santa Clara and San Mateo Counties has launched an innovative new texting program to connect hungry families to the nutritious food they need to thrive. Those who need food assistance can now get help from Second Harvest in three ways.

1. Text "GetFood" to "97779" (for Vietnamese, text "Free"; for Spanish, text "ComidaYa"); standard text messaging rates apply.
2. Call Second Harvest's Food Connection multilingual hotline at (800) 984-3663.
3. Visit *SHFB.org/getfood.*

SHFB Food Connection Specialists can connect families and individuals to the CalFresh application assistance and free food programs through community partners.

Summer Happenings in August

Hop on board a VTA bus or light rail and check out these happening events in Santa Clara County!

The Tamale Festival
Saturday & Sunday, August 1 and 2
9 a.m. to 6 p.m.
sjtamalefest.com
Emma Prusch Farm Park, San Jose
Take VTA Bus Lines 12, 22, 25, and 77.

Thursday Night Live
Thursday, August 6, 5:30 p.m. to 8:30 p.m.
mountainview.gov/depts/cs/events/thursdaynightlive.asp
Castro Street at Dana Street
Downtown Mountain View
Take VTA Light Rail or Bus Line 35 or 52 to this event. VTA Bus Lines 22 and 522 are also available on El Camino Real.

4th Annual Silicon Valley Food and Art Festival
Sunday, August 30, 1:30 p.m. to 5:30 p.m.
svfoodart.org
Cupertino Quinlan Center, Cupertino
Take VTA Bus Lines 23, 25, 54, and 55.

Palo Alto Festival of the Arts
Saturday & Sunday, August 22 and 23
10 a.m. to 6 p.m.
mlaproductions.com/PaloAlto/
Downtown Palo Alto (University Avenue)
Take VTA Bus Lines 22, 35, or 522.

Italian Family Festa
Saturday & Sunday, August 29 and 30
11 a.m. to 8 p.m. (Sat); 11 a.m. to 6 p.m. (Sun)
italianfamilyfestasj.org
Guadalupe River Park, San Jose
Take VTA Light Rail or VTA Bus Lines 22, 63, 64, 68, 181, or 522.

Celebrate Silicon Valley Pride

Silicon Valley Pride is hosting a high-tech festival to celebrate Lesbian, Gay, Bisexual, and Transgender Pride with a parade and all-day events in downtown San Jose.

The parade and festival on Saturday, August 30, will spotlight the youth of our community with strong engagement from the Gay/Straight Alliance Network. The parade kicks off the celebration and begins at 10 a.m. from Market Street and ends at the festival grounds. The festival follows at noon on Almaden Boulevard, between San Carlos and Park Avenue.

The Adobe Stage will entertain festival goers with live bands, international singing sensations, and top DJs. Don't miss the fun!

Visit *svpride.com* for more information and to purchase tickets. This event is made possible thanks to the generous support of Adobe, Alaska Airlines, and the many sponsors and community allies.

This location is served by VTA Light Rail (exit at the Convention Center Station) and VTA Bus Lines 22, 23, 63, 64, 66, 68, 72, 73, 82, 181, 323, 522, and DASH.

TỜ THÔNG TIN: Đường cao tốc

Cải thiện Đại lộ Mathilda Avenue tại SR 237 và US 101

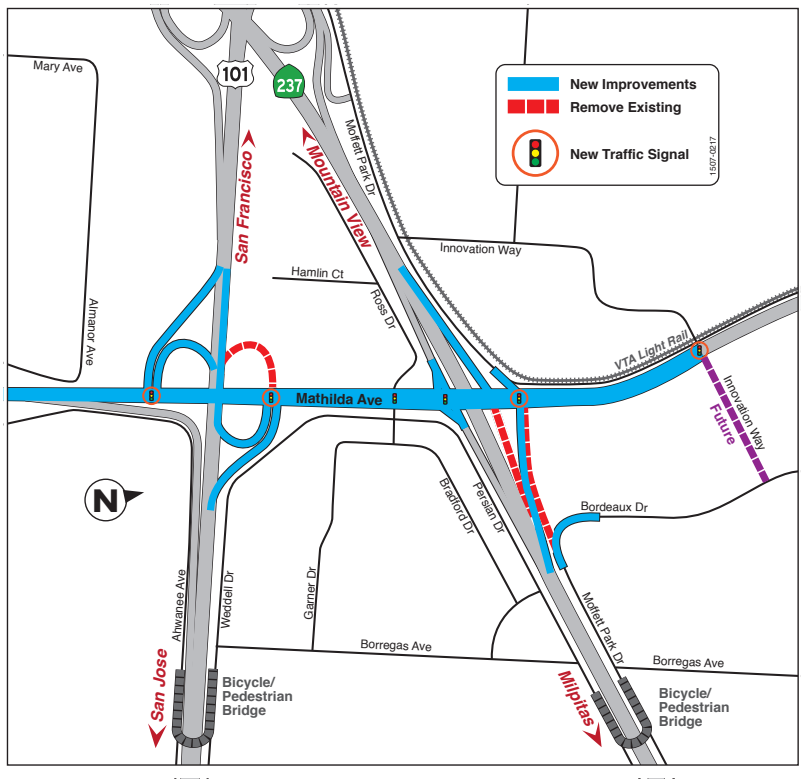
Tổng quan

Dự án đề xuất cải thiện Đại lộ Mathilda Avenue ở thành phố Sunnyvale từ Đại lộ Almanor Avenue đến đường Innovation Way, bao gồm cải thiện các dốc thoải lên xuống tại các giao lộ đường tiểu bang 237 / Đại lộ Mathilda Avenue và US 101 / Đại lộ Mathilda Avenue.

Cải thiện cụ thể bao gồm sửa đổi các dốc thoải lên xuống; loại bỏ, bổ sung, và lắp hệ thống tín hiệu tại các nút giao thông; cung cấp các làn đường rẽ trái mới, và sửa đổi để cải thiện việc tiếp cận của xe đạp và người đi bộ.

Mục tiêu

Để giảm tắc nghẽn trên Đại lộ Mathilda Avenue, cải thiện tính cơ động cho tất cả các hình thức đi lại, và cung cấp đường đi tốt hơn tới các điểm đến trong toàn thành phố Sunnyvale.



Lịch trình dự án

Phê chuẩn môi trường:	Giữa 2017
Hoàn thành thiết kế:	Đầu 2018
Thi công dự án:	Sẽ được công bố

Liên hệ với chúng tôi

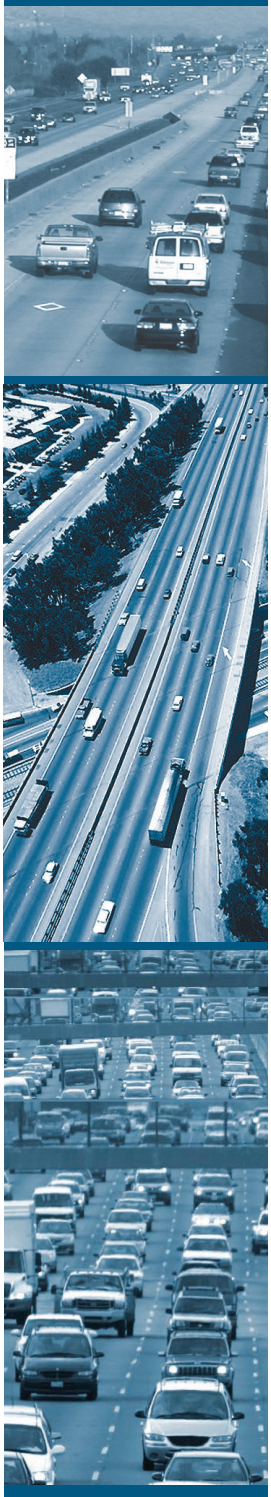
Nếu bạn có bất kỳ câu hỏi về việc Cải thiện Đại lộ Mathilda Avenue dự án SR 237 và US 101, xin vui lòng gọi cho Ban Tiếp Ngoại Cộng đồng VTA tại (408) 321-7575, (TTY) cho những người khiếm thính (408) 321-2330. Bạn cũng có thể ghé thăm chúng tôi trên web tại *www.vta.org/mathildaimprovements*, hoặc gửi email cho chúng tôi tại *community.outreach@vta.org*.

Đối tác tài trợ Dự án

SANTA CLARA Valley Transportation Authority

CITY OF SUNNYVALE CALIFORNIA

Caltrans



Planning for Future Generations

FACT SHEET: **Mga Highway**

Mga Pagpapahusay sa Mathilda Avenue sa SR 237 at US 101

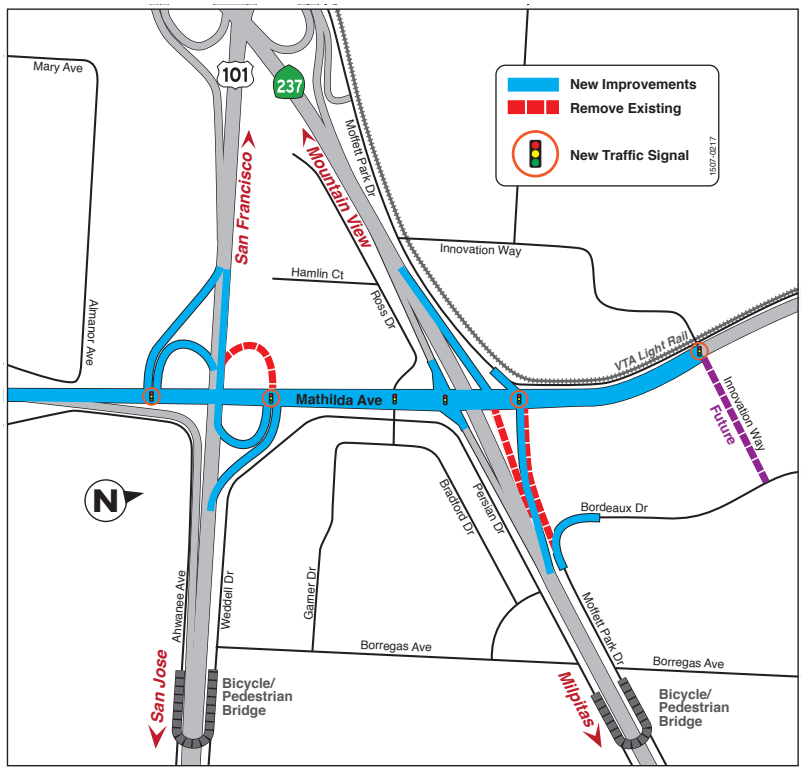
Pangkalahatang-ideya

Iminumungkahi ng Proyekto na pahusayin ang Mathilda Avenue sa Lungsod ng Sunnyvale mula Almanor Avenue hanggang sa Innovation Way, kabilang ang mga pagpapahusay sa on- at off-ramp sa mga interchange ng State Route 237/Mathilda Avenue at US 101/Mathilda Avenue.

Kabilang sa mga ispesipikong pagpapahusay ang modipikasyon sa mga on- at off-ramp; pag-alis, pagdaragdag at paglalagay ng signal sa mga interseksyon; paglalagay ng mga bagong linya para sa lef-turn at modipikasyon sa pinahusay na linya para sa bisikleta at pedestrian.

Layunin

Upang bawasan ang pagsisikip ng trapiko sa Mathilda Avenue, pahusayin ang daloy ng lahat ng uri ng transportasyon at magbigay ng mas mahusay na access sa mga lokal na destinasyon sa buong lungsod ng Sunnyvale.



Iskedyul ng Proyekto

Pag-apruba sa Kapaligiran:	Kalagitnaan ng 2017
Pagkumpleto sa Disenyo:	Mga Unang Buwan ng 2018
Konstruksyon sa Proyekto:	Iaanunsyo

Paano Kami Makokontak

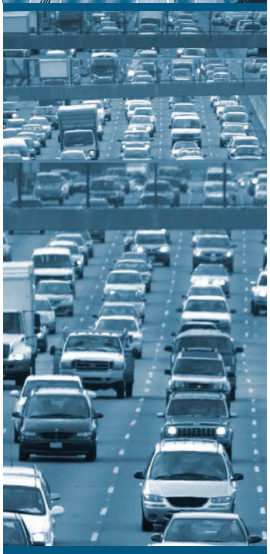
Kung mayroon kang anumang mga katanungan tungkol sa Proyekto na Mga Pagpapahusay sa Mathilda Avenue sa SR 237 at US 101, mangyaring tumawag sa Community Outreach Department ng VTA sa (408) 321-7575, (TTY) para sa may kahirapan sa pandinig (408) 321-2330. Maaari mo rin kaming bisitahin sa web sa *www.vta.org/mathildaimprovements*, o mag-email sa amin sa *community.outreach@vta.org*.

Mga Kasama sa Pagpopondo ng Proyekto

SANTA CLARA Valley Transportation Authority

CITY OF SUNNYVALE CALIFORNIA

Caltrans



Planning for Future Generations

HOJA DE DATOS: **Carreteras**

Mejoras a Mathilda Avenue en la intersección de SR 237 y US 101

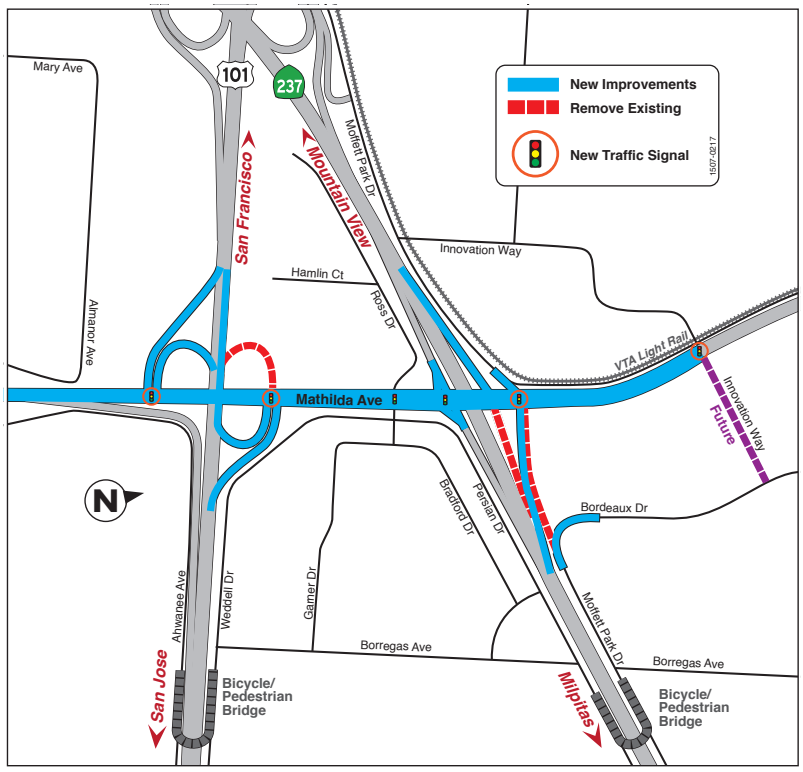
Visión general

El Proyecto propone mejorar Mathilda Avenue en la Ciudad de Sunnyvale desde Almanor Avenue hasta Innovation Way, incluyendo mejoras a las rampas de entrada y salida en los pasos a desnivel SR 237/Mathilda Avenue y US 101/Mathilda Avenue.

Las mejoras específicas incluyen modificaciones a las rampas de entrada y salida; remoción, adición y señalización de las intersecciones; provisión de nuevos carriles para vuelta a la izquierda, y modificaciones para mejorar el acceso de bicicletas y peatones.

Objetivo

Reducir la congestión vial en Mathilda Avenue, mejorar la movilidad para todo tipo de viaje, y proporcionar un mejor acceso a los destinos locales en toda la ciudad de Sunnyvale.



Calendario del proyecto

Aprobación ambiental:	Mediados de 2017
Terminación del diseño:	Principio de 2018
Construcción del proyecto:	Por anunciarse

Cómo comunicarse con nosotros

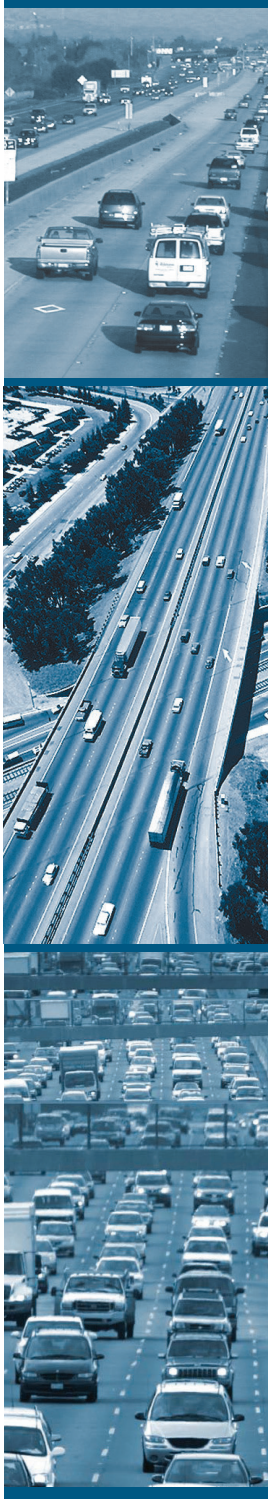
Si tiene preguntas sobre el Proyecto de mejoras de Mathilda Avenue en la intersección de SR 237 y US 101, llame al Programa de Extensión a la Comunidad de VTA al (408) 321-7575, TTY para los que tienen incapacidad auditiva al (408) 321-2330. Usted puede visitarnos también en la red en *www.vta.org/mathildaimprovements*, o enviarnos un correo electrónico a *community.outreach@vta.org*.

Socios de financiamiento del proyecto

SANTA CLARA Valley Transportation Authority

CITY OF SUNNYVALE CALIFORNIA

Caltrans



Planning for Future Generations

기본 정보: 고속도로

237번 주도(SR)와 101번 국도 마틸다 애비뉴 개선 (Mathilda Avenue Improvements)프로젝트

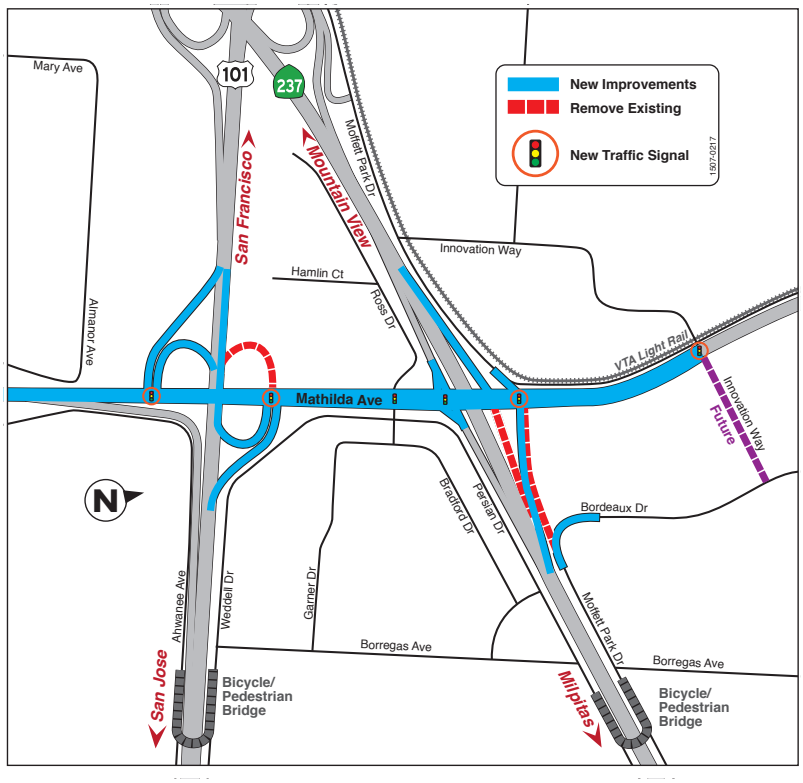
개요

이번 프로젝트에서는 237번 주도/마틸다 애비뉴와 101번 국도/마틸다 애비뉴 인터체인지의 진출입로 포함, 알마노 애비뉴(Almanor Avenue)에서 이노베이션 웨이(Innovation Way)까지의 서니베일(Sunnyvale)시 마틸다 애비뉴의 개선 작업이 제안되었습니다.

구체적인 개선 사항은 진출입로 변경, 교차로 제거/추가/신호 설치, 좌회전 차선 신설 및 자전거와 보행자 접근성 개선 등입니다.

목표

프로젝트의 목표는 마틸다 애비뉴의 교통 정체 감소, 교통 수단의 이동성 개선 및 서니베일 시 전체 로컬 지역에 대한 접근성 향상 등입니다.



프로젝트 일정

환경 승인:	2017년 중반
설계 완료:	2018년 초반
공사:	추후 공지

문의처

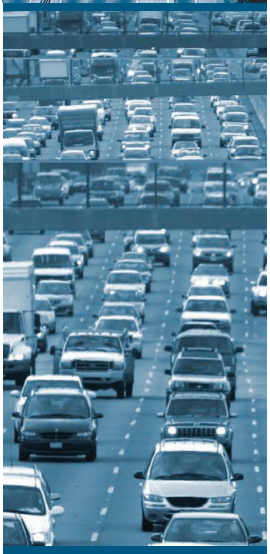
*237*번 주도와 *101*번 국도의 마틸다 애비뉴 개선 프로젝트에 관해 더 자세한 정보를 원하시는 경우, *VTA* 지역봉사부 *(408) 321-7575*로 연락 주십시오. 청각 장애가 있으신 분들을 위해 *TTY* 모드 *(408) 321-2330* 도 제공하고 있습니다. 또한, 관련 웹페이지*(www.vta.org/mathildaimprovements)*를 확인하시거나, 이메일*(community.outreach@vta.org)*로도 연락가능합니다.

프로젝트 기금 후원 파트너

SANTA CLARA Valley Transportation Authority

CITY OF SUNNYVALE CALIFORNIA

Caltrans



Planning for Future Generations

情况说明: 高速公路

对 237 号州道及 101 高速公路Mathilda Avenue路段的修

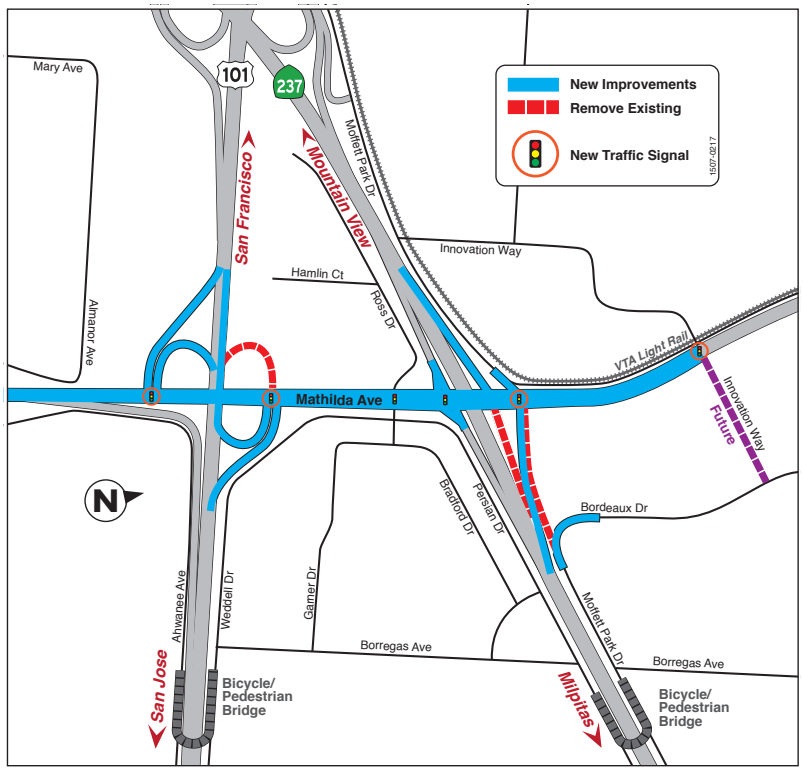
概况

这一项目提议修缮 Sunnyvale市 Almanor Avenue 与 Innovation Way 之间的Mathilda Avenue 路段，包括修缮 237 号州道/ Mathilda Avenue 及 101 高速公路/Mathilda Avenue 的高速公路上下坡道。

具体内容包括：高速公路上下坡道改建；去除或增加交叉路口，在交叉路口安装交通信号；提供新的左转车道、改善自行车及行人的通行。

目

减缓 Mathilda Avenue 路面交拥挤状况，使所有交通方式运行畅通，使 Sunnyvale 市的交通更为便利。



目时间表

环保审批:	2017 年中
完成设计:	2018 年初
项目施工:	待公布

如何联系我

如果您对于237 号州道及101 高速公路Mathilda Avenue路段的修缮项目有任何问题，请打电话给 VTA 社区外展部。电话是：(408) 321-7575，TTY 听障者专线是 (408) 321-2330。您也可以访问我们的网站 *www.vta.org/mathildaimprovements*, 或发电子邮件至 *community.outreach@vta.org*.

提供目金的合作伙伴

SANTA CLARA Valley Transportation Authority

CITY OF SUNNYVALE CALIFORNIA

Caltrans

Planning for Future Generations

FACT SHEET: **Highways**

Mathilda Avenue Improvements at SR 237 and US 101

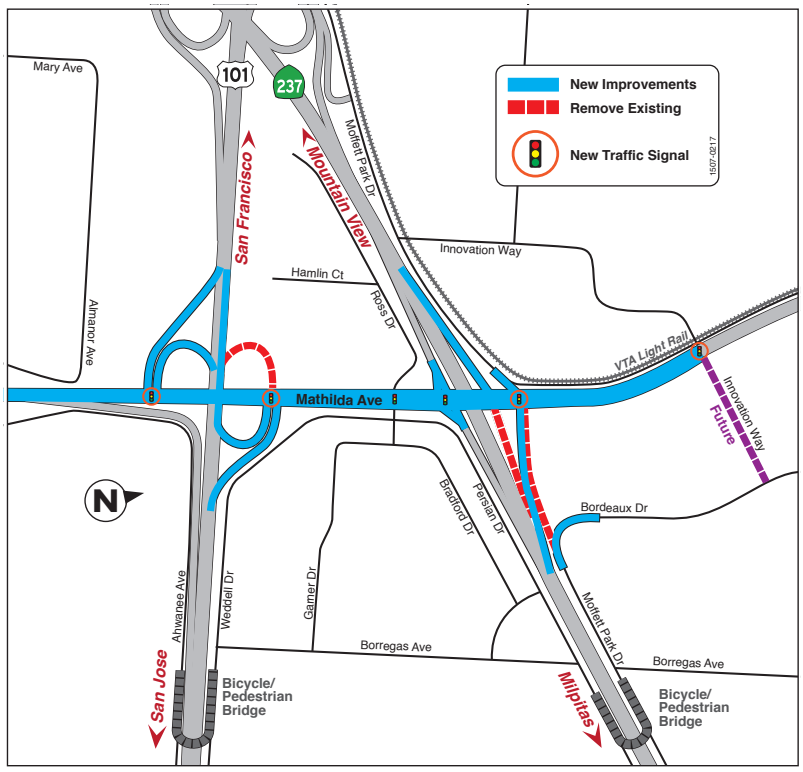
Overview

The Project proposes to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route 237/ Mathilda Avenue and U.S. 101/Mathilda Avenue interchanges.

Specific improvements include modification to on- and off-ramps; removal, addition, and signalization of intersections; provision of new left-turn lanes, and modification for improved bicycle and pedestrian access.

Objective

To reduce congestion on Mathilda Avenue, improve mobility for all travel modes, and provide better access to local destinations throughout the City of Sunnyvale.



Project Schedule

Environmental Approval:	Mid 2017
Design Completion:	Early 2018
Project Construction:	To be announced

How to Reach Us

If you have any questions about the Mathilda Avenue Improvements at SR 237 and US 101 Project, please call VTA's Community Outreach Department at (408) 321-7575, (TTY) for the hearing-impaired (408) 321-2330. You may also visit us on the web at *www.vta.org/mathildaimprovements*, or email us at *community.outreach@vta.org*.

Project Funding Partners

SANTA CLARA Valley Transportation Authority

CITY OF SUNNYVALE CALIFORNIA

Caltrans

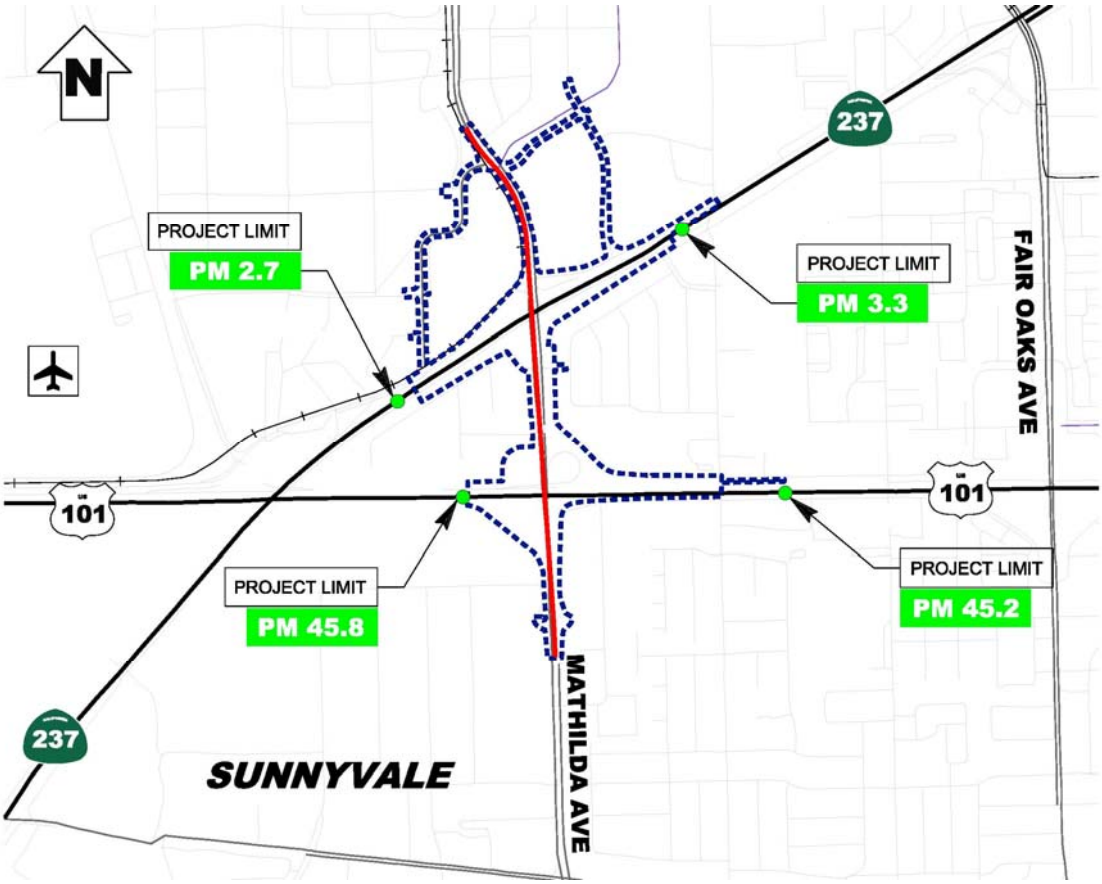
Planning for Future Generations

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

Initial Site Assessment

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:
BASELINE Environmental Consulting

Dated: October 2015

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternative formats, please write to Caltrans, Attn: Elizabeth White, Office of Environmental Planning, 111 Grand Avenue, Oakland, CA 94623-0660; or call (510) 286-6233 (voice); or use the California Relay Service TTY number, (800) 735-2929.

Initial Site Assessment

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT

on Mathilda Avenue from Almanor Avenue to Innovation Way; on SR 237 from 0.3 mile south of US 101/SR 237 Junction to 0.3 mile east of Mathilda Avenue Undercrossing; and on US 101 from 0.5 mile south of Mathilda Avenue to SR 237/US 101/SR 237 Junction in City of Sunnyvale, in Santa Clara County

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

October 2015

U.S. DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA
and
Cooperating Agency: Santa Clara Valley Transportation Authority

Prepared By: _____ Date: 12/21/2015

Bruce Abelli-Amen, Principal
(510) 420-8686
BASELINE Environmental Consulting

Approved By: _____ Date: 1-7-16

Ray Boyer, Branch Chief, Division of Environmental Planning & Engineering
(510) 286-5668
California Department of Transportation, District 4

Statement of Compliance: Produced in compliance with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this Project.

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INITIAL SITE ASSESSMENT
Mathilda Avenue Improvements at SR 237 and US 101 Project

EXECUTIVE SUMMARY

BASELINE Environmental Consulting ("BASELINE") conducted this Initial Site Assessment (ISA) for the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project). The Project proposes to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route 237/Mathilda Avenue and U.S. Highway 101/Mathilda Avenue interchanges (Figure 1). Two Build Alternatives, Build Alternative 1 and Build Alternative 2, are being considered for the Project (Figures 2a and 2b). Project improvements for both Build Alternatives would include reconfiguration of existing roadways and intersections, new bicycle and pedestrian facilities, utility relocations, new stormwater treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall.

The purpose of this ISA was to identify and evaluate the level of risk associated with hazardous materials, hazardous waste, and/or contamination within the Project limits that could potentially result from the proposed construction activities and/or operations. This ISA has identified low and medium risks associated with the following hazardous material concerns:

- Potential aerially-deposited lead in exposed shallow soils – **Medium Risk**
- Potential groundwater impacts from a regional chlorinated solvent plume (Sites 1, 2, and 4 through 7 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from residual petroleum hydrocarbons release at Shell (Site 9 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from residual petroleum hydrocarbons released at Wolco Oil Co. (Site 11 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from chlorinated solvents, methylene chloride, and metals potentially released at Circo Inc (Site 12 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from residual petroleum hydrocarbons released at Moffet Park Auto Center (Site 14 on Table 3 and Figure 6) – **Low Risk**
- Potential arsenic and organochlorine pesticides in shallow soils across the entire Project site from historical agriculture (Figure 5) – **Low Risk**
- Potential naturally-occurring asbestos in fill embankments – **Low Risk**
- Potential lead-based paint and asbestos-containing materials on US 101 overpass – **Low Risk**
- Potential metals in drainage swale and catch basin sediments from stormwater runoff – **Low Risk**
- Potential lead and chromium in yellow thermoplastic and yellow paint striping and markings on roadways – **Low Risk**

- Petroleum hydrocarbons, metals, and high pH in asphalt and Portland-cement concrete grindings – **Low Risk**

Risk levels associated with hazardous material concerns identified within the Project limits are summarized for each Build Alternative in Matrix 1, below. The associated risks identified in this ISA would generally apply equally to each Build Alternative.

MATRIX 1: Summary of Risk Levels for each Build Alternative

Hazardous Materials Concern	Risk Level	Media Affected	Primary Contaminants of Concern	Build Alternatives	
				1	2
Aerially-Deposited Lead	Medium	Soil	Lead	X	X
Hazardous Materials Release Sites*	Low	Groundwater	Petroleum Hydrocarbons, Chlorinated Solvents, Methylene Chloride, and/or Metals	X	X
Agricultural Pesticides	Low	Soil	Arsenic and Organochlorine Pesticides	X	X
Naturally-Occurring Asbestos	Low	Soil	Asbestos	X	X
Lead-Based Paint and Asbestos-Containing Material	Low	Construction Material	Lead and Asbestos	X	X
Drainage Swales and Catch Basins	Low	Soil	Metals	X	X
Yellow Thermoplastic/Paint Striping and Markings	Low	Construction Material	Lead and Chromium	X	X
Asphalt and Portland-Cement Concrete Grindings	Low	Construction Material	Petroleum Hydrocarbons and Metals	X	X

* Five potential groundwater plumes that pose a risk to the Project are identified in Section 5.

Once a preferred Build Alternative has been chosen and areas of excavation and pavement disturbance are determined, BASELINE recommends performing a Preliminary Site Investigation (PSI) to investigate hazardous materials concerns related to soil, groundwater, and construction materials on the Project site, as identified in this ISA. All environmental investigations for the Project should be performed in accordance with a Workplan approved by Caltrans, and the findings should be provided to the Project contractors to incorporate into their Health and Safety and Hazard Communication programs. Project construction should be conducted under a project-specific Construction Risk Management Plan to protect construction workers, the general public, and the environment from hazardous materials in soil, groundwater, and/or construction materials identified in the PSI and/or undocumented sources.

INITIAL SITE ASSESSMENT
Mathilda Avenue Improvements at SR 237 and US 101 Project

1. INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 miles east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 miles east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.5 miles south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 miles south of SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately 1 mile. Figure 1 shows the location of the Project.

The purpose of this Initial Site Assessment (ISA) is to identify and evaluate the level of risk associated with hazardous materials, hazardous waste, and/or contamination within the Project limits that could potentially result from the proposed construction activities and/or operations. This assessment was prepared by BASELINE Environmental Consulting (BASELINE) with review and approval by Caltrans.

2. PROJECT DESCRIPTION

This section describes the purpose and scope of the proposed Project.

2.1 Purpose and Need

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Specifically, the goals and objectives of the Project are to:

- Reduce congestion and improve traffic operations along Mathilda Avenue and at the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges.
- Improve mobility for all travel modes in the area including motor vehicles, transit, bicycles, and pedestrians.
- Provide standard crosswalks and sidewalks along Mathilda Avenue, improving access to local destinations such as Moffett Park, the VTA Light Rail Transit (LRT) stations, and downtown Sunnyvale.

The Project is needed for the following reasons:

- Regional growth and new local development combined with inefficient roadway operations has resulted in substantial traffic congestion on Mathilda Avenue.
- Efficient access for all travel modes into and out of downtown Sunnyvale and development to the north of SR 237 is critical to a healthy and sustainable economy. Congestion on Mathilda Avenue adversely affects the economic vitality of the City of Sunnyvale.

Overall, the Project is needed to address several issues in the Project area including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, improvement of local roadway and freeway ramp operations, and provision of access to current and future economic development.

2.2 Project Description and Alternatives

The Project alternatives that were developed to meet the purpose and need of the Project include Alternative 1 (Figure 2a), Alternative 2 (Figure 2b), and the No-Build Alternative. Under the No-Build Alternative, no changes would be made to the existing local roadways or freeway system within the Project limits. No construction activities would occur, and there would be no change in the operations of the existing facilities.

The design features of the two Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges with Mathilda Avenue. The Build Alternatives include design variations for reconfigured roadways and intersections, and construction of new signalized intersections. Proposed improvements included in the Build Alternatives south of Ross Drive on Mathilda Avenue and at the US 101 interchange, are identical. This includes new bicycle and pedestrian facilities, utility relocations, new storm water treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall. Unique improvements, north of Ross Drive on Mathilda Avenue, primarily include improvements related to construction of a diverging diamond interchange[1] under Build Alternative 2 (Figure 3).

2.2.1 Roadway Improvements

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction of Mathilda Avenue.
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp.

[1] A diverging diamond interchange, also called a double crossover diamond interchange, is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (a signal phase allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

- Realign and widen northbound ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp.
- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue.
- Modify Mathilda Avenue / Ross Drive signal intersection.
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.[2]
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection.
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration (see Figure 2a).
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration (see Figure 2b and Figure 3). Eastbound Moffett Park Drive between Innovation Way and Mathilda Way would be diverted to Innovation Way to access Mathilda Avenue.

2.2.2 Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consider both Class II and Class III bikeways[3], based on available pavement widths within the project limits, and would connect to the existing Class III bikeway north of Innovation Way and Class I bikeway on the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered based on available pavement widths within the project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the project limits with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

3. METHODOLOGY

As shown in Figure 1, the limits of the Project site include all areas that could potentially be disturbed during construction of the proposed improvements. BASELINE performed this assessment in accordance with Chapter 10 of the Caltrans *Environmental Handbook* (Caltrans, 2015a) to support the preliminary engineering and environmental review of the Project. As required by Caltrans, potential sources of contamination within the Project limits were identified as Recognized Environmental Conditions[4] (RECs) in accordance with ASTM

[2] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place development project.

[3] Class I bikeway is a bicycle path. Class II bikeway is a bicycle lane. Class III bikeway is bicycle route [Source: Highway Design Manual Index 1002.1]

[4] RECs are defined in ASTM E1527-13 as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative

International's (20013) Standard Practice Method E1527-13, *Standard Practice for Environmental Site Assessments: Phase I Environmental Assessment Process*. The scope of services for this ISA included review and evaluation of the physical setting, historical land uses, environmental records, and previous environmental investigations, as well as a site reconnaissance. A completed ISA checklist for the Project is included as Appendix A.

3.1 Recognized Environmental Conditions

In accordance with ASTM 1527-13, standard data sources were reviewed to identify sites associated with hazardous materials within 1 mile of the Project. The data sources included a site reconnaissance, United States Geological Survey (USGS) topographic maps, historical aerial photographs, environmental records derived from regulatory agency databases, and previous environmental investigations. Based on the review of data sources, potential sites of concern were further evaluated to identify releases of hazardous materials that could result in a REC in connection with the Project site. Risk levels associated with identified RECs were then assessed for each Build Alternative in accordance with the Caltrans *Environmental Handbook*.

3.2 Other Environmental Concerns

Based on the Caltrans *Environmental Handbook* and BASELINE's previous experience working on similar transportation infrastructure projects, other environmental concerns that could pose a risk to the Project, but are not considered RECs under ASTM 1527-13, were evaluated. These environmental concerns include the following: agricultural pesticides; aerially-deposited lead (ADL); naturally-occurring asbestos; lead-based paint and asbestos-containing materials; metals in soils from non-point source stormwater runoff; yellow traffic stripes and pavement markers; and asphalt-concrete and Portland-cement grindings. Following the evaluation of other environmental concerns, associated risk levels were assessed for each Build Alternative in accordance with the Caltrans *Environmental Handbook*.

4. REVIEW OF DATA SOURCES

This section describes the review of the physical setting, site reconnaissance, historical land uses, environmental records, and previous environmental investigations in the Project vicinity.

4.1 Physical Setting

The regional topography slopes gradually to the north-northeast with elevations ranging from about 20 to 40 feet (NAVD 88) along Mathilda Avenue (USGS, 2015) (Figure 4). The Project is generally underlain by Holocene alluvium (Graymer, R.W, et al., 2006). The Project crosses one waterway, Sunnyvale West Channel, near the intersection of Moffett Park Drive and Innovation

of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment." According to ASTM E1527-13, the term "REC" is not intended to include de minimis conditions that generally do not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

Way and the intersection of Mathilda Avenue and Innovation Way. The Sunnyvale West Channel generally drains north (Figure 4), eventually discharging into the San Francisco Bay.

Ambient groundwater level data were reviewed from the State Water Resources Control Board's (SWRCB) (2015) *GeoTracker* database for monitoring wells at two leaking underground storage tank (LUST) sites near the Project: the Texaco site at 724 Mathilda Avenue and the Professional Center site at 102 Persian Drive. Depth to groundwater generally ranges from about 7 to 15 feet below ground surface and groundwater generally flows to the north-northeast at both of the LUST sites. Based on the regional topography and previously measured groundwater levels, groundwater is expected to flow to the north-northeast across the Project site.

4.2 Site Reconnaissance

On 28 August 2015, BASELINE conducted a site reconnaissance to identify evidence of potential hazardous materials releases on the Project site and on adjoining properties. Evidence of potential hazardous materials releases could include on-site waste disposal, apparent odors, stained or discolored surfaces, and stressed or damaged vegetation. A windshield site reconnaissance was conducted for the entire Project alignment by Cem Atabek from BASELINE. Current land uses adjacent to Mathilda Avenue generally included residential, commercial, and industrial properties. Evidence of potential hazardous materials releases on or adjacent to the Project was not observed.

4.3 Historical Land Use Records

BASELINE reviewed historical land use records for the Project and surrounding area to identify potential sources of hazardous materials that may have resulted in a REC in connection with the Project. Historical land uses in the Project vicinity were determined by reviewing historical aerial photographs between 1939 and 2012 (EDR, 2015). The aerial photographs were geocoded and imported into a Geographic Information System (GIS) to spatially analyze land use developments relative to the Project location. The aerial photographs reviewed for this ISA are included in Appendix B.

As early as 1939 until as late as 1956, large portions of the Project site and surrounding area were being used for agriculture. During this time period, several agricultural structures (e.g., homesteads and barns) appeared to be located on portions of the Project site. In 1956, a large barn or warehouse structure appeared to be located at the current intersection of Ross Drive and Mathilda Avenue (Figure 5). By 1968, the current roadway/highway alignments for Mathilda Avenue, SR 237, and US 101 were constructed through the Project site, and adjacent land uses had been redeveloped as residential, commercial, and industrial properties. By the early 1990s, a portion of the VTA LRT line was constructed adjacent to Moffett Park Drive and the segment of Mathilda Avenue north of SR 237 on the Project site (EDR, 2015). The current land uses on and adjacent to the Project site have not changed significantly since the late 1960s.

4.4 Environmental Records

BASELINE reviewed environmental records that were reasonably ascertainable[5] from standard sources[6] to identify RECs in connection with the Project site. Standard environmental record sources for State-registered aboveground storage tank (AST) sites were not reviewed, because the records were not reasonably ascertainable. All facilities that have registered ASTs are required to submit information annually to the California Environmental Reporting System (CERS). Information about facilities stored in the CERS database is not currently available to the public.

The United States Coast Guard maintains the federal government's *National Response Center* database (formerly the ERNS database), which lists all reported hazardous materials releases or spills in quantities greater than the reportable quantities codified in 40 CFR Parts 302 and 355. The United States Environmental Protection Agency (USEPA) oversees facilities that generate, transport, store, treat, and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). In California, the SWRCB and Department of Toxic Substances Control (DTSC) oversee the cleanup of contaminated properties. The SWRCB and DTSC also oversee the State's underground storage tank (UST) program and permitted hazardous waste facilities, respectively, to minimize the potential threat of future hazardous materials releases. The environmental record sources reviewed for this ISA were derived from the United States Coast Guard *National Response Center* database (Center for Effective Government, 2015), USEPA (2015) *RCRAInfo* database, SWRCB (2015) *GeoTracker* database, and DTSC (2015) *EnviroStor* database. A summary of the environmental record sources reviewed is provided on Table 1.

Site information from each record source was imported into a GIS program to spatially analyze sites within the minimum search distances defined by ASTM E1527-13 relative to the boundary of the Project site (Table 1). The spatial analysis identified one permitted UST facility and seven small-quantity RCRA generators adjacent to the Project site (Table 2). The spatial analysis identified 42 hazardous materials release sites within 1 mile of the Project site (Table 3).

4.5 Previous Environmental Investigations

Based on ascertainable data, previous environmental investigations have not been performed on the Project site. Numerous environmental investigations have been performed at hazardous materials release sites within 1 mile of the Project site identified during the review of environmental records. The findings of the previous environmental investigations at sites of potential concern are summarized below.

[5] Information that is 1) publically available, 2) obtainable from its source within reasonable time and cost restraints, and 3) practically reviewable (ASTM 1527-13).

[6] Defined in Section 8 of ASTM 1527-13.

5. EVALUATION OF RECOGNIZED ENVIRONMENTAL CONDITIONS

The review of environmental records identified seven small-quantity RCRA generators adjacent to the Project site. One of the seven RCRA generators referred to as "Shell Stn" was also identified as a permitted UST facility referred to as "Shell Oil Self-Serve" (Table 2). Two of the seven RCRA generators referred to as "Shell Stn" and "Pacific Bell" were also identified as known hazardous materials release sites referred to as "Shell" and "Pacific Bell", which are discussed further, below. Hazardous materials releases have not been reported at the other five RCRA generator facilities; therefore, these facilities are not expected to pose a threat of affecting environmental conditions beneath the Project site.

The review of environmental records identified 42 sites with known hazardous materials releases within 1 mile of the Project site (Table 3 and Figure 6). Two release sites were identified within the boundaries of the Project site (Sites 16 and 17 on Table 3), nine release sites were identified on properties adjacent to the Project site, and six active release sites were identified hydrologically upgradient (to the south-southwest) of the Project site (Sites 1 through 17 on Table 3). Pending further evaluation, these 17 release sites were identified as sites of potential concern that could result in a REC in connection with the Project and are discussed further, below. The other 25 release sites (Sites 18 through 42 on Table 3) are not expected to pose a threat of affecting environmental conditions beneath the Project site because the cases are closed (i.e., cleanup is complete) or a pathway for contaminant migration onto the Project site does not exist (i.e., the site is downgradient).

Available information for the 17 release sites of potential concern was reviewed to determine if there are any RECs in connection with the Project. Groundwater quality data was screened against the San Francisco Bay Regional Water Quality Control Board's (Regional Water Board's) (2013) Environmental Screening Levels (ESLs) where groundwater is a potential drinking water resource. The 17 release sites of potential concern identified during the review of environmental records are discussed, below.

5.1 Regional Chlorinated Solvent Plume

Seven release sites of potential concern located south of US 101 and west of Mathilda Avenue are associated with a regional groundwater plume(s) of chlorinated solvents: California Microwave (Site 1), 645/675 Almanor, et al (Site 2), Litton Applied Technology (Site 3), Siemens Microelectronics Inc. (Site 4), Eaton & Signetics (Site 5), Zymos (Site 6), and Maxim Integrated Products Inc. (Site 7) (Table 3 and Figure 6). Numerous sources of chlorinate solvent releases have been identified as contributing to the regional groundwater impacts. The primary contaminants of concern (COCs) are tetrachloroethylene (PCE), trichloroethylene (TCE), and cis-1,2-Dichloroethene (cis-1,2-DCE).

The Regional Water Board is currently overseeing groundwater investigation and cleanup activities at all of the sites except Litton Applied Technology (Site 3) and Maxim Integrated Products Inc. (Site 7). The groundwater beneath Litton Applied Technology (Site 3) has been impacted primarily by cis-1,2-DCE that migrated onto the site from an upgradient source;

therefore, the Regional Water Board (1996) issued a letter for no further action related to the investigation and cleanup of contaminated groundwater at the site. Maxim Integrated Products Inc. (Site 7) is a former RCRA generator that the DTSC has listed as an inactive Corrective Action site requiring investigation of potential hazardous materials releases. However, the site is also referred to as "Zymos" (Site 6), which is currently being regulated by the Regional Water Board. For this assessment, Maxim Integrated Products and Zymos are considered the same site.

The extent of the regional chlorinated solvent plume(s) has not been defined. As shown in Figure 6, the closest monitoring well to the Project site that is associated with the chlorinated solvent plume, LF37A, is located approximately 200 feet west of the Project site near the entrance to the US 101 southbound off-ramp. Based on the most recent sampling event in 2007, concentrations of TCE and cis-1,2-DCE were reported at 44 micrograms per liter (µg/L) and 41 µg/L in monitoring well LF37A, respectively (Environ International Corporation, 2007). These concentrations exceed the current Regional Water Board (2013) groundwater ESLs for TCE and cis-1,2-DCE of 5.0 µg/L and 6.0 µg/L, respectively. Chlorinated solvents from the regional plume(s) could potentially extend beneath the Project site at concentrations exceeding the groundwater ESLs.

5.2 Leaking Underground Storage Tank sites

Six of the release sites of potential concern were identified as LUST sites with Regional Water Board oversight for investigation and/remediation, as described further, below.

5.2.1 Thrifty #165

In 1983, a release of petroleum hydrocarbons was reported from LUSTs at the former Thrifty #165 (Site 8 on Table 3 and Figure 6), which was located adjacent to the southern terminus of the Project. The primary COC was total petroleum hydrocarbons as gasoline (TPHg). In 1996, a case closure letter was issued for the site after remediation had reduced TPHg concentrations in groundwater to 71 µg/L (Santa Clara Valley Water District, 1996), which is below the current Regional Water Board (2013) groundwater ESL of 100 µg/L; therefore, residual petroleum hydrocarbon contamination from the site (if any) would not be expected to impact the Project.

5.2.2 Shell

In 1984, a release of petroleum hydrocarbons was reported from LUSTs at Shell (Site 9 on Table 3 and Figure 6), which is located adjacent to the southern terminus of the Project. The primary COCs were TPHg, benzene, toluene, ethylbenzene, total xylenes (BTEX), and methyl tert-butyl ether (MTBE). In 2004, a case closure letter was issued for the site; however, residual petroleum hydrocarbon contamination remained on the site. As shown in Figure 6, the closest monitoring well to the Project site, S-7, was located on the Project site. Based on the most recent sampling event in 2002, a concentration of MTBE was reported at 9.6 µg/L in monitoring well S-7 (County of Santa Clara Department of Environmental Health, 2004a), which exceeds the current Regional Water Board (2013) groundwater ESL of 5.0 µg/L; therefore, residual petroleum hydrocarbon contamination from the site (if any) could potentially extend beneath the Project site at concentrations exceeding the groundwater ESLs.

5.2.3 Pace Distributors

In 1990, a release of petroleum hydrocarbons was reported from a LUST at Pace Distributors (Site 10 on Table 3 and Figure 6), which is located adjacent to the southern terminus of the Project. Relatively low concentrations of TPHg and BTEX were reported in groundwater below the current Regional Water Board (2013) groundwater ESLs. In 1991, a case closure letter was issued for the site (Regional Water Board, 1991). Residual petroleum hydrocarbon contamination from the site (if any) would not be expected to impact the Project.

5.2.4 Wolco Oil Co. (Borregas)

In 1984, a release of petroleum hydrocarbons was reported from LUSTs at Wolco Oil Co. (Borregas) (Site 11 on Table 3 and Figure 6), which was located near the US 101 southbound on-ramp. The primary COCs were TPHg, total petroleum hydrocarbons as diesel (TPHd), BTEX, and MTBE. A petroleum hydrocarbon plume migrated north from the site and extended beneath the Project site. In 2004, a case closure letter was issued for the site; however, residual petroleum hydrocarbons remained beneath the site. As shown in Figure 6, monitoring well B10 was located on the Project site. Based on the most recent sampling events in 2001 and 2003, concentrations of TPHg, benzene, and MTBE were reported at 250 µg/L, 12 µg/L, and 21 µg/L, respectively, in monitoring well B10 (County of Santa Clara Department of Environmental Health, 2004b). These concentrations exceed the current Regional Water Board (2013) groundwater ESLS for TPHg, benzene, and MTBE of 100 µg/L, 1.0 µg/L, and 5.0 µg/L, respectively. Residual petroleum hydrocarbon contamination from the site (if any) could potentially extend beneath the Project site at concentrations exceeding the groundwater ESLs.

5.2.5 Pacific Bell

In 1996, a release of petroleum hydrocarbons was reported from a LUST at Pacific Bell (Site 13 on Table 3 and Figure 6), which is located adjacent to the north terminus of the Project. The primary COC was TPHd. In 1997, a case closure letter was issued for the site (DTSC, 2015). Since groundwater generally flows to the north-northeast (see Section 4.1, *Physical Setting*), residual petroleum hydrocarbon contamination (if any) would not be expected to migrate beneath the Project.

5.2.6 Moffet Park Auto Center

In 1988, a release of petroleum hydrocarbons was reported from LUSTs at Moffet Park Auto Center (Site 14 on Table 3 and Figure 6), which is located adjacent to the north terminus of the Project. The primary COCs were TPHg, BTEX, and MTBE. In 2000, a case closure letter was issued for the site; however, residual petroleum hydrocarbons remained beneath the site. As shown in Figure 6, monitoring well MW-1-R2 was located about 30 feet from the Project site. Based on the most recent sampling event in 2000, concentrations of TPHg, benzene, ethylbenzene, and total xylenes were reported at 2,300 µg/L, 2.6 µg/L, 190 µg/L, and 46 µg/L, respectively, in monitoring well MW-1-R2 (Santa Clara Valley Water District, 2000). These concentrations exceed the current Regional Water Board (2013) groundwater ESLs for TPHg, benzene, ethylbenzene, and total xylenes of 100 µg/L, 1.0 µg/L, 30 µg/L, and 20 µg/L,

respectively. Residual petroleum hydrocarbon contamination from the site (if any) could potentially extend beneath the Project site at concentrations exceeding the groundwater ESLs.

5.3 Corrective Action Site

Circo Inc. (Site 12 on Table 3 and Figure 6) is a former RCRA generator that the DTSC has listed as an inactive Corrective Action site requiring investigation of potential hazardous materials releases. The facility formerly manufactured printed circuit boards using organic solvents, cleaners, strippers, acids, caustics, cyanide, and metal plating solutions. In 1983, concentrations of methylene chloride, trans-1,2,-dichloroethene, TCE, and zinc were reported in a groundwater sample collected beneath a sump at 60 µg/L, 47 µg/L, 9 µg/L, and 470 µg/L, respectively (Ecology and Environment, Inc., 1990). These concentrations exceed the current Regional Water Board (2013) groundwater ESLs for methylene chloride, trans-1,2,-dichloroethene, TCE, and zinc of 5.0 µg/L, 10 µg/L, 5.0 µg/L, and 81 µg/L, respectively. The groundwater analytical results indicate that a hazardous materials release may have occurred on the property. Based on review of the DTSC (2015) *EnviroStor Database*, it does not appear that additional investigations were conducted to further evaluate the potential source and extent of groundwater contamination. Groundwater impacted by solvents and/or metals from the site (if any) could potentially extend beneath the Project site at concentrations exceeding the groundwater ESLs.

5.4 Military Cleanup Site

The former Onizuka AFS – Onizuka Air Force Station (Site 15 on Table 3 and Figure 6) operated from 1960 to 2010. The 19.6-acre station was located adjacent to and northwest of the Project at the intersection of Mathilda Ave and Moffett Park Drive. A fuel tank farm consisting of five 50,000-gallon jet fuel ASTs and two 10,000-gallon jet fuel ASTs was located on the southeast portion of the site. In 1987, approximately 1,600 gallons of jet fuel (JP-5) was released from one of the ASTs. Impacted soils were excavated and disposed offsite. In 1996, groundwater samples were collected from monitoring well MW-J2 in the tank farm area (Figure 6) and analyzed for JP-5 and semi-volatile organic compounds (SVOCs). Concentrations of JP-5 were reported as high as 96.1 µg/L. The Regional Water Board does not have an ESL for JP-5. However, it should be noted that the carbon range for TPHd analyzed by USEPA Method 8015M is C9 to C25, which generally includes the carbon range for JP-5 (C9 to C16). The reported concentration of JP-5 was below the current Regional Water Board (2013) groundwater ESL for TPHd of 100 µg/L. Concentrations of SVOCs were not reported above the laboratory reporting limits (Radian International LLC, 1996). The Regional Water Board closed the case in 1997. Residual jet fuel contamination from the site (if any) would not be expected to impact the Project site.

5.5 ERNS Incidents

Two ERNS incidents involving the releases of gasoline from tanker trucks appear to have occurred on the Project site.[7] In 2012, ERNS Incident ID 1026923 involved the releases of

[7] ERNS incident locations are reported according the nearest cross street and typically do not include a street address or coordinates.

approximately 100 gallons of gasoline from an open valve on a tanker truck on Mathilda Avenue near the intersection of US 101 (Site 16 on Table 3 and Figure 6). Nearby storm drains were blocked with sand bags and the spill on the roadway was cleaned up (Center for Effective Government, 2015). In 1994, ERNS Incident ID 239305 involved the release of approximately 1,685 gallons of gasoline from a Shell Oil Company tanker truck that was overturned after being struck by another vehicle on US 101 north near the intersection of Mathilda Avenue (Site 17 on Table 3 and Figure 6). Impacted soils were reportedly removed for cleanup (Center for Effective Government, 2015). Additional regulatory requirements for cleanup were not reported at either release site; therefore, it is not expected that the chemical quality of soil and/or groundwater on the Project site is impacted by the former ERNS incidents.

6. EVALUATION OF OTHER ENVIRONMENTAL CONCERNS

Based on the Caltrans *Environmental Handbook* and BASELINE's previous experience working on similar transportation infrastructure projects, other environmental concerns that could pose a risk to the Project, but are not considered RECs under ASTM 1527-13, are described further, below.

6.1 Aerially-Deposited Lead

Lead alkyl compounds were first added to gasoline in the 1920s. Beginning in 1973, the USEPA ordered a gradual phase out of lead from gasoline that significantly reduced the prevalence of leaded gasoline by the mid-1980s. Prior to the 1970s, the USEPA estimated that vehicles emitted approximately 75 percent of the lead consumed in leaded gasoline as particulate matter in the exhaust (DTSC, 2004). As a result, shallow soils within approximately 30 feet of the edge of pavement in highway corridors have the potential to be contaminated with ADL from historical car emissions prior to the elimination of lead in gasoline (DTSC, 2009a).

Based on a review of historical aerial photographs (see Section 4.3), the intersections of US 101 and SR 237 with Mathilda Avenue were constructed in the late 1960s, which was before the full phase-out of lead in gasoline. Therefore, exposed shallow soils on the Project site within approximately 30 feet of the edge of pavement could be contaminated with ADL.

On 1 July 2009, the DTSC issued a variance to Caltrans (Caltrans/DTSC ADL Variance), allowing the reuse of some lead-affected soils for construction projects within the Caltrans rights-of-way (DTSC, 2009b). The Caltrans/DTSC ADL Variance allows Caltrans to reuse soils containing total lead at concentrations up to 3,397 milligrams per kilogram, or soluble lead at concentrations up to 150 milligrams per liter within the Project construction area and the Caltrans right-of-way, subject to certain restrictions and reporting requirements. The most recent extension of the Caltrans/DTSC ADL Variance will expire on 31 October 2015. Caltrans is currently negotiating the terms of a new variance with DTSC to be issued after 31 October 2015; however, it is currently unknown if DTSC will grant a new variance after the expiration date (Caltrans, 2015b).

6.2 Agricultural Pesticides

Prior to 1950, inorganic pesticides that contained elevated concentrations of metals, such as arsenic, were commonly used in California agriculture. After 1950, organochlorine pesticides (OCPs) were commonly used in California agriculture until about the mid-1970s. Arsenic from inorganic pesticides and residues from OCPs used in the past have the potential to persist for many decades in shallow soils and can affect human health and the environment (DTSC, 2008). Since the Project site was used for agriculture as early as 1939 (see Section 4.3), shallow soils beneath the Project site may be contaminated with arsenic and/or OCPs. However, the mixing of soils during excavation and grading activities for construction of the existing roadway and highway alignments through the Project site in the late 1960s may have reduced the concentration of residual pesticides in soils (if any). Therefore, the risk of encountering elevated concentrations of residual pesticides is expected to be low.

6.3 Naturally-Occurring Asbestos

Geologic mapping from the USGS does not show any areas of rock likely to contain naturally-occurring asbestos (ultramafic rock) on the Project site (Van Gosen, B.S., and J.P. Clinkenbeard, 2011). Based on the USGS mapping, naturally-occurring asbestos in bedrock at the Project site would not be expected to be a potential hazard during development of the Project. However, previous Caltrans projects in Santa Clara County have identified naturally-occurring asbestos in soil imported for embankment fill. Therefore, asbestos could potentially be present in embankment fill materials on the Project site.

6.4 Lead-Based Paint and Asbestos-Containing Materials

The US 101 overpass structure on the Project site may be coated with lead-based paint and/or asbestos-containing materials. Lead and asbestos are state-recognized carcinogens, and lead is a reproductive toxicant (California Environmental Protection Agency, 2012). Modification of the bridge barriers and sign structure on US 101 for the Project could pose a risk of releasing lead particles and asbestos fibers into the environment (if present).

6.5 Drainage Swales and Catch Basins

Metals from nonpoint runoff sources, such as urban developments, vehicle tires, and brake pads, can accumulate in catch basins and drainage swales over time. Sediments in catch basins and exposed soils in drainage swales on the Project site could contain elevated concentrations of metals and pose a risk to human health and the environment, if disturbed.

6.6 Yellow Traffic Striping and Pavement Markers

Lead chromate has been used in yellow thermoplastic and yellow paint for traffic striping and pavement markers for many years and as recently as 1996 in Caltrans District 4 where the Project is located. The residue that may be produced from the yellow thermoplastic and yellow paint during road improvement activities may contain lead and chromium concentrations that could produce toxic fumes when heated. The debris produced during the removal of yellow

thermoplastic and yellow paint may need to be disposed of as a California and/or federal hazardous waste if the concentrations of lead or chromium exceed applicable hazardous waste thresholds for total or soluble concentrations of those metals. If lead and chromium concentrations are unknown (i.e., previous residue testing has not been conducted), Caltrans Standard Special Provision 14-11.07 requires that yellow traffic striping and pavement markers be managed as an assumed hazardous waste by implementing a Lead Compliance Plan and testing the residues for hazardous-waste classification prior to off-site disposal (Caltrans, 2012).

6.7 Asphalt and Portland-Cement Concrete

Grindings of asphalt concrete (AC) and Portland-cement concrete (PCC) have a relatively high pH and may contain metals and petroleum hydrocarbons that can impact stormwater runoff and threaten surface water bodies. In accordance with guidance from the Regional Water Board, Caltrans projects may reuse AC and PCC grindings as roadway sub-base, backfill material, and compacted surface in a maintenance/work yard (Regional Water Board, 2007). Non-road base reuse scenarios must be reviewed by the Regional Water Board on a case-by-case basis. Surplus AC and PCC grindings generated from Project implementation and not re-used along the Project alignment may be transported to an aggregate recycling facility or a construction and demolition waste disposal facility.

7. ASTM 1527-13 DATA GAPS

The ASTM E1527-13 requires the identification of data gaps, along with actions taken to address these gaps, and an opinion as to whether these gaps are significant. A data gap may result from a lack of or inability to obtain information during any of the activities required by ASTM E1527-13. In particular, review of reasonably ascertainable historical land use information from the first developed land use to the present that does not provide sufficient detail to assess potential land use changes at five year intervals may be considered a data gap. Data gaps identified during the preparation of this ISA are described, below.

7.1 Historical Land Use Review

The time intervals between some of the historical land use records exceeded 5 years. These data gaps are not considered significant because the land uses were relatively consistent between the extended time intervals.

7.2 Environmental Records Review

Standard environmental record sources associated with State-registered ASTs were not reviewed, because the records were not reasonably ascertainable. This exclusion does not pose a significant data gap because the management of hazardous materials within or adjacent to the Project site would not constitute a REC.

8. ASTM 1527-13 DEVIATIONS

The purpose of this ISA was not to qualify the Project applicant for landowner liability protections associated with commercial real estate transactions under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). As a result, the following deviations from ASTM E1527-13, which are intended to meet or exceed the federal requirements for landowner liability protections under CERCLA, do not have a significant effect on the findings or conclusions of this ISA:

- The Project site is not a single contiguous commercial parcel, as assumed in ASTM E1527-13, and therefore a title search to identify potential environmental liens and activity and use limitations associated with commercial parcels was not conducted;
- Interviews with past, present, and prospective owners or operators who are likely to have material information regarding the potential for contamination at the Project site were not conducted, because such persons could not be identified; and
- Interviews with State or local government regulatory agency officials regarding the potential for contamination in the Project vicinity were not conducted, because any information obtained would likely duplicate information already reviewed from Federal, State, and local regulatory agency environmental records.

9. CONCLUSIONS

In accordance with the Caltrans *Environmental Handbook*, the levels of risk associated with RECs and other environmental concerns identified within the Project limits that could potentially affect proposed Project construction activities and/or operations are described further, below. Risks are categorized as either “low”, “medium”, or “high” based on the expected impact to the cost, scope, and schedule of a transportation project.

A high-risk condition typically involves crossing a site or property impacted by a known or suspected hazardous materials release, such as a landfill or railroad yard. A high-risk condition can potentially eliminate a build alternative; therefore, high-risk conditions require early investigation to support cost estimates, risk assessments, and adjustments to the project schedule during the Project Initiation Document phase.

A medium-risk condition typically involves the management of hazardous materials (e.g., ADL in soil) that require additional investigation, but is not expected to eliminate a build alternative and/or have a significant effect on the project scope, cost, and schedule. Site investigations for medium-risk conditions should be performed during the Project Approval and Environmental Document phase.

A low-risk condition typically includes the management of hazardous materials (e.g., lead-based paint on bridge structures) that may require additional investigation (if necessary), but the effect on the project scope, cost, and schedule can be reasonably estimated based on available information and/or is considered negligible. Site investigations for low-risk conditions can be

performed when convenient and may be delayed until the Plans, Specifications, and Estimates phase if there is sufficient time to complete the investigations.

9.1 Risk Analysis for Recognized Environmental Conditions

We have performed this ISA in conformance with the scope and limitations of ASTM E1527-13 for the Project, located along Mathilda Avenue in the City of Sunnyvale from Almanor Avenue/Ahwanee Avenue to Innovation Way. Any exceptions to, or deletions from, this practice are described in Section 8 of this report. In accordance with ASTM E1527-13 and the Caltrans *Environmental Handbook*, this assessment has identified the following five RECs and associated risk levels for hazardous materials, hazardous waste, and/or contamination on the Project site that could potentially affect proposed construction activities and/or operations:

- Potential groundwater impacts from a regional chlorinated solvent plume (Sites 1, 2, and 4 through 7 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from residual petroleum hydrocarbons at Shell (Site 9 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from residual petroleum hydrocarbons at Wolco Oil Co. (Site 11 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from solvents and metals potentially released at Circo Inc. (Site 12 on Table 3 and Figure 6) – **Low Risk**
- Potential groundwater impacts from residual petroleum hydrocarbons at Moffet Park Auto Center (Site 14 on Table 3 and Figure 6) – **Low Risk**

These RECs were all identified as a low risk, because the costs associated with managing impacted groundwater (if any) encountered during Project construction (e.g., dewatering) can be reasonable estimated and would not be expected to affect the scope and schedule of the Project.

9.2 Risk Analysis for Other Environmental Conditions

This assessment has also identified the following environmental concerns and associated risk levels on the Project site that are considered outside the standard scope of ASTM E1527-13:

- Potential ADL in exposed shallow soils – **Medium Risk**
- Potential arsenic and OCPs in shallow soils across the entire Project site from historical agriculture (Figure 5) – **Low Risk**
- Potential naturally-occurring asbestos in fill embankments – **Low Risk**
- Potential lead-based paint and asbestos-containing materials on US 101 overpass – **Low Risk**
- Potential metals in drainage swale and catch basin sediments from stormwater runoff – **Low Risk**
- Potential lead and chromium in yellow thermoplastic and yellow paint striping and markings on roadways – **Low Risk**
- Petroleum hydrocarbons, metals, and high pH in AC and PCC grindings – **Low Risk**

Shallow soils potentially impacted by ADL was identified as a medium risk because additional investigation is necessary to determine the potential effects on the Project cost, scope, and schedule. Potential pesticides (arsenic and OCPs) in shallow soils were identified as a low risk because concentrations (if any) are expected to have been be reduced by previous excavation and grading activities; therefore, the risk of encountering elevated concentrations of residual pesticides is expected to be low. A low level of risk was identified for potential naturally-occurring asbestos in fill embankments and metals in drainage swales and catch basins because the area of impact would be limited and the occurrence of these environmental conditions is not very common for transportation projects. A low level of risk was also identified for hazardous materials on the US 101 overpass and in roadway materials because the effect on the project scope, cost, and schedule would not be considered significant and can be reasonably estimated.

9.3 Risk Analysis Summary for Build Alternatives

Risk levels associated with the hazardous materials concerns identified within the Project limits are summarized for each Build Alternative in Matrix 1, below. The associated risks identified in this ISA would generally apply equally to each Build Alternative.

MATRIX 1: Summary of Risk Levels for each Build Alternative

Hazardous Materials Concern	Risk Level	Media Affected	Primary Contaminants of Concern	Build Alternatives	
				1	2
Aerially-Deposited Lead	Medium	Soil	Lead	X	X
Hazardous Materials Release Sites*	Low	Groundwater	Petroleum Hydrocarbons, Chlorinated Solvents, Methylene Chloride, and/or Metals	X	X
Agricultural Pesticides	Low	Soil	Arsenic and OCPs	X	X
Naturally-Occurring Asbestos	Low	Soil	Asbestos	X	X
Lead-Based Paint and Asbestos-Containing Material	Low	Construction Material	Lead and Asbestos	X	X
Drainage Swales and Catch Basins	Low	Soil	Metals	X	X
Yellow Thermoplastic/Paint Striping and Markings	Low	Construction Material	Lead and Chromium	X	X
Asphalt and Portland-Cement Concrete Grindings	Low	Construction Material	Petroleum Hydrocarbons and Metals	X	X

* Five potential groundwater plumes that pose a risk to the Project are identified in Section 5.

10. RECOMMENDATIONS

This sections describes BASELINE's recommendations for performing a Preliminary Site Investigation (PSI) and a Construction Risk Management Plan (CRMP).

10.1 Preliminary Site Investigation

Once a preferred Build Alternative has been chosen and areas of excavation and pavement disturbance are determined, a PSI should be performed prior to construction to investigate hazardous materials concerns related to soil, groundwater, and construction materials on the Project site, as identified in this ISA. Additional investigation may be required to fully evaluate potential hazardous materials issues if concerns are identified during the PSI. All environmental investigations for the Project should be performed in accordance with a Workplan approved by Caltrans. The Workplan should include procedures for collecting and analyzing representative samples from the following areas on the Project site that could be disturbed during proposed construction:

- Shallow exposed soils potentially impacted by ADL within 30 feet of Mathilda Avenue and the SR 237 and US 101 on- and off-ramps;
- Groundwater potentially impacted by hazardous materials release sites (see Section 9.1);
- Shallow soils along the entire Project alignment potentially impacted by arsenic and OCPs from former agriculture;
- Soil embankments near bridges and ramps potentially impacted by naturally-occurring asbestos.
- Shallow sediments in drainage swales and catch basins potentially impacted by metals from stormwater runoff;
- Lead-based paint and asbestos-containing materials on the US 101 overpass structure; and
- Yellow traffic stripes and pavement markings potentially containing lead and chromium.

All environmental investigations for the Project should be provided to the Project contractors to incorporate into their Health and Safety and Hazard Communication programs.

10.2 Hazardous Materials Management and Disposal

Project construction should be conducted under a project-specific CRMP to protect construction workers, the general public, and the environment from hazardous materials identified in the PSI and/or undocumented sources. The CRMP should incorporate the soil and groundwater analytical data from the PSI to ensure that soil and groundwater are stored, managed, and disposed of in a manner protective of human health and the environment, and in accordance with applicable laws and regulations. To address potential groundwater contamination concerns, the CRMP should require all groundwater from dewatering of excavations, if any, to be stored in a tank(s) during construction activities and characterized prior to disposal or recycling. This would be in addition to the pre-characterization of groundwater quality during the PSI.

The CRMP should also address the possibility of encountering undocumented sources of contamination in the subsurface by including measures for identifying, testing, and managing soil and groundwater suspected of containing hazardous materials that have not previously been identified at the Project site. The CRMP should describe required worker health and safety provisions for all workers potentially exposed to hazardous materials in accordance with State and Federal worker safety regulations and designate personnel responsible for implementation of the CRMP.

The CRMP should describe procedures for reusing AC and PCC grindings on-site in accordance with the Regional Water Board's guidelines for Caltrans' projects or transporting off-site for recycling or disposal. In accordance with Caltrans Standard Special Provision 14-11.03, the CRMP should include a Lead Compliance Plan for managing soil with hazardous waste concentrations of ADL (if any) based on the findings of the PSI. In accordance with Caltrans Standard Special Provision 14-11.07, the Lead Compliance Plan should also describe procedures for managing yellow paint striping and markings on existing roadways with either assumed or known hazardous waste concentrations of lead and/or chromium.

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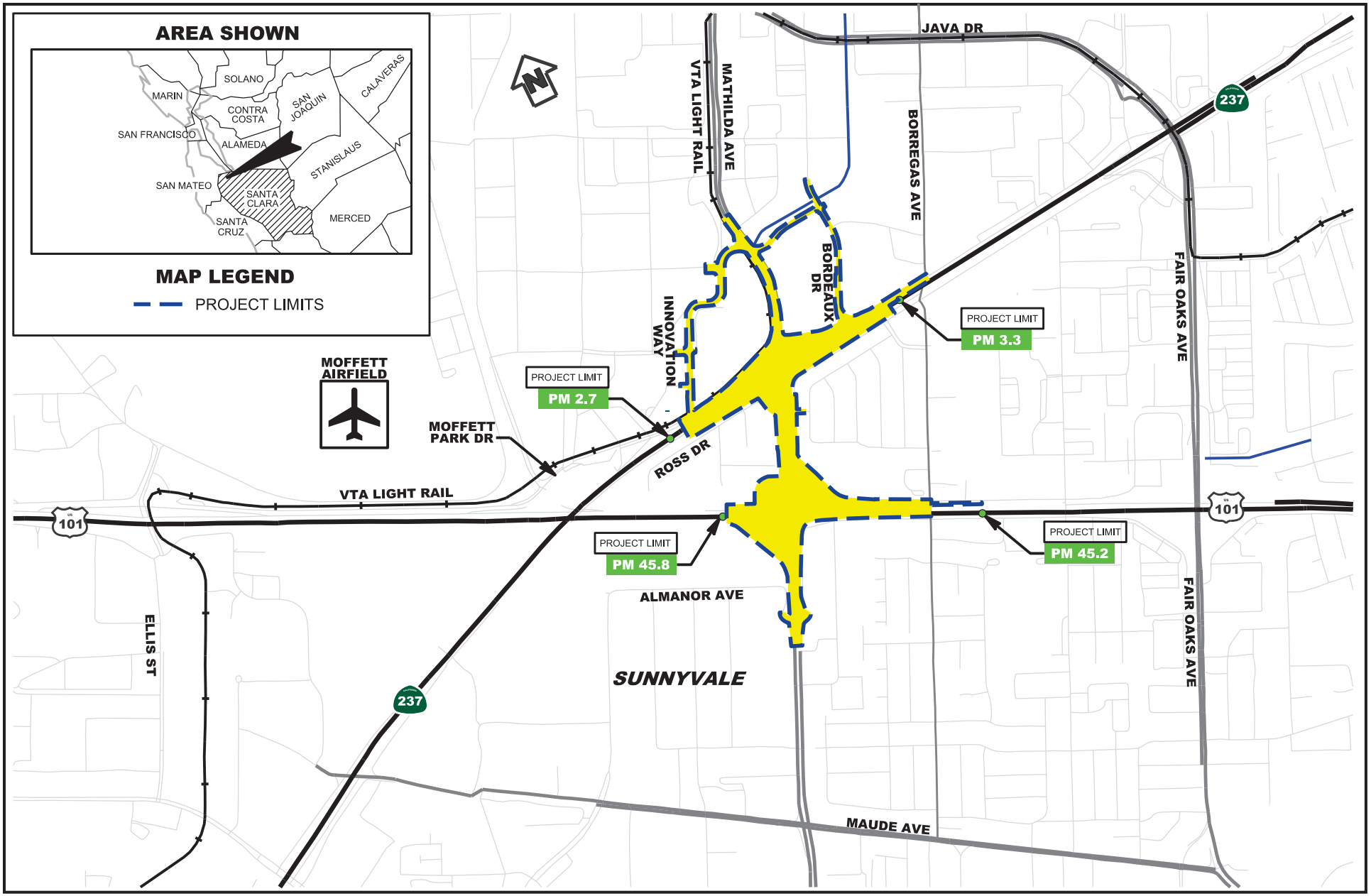
FIGURES

Project Location

Figure 1



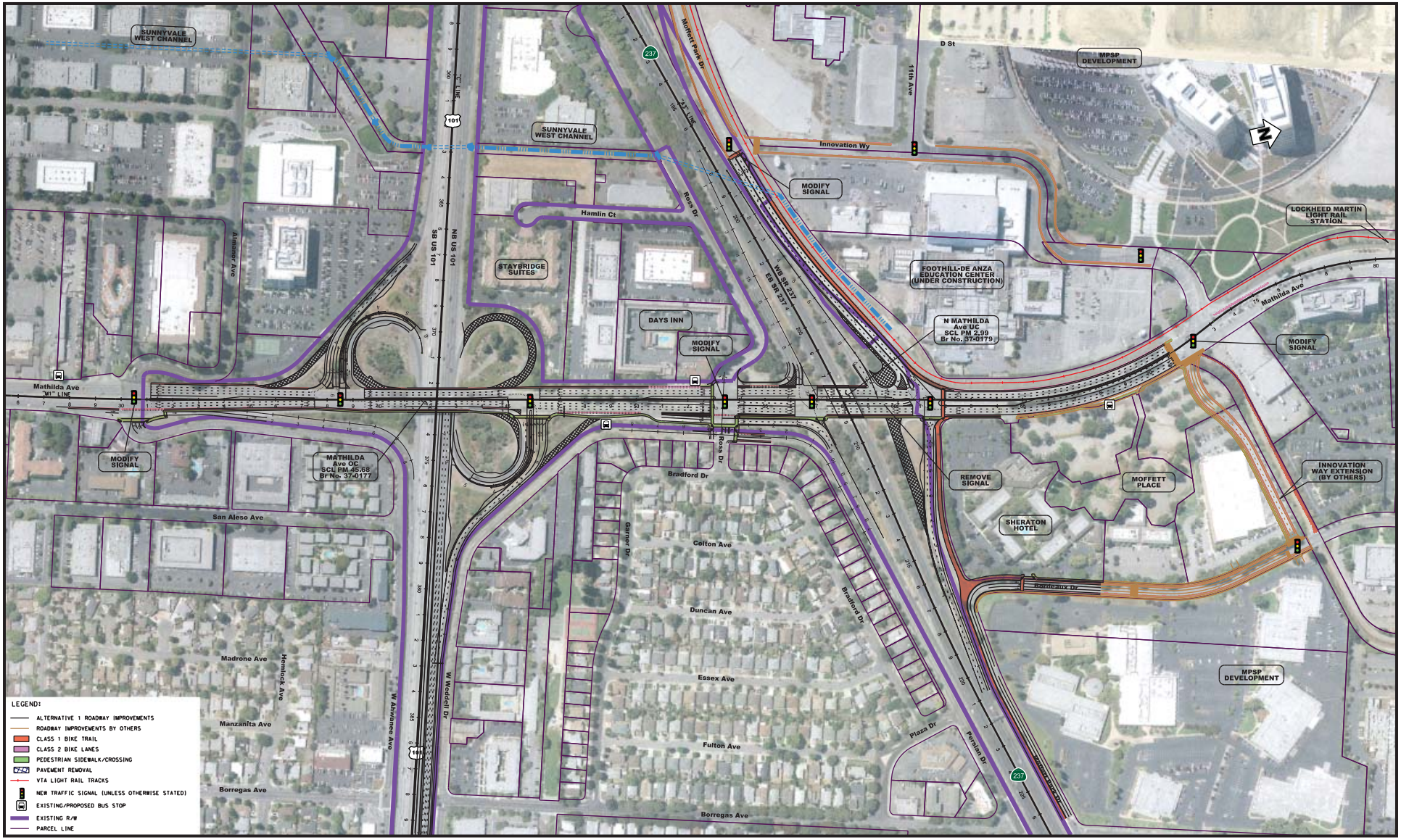
Source: WMH, 2015

Mathilda Avenue Improvements at SR 237 and US 101 Project

Note: Not to Scale

Build Alternative 1

Figure 2a



Mathilda Avenue Improvements at SR 237 and US 101 Project

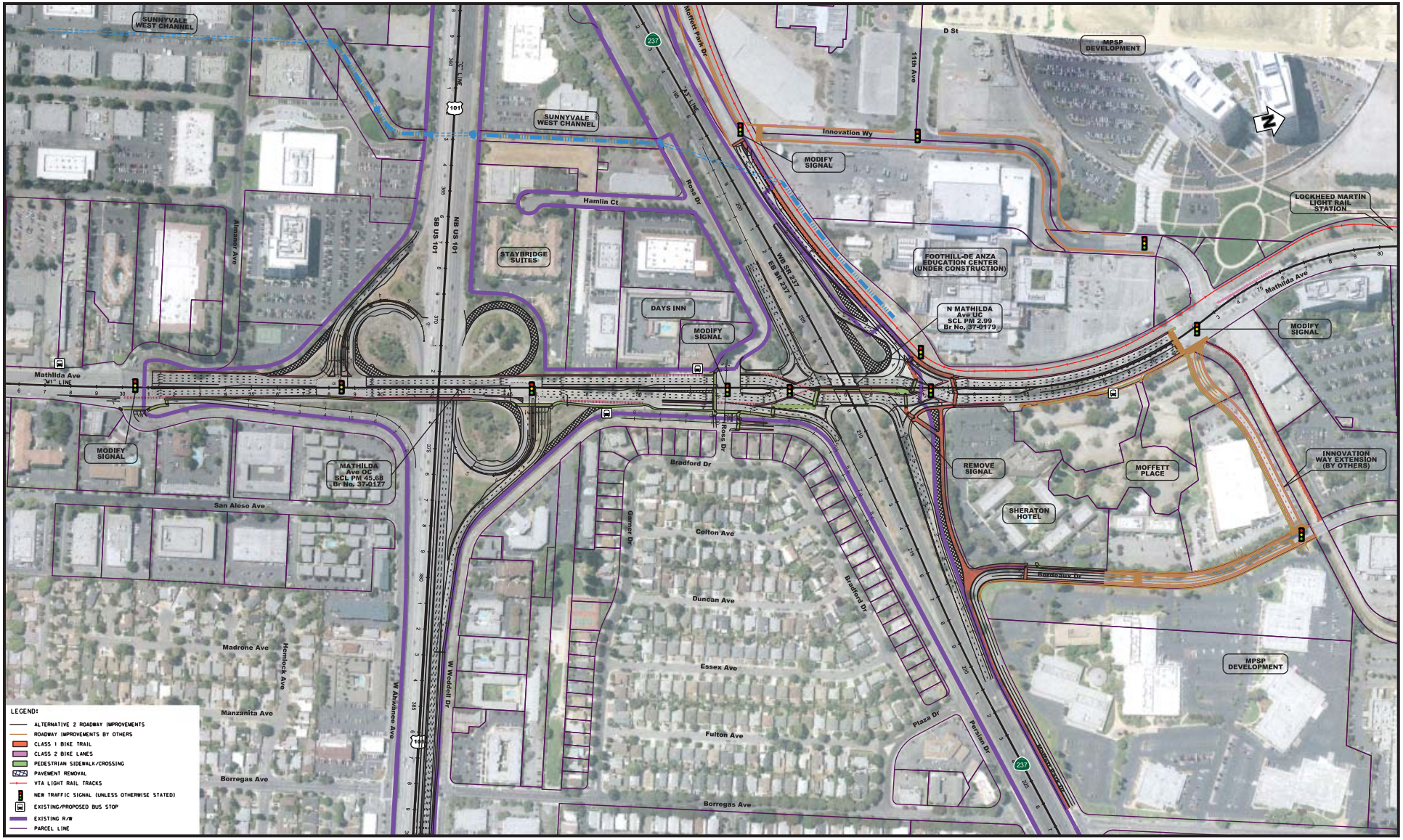
0 550 Feet

N

15304-00.02360 Figure 2a 12/22/15

Build Alternative 2

Figure 2b



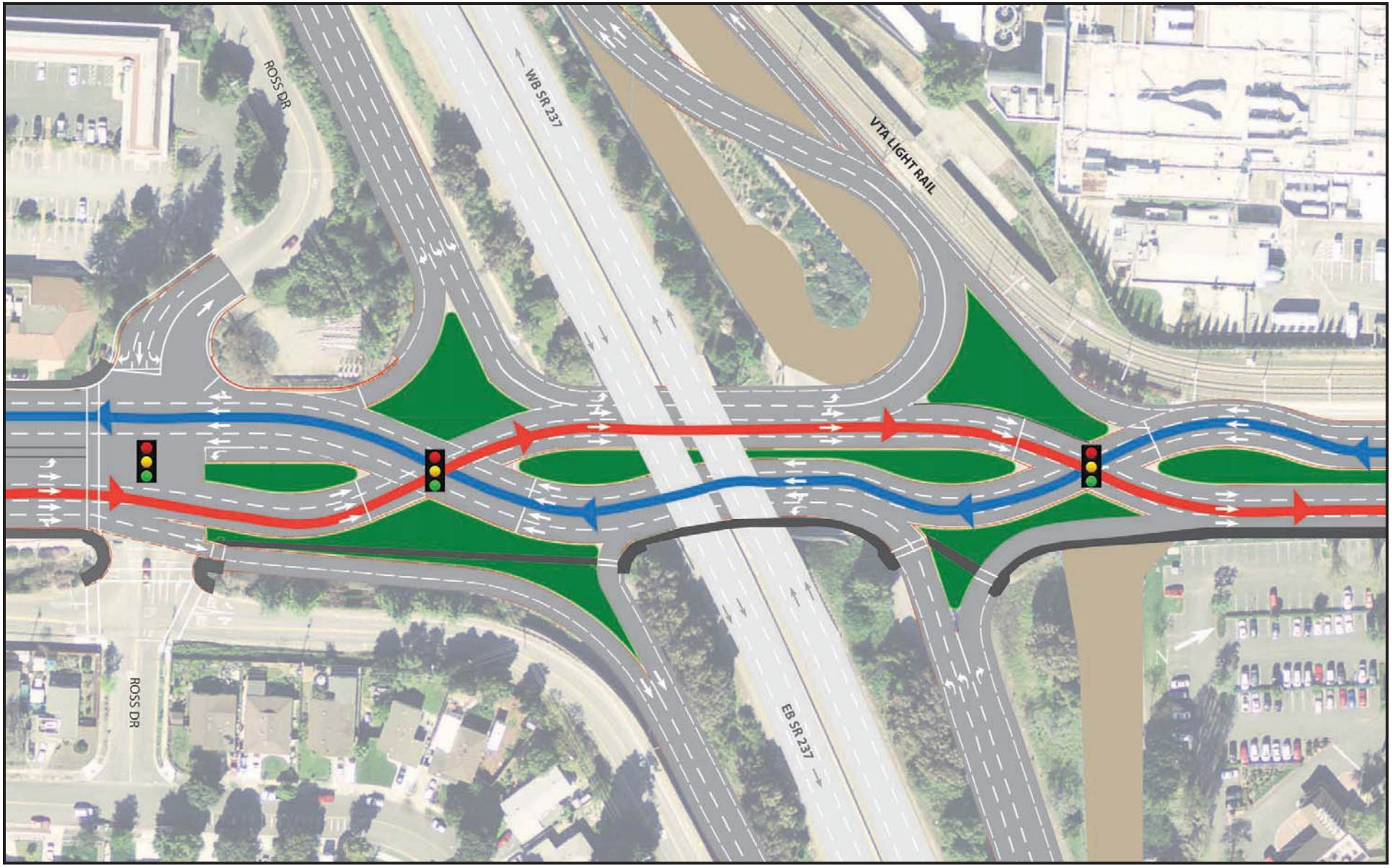
Mathilda Avenue Improvements at SR 237 and US 101 Project

N

0 550 Feet

Diverging Diamond Interchange Illustration

Figure 3



Source: WMH, 2015

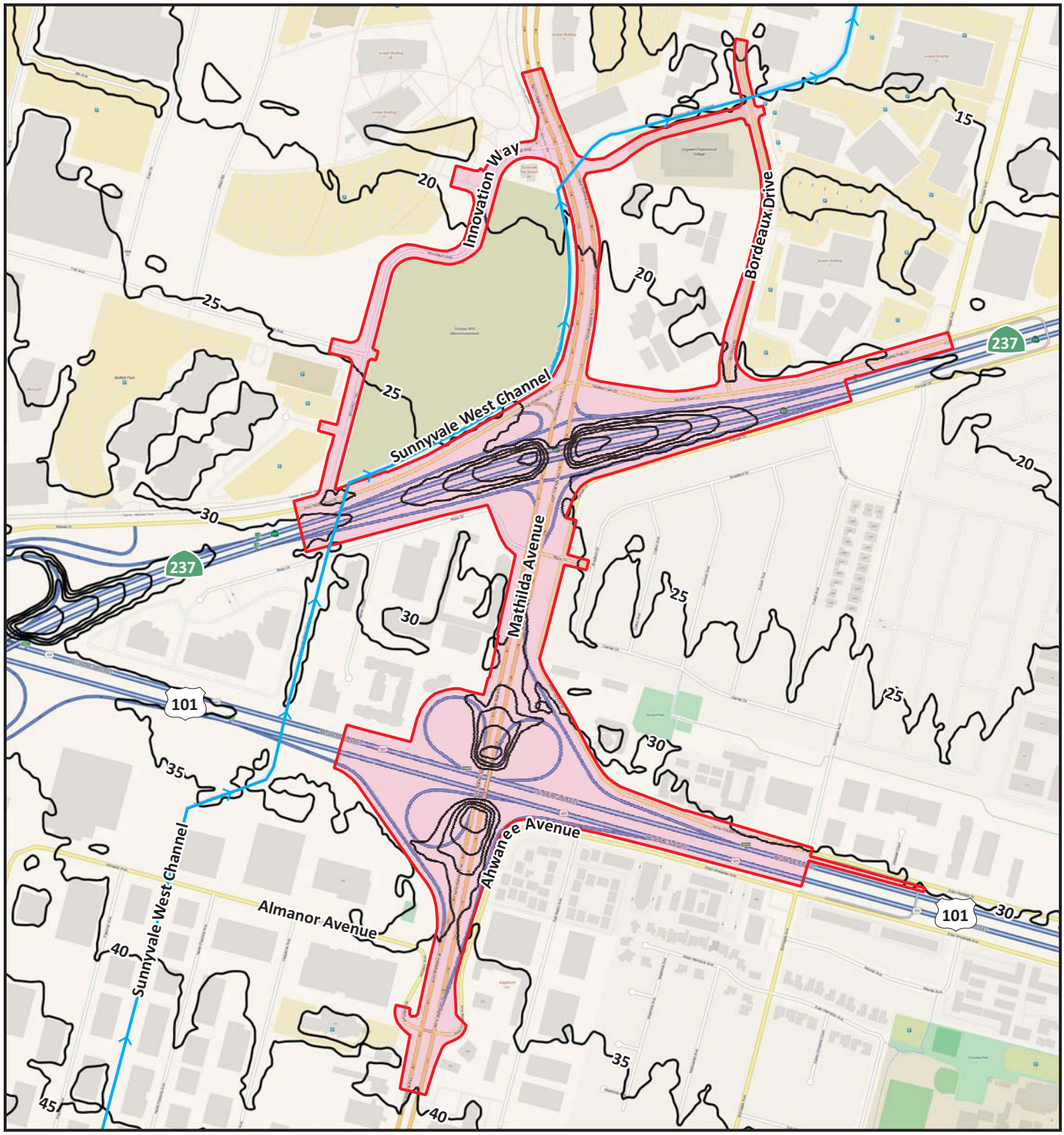
Mathilda Avenue Improvements at SR 237 and US 101 Project

N

Note: Not to Scale

Physical Setting

Figure 4



Legend

- Project Limits
- 30 — Surface Elevation Contour (feet, NAVD 88)
- Surface Water Flow Direction

Base: MapQuest OpenStreetMap, 2015
Source: Surface Elevation Contours (USGS, 2015)

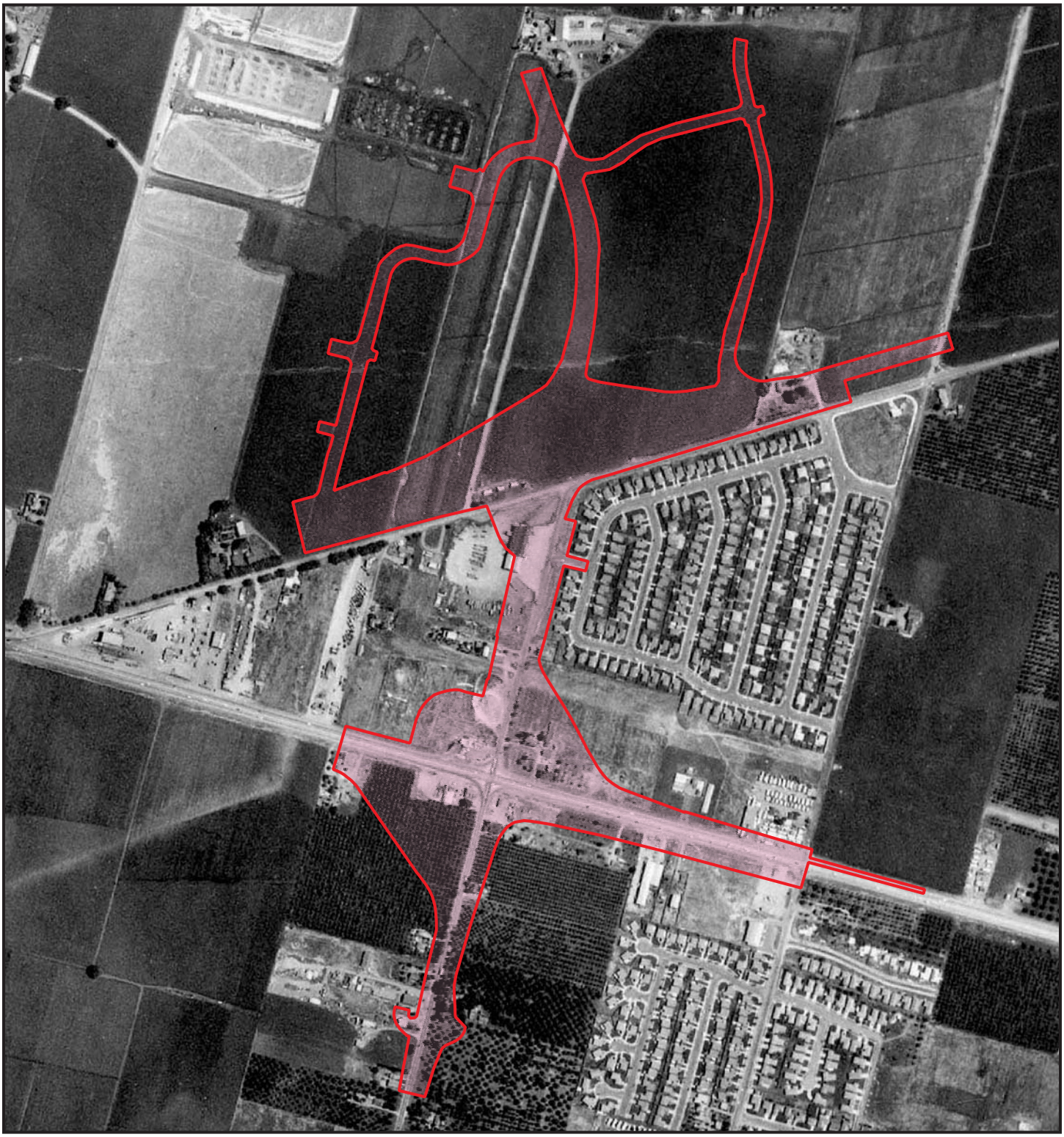
Mathilda Avenue Improvements at SR 237 and US 101 Project

0 650 Feet N

15305-00.02360 Figure 4 12/22/15

Historical Agricultural Land Uses

Figure 5



Legend

Project Limits

Base: EDR, 2015

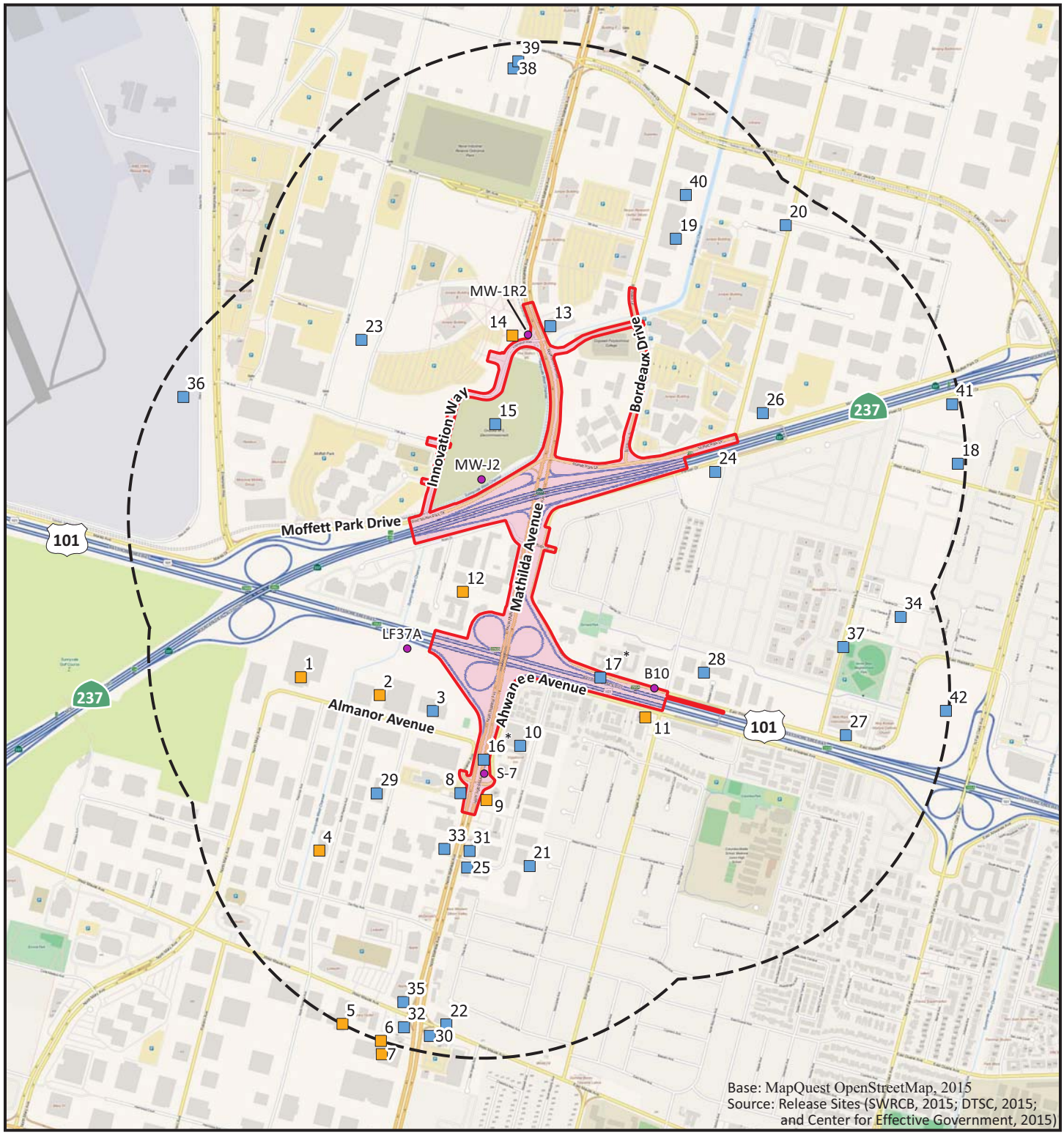
Note: Aerial Photograph from 1956.

Mathilda Avenue Improvements at SR 237 and US 101 Project

0 650 Feet N

Hazardous Materials Release Sites

Figure 6



Legend

- Project Limits
- 0.5-mile Buffer
- Release Site with Potential Impact
- Release Site with No Impact
- Monitoring Well

Notes: Site information and Project impact determinations are summarized in Table 3 and Section 5.
The review of environmental records identified 42 sites with known hazardous materials releases within 1 mile of the Project site. The farthest hazardous materials release site (Site 7) was located approximately 0.5 miles from the Project.
* The location of Sites 16 and 17 are approximate.

Mathilda Avenue Improvements at SR 237 and US 101 Project

0 1300 Feet N

TABLES

Table 1: Summary of Environmental Records Reviewed

Environmental Record Source	Search Distance	Reference	Record Source Description
ERNS Incidents	On	U.S. Coast Guard, 2015	Toxic chemical spills and other accidents reported to the National Response Center database (formerly called the ERNS database).
Permitted USTs	On or Adjacent	SWRCB, 2015	Facilities/sites that have a current permit to operate a UST(s) issued by the local permitting agency.
Hazardous Waste Facilities	On or Adjacent	DTSC, 2015	Facilities/sites that were required to obtain a permit or have received a hazardous waste facility permit from the DTSC or U.S. EPA.
RCRA Facilities	On or Adjacent	USEPA, 2015	Facilities/sites that generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act.
Cleanup Program Site (formerly SLIC)	0.5 mile	SWRCB, 2015	Contaminated sites generally not associated with petroleum USTs with Regional Water Board oversight for investigation and/or remediation.
Evaluation	0.5 mile	DTSC, 2015	Suspected, but unconfirmed, contaminated sites that need or have gone through a limited investigation and assessment process.
FUDS	0.5 mile	DTSC, 2015	Military facilities that were FUDS with confirmed or unconfirmed releases and where DTSC is involved in investigation and/or remediation.
HWP / BZP Evaluation	0.5 mile	DTSC, 2015	Significant hazardous waste properties (HWPs) and border zone properties (BZPs) located within 2,000 feet of a significant HWP.
Land Disposal Site	0.5 mile	SWRCB, 2015	Regulated waste management units (e.g., waste piles, surface impoundments, and landfills) that discharge waste to land for treatment, storage and disposal.
LUST Cleanup Site	0.5 mile	SWRCB, 2015	Sites contaminated from leaking USTs with Regional Water Board oversight for investigation and/or remediation.
Military Evaluation	0.5 mile	DTSC, 2015	Closed and open military facilities with confirmed or unconfirmed releases with DTSC oversight for investigation and/or remediation.
Military Cleanup Site	0.5 mile	SWRCB, 2015	Military UST sites, Military Privatized sites, and Military Cleanup sites with Regional Water Board oversight for investigation and/or remediation.
School	0.5 mile	DTSC, 2015	Proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination.
Voluntary Cleanup	0.5 mile	DTSC, 2015	Sites with either confirmed or unconfirmed releases, and the project proponents have requested DTSC oversight for investigation and/or remediation.
Corrective Action	1.0 mile	DTSC, 2015	Investigation or cleanup activities at RCRA or state-only permitted hazardous waste facilities.
Expedited Remedial Action Program	1.0 mile	DTSC, 2015	High-priority and high potential risk sites requiring expedited cleanup with DTSC oversight. This is currently a pilot program.
Federal Superfund	1.0 mile	DTSC, 2015	Sites where the USEPA proposed, listed, or delisted a site on the NPL.
State Response	1.0 mile	DTSC, 2015	High-priority and high potential risk sites requiring cleanup with DTSC oversight.

Table 1: Summary of Environmental Records Reviewed

Notes:
Search distances are defined by ASTM E1527-05 and are relative to the boundary of the Project site.
Land use restrictions for contaminated properties are reported by both the SWRCB and DTSC under the status of an environmental record.

SWRCB = State Water Resources Control Board
DTSC = Department of Toxic Substances Control
RCRA = Resource Conservation and Recovery Act
FUDS = Formerly Used Defense Sites
NPL = National Priorities List
USEPA = United States Environmental Protection Agency
UST = Underground Storage Tank
SLIC = Spills, Leaks, Investigation, and Cleanup

Table 2: Summary of Environmental Records for Hazardous Materials Facilities

Site Name	Address	Facility Type
Shell Oil Self-Serve	776 N Mathilda Ave, Sunnyvale	Permitted UST
Shell Stn	776 N Mathilda, Sunnyvale	Small-Quantity RCRA Generator
Sunnyvale Auto Body	505 Almanor Ave, Sunnyvale	Small-Quantity RCRA Generator
Nimbus Software Svcs	520 Almanor Ave, Sunnyvale	Small-Quantity RCRA Generator
Sirenza Microdevices	522 Almanor Ave, Sunnyvale	Small-Quantity RCRA Generator
Applied Chemical Laboratories Inc	526 Almanor Ave, Sunnyvale	Small-Quantity RCRA Generator
Pacific Auto Electric	105 West Weddell, Sunnyvale	Small-Quantity RCRA Generator
Pacific Bell	1140 North Mathilda, Sunnyvale	Small-Quantity RCRA Generator

Notes:
UST = underground storage tank
RCRA = Resource Conservation and Recovery Act
All sites are located adjacent to the Project.
Site name, address, and status information (including spellings) are derived directly from the regulatory databases.
Small-quantity RCRA generators are facilities that generate more than 100 kilograms, but less than 1,000 kilograms, of hazardous waste per month.

Table 3: Summary of Environmental Records for Hazardous Materials Release Sites

Site ID	Site Name	Address	Status	Project Impact Determination	Environmental Record Source							
					Cleanup Program Site	Corrective Action	ERNS Incident	Evaluation	Land Disposal Site	LUST Cleanup Site	Military Cleanup Site	Voluntary Cleanup
1	**California Microwave**	**985 Almanor Ave, Sunnyvale**	**Open - Inactive**	**Potential Impact**	**X**							
2	**645/675 Almanor, et al**	**645/675 Almanor Ave, Sunnyvale**	**Open - Verification Monitoring**	**Potential Impact**	**X**							
3	Litton Applied Technology	525 Almanor Ave, Sunnyvale	Completed - Case Closed	No Impact	X							
4	**Siemens Microelectronics Inc**	**639 North Pastoria Ave, Sunnyvale**	**Open - Remediation**	**Potential Impact**	**X**							
5	**Eaton & Signetics**	**680 West Maude Ave, Sunnyvale**	**Open - Remediation**	**Potential Impact**	**X**							
6	**Zymos**	**477 Mathilda Ave N, Sunnyvale**	**Open - Inactive**	**Potential Impact**	**X**							
7	**Maxim Integrated Products Inc**	**477 No Mathilda Ave, Sunnyvale**	**Inactive - Needs Evaluation**	**Potential Impact**		**X**						
8	Thrifty #165	773 N Mathilda Ave, Sunnyvale	Completed - Case Closed	No Impact						X		
9	**Shell**	**776 N Mathilda Ave, Sunnyvale**	**Completed - Case Closed**	**Potential Impact**						**X**		
10	Pace Distributors	828 W Ahwanee Ave, Sunnyvale	Completed - Case Closed	No Impact						X		
11	**Wolco Oil Co. (Borregas)**	**883 Borregas Ave, Sunnyvale**	**Completed - Case Closed**	**Potential Impact**						**X**		
12	**Circo Inc**	**940 Hamlin Court, Sunnyvale**	**Inactive - Needs Evaluation**	**Potential Impact**		**X**						
13	Pacific Bell	1140 N Mathilda Ave, Sunnyvale	Completed - Case Closed	No Impact						X		
14	**Moffet Park Auto Center**	**1135 N Mathilda Ave, Sunnyvale**	**Completed - Case Closed**	**Potential Impact**						**X**		
15	Onizuka AFS - Onizuka Air Force Station	1080 Innovation Way, Sunnyvale	Completed - Case Closed	No Impact							X	
16	ERNS Incident ID 1026923	Mathilda Ave near US 101	Remediation Completed	No Impact			X					
17	ERNS Incident ID 239305	US 101 North near Mathilda Ave Exit	Remediation Completed	No Impact			X					
18	ESL Inc.	425 Tasman Drive, Sunnyvale	Completed - Case Closed	No Impact	X							
19	DII Orbit Semiconductor (Former)	1230 Bordeaux Dr, Sunnyvale	Completed - Case Closed	No Impact	X							
20	Pan American Savings	165 Gilbraltar Ct, Sunnyvale	Completed - Case Closed	No Impact	X							
21	Ampex - Sunnyvale	728 San Aleso, Sunnyvale	Completed - Case Closed	No Impact	X							
22	Data General Corp	433 North Mathilda Ave, Sunnyvale	Completed - Case Closed	No Impact	X							
23	Lockheed Sunnyvale - Plant One Facility - Building 109 USTs	1111 Lockheed Way, Sunnyvale	Completed - Case Closed	No Impact	X							
24	Professional Center	102 W. Persian Drive, Sunnyvale	Completed - Case Closed	No Impact						X		
25	Quality Tune-Up #2	696 N Mathilda Ave, Sunnyvale	Completed - Case Closed	No Impact						X		
26	Moffett Park Dr Mccandless	215 Moffett Park Drive, Sunnyvale	Completed - Case Closed	No Impact						X		
27	Direct Delivery Service	925 Morse Ave, Sunnyvale	Completed - Case Closed	No Impact						X		
28	Sunnyvale Valve & Fitting Co	929 Weddell Ct, Sunnyvale	Completed - Case Closed	No Impact						X		
29	Micromask Inc	716 Pastoria Ave N, Sunnyvale	Completed - Case Closed	No Impact						X		
30	Exxon #7-3669	498 N Mathilda Ave, Sunnyvale	Completed - Case Closed	No Impact						X		
31	Texaco	724 N. Mathilda Avenue, Sunnyvale	Completed - Case Closed	No Impact						X		
32	Unocal #4315	499 N. Mathilda Ave., Sunnyvale	Completed - Case Closed	No Impact						X		
33	T & J Garage	755 Mathilda Ave N, Sunnyvale	Completed - Case Closed	No Impact						X		
34	Specialty Garbage & Refuse	438 Toyama Dr, Sunnyvale	Completed - Case Closed	No Impact						X		
35	Shell - 505 N. Mathilda	505 N Mathilda Ave, Sunnyvale	Completed - Case Closed	No Impact						X		
36	Cang Former Civil Engineering Storage Yard	680 Macon Road, Stop 20, Mountain View	Completed - Case Closed	No Impact							X	
37	Morse Park	1010 to 1024 Morse Avenue, Sunnyvale	Certified	No Impact								X
38	Lockheed Sunnyvale - A Parent	1111 Lockheed Martin Way, Sunnyvale	Open - Site Assessment	No Impact	X							
39	Lockheed Sunnyvale - Process Wastewater Treatment And Reclamation Facility	1111 Lockheed Martin, Sunnyvale	Open	No Impact					X			
40	Orbit Semiconductor	1230 Bordeaux Drive, Sunnyvale	Inactive - Needs Evaluation	No Impact				X				

Table 3: Summary of Environmental Records for Hazardous Materials Release Sites

Site ID	Site Name	Address	Status	Project Impact Determination	Environmental Record Source							
					Cleanup Program Site	Corrective Action	ERNS Incident	Evaluation	Land Disposal Site	LUST Cleanup Site	Military Cleanup Site	Voluntary Cleanup
41	460 Persian Drive	460 Persian Drive, Sunnyvale	Active	No Impact								X
42	Raintree	520 and 592 East Weddell Drive, Sunnyvale	Open - Site Assessment	No Impact	X							

Key:

Light blue shading indicates that groundwater contamination from the release site could potentially impact the Project.

Notes:
Site name, address, and status information (including spellings) are derived directly from the regulatory databases.
Site locations are shown on Figure 6.
Project impact determinations are evaluated under Section 5.

APPENDICES

APPENDIX A

ISA CHECKLIST

Initial Site Assessment (ISA) Checklist

Project Information

District **04** County **SCL** Route **237; 101** Post Mile **2.7/3.3; 45.2/45.8** EA **4H2900**

Description: **Mathilda Avenue Improvements at SR 237 and US 101 Project**

Is the project on the HW Study Minimal-Risk Projects List (HW1)? **No**

Project Manager **Dina El-Tawansy** phone # **510-286-7236 .**

Project Engineer **Tim Lee, WMH Corporation** phone # **415-806-7500 .**

Project Screening

Attach the project location map to this checklist to show location of all known and/or potential HW sites identified. **See Figures 1 and 6 of the ISA report**

1. Project Features:

   New R/W? **Yes**
   Excavation? **Yes**
   Railroad Involvement? **Yes**
   Structure demolition/modification? **Yes**
   Subsurface utility relocation? **Yes**

2. Project Setting:

   Rural or Urban: **Urban**
   Current land uses: **Transportation**
   Adjacent land uses: **Residential, commercial, and industrial**

3. Check federal, State, and local environmental and health regulatory agency records as necessary, to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project.
   See Table 3, Figure 6, and Section 5 of the ISA report.

4. Field Inspection – Date: **8/27/15**

   STORAGE STRUCTURES / PIPELINES: **The Project Area of Potential Effect may potentially include the following structures noted below:**

   Underground tanks **No** Surface tanks **No**
   Sumps **No** Ponds **No**
   Drums **No** Basins **Yes (next to on- and off-ramps)**
   Transformers **Yes** Landfill **No**
   Other **None**

   CONTAMINATION: (spills, leaks, illegal dumping, etc.)

   Surface staining **No** Oil sheen **No**

(continued)

Odors **No** Vegetation damage **No**

Other **No**

HAZARDOUS MATERIALS: (asbestos, lead, etc.)

Buildings **No** Spray-on fireproofing **No**

Pipe wrap **No** Friable tile **No**

Acoustical plaster **No**

Serpentine **None mapped in Project vicinity**

Paint **Yes (Yellow striping and pavement markings)**

Other **None**

5. Additional record search, as necessary, of subsequent land uses that could have resulted in a hazardous waste site.
   Potential arsenic and organochlorine pesticides from former agriculture. See Section 6.2 of the ISA report.

6. Other comments and/or observations:
   Refer to Executive Summary of the ISA report.

ISA Determination

Does the project have potential hazardous waste involvement? **Yes**

If there is known or potential hazardous waste involvement, is additional ISA work needed before task orders can be prepared for the Investigation? **No.**

A brief memo should be prepared to transmit the ISA conclusions to the Project Manager and Project Engineer. **Executive Summary of the ISA report provided to the Project Manager and Project Engineer.**

ISA Conducted by: **Patrick Sutton, BASELINE Environmental Consulting** Date: **October 2015**

APPENDIX B

HISTORICAL LAND USE RECORDS

Mathilda Avenue Improvements
N MATHILDA AVE
Sunnyvale, CA 94089

Inquiry Number: 4379572.1
August 13, 2015

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

When delivered electronically by EDR, the aerial photo images included with this report are for ONE TIME USE ONLY. Further reproduction of these aerial photo images is prohibited without permission from EDR. For more information contact your EDR Account Executive.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Date EDR Searched Historical Sources:

Aerial Photography August 13, 2015

Target Property:

N MATHILDA AVE

Sunnyvale, CA 94089

Year	Scale	Details	Source
1939	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1939 Best Copy Available from original source	USGS
1939	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1939 Best Copy Available from original source	Fairchild
1948	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1948	USGS
1956	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1956	Aero
1968	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1968	USGS
1974	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1974	USGS
1980	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1980	USGS
1991	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1991	USGS/DOQQ
1991	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1991	USGS/DOQQ
1998	Aerial Photograph. Scale: 1"=1000'	Flight Year: 1998 Best Copy Available from original source	USGS
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2006	Aerial Photograph. Scale: 1"=500'	Flight Year: 2006	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	USDA/NAIP

Year	*Scale*	*Details*	*Source*
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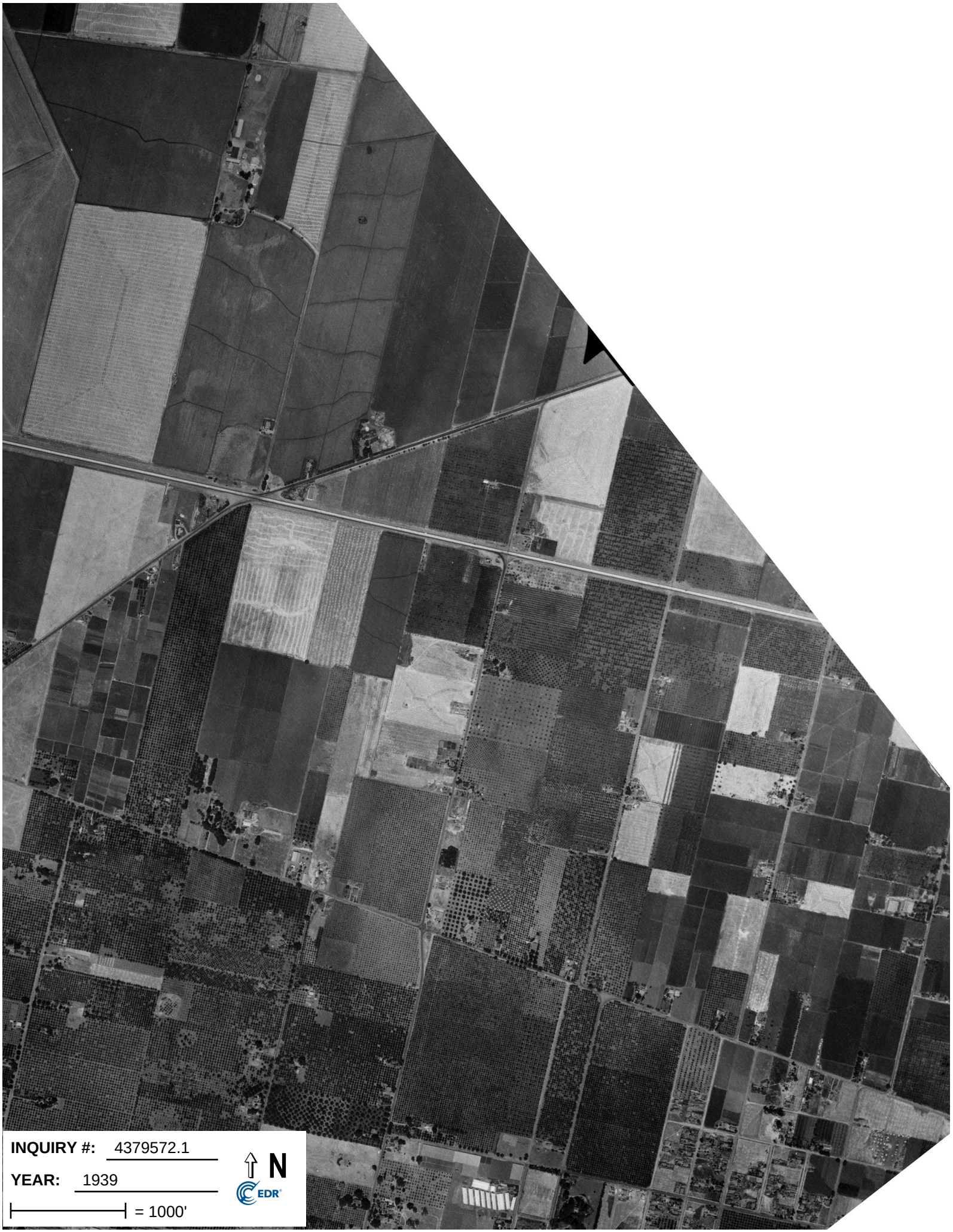
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EDR


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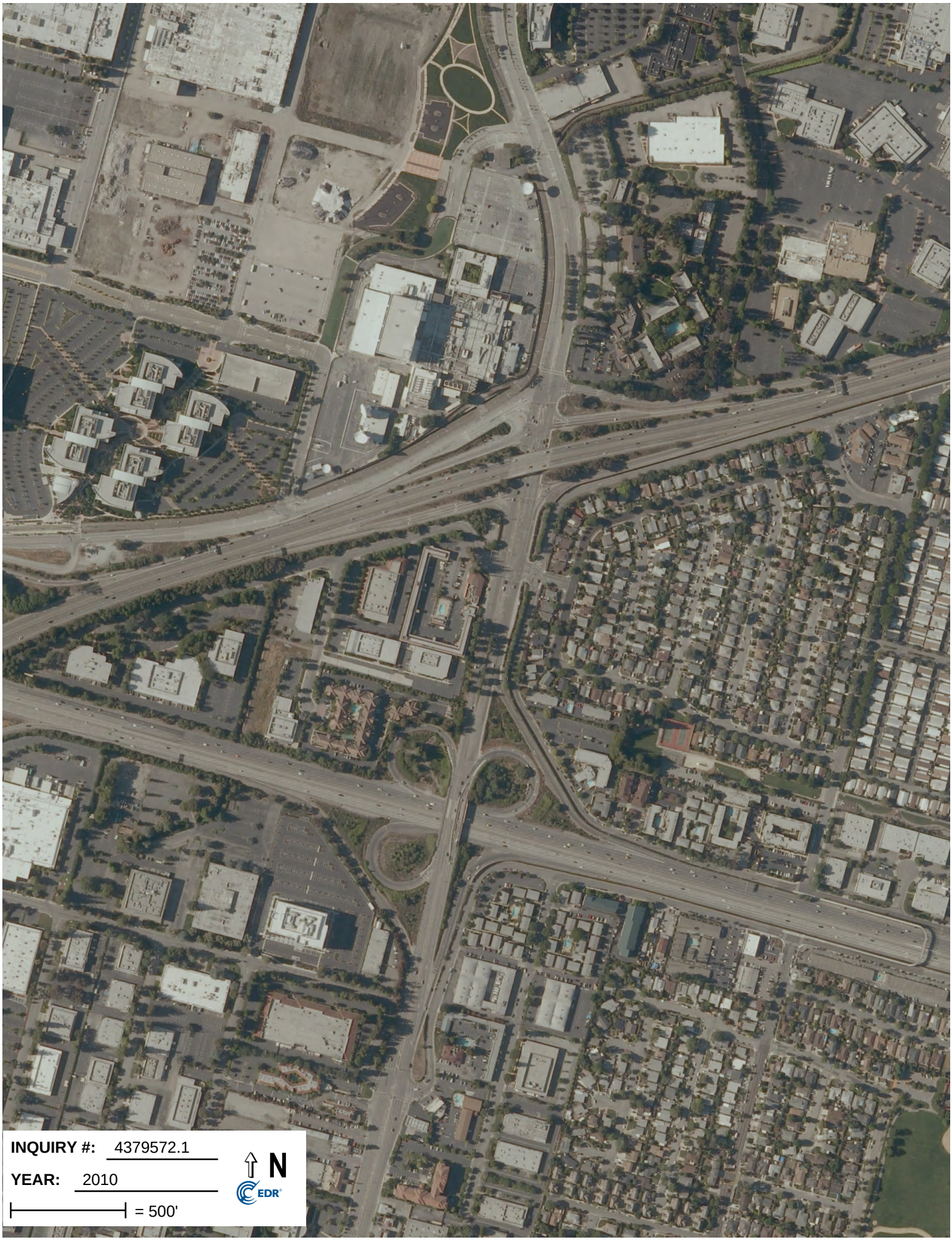
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EDR


INQUIRY #: 4379572.1
YEAR: 2012
= 500'
N
EDR

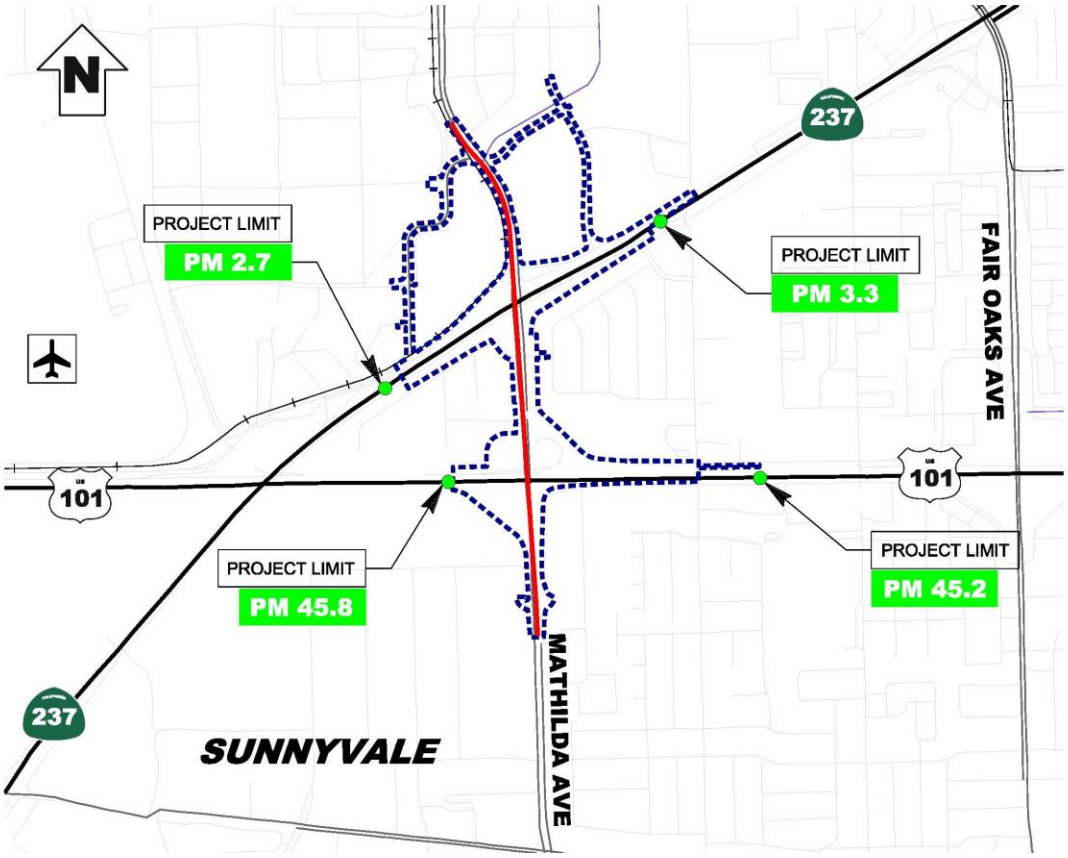
SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

Natural Environment Study

Minimal Impact

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:

ICF International

Dated: February 2016

For individuals with sensory disabilities, this document is available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternative formats, please write to Caltrans, Attn: Gregory Pera, Branch Chief, Office of Biological Sciences and Permits, 111 Grand Avenue, Oakland, CA 94623-0660; or call (510) 286-5617 (voice); or use the California Relay Service TTY number, (800) 735-2929.

Natural Environment Study

Minimal Impact

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT

on Mathilda Avenue from Almanor Avenue to Innovation Way, on SR 237 from 0.3 mile south of US 101/SR 237 junction to 0.3 mile east of Mathilda Avenue undercrossing, and on US 101 from 0.5 mile south of Mathilda Avenue to SR 237/US 101/SR 237 junction in the City of Sunnyvale, Santa Clara County

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

February 2016

U.S. DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA

and

Cooperating Agency: Santa Clara Valley Transportation Authority

Prepared By: _____ Date: 3/1/2016

Amy May, Botanist
Eric Christensen, Wildlife Biologist
(415) 677-7153
ICF International

Reviewed By: _____ Date: 3/1/2016

Erik Schwab
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Office of Biological Sciences and Permits
(510) 286-5627
California Department of Transportation, District 4

Approved By: _____ Date: 3/2/16

Gregory Rera
Branch Chief
Office of Biological Science and Permits
(510) 286-5617
California Department of Transportation, District 4

Statement of Compliance: Produced in compliance with California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this project.

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Contents

Appendices

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Summary

The Mathilda Avenue Improvements at SR 237 and US 101 Project (Project) is located in Sunnyvale, Santa Clara County, California (Figure 1). The purpose of the Project is to reduce congestion and improve traffic operations on Mathilda Avenue at State Route (SR) 237 and U.S. Highway 101 (US 101) while improving mobility for all travel modes in the area. The scope and scale of the Project is intended to provide locally scaled transportation improvements in the near term that address multiple existing deficiencies.

The purpose of this Natural Environment Study – Minimal Impacts (NES-MI) is to evaluate the potential for the Project to affect sensitive biological resources, including, but not limited to, special-status species and natural habitats.

ICF International (ICF) reviewed online resources on the U.S. Fish and Wildlife Service, California Department of Fish and Wildlife, and California Native Plant Society websites to identify potential special-status botanical and wildlife resources found on the Project site. Based on the results, it was determined that six special-status plant species and 27 special-status wildlife species have the potential to occur in the Project region. Field surveys were conducted on March 6 and July 29, 2015. The purposes of field surveys were to identify vegetation and cover types within the Project site and assess habitat suitability for special-status species. Based on the results of the field surveys, the Project would have no effect on habitats and natural communities of special concern and no effect on special-status plant species because of the high degree of development and routine human activity within the Project footprint.

By causing nesting and reproductive failure from high disturbance levels, construction of the Project could affect nesting birds and/or raptors that are protected by the Migratory Bird Treaty Act. If feasible, trees would be removed during the non-nesting season, September 1 to January 31. Otherwise, preconstruction surveys would be conducted during the nesting season, February 1 to August 31, to ensure that no active bird nests are present prior to tree removal. If active nests are identified, then buffers would be established until nesting is completed.

A wetlands assessment was conducted concurrently with the field surveys described above. The wetlands assessment identified culverted portions of a concrete-lined flood control channel and open stormwater drainage ditches within the Biological Study Area (BSA), which is bounded by the Project limits. The flood control channel (Sunnyvale West Channel) was identified as potentially subject to both federal and state jurisdiction because it drains directly to a navigable water (San Francisco Bay) via Guadalupe Slough. The stormwater drainage ditches are presumed to be non-jurisdictional because they were constructed in uplands and drain runoff from uplands. The Project is not expected to affect the Sunnyvale West Channel and, therefore, would not require a Clean Water Act Section 404 permit or Section 401 water quality certification or waste discharge requirement. Approximately 626 trees occur in the BSA. The California Department of Transportation (Caltrans) and Santa Clara Valley Transportation Authority (VTA) are exempt from local tree protection ordinances. However, the trees provide aesthetic and other benefits to the community and may provide habitat or food sources for local wildlife; therefore, trees impacted by the Project will be replaced at ratios that are commensurate with the size of the tree to be removed, as described in Chapter 4.

Invasive plant species are present throughout much of the Project work limits. To minimize the introduction and spread of additional invasive plant species within project boundaries as well as lands adjacent to the Project, the City of Sunnyvale or its contractor shall implement best management practices to the greatest extent practicable when disturbing soil and removing or disposing of invasive plant material.

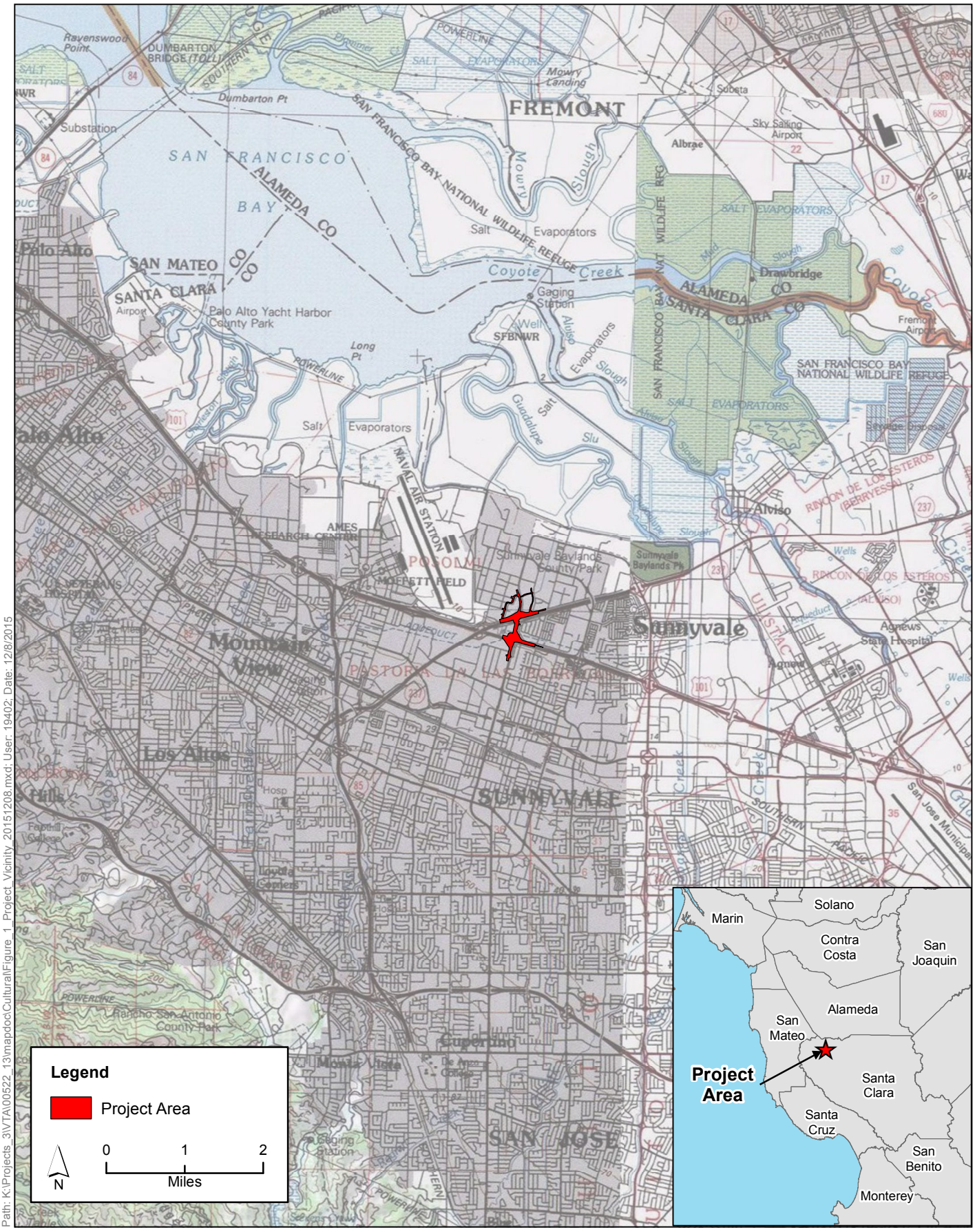

Figure 1
Project Vicinity
Mathilda Avenue Improvements at SR 237 and US 101

Chapter 1 – Introduction

1.1 Project History

The SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges are primary access points on the state highway system for the City of Sunnyvale and important local destinations, such as downtown Sunnyvale, the Sunnyvale Caltrain station to the south, and an expanding high-tech business district to the north. The Project is also located within the "Golden Triangle," an area bordered by US 101, SR 237, and Interstate (I) 880 that includes parts of Sunnyvale, Santa Clara, North San Jose, and Milpitas. The Golden Triangle is named for the high concentration of employment centers within this area. US 101, SR 237, and I-880 are heavily used commute corridors to destinations within and beyond the Golden Triangle.

1.1.1 MATHILDA AVENUE

Within the Project area, Mathilda Avenue is a six-lane divided local roadway. Mathilda Avenue serves as the main access route to residential communities on the east side of Mathilda Avenue and is the only access route to the landlocked area within the US 101/SR 237/Mathilda Avenue triangle via Ross Drive. Mathilda Avenue is also one of City of Sunnyvale's designated truck routes for trucks over three tons in weight. The speed limit is 45 miles per hour (mph) and on-street parking is prohibited within the Project area. Approximately 45,000 vehicles travel on Mathilda Avenue south of SR 237 on an average weekday.

1.1.2 SR 237

SR 237 is an east-west freeway, starting at SR 82 (El Camino Real) in the City of Mountain View and ending approximately 11 miles to the east at I-680 in the City of Milpitas. Within the Project area, SR 237 provides two mixed-flow lanes in each direction. On eastbound SR 237, a high-occupancy vehicle (HOV) lane is provided east of Mathilda Avenue and becomes an HOV/express lane from east of Zanker Road to the eastbound SR 237/northbound I-880 direct connector ramp. On westbound SR 237, there is an HOV/express lane beginning at the southbound I-880/westbound SR 237 direct connector ramp that becomes an HOV lane from North First Street to just east of Fair Oaks Avenue. Within the Project area, auxiliary lanes are provided in each direction between US 101 and Mathilda Avenue on SR 237. There is also an auxiliary lane on westbound SR 237 between Fair Oaks Avenue and Mathilda Avenue. SR 237 is a link for trucking between the southern part of the San Francisco Peninsula and the East Bay, providing the first connection south of the Dumbarton Bridge. SR 237 east of Mathilda Avenue currently carries approximately 90,000 vehicles daily.

The SR 237/Mathilda Avenue interchange is a full "tight" diamond interchange that accommodates all ramp movements, with access to and from east and westbound SR 237. All ramp termini are signalized. The westbound SR 237 on-ramp has existing ramp metering equipment installed; however, there is no existing ramp metering equipment installed for the eastbound SR 237 on-ramp.

1.1.3 US 101

Within the Project area, US 101 provides three mixed-flow lanes plus one HOV lane in each direction, while an auxiliary lane is also provided in the southbound direction between SR 237

and Mathilda Avenue. US 101 south of Mathilda Avenue currently carries approximately 154,000 vehicles daily.

The Moffett Park Drive/US 101 northbound on-ramp is a one-lane on-ramp located along Moffett Park Drive west of the Mathilda Avenue/Moffett Park Drive intersection. This on-ramp merges with the westbound SR 237 off-ramp that connects to northbound US 101. The ramp terminus is signalized, and the on-ramp is not metered.

The US 101/Mathilda Avenue interchange is a partial cloverleaf interchange with access to all but two movements: southbound Mathilda Avenue to northbound US 101 and southbound US 101 to northbound Mathilda Avenue. None of the ramp termini are signalized; however, all of the on-ramps are metered.

1.1.4 TRANSIT FACILITIES IN THE PROJECT AREA

Two VTA light-rail transit (LRT) stations, Moffett Park and Lockheed Martin, are located within the Project area and serve the business district north of SR 237. VTA also operates a local bus service with four bus stops on Mathilda Avenue. The Sunnyvale Caltrain Station is located in downtown Sunnyvale, adjacent to West Evelyn Avenue.

1.1.5 PROJECT PURPOSE AND NEED

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Due to the close proximity of the SR 237 and US 101 interchanges (less than one mile), modification of one interchange would affect the other.

Specifically, the purposes of the Project are to:

- Reduce congestion and improve traffic operations along Mathilda Avenue and at the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges.
- Improve mobility for all travel modes in the area, including motor vehicles, transit, bicycles, and pedestrians.
- Provide standard crosswalks and sidewalks along Mathilda Avenue, improving access to local destinations such as Moffett Park, the VTA LRT stations, and downtown Sunnyvale.

The Project is needed for the following reasons:

- Regional growth and new local development combined with inefficient roadway operations, have resulted in substantial traffic congestion on Mathilda Avenue.
- Efficient access for all travel modes into and out of downtown Sunnyvale and development to the north of SR 237 is critical to a healthy and sustainable economy. Congestion on Mathilda Avenue adversely affects the economic vitality of the City of Sunnyvale.

Overall, the Project is needed to address several issues in the Project area, including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, local roadway and freeway ramp operations, and current and future economic development.

1.1.6 PROJECT LOCATION

The Project is located in the City of Sunnyvale in Santa Clara County, California (Figure 1). On SR 237, the Project limits are from 0.3 mile east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.5 mile south of the Mathilda Avenue overcrossing (PM 45.2) to 0.3 mile south of SR 237/US 101 interchange (PM 45.8) (Figure 2). The Project limits include approximately 0.4-mile of Innovation Way and a new road that would connect Mathilda Avenue to Bordeaux Drive; this new road will be completed by the Moffett Place Project prior to the Mathilda Avenue Improvements at SR 237 and US 101 Project. The Project occurs in a sectionless area within Township 6 South, Ranges 2 and 1 West in the Mountain View U.S. Geological Survey (USGS) 7.5-minute series topographic quadrangle.

The Biological Study Area (BSA) for the project is based on the Project limits (Figure 2).

1.2 Project Description

The Project alternatives that were developed to meet the purpose and need of the Project include Alternative 1, Alternative 2, and the No-Build Alternative. Under the No-Build Alternative, no changes would be made to the existing local roadway or freeway ramps within the Project limits. No construction activities would occur, and there would be no change in the operation of existing facilities.

The design features of the two build alternatives include reconfiguration of the US 101 and SR 237 interchanges at Mathilda Avenue. The build alternatives include design variations for reconfigured roadways and intersections as well as the construction of new signalized intersections. Proposed improvements included in the build alternatives south of Ross Drive along Mathilda Avenue and at the US 101 interchange are identical. These improvements include new bicycle and pedestrian facilities, utility relocations, new stormwater treatment facilities, enhanced lighting, ramp metering modifications, overhead signage modifications, and a new retaining wall. Unique improvements of the build alternatives occur north of Ross Drive along Mathilda Avenue primarily related to construction of a diverging diamond interchange (DDI)[1] under Build Alternative 2.

1.2.1 ROADWAY IMPROVEMENTS

The build alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction on Mathilda Avenue.
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp.
- Realign and widen northbound US 101 ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp.

[1] A diverging diamond interchange (DDI) , also called a double crossover diamond (DCD) interchange, is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (phases when a traffic signal allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue.
- Modify Mathilda Avenue/Ross Drive signal intersection.
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.[2]
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection.
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration.
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration. Eastbound Moffett Park Drive between Innovation Way and Mathilda Avenue would be diverted to Innovation Way to access Mathilda Avenue.

1.2.2 BICYCLE AND PEDESTRIAN FACILITIES

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consist of both Class II and Class III bikeways[3], based on available pavement widths within the Project limits, and connect to the existing Class III bikeway north of Innovation Way and the Class I bikeway on the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered, based on available pavement widths within the Project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the Project limits with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

1.2.3 UTILITY RELOCATIONS

The following utility companies have known facilities within the project limits: Pacific Gas & Electric (PG&E) gas and electric service, AT&T telephone service, Comcast cable and internet service, Verizon, San Francisco Public Utilities Commission (SFPUC) Hetch-Hetchy Aqueduct, VTA light rail electric and communication services, and City of Sunnyvale water line, recycled water line, storm drain and sanitary sewer services.

The build alternatives would include utility relocations, as necessary, to construct the above-described improvements. Build Alternative 1 would require relocation of Verizon telecommunication lines and relocation of a City of Sunnyvale recycled water line along the current alignment of Moffett Park Drive east of Mathilda Avenue. Build Alternative 2 would require relocation of a six-foot PG&E underground gas line and a 12kV PG&E underground electrical line along the current alignment of Moffett Park Drive west of Mathilda Avenue. Both Build Alternatives could require adjustments to three PG&E electrical pole wires to accommodate ramp modifications at the Mathilda Avenue/US 101 interchange. Utility covers would be adjusted to grade in areas of pavement rehabilitation.

[2] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place Project.
[3] Class I bikeway is a bicycle path. Class II bikeway is a bicycle lane. Class III bikeway is bicycle route (Source: Highway Design Manual, Index 1002.1).

Figure 2
Biological Study Area
Mathilda Avenue Improvements at SR 237 and US 101 Project

1.2.4 STORMWATER TREATMENT

The proposed interchange ramp modifications are expected to result in the fill or removal of existing ditches, modification or relocation of existing longitudinal drainage structures, and construction of new drainage structures. The build alternative's drainage design would maintain existing drainage patterns; however, during construction, temporary drainage facilities may be required to redirect runoff from construction areas.

The stormwater treatment facilities for both build alternatives may include biofiltration strips, biofiltration swales, bioretention basins, and/or detention basins within the state right-of-way near the on- and off-ramps and on city streets.

1.2.5 ENHANCED LIGHTING

The build alternatives would both provide enhanced lighting to improve roadway visibility for drivers during nighttime hours. Overhead lighting would be maintained or installed at all ramps. The lights would either be supported on a cast-in-drilled-hole pile, with a typical diameter of 2.5 feet and depth of five feet, or mounted on a structure above grade.

1.2.6 RAMP METERING

Ramp metering facilities already exist at the northbound US 101 loop on-ramp, southbound US 101 ramps, and the westbound SR 237 on-ramp. Because these ramps would be modified and realigned under both build alternatives, the affected ramp metering equipment would also be modified.

1.2.7 OVERHEAD SIGNAGE

Updated overhead signs in each direction on SR 237 and US 101 would inform motorists of the approaching on- and off- ramps associated with the Project. The overhead sign structure mounted to the Mathilda Avenue overcrossing on northbound US 101 would be removed because it applies to the existing loop off-ramp, which is being relocated and integrated as both a west and east Mathilda Avenue access route from northbound US 101. The northbound US 101 off-ramp sign would be impacted by the off-ramp widening, therefore, it would be removed and replaced just south of the Borregas Pedestrian Overcrossing.

1.2.8 LIGHT-RAIL FACILITIES

VTA LRT facilities that cross the Moffett Park Drive/Innovation Way and Mathilda Avenue/Innovation Way intersections would be coordinated with traffic signal modifications, which would be location specific. The final locations for new traffic signals would be determined during design.

1.2.9 CONSTRUCTION AND STAGING AREAS

Construction of the build alternatives would take approximately 250 working days. A combination of day and night work is anticipated. Weekend work is not anticipated. Short-term lane and ramp closures would be necessary to facilitate construction. A Traffic Management Plan would be implemented during construction to minimize and prevent delay and inconvenience to the traveling public. Staging/laydown areas for equipment and materials would be needed during

Project construction. Construction staging areas would be located within the state right-of-way adjacent to Mathilda Avenue.

Potential locations include:

- Within the northbound US 101 loop off-ramp,
- Between the northbound US 101 diagonal off-ramp and northbound loop on-ramp,
- Within the southbound US 101 loop on-ramp,
- Between the southbound US 101 loop on-ramp and diagonal off-ramp, and
- Between the westbound SR 237 ramps and Moffett Park Drive.

Chapter 2 – Methods

2.1 Regulatory Requirements

Potentially applicable federal and state regulations for biological resources are described below.

2.1.1 FEDERAL REGULATIONS

Federal Endangered Species Act

The federal Endangered Species Act (ESA) is administered by U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS). In general, NMFS is responsible for protection of ESA-listed marine species and anadromous fishes, whereas other listed species are under USFWS jurisdiction. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction through all or a significant portion of their range; *threatened* refers to species, subspecies, or distinct population segments that are likely to become endangered in the near future. Section 9 of the ESA is relevant to the proposed Project and is summarized below.

Endangered Species Act Prohibitions (Section 9)

Section 9 of ESA prohibits the take of any fish or wildlife species that has been listed under the ESA as endangered. Take of threatened species is also prohibited under Section 9, unless otherwise authorized by federal regulations. Take, as defined by ESA, means "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct." Harm is defined as "any act that kills or injures the species, including significant habitat modification." In addition, Section 9 prohibits removing, digging up, cutting, and maliciously damaging or destroying federally listed plants on sites that are under federal jurisdiction. Section 9 does not prohibit take of federally listed plants on sites that are not under federal jurisdiction.

Migratory Bird Treaty Act

The federal Migratory Bird Treaty Act (MBTA) (16 United States Code [USC] 703) enacts the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union (now Russia) and authorizes the U.S. Secretary of the Interior to protect and regulate the taking of migratory birds. It protects migratory birds, their occupied nests, and their eggs (16 USC 703, 50 Code of Federal Regulations [CFR] 21, 50 CFR 10). Most actions that result in taking or in permanent or temporary possession of a protected species constitute violations of the MBTA. Examples of permitted actions that do not violate the MBTA are the possession of a hunting license to pursue specific game birds, legitimate research activities, display in zoological gardens, banding, and other similar activities. USFWS is responsible for overseeing compliance with the MBTA, and the U.S. Department of Agriculture's (USDA's) Animal Damage Control Officer makes recommendations on related animal protection issues.

Clean Water Act

The federal Clean Water Act (CWA) was enacted as an amendment to the federal Water Pollution Control Act of 1972, which outlined the basic structure for regulating discharges of pollutants to

waters of the United States. The CWA serves as the primary federal law to protect the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands.

The CWA empowers the U.S. Environmental Protection Agency (EPA) to set national water quality standards and effluent limitations. It also includes programs for addressing both point-source and nonpoint-source pollution. Point-source pollution is pollution that originates or enters surface waters at a single, discrete location, such as an outfall structure or an excavation or construction site. Nonpoint-source pollution originates over a broader area and includes urban contaminants in stormwater runoff and sediment loading from upstream areas. The CWA operates on the principle that all discharges into the nation's waters are unlawful, unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool.

The sections below provide additional details on specific sections of the CWA.

Permits for Fill Placement in Waters and Wetlands (Section 404)

CWA Section 404 regulates the discharge of dredged and fill materials into waters of the United States. *Waters of the United States* refers to oceans, bays, rivers, streams, lakes, ponds, and wetlands, including any or all of the following:

- Areas within the ordinary high-water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and
- Seasonal and perennial wetlands, including coastal wetlands.

In *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers*, 521 U.S. 159 (2001), the Court held that the provision of the CWA, which requires discharging fill material into navigable waters to obtain a permit from the U.S. Army Corps of Engineers (USACE), does not extend to isolated wetlands. In the consolidated cases *Rapanos v. United States* and *Carabell v. United States*, 126 S. Ct. 2208 (2006) (referred to as the Rapanos decision), the Court reviewed the USACE definition of waters of the United States and whether or not it extended out to tributaries of traditional navigable waters (TNW) or wetlands adjacent to those tributaries. Guidance issued by EPA and USACE on the Rapanos decision provides that agencies will assert jurisdiction over non-navigable, not relatively permanent tributaries and their adjacent wetlands where such tributaries and wetlands have a significant nexus to a traditional navigable water.

Applicants must obtain a permit from USACE for all discharges of dredged or fill material into waters of the United States, including adjacent wetlands, before proceeding with a proposed activity. USACE may issue either an individual permit, evaluated on a case-by-case basis, or a general permit, evaluated at a program level for a series of related activities. General permits are preauthorized and issued to cover multiple instances of similar activities that are expected to cause only minimal adverse environmental effects. Nationwide permits (NWPs) are a type of general permit to cover particular fill activities. Each NWP specifies particular conditions that must be met for the NWP to apply to a particular project.

Compliance with CWA Section 404 requires compliance with several other environmental laws and regulations. USACE cannot issue an individual permit or verify the use of a general permit until the requirements of the National Environmental Policy Act (NEPA), the ESA, and the National Historic Preservation Act (NHPA) have been met. In addition, the USACE cannot issue or verify

any permit until a water quality certification or a waiver of certification has been issued pursuant to CWA Section 401.

Permits for Stormwater Discharge (Section 402)

CWA Section 402 regulates construction-related stormwater discharges to surface waters through the National Pollutant Discharge Elimination System (NPDES) program, administered by EPA. In California, the State Water Resources Control Board is authorized by EPA to oversee the NPDES program through the Regional Water Quality Control Boards (RWQCBs) (see the related discussion under "Porter-Cologne Water Quality Control Act," below). The project area is under the jurisdiction of the San Francisco Bay RWQCB.

The NPDES Construction General Permit is required for projects that disturb more than one acre of land. The NPDES Construction General Permit process requires the applicant to file a public notice of intent (NOI) to discharge stormwater and prepare and implement a stormwater pollution prevention plan (SWPPP). The SWPPP includes a site map and a description of proposed construction activities. In addition, it describes the best management practices (BMPs) that would be implemented to prevent soil erosion and the discharge of other construction-related pollutants (e.g., petroleum products, solvents, paints, cement) that could contaminate nearby water resources. Permittees are required to conduct before, during, and post-storm monitoring and annual reporting to ensure that BMPs are correctly implemented and effective in controlling the discharge of construction-related stormwater pollutants.

Water Quality Certification (Section 401)

Under CWA Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must obtain certification from the state in which the discharge would originate or, if appropriate, from the interstate water pollution control agency with jurisdiction over affected waters at the point where the discharge would originate. Therefore, all projects that have a federal component and may affect state water quality (including projects that require federal agency approval, such as issuance of a Section 404 permit) must also comply with CWA Section 401.

For each of the above sections of the CWA, if the Project would result in impacts on waters of the United States or waters of the state, the Project applicant would obtain and comply with the applicable federal and state permits, and all conditions that are attached to those permits would be implemented as part of the Project. The permit conditions would be clearly identified in the construction plans and specifications and monitored during and after construction to ensure compliance.

2.1.2 STATE REGULATIONS

California Endangered Species Act

The California Endangered Species Act (CESA) prohibits the take of endangered and threatened species; however, habitat destruction is not included in the state's definition of take. Section 2090 of CESA requires state agencies to comply with endangered species protection and recovery and to promote conservation of these species. The California Department of Fish and Wildlife (CDFW) administers the act and authorizes take through Section 2081 agreements (except for species that are designated as fully protected). CDFW can adopt a federal biological opinion as a state biological opinion under California Fish and Game Code (CFGC) Section 2095. In addition, CDFW

can write a consistency determination for species that are both federally and state listed if CDFW determines that the avoidance, minimization, and compensation measures will ensure no take of species.

Porter-Cologne Water Quality Control Act

California Water Code Section 13260 requires "any person discharging waste, or proposing to discharge waste, in any region that could affect the waters of the state to file a report of discharge (an application for waste discharge requirements)." Under the Porter-Cologne Act definition, waters of the state are "any surface water or groundwater, including saline waters, within the boundaries of the state." Although all waters of the United States that are within the borders of California are also waters of the state, the reverse is not true. Therefore, California retains authority to regulate discharges of waste into any waters of the state, regardless of whether USACE has concurrent jurisdiction under CWA Section 404. If USACE determines that a wetland is not subject to regulation under Section 404, CWA Section 401 water quality certification is not required. However, the RWQCB may impose waste discharge requirements (WDRs) if fill material is placed into waters of the state.

California Fish and Game Code

Several sections of the CFGC apply to the proposed Project and are described herein (i.e., CFGC Sections 3503, 3503.5, 3511, and 3513).

CFGC 3503 prohibits the destruction of bird nests. Section 3503.5 prohibits the killing of raptor species and destruction of raptor nests.

The CFGC provides protection from take for a variety of species, referred to as fully protected species. CFGC 3511 lists fully protected birds and prohibits take of these species. The code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Except for take related to scientific research, all take of fully protected birds is prohibited.

CFGC 3513 prohibits the take or possession of any migratory non-game bird, as designated in the MBTA, or any part of such migratory non-game bird, except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA.

California Native Plant Protection Act

The California Native Plant Protection Act (CNPPA) of 1977 prohibits importation of rare and endangered plants into California, take of rare and endangered plants, and the sale of rare and endangered plants. The CESA defers to the CNPPA, which ensures that state-listed plant species are protected when state agencies are involved in projects that are subject to CEQA. In this case, plants that are listed as rare under the CNPPA are not protected under CESA but rather under CEQA.

2.1.3 LOCAL REGULATIONS

City of Sunnyvale Tree Preservation

The City of Sunnyvale regulates the protection, installation, removal and long term management of significantly sized trees on private property within the city and city owned golf courses and

parks (Sunnyvale Municipal Code 19.94). The City's Planning Department considers a tree protected if it meets the following specifications:

- Any single trunk tree 38 inches or greater in circumference at breast height (4.5 feet above grade) or 12 inches or greater in diameter at breast height (DBH), and
- Any multi-trunk tree that has at least one trunk 38 inches or greater in circumference at breast height or multi-trunk measurements added together that equal at least 113 inches.

Water Resources Protection Ordinance (06-1)

The Water Resources Protection Ordinance was adopted by a Water Resources Protection Collaborative, which is made up of representatives from the Santa Clara Valley Water District, cities and towns within Santa Clara County, the Guadalupe-Coyote Resource Conservation District, the RWQCB, and various community stakeholder interests. Its purpose is to protect the water resources managed by the District by providing a set of model guidelines and standards for land uses along stream corridors and regulate access to and use of the District's facilities and easements.

2.2 Studies Required

Biological resources and potential impacts on such resources due to the Project were identified through a literature and database review, correspondence with USFWS, and reconnaissance field surveys. Based on the information collected, ICF determined that the following studies would be required to document natural resources in the biological study area (BSA; defined in Chapter 3, Results: Environmental Setting):

- Botanical field survey to identify plant communities, trees, and suitable habitat for special-status plant species;
- General habitat assessment for special-status wildlife species; and
- Delineation of waters of the United States.

2.2.1 LITERATURE AND DATABASE REVIEW

To prepare for the field surveys and evaluate whether special-status species or other sensitive biological resources (e.g., wetlands) could occur in the BSA and vicinity, biologists reviewed the following:

- California Native Plant Society's (CNPS's*) Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2015) (Appendix A);
- California Natural Diversity Database (CNDDB) records search for the U.S. Geological Survey (USGS) 7.5-minute Mountain View quadrangle (CDFW 2015) (Appendix B); and
- USFWS list of threatened and endangered species for the Mathilda Avenue Improvements at SR 237 and US 101 Project (USFWS 2016) (Appendix C);

Based on information from the above sources, ICF developed lists of special-status species and natural communities of special concern that could be present in the Project vicinity. Figures 3a and 3b present the results of a 2-mile CNDDB record search around the BSA for special-status

plants and wildlife. All biological resources are evaluated for their potential to occur within the BSA in Chapter 3 of this NES-MI.

2.3 Personnel and Survey Dates

ICF biologists surveyed the BSA in March and July 2015. Methods for documenting botanical, wildlife, and wetland resources are described below.

2.3.1 BOTANICAL RESOURCES

ICF botanists Amy May and Torrey Edell conducted botanical surveys on March 6 and July 29, 2015, by walking through the accessible portions of the BSA and identifying all plant species encountered. During the botanical field surveys, vegetation communities were identified and mapped, and trees were identified and recorded. Results of these surveys are presented in Chapters 3 and 4.

2.3.2 WILDLIFE RESOURCES

ICF wildlife biologist Eric Christensen conducted a reconnaissance-level survey of the BSA and immediately adjacent areas on March 6, 2015. The survey was conducted on foot with binoculars to ensure thorough visual coverage. Observations of habitat conditions and wildlife species were recorded in field notes. Results of the survey are presented in Chapters 3 and 4.

2.3.3 DELINEATION OF WATERS OF THE UNITED STATES

Concurrently with the botanical and wildlife surveys described above, ICF biologists identified features that could be considered jurisdictional waters of the United States by USACE. Details regarding the methods used in the survey and the results are presented in the wetlands assessment in Appendix D. All waters of the United States identified in the wetlands assessment also are assumed to be subject to state jurisdiction.

2.3.4 LIMITATIONS THAT MAY INFLUENCE RESULTS

Access to the Mathilda Avenue overpass above US 101 was largely limited due to the traffic traveling on US 101. The underside of the overpass was viewed from the side of US 101 with binoculars during the survey, but not all areas of the overpass were able to be visually inspected. At the time of the delineation fieldwork in 2015, California was in a historic drought. However, factors that would be affected, including hydrophytic vegetation and wetland hydrology, were evident and identifiable. Therefore, there were no other limitations with regard to the survey for biological resources, or wetland and non-wetland waters in the BSA.

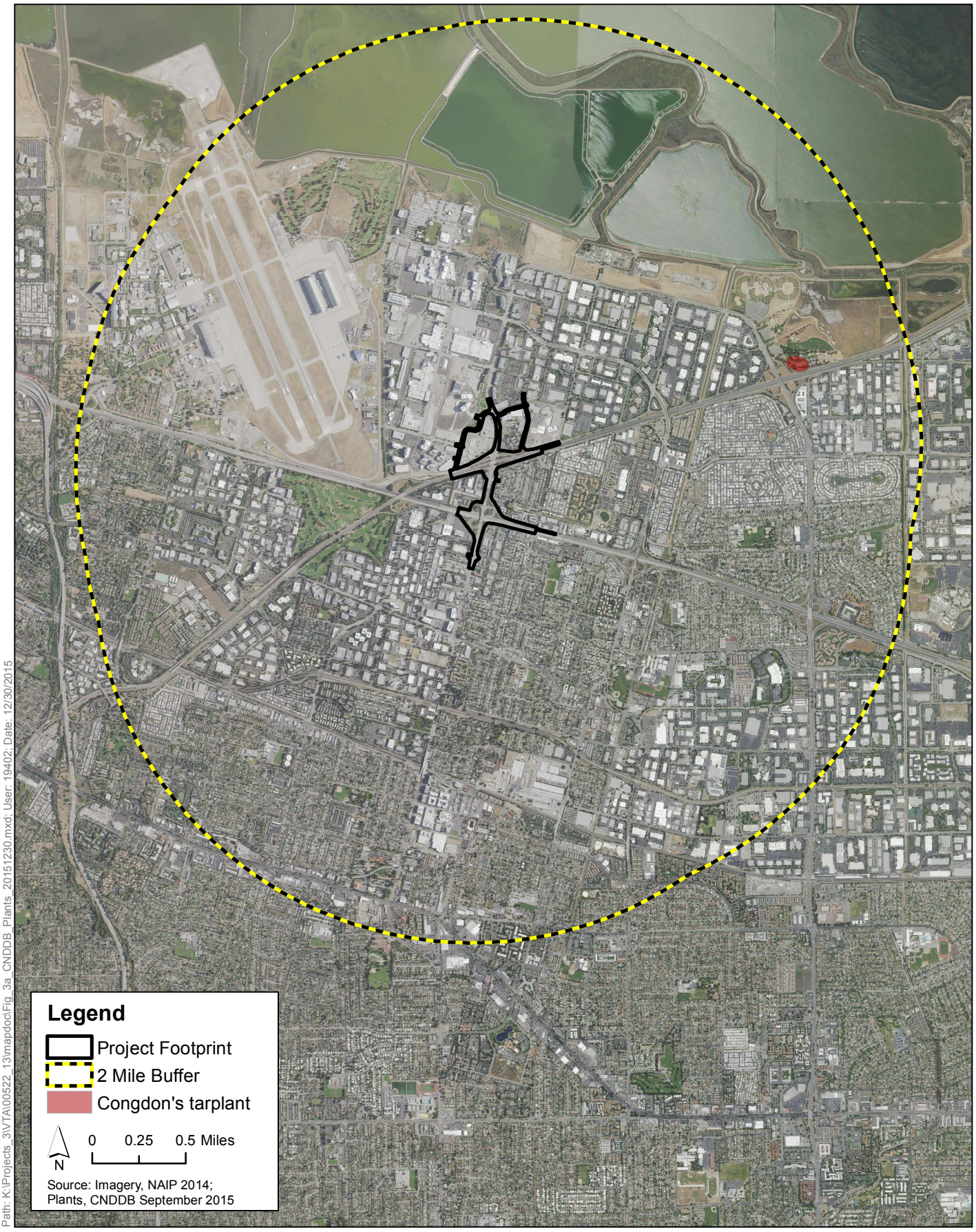

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Figure 3a
Plant Occurrences within 2 Miles of the Project Footprint

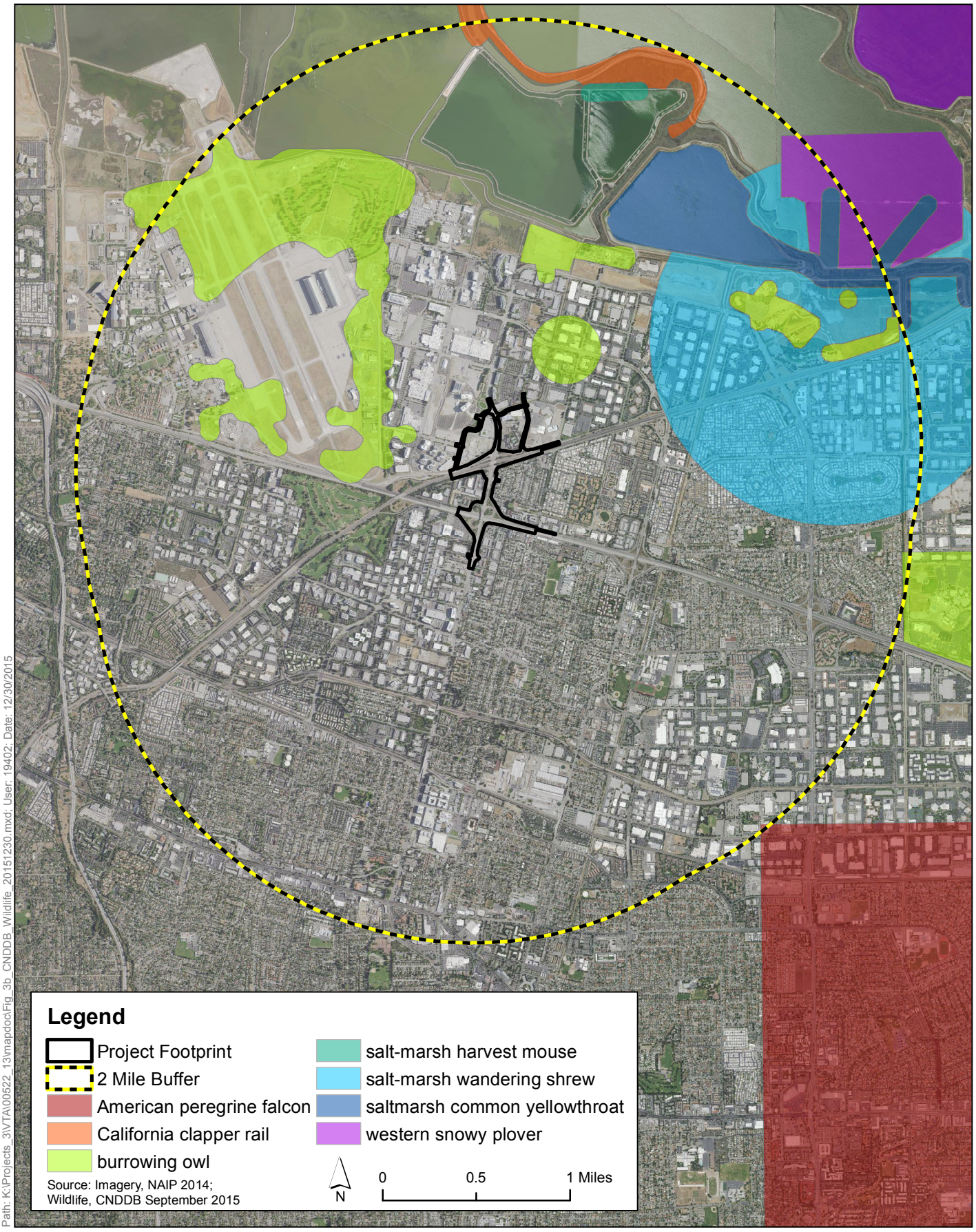

Figure 3b
Wildlife Occurrences within 2 Miles of the Project Footprint

Chapter 3 – Results: Environmental Setting

3.1 Description of the Existing Biological and Physical Conditions

This section includes a description of biological and physical conditions present in the Biological Study Area (BSA).

3.1.1 BIOLOGICAL STUDY AREA

The BSA for the Project is approximately 63 acres in size and includes areas that would be directly impacted during construction as well as adjacent areas that could be indirectly impacted (e.g., aquatic features susceptible to construction-related runoff, habitat for nesting birds that could be disturbed) (Figure 2). On SR 237, the BSA, which is equivalent to the Project limits, extends from 0.3 mile east of the US 101/SR 237 interchange (PM 2.7) to 0.3 mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the BSA extends from 0.5 mile south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 mile south of SR 237/US 101 interchange (PM 45.8). The BSA includes approximately 0.4-mile of Innovation Way and a new road that would connect Mathilda Avenue to Bordeaux Drive; this new road will be completed by the Moffett Place Project prior to the Mathilda Avenue Improvements at SR 237 and US 101 Project. The total length of the Project on Mathilda Avenue is approximately one mile.

3.1.2 PHYSICAL CONDITIONS

The BSA is located in the San Francisco Bay Area, which is characterized by warm, dry summers and mild, wet winters, with most of the rainfall occurring between November and March. The BSA has an estimated mean annual temperature of 59 degrees Fahrenheit and an estimated mean annual precipitation of 15.71 inches (USDA, Natural Resources Conservation Service 2015). Vegetation is adapted to this Mediterranean climate, and the landscape is a mosaic of drought-adapted tree, shrub, and grassland communities. Elevations in the BSA range from approximately 15 feet above mean sea level in low-lying areas to 40 feet above mean sea level on raised highway ramps (Google Earth Pro 2015). Topography within the BSA is relatively flat, with a gentle downward slope from US 101 to SR 237.

The Sunnyvale West Channel occurs within the northwestern area of the BSA and provides flood control protection to the surrounding communities. Water flows through the channel to the San Francisco Bay via Guadalupe Slough. The Sunnyvale West Channel is assumed to be subject to USACE jurisdiction under Section 404 of the CWA because of its direct hydrologic connection to the Bay. While the Channel is located within the BSA, the construction of the proposed road that will connect Mathilda Avenue with Bordeaux Drive, which will affect the Channel, is part of the Moffet Place Project. The Mathilda Avenue Improvements at SR 237 and US 101 Project will not affect the Sunnyvale West Channel, as the Project proposes the construction of traffic signals and striping for bicycle lanes within the Mathilda Avenue-Bordeaux Drive connector road after its construction. Stormwater drainage ditches run parallel to Mathilda Avenue and occur along cloverleaves and other ingress/egress ramps to and from US 101 and SR 237 and Mathilda Avenue within the BSA. The ditches drain stormwater runoff during rain events, but flow does not persist after rain events. These ditches were constructed in upland areas to drain the adjacent roads and highway segments, and ultimately drain into the municipal stormwater system. Therefore, the stormwater drainage ditches are not considered to be subject to USACE jurisdiction or state jurisdiction.

3.1.3 BIOLOGICAL CONDITIONS

Two land cover types occur in the BSA: developed and landscaped (Figure 4). The developed land cover type consists of the existing paved Mathilda Avenue, on- and off-ramps from US 101 and SR 237, other existing roads, parking lots, and residential and commercial development. The landscaped cover type comprises the remainder of the BSA (15 acres) and is described under *Vegetation Communities*, below.

Vegetation Communities

Landscaped vegetation is typically planted and consists of non-native, ornamental plant species and/or cultivars of native plant species that may or not be regularly maintained or managed. Although not considered a natural vegetation community, landscaped vegetation can provide habitat and food sources for wildlife. Common plant species in the landscaped vegetation in the BSA include purple lantana (*Lantana montevidensis*), Peruvian pepper (*Schinus molle*), deodar cedar (*Cedrus deodara*), gum trees (*Eucalyptus* sp.), southern magnolia (*Magnolia grandiflora*), white Lady Banks rose (*Rosa banksiae*), and olive (*Olea europaea*), to name a few. Ground cover in the landscaped cover type consists primarily of ruderal species, including oat (*Avena* sp.), ripgut grass (*Bromus diandrus*), summer mustard (*Hirschfeldia incana*), Italian thistle (*Carduus pycnocephalus* subsp. *pycnocephalus*), bristly ox-tongue (*Helminthotheca echioides*), smilo grass (*Stipa miliaceae* var. *miliaceae*), and prickly lettuce (*Lactuca serriola*).

Trees

Trees in the BSA occur within the landscaped cover type and consist mostly of non-native species. Table 1 includes a list of all 626 trees identified within the BSA and their approximate DBH. Refer to Figure 5 for the general locations of the identified trees.

Figure 4
Land Cover Types within the BSA
Mathilda Avenue Improvements at SR 237 and US 101 Project

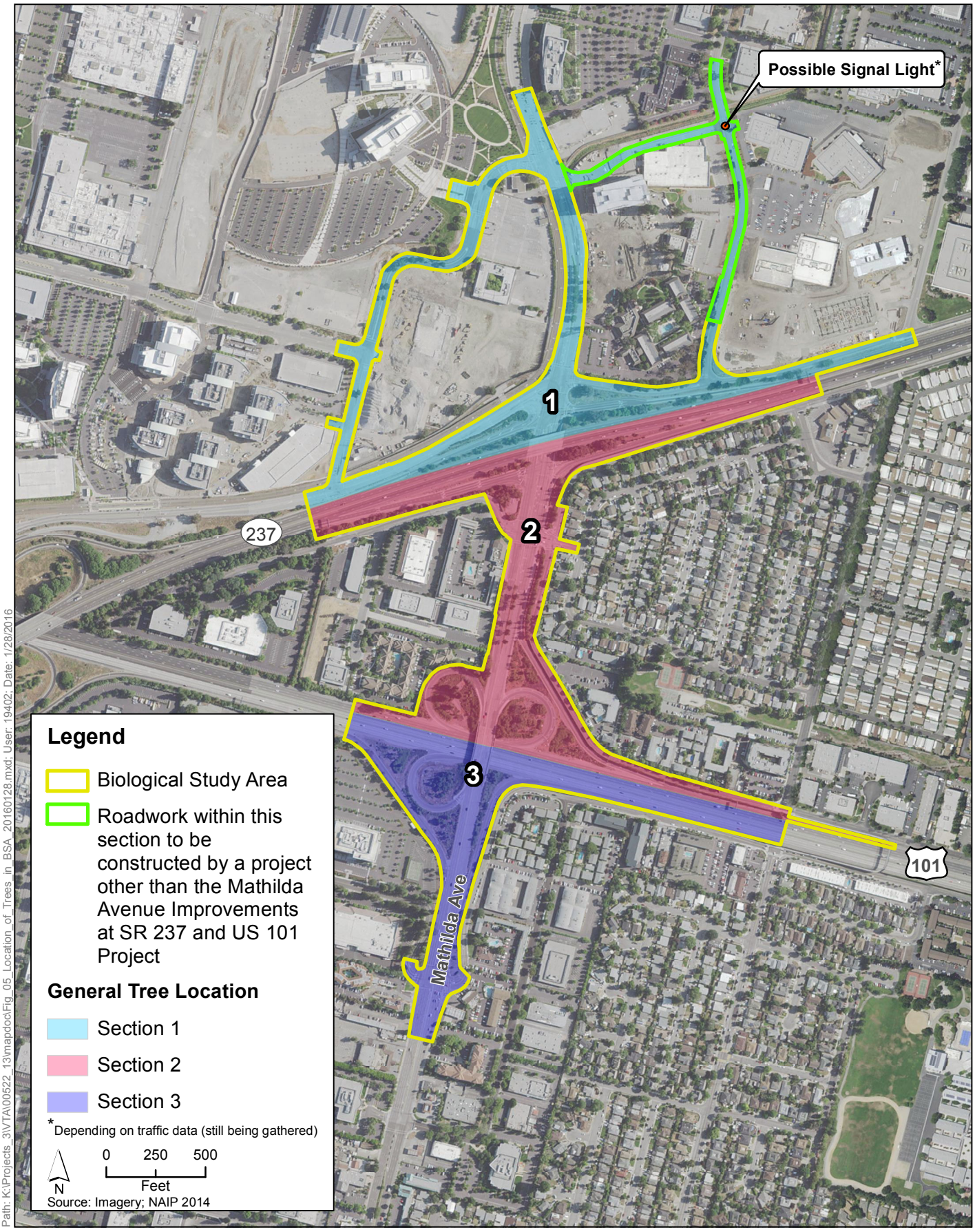

Figure 5
General Location of Trees within the Biological Study Area
Mathilda Avenue Improvements at SR 237 and US 101 Project

Table 1. Trees in the BSA

Common Name*	Scientific Name	Number of Trees	DBH	General Location
ash	*Fraxinus* sp.	7	2–6	Project limits north of SR 237, including Moffett Park Drive (Figure 5, Section 1)
ash, autumn purple	*Fraxinus americana*	1	8	
ash, velvet	*Fraxinus velutina*	1	2–6	
blackwood acacia	*Acacia melanoxylon*	2	2–8	
Bradford pear	*Pyrus calleryana*	13	8–12	
camphor tree	*Cinnamomum camphora*	2	4–8	
Chinese elm	*Ulmus parvifolia*	5	2–8	
Chinese elm	*Ulmus parvifolia*	3	16	
Chinese pistache	*Pistacia chinesis*	1	6–10	
coast redwood*	*Sequoia sempervirens*	27	4–12	
crape myrtle	*Lagerstroemia* sp.	6	2–6	
crape myrtle	*Lagerstroemia* sp.	4	6–8	
gum	*Eucalyptus* sp.	1	20–30	
gum, blue	*Eucalyptus globulus*	1	14–18	
gum, blue	*Eucalyptus globulus*	3	20–30	
gum, red	*Eucalyptus camaldulensis*	8	30	
gum, silver dollar	*Eucalyptus polyanthemos*	2	30	
Italian stone pine	*Pinus pinea*	19	50–100	
oak, coast live*	*Quercus agrifolia*	10	6–10	
oak, southern live	*Quercus virginiana*	32	4–10	
oak, southern live	*Quercus virginiana*	1	30	
Peruvian pepper	*Schinus molle*	9	16–30	
purple-leaf plum	*Prunus cerasifera*	6	6–10	
sheoak	*Casuarina* sp.	1	6–10	
sheoak	*Casuarina* sp.	1	30–50	
unknown ornamental	—	1	6	
ash	*Fraxinus* sp.	4	6–12	Adjacent to Mathilda Avenue between SR 237 and US 101 (Figure 5, Section 2)
ash, autumn purple	*Fraxinus americana*	2	8	
blackwood acacia	*Acacia melanoxylon*	5	4–10	
California black walnut*	*Juglans californicus*	11	8–16	
Chinese elm	*Ulmus parvifolia*	5	6–10	
Chinese pistache	*Pistacia chinesis*	23	8–12	
Chinese pistache	*Pistacia chinesis*	1	20	
Chinese privet	*Ligustrum lucidum*	19	6–10	

Common Name*	Scientific Name	Number of Trees	DBH	General Location
coast redwood*	*Sequoia sempervirens*	27	20–40	Adjacent to Mathilda Avenue between SR 237 and US 101 (Figure 5, Section 2)
crimson bottlebrush	*Callistemon citrinus*	2	6–10	
deodar cedar	*Cedrus deodara*	16	12–20	
deodar cedar	*Cedrus deodara*	17	20–30	
gum	*Eucalyptus* sp.	7	14–18	
gum, blue	*Eucalyptus globulus*	19	12–30	
gum, red	*Eucalyptus camaldulensis*	1	20	
Italian cypress	*Cupressus sempervirens*	1	8–12	
Lombardy poplar	*Populus nigra*	9	16–26	
oak, coast live*	*Quercus agrifolia*	5	4–10	
oak, southern live	*Quercus virginiana*	34	4–10	
Peruvian pepper	*Schinus molle*	15	20–30	
Peruvian pepper	*Schinus molle*	28	8–16	
pine	*Pinus* sp.	6	6–10	
pine, Canary Island	*Pinus camariensis*	9	16–24	
purple-leaf plum	*Prunus cerasifera*	8	6–10	
silk oak	*Grevillea robusta*	12	12–18	
southern magnolia	*Magnolia grandiflora*	3	8–14	
unknown ornamental	*Prunus* sp.	5	8–12	
wax myrtle	*Myrica cerifera*	7	8–12	
western redbud*	*Cercis occidentalis*	1	4–8	
blackwood acacia	*Acacia melanoxylon*	2	6–10	
camphor tree	*Cinnamomum camphora*	7	10–20	
Chinese elm	*Ulmus parvifolia*	10	10–20	
Chinese pistache	*Pistacia chinesis*	6	8–12	
gum, red	*Eucalyptus camaldulensis*	1	10–20	
London plane	*Platanus acerifolia*	4	10–20	
purple-leaf plum	*Prunus cerasifera*	7	8–12	
red maple	*Acer rubrum*	3	8–12	
silver birch	*Betula pendula*	2	16	

Common Name*	Scientific Name	Number of Trees	DBH	General Location
ash	*Fraxinus* sp.	1	6–12	Project limits south of US 101 (Figure 5, Section 3)
ash, autumn purple	*Fraxinus americana*	1	10	
blackwood acacia	*Acacia melanoxylon*	3	6–10	
California black walnut*	*Juglans californicus*	3	8–16	
Chinese elm	*Ulmus parvifolia*	8	6–10	
Chinese pistache	*Pistacia chinesis*	12	4–8	
Chinese privet	*Ligustrum lucidum*	3	6–10	
crape myrtle	*Lagerstroemia* sp.	18	4–8	
deodar cedar	*Cedrus deodara*	17	12–20	
gum	*Eucalyptus* sp.	3	12–20	
oak, southern live	*Quercus virginiana*	12	8–14	
olive	*Olea europaea*	2	6–10	
Peruvian pepper	*Schinus molle*	20	16–30	
pine	*Pinus* sp.	1	6–10	
southern magnolia	*Magnolia grandiflora*	1	16	
unknown ornamental	*Prunus* sp.	10	6–12	
Total		**626**		
* Native species				

Invasive Plant Species

Invasive plant species include species that have been designated as federal noxious weeds by USDA, species that have been listed as pests by the California Department of Food and Agriculture (CDFA), and other invasive plants that have been designated by the California Invasive Plant Council (Cal-IPC). Roads, highways, and related construction projects are some of the principal dispersal pathways for invasive plant species. The introduction and spread of invasive plants adversely affect natural plant communities by displacing native plant species that provide shelter and forage for wildlife species. Table 2 identifies invasive plant species identified in the BSA.

Table 2. Invasive Plant Species Identified in the BSA

Species	CDFA	Cal-IPC
blackwood acacia (*Acacia melanoxylon*)	—	Limited
bristly ox-tongue (*Helminthotheca echioides*)	—	Limited
California burclover (*Medicago polymorpha*)	—	Limited
edible fig (*Ficus carica*)	—	Moderate
English ivy (*Hedera helix*)	—	High
fennel (*Foeniculum vulgare*)	—	High
gum, blue (*Eucalyptus globulus*)	—	Limited
gum,red (*Eucalyptus camaldulensis*)	—	Limited
Italian thistle (*Carduus pycnocephalus*)	C	Moderate
oat (*Avena* sp.)	—	Moderate
olive (*Olea europaea*)	—	Limited
Peruvian pepper tree (*Schinus molle*)	—	Limited
ripgut brome (*Bromus diandrus*)	—	Moderate
Russian thistle (*Salsola tragus*)	C	Limited
soft chess (*Bromus hordeaceus*)	—	Limited
summer mustard (*Hirschfeldia incana*)	—	Moderate

Notes: The California Department of Food and Agriculture (CDFA) and California Invasive Plant Council (Cal-IPC) lists assign ratings that reflect CDFA and Cal-IPC views of the statewide importance of the pest, the likelihood that eradication or control efforts would be successful, and the present distribution of the pest in the state. These ratings are guidelines that indicate the most appropriate action to take against a pest under general circumstances. The Cal-IPC species list is more inclusive than the CDFA list.

The CDFA category indicated in the table is defined as follows:

C: State-endorsed holding action and eradication only when found in a nursery; action to retard spread outside nurseries at the discretion of the county agricultural commissioner.

The Cal-IPC categories indicated in the table are defined as follows:

High: Species with severe ecological impacts, high rates of dispersal and establishment, and usually wide distribution.

Moderate: Species with substantial and apparent ecological impacts, moderate to high rates of dispersal, and limited to widespread distribution; establishment dependent on disturbance.

Limited: Species with minor ecological impacts, low to moderate rates of invasion, and limited distribution; locally persistent and problematic.

Aquatic Resources

No naturally occurring aquatic resources, such as wetlands, streams, or sloughs, are present in the BSA. A concrete-lined flood control channel (the Sunnyvale West Channel) is culverted underneath SR 237 and Mathilda Avenue where it intersects with the BSA and it eventually drains to Guadalupe Slough approximately 2 miles northeast of the BSA. This channel is not identified in Figure 4 of the NES-MI; however, it is identified in Figure 4 of the Project's wetlands assessment (Appendix D).

Habitat Connectivity

The BSA is largely developed, with undeveloped areas having been landscaped with predominantly non-native species. The BSA does not possess any characteristics (e.g., riparian vegetation, stream/creek) that facilitate habitat connectivity for migratory and/or local wildlife species and is not located within a known wildlife corridor. The presence of US 101 and SR 237, as well as the existing Mathilda Avenue and arterial streets, isolate the BSA from the surrounding landscape.

Regional Species and Habitats and Natural Communities of Concern

Regional species and habitats and natural communities of concern are generally the species, habitats and/or resources that are included in published regional lists maintained by entities such as CDFW, USFWS and CNPS. Tables 3 and 4 list special-status plant and wildlife species, respectively, which are known or have the potential to occur in the general Project vicinity. These species were identified through the CNPS *Inventory of Rare and Endangered Plants* (2015) (Appendix A), the CNDDB records search (2015) (Appendix B), species lists provided by USFWS (2016) (Appendix C), and habitat observations during the March and July field surveys.

Table 3. Special-Status Plant Species Known or with Potential to Occur in the Project Region

Scientific and Common Names	Status[a] Federal/ State/ CNPS	Geographic Distribution	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale	Effect Finding for Federally Listed Species
Astragalus tener var. *tener* Alkali milk-vetch	–/–/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay Area	Playas, on adobe clay in valley and foothill grassland, vernal pools on alkaline soils; 1–200 feet	Mar–June	A	Playas, valley and foothill grassland, vernal pools, and adobe clay and alkaline soils not present in the BSA. Not observed during March or July 2015 surveys.	Not applicable.
Centromadia parryi ssp. *congdonii* Congdon's tarplant	–/–/1B.1	East San Francisco Bay Area, Salinas Valley, Los Osos Valley	Alkaline soils in annual grassland, on lower slopes, flats, and swales (sometimes on saline soils); below 755 feet	May–Oct (Nov)	A	Alkaline and saline soils not present in the BSA. Not observed during March or July 2015 surveys.	Not applicable.
Chloropyron maritimum ssp. *palustre* Point Reyes bird's-beak	–/–/1B.2	Coastal Northern California, from Humboldt to Santa Clara County; Oregon	Coastal salt marsh; below 33 feet	June–Oct	A	Coastal salt marsh not present in the BSA. Not observed during March or July 2015 surveys.	Not applicable.
Eryngium aristulatum var. hooveri Hoover's button-celery	–/–/1B.1	South San Francisco Bay Area; South Coast Ranges in Alameda, San Benito, Santa Clara, and San Luis Obispo Counties	Vernal pools; 9–148 feet	July (Aug)	A	Vernal pools not present in BSA. Not observed during March or July 2015 surveys.	Not applicable.
Stuckenia filiformis ssp. *alpina* Slender-leaved pondweed	–/–/2B.2	Scattered locations in California: Contra Costa, El Dorado, Lassen, Merced, Mono, Modoc, Mariposa, Placer, Santa Clara, and Sierra Counties; Arizona, Nevada, Oregon, Washington	Freshwater marsh, shallow emergent wetlands and freshwater lakes, drainage channels; 984–7,054 feet	May–July	A	Freshwater marsh, shallow emergent wetlands, freshwater lakes not present in BSA. Not observed during March or July 2015 surveys.	Not applicable.

Scientific and Common Names	Status[a] Federal/ State/ CNPS	Geographic Distribution	General Habitat Description	Blooming Period	Habitat Present/ Absent	Rationale	Effect Finding for Federally Listed Species
Suaeda californica California seablite	FE/–/1B.1	Morro Bay, San Luis Obispo County, and San Francisco and Contra Costa Counties; historically found in the south San Francisco Bay	Margins of tidal salt marsh; below 49 feet	July–Oct	A	Tidal salt marsh not present in BSA. Not observed during March or July 2015 surveys.	No effect – no habitat available within project limits.

[a] Status explanations:

Federal

FE = listed as *endangered* under the Endangered Species Act (ESA)

– = no listing

State

– = no listing

California Native Plant Society (CNPS)

1A = List 1A species: presumed extinct in California

1B = List 1B species: rare, threatened, or endangered in California and elsewhere

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere

CNPS Code Extensions:

0.1 = seriously endangered in California (more than 80 percent of occurrences threatened/high degree and immediacy of threat)

0.2 = fairly endangered in California (20–80 percent of occurrences threatened)

Table 4. Special-Status Wildlife Species Known or with Potential to Occur in the Project Region

Common Name Scientific Name	Legal Status (Federal/State /Other)[a]	General Habitat Description	Habitat Present/ Absent	Rationale	Effect finding for Federally Listed Species
Invertebrates					
Callophrys mossii bayensis San Bruno elfin butterfly	FE/–	North-facing slopes and ridges that face the Pacific Ocean, from 600 to 1,100 feet that support *Sedum spathulifolium,* its host plant.	A	No suitable slopes or ridges that face the Pacific Ocean present in the BSA. No *Sedum spathulifolium* observed in the BSA during March or July 2015 surveys.	No effect – no suitable habitat within the BSA.
Euphydryas editha bayensis Bay checkerspot butterfly	FT/–	Native grasslands on outcrops of serpentine soil; California plantain and owl's clover are host plants	A	No suitable native grasslands on outcrops of serpentine soil present in the BSA.	No effect – no suitable habitat within the BSA.
Lepidurus packardi Vernal pool tadpole shrimp	FE/–	Found in vernal pools and ephemeral stock ponds	A	No suitable vernal pool or ephemeral stock pond habitat in the BSA.	No effect – no suitable habitat within the BSA.
Amphibians					
Ambystoma californiense California tiger salamander	FT/ST	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	A	No suitable aquatic breeding or upland (rodent burrow complexes within uplands) habitat in the BSA.	No effect – no suitable habitat within the BSA.
Rana draytonii California red-legged frog	FT/SSC	Permanent and semipermanent aquatic habitats, such as creeks and coldwater ponds, with emergent and submergent vegetation; may aestivate in rodent burrows or cracks during dry periods	A	No suitable aquatic breeding or upland habitat (rodent burrow complexes) in the BSA.	No effect – no suitable habitat within the BSA.
Birds					
Agelaius tricolor (nesting colony) Tricolored blackbird	—/SSC	Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields; habitat must be large enough to support 50 pairs; probably requires water at or near the nesting colony	A	No suitable marsh habitat in the BSA.	Not applicable.

Common Name Scientific Name	Legal Status (Federal/State /Other)[a]	General Habitat Description	Habitat Present/ Absent	Rationale	Effect finding for Federally Listed Species
Athene cunicularia burrowing owl	—/SSC	Level, open, dry, heavily grazed or low-stature grassland or desert vegetation to forage in with available burrows for refuge and nesting	A	No suitable level, open, dry, heavily grazed, or low-stature grassland or desert vegetation with available rodent burrows in the BSA.	Not applicable.
Charadrius alexandrinus nivosus western snowy plover	FT/SSC	Coastal beaches above the normal high-tide limit in flat, open areas with sandy or saline substrates; vegetation and driftwood are usually sparse or absent	A	No suitable coastal beach habitat in the BSA.	No effect – no suitable habitat within the BSA.
Circus cyaneus northern harrier	—/SSC	Grasslands, meadows, marshes, and seasonal and agricultural wetlands; nests on the ground within a thicket of vegetation	P (foraging)/ A (nesting)	No suitable grassland, meadow, marsh, or wetland habitat in the BSA. Known to occur within 2 miles of BSA (CDFW 2015) but not expected to nest because of ongoing disturbance and lack of suitable nesting substrate. Individuals may occasionally forage in undeveloped open areas within BSA.	Not applicable.
Coccyzus americanus occidentalis western yellow-billed cuckoo	FT/SE	Wide, dense riparian forests with a thick understory of willows for nesting; sites with a dominant cottonwood overstory are preferred for foraging; may avoid valley-oak riparian habitats where scrub jays are abundant	A	No suitable riparian habitat in the BSA.	No effect – no suitable habitat within the BSA.
Falco peregrinus American peregrine falcon	—/FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures	A	No suitable wetland, lake, riparian, or cliff habitat in the BSA. Unlikely to occur on buildings surrounding Project site because of the high level of human activity/disturbance	Not applicable.
Geothlypis trichas sinuosa San Francisco (=salt marsh) common yellowthroat	—/SSC	Freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	A	No suitable marsh or riparian habitat in the BSA.	Not applicable.

Common Name Scientific Name	Legal Status (Federal/State /Other)[a]	General Habitat Description	Habitat Present/ Absent	Rationale	Effect finding for Federally Listed Species
Laterallus jamaicensis coturniculus California black rail	—/ST	Tidal salt marshes associated with dense pickleweed; also occurs in brackish or freshwater marshes at low elevations	A	No suitable marsh habitat in the BSA.	Not applicable.
Melospiza melodia pusillula Alameda song sparrow	—/SSC	Tidal marshes dominated by pickleweed; nests in tall vegetation (gumplant) or dense stands of pickleweed	A	No suitable tidal salt marsh habitat in the BSA.	Not applicable.
Rallus longirostris obsoletus California clapper rail	FE/—	Restricted to tidal salt marshes; usually associated with dense pickleweed and abundant tidal channels	A	No suitable tidal salt marsh habitat in the BSA.	No effect – no suitable habitat within the BSA.
Sternula antillarum (=Sterna, =albifrons) browni California least tern	FE/SE	Nests on sandy, upper ocean beaches, and occasionally uses mudflats; forages on adjacent surf line, estuaries, or the open ocean	A	No suitable nesting or foraging habitat in the BSA.	No effect – no suitable habitat within the BSA.
Mammals					
Antrozous pallidus pallid bat	—/SSC/ WBWG-High	Occurs throughout California, primarily at lower and mid-level elevations in a variety of habitats, from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in Northern California and oak woodland, grassland, and desert scrub in Southern California. Daytime roosts include rock outcrops, mines, caves, hollow trees, buildings, and bridges. Extremely intolerant of urban development.	A	Extirpated from the Santa Clara Valley floor (D. Johnston, pers. comm.)	Not applicable.
Corynorhinus townsendii Townsend's big-eared bat	—/SCT, SSC/ WBWG-High	Roosts in caves, tunnels, mines, and dark attics of abandoned buildings; very sensitive to disturbances; may abandon roost after one on-site visit.	A	No suitable roosting habitat in the BSA, due to the species' sensitivity to disturbance and the presence of routine vehicular disturbance.	Not applicable.

Common Name Scientific Name	Legal Status (Federal/State /Other)[a]	General Habitat Description	Habitat Present/ Absent	Rationale	Effect finding for Federally Listed Species
Lasiurus cinereus hoary bat	—/—/WBWG-Medium	Roosts in trees, typically within forests	A	No suitable native tree habitat in the BSA. Vehicular disturbance reduces the likelihood of the species roosting within the BSA.	Not applicable.
Reithrodontomys raviventris salt marsh harvest mouse	FE/SE, FP	Tidal salt marshes with dense pickleweed and fat hen with sufficient high-tide cover in adjacent uplands	A	No suitable tidal salt marsh habitat in the BSA.	No effect – no suitable habitat within the BSA.
Sorex vagrans halicoetes salt marsh wandering shrew	–/SSC	Mid-elevation salt marsh habitats with dense pickleweed; requires driftwood and other objects for nesting cover	A	No suitable tidal salt marsh habitat in the BSA.	Not applicable.
Fish					
Acipenser medirostris green sturgeon	FT/–	Ocean water, bays, and estuaries while not spawning; spawns in the mainstem of freshwater rivers with connections to marine habitat and suitable deep pools	A	No suitable ocean, bay, estuary, river, or deep-pool habitat in the BSA.	No effect – no suitable habitat within the BSA.
Hypomesus transpacificus delta smelt	FT/SE	Occurs in estuary habitat in the Delta where fresh and brackish water mix, in the salinity range of 2 to 7 parts per thousand (Moyle 2002)	A	No suitable estuary habitat in the BSA.	No effect – no suitable habitat within the BSA.
Oncorhynchus kisutch Coho salmon – central California coast	FE/–	Occurs in coastal streams with water temperatures < 15°C; needs cool, clear water with instream cover; spawns in tributaries to large rivers or streams that are directly connected to the ocean (Moyle 2002)	A	No suitable coastal streams or large rivers that are directly connected to the ocean in the BSA.	No effect – no suitable habitat within the BSA.
Oncorrhynchus mykiss Central California Coastal steelhead, Central Valley steelhead critical habitat, Central California coastal steelhead	FT/—	An anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	A	No suitable stream or ocean habitat in the BSA.	No effect – no suitable habitat within the BSA.
Oncorhynchus tshawytscha Central Valley Chinook salmon	FT (spring run) /— FE (winter run)/—	An anadromous fish that spawns and spends a portion of its life in inland streams, typically maturing in the open ocean	A	No suitable stream or ocean habitat in the BSA.	No effect – no suitable habitat within the BSA.

Common Name Scientific Name	Legal Status (Federal/State /Other)[a]	General Habitat Description	Habitat Present/ Absent	Rationale	Effect finding for Federally Listed Species
Spirinchus thaleichthys longfin smelt	Candidate for federal listing/ST, SSC	Bay, estuary, Humboldt Bay, Gulf of the Farallones, San Francisco Bay, San Pablo Bay, and the Sacramento (from upstream of Rio Vista) and San Joaquin River Delta (from Cache Slough and Medford Island) through Suisun Bay and Suisun Marsh	A	No suitable bay, estuary, gulf, river delta, or marsh habitat in the BSA.	No effect – no suitable habitat within the BSA.

Notes:
[a] **Status codes**
— = no status
FE = listed as *endangered* under the federal Endangered Species Act
FT = listed as *threatened* under the federal Endangered Species Act
PD = proposed for delisting under the federal Endangered Species Act
SE = listed as *endangered* under the California Endangered Species Act
ST = listed as *threatened* under the California Endangered Species Act
SCT = candidate for listing as *threatened* under the California Endangered Species Act
SSC = California Species of Special Concern
FP = California fully protected species
WBWG = Western Bat Working Group conservation priority (high or medium)

For the purpose of this NES-MI, special-status species include the following:

- Species listed or proposed for listing as threatened or endangered under the federal ESA (50 CFR 17.11 [listed animals], 50 CFR 17.12 [listed plants], and various notices in the *Federal Register* [FR] [proposed species]).
- Species that are candidates for possible future listing as threatened or endangered under the federal ESA (73 FR 75176, December 10, 2008).
- Species listed or proposed for listing by the state of California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5).
- Species that meet the definitions of rare or endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as rare under CNPPA (CFGC Section 1900 et seq.).
- Plants considered by CNPS to be "rare, threatened, or endangered in California" (2009).
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution, which may be included as special-status species on the basis of local significance or recent biological information.
- Animals designated as California Species of Special Concern by CDFW.
- Animal species that are fully protected in California (CFGC Sections 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

Special-Status Plant Species

Based on the CNDDB search results (CNDDB 2015), the CNPS inventory (CNPS 2015), and the USFWS list (USFWS 2016) for the Project region, it was determined that six special-status plant species have the potential to occur in the Project region (Table 3). Suitable habitat is not present for any of these plant species in the BSA because of the large proportion of the BSA that is developed or landscaped.

Special-Status Wildlife Species

Based on the CNDDB search results and the USFWS list for the Project region, 27 special-status wildlife species were identified as potentially occurring in the Project region. After completing field surveys and reviewing information on species distribution and habitat requirements, the biologists determined that 26 of the 27 species are not expected to occur in the BSA because it lacks suitable habitat and/or is outside the species' known range (Table 4). Individual northern harriers (California Species of Special Concern) may occasionally forage over undeveloped portions of the BSA but are not expected to nest due to the lack of habitat (i.e., marsh or grassland with dense ground cover) and high disturbance levels.

Other Protected or Managed Biological Resources

Other protected or managed biological resources include Western Bat Working Group (WBWG) priority bat species and nesting birds.

Western Bat Working Group Priority Species

The WBWG maintains a regional priority matrix for western bat species (WBWG 2015). The matrix is intended to provide states, provinces, federal land management agencies, and interested organizations and individuals with a better understanding of the overall status of individual bat species throughout their western North American ranges. In light of this information, the importance of a single region or multiple regions to the viability and conservation of each species becomes more apparent. The matrix also provides a means for prioritizing and focusing on population monitoring, research, conservation actions, and the efficient use of the limited funding and resources that are currently devoted to bats.

The WBWG matrix indicates that pallid bat is a high-priority species in California. The high-priority designation indicates that the species is imperiled or at high risk of imperilment (WBWG 2015). This bat is also a California Species of Special Concern (see above). The underside of the overpass was inaccessible during ICF's site visits because of the high volume of traffic on US 101, but pallid bat is not expected to occur under the overpass due to the lack of species' incompatibility with urban development (Desert Renewable Energy Conservation Plan 2012, Technology Associates 2009), the species having been extirpated from the Santa Clara Valley floor due to extensive development (D. Johnston, pers. comm.), the urban character of the BSA, and the background level of routine vehicular and human disturbance. Further, there was no observation of bat guano and staining under the overpass during the field survey.

Nesting Birds and Raptors

Native migratory birds and raptors have the potential to nest in trees and shrubs in the BSA. Swallows and black phoebes have the potential to nest under the highways in the BSA. Although these species are not considered special-status wildlife species, their occupied nests and eggs are protected by CFGC Sections 3503 and 3503.5 and the MBTA.

Chapter 4 – Results: Biological Resources, Discussion of Impacts and Mitigation

4.1 Habitats and Natural Communities of Special Concern

Natural communities of special concern are those that are regulated by federal, state, or local laws, or have limited distributions. Examples include natural communities considered highly imperiled by CDFW and tracked in the CNDDB, jurisdictional waters of the United States and/or state (including wetlands), and riparian habitats.

No natural communities of special concern are identified in the CNDDB (CDFW 2015) as occurring within the BSA. Northern coastal salt marsh is a natural community of special concern that occurs within the 7.5-minute USGS Mountain View quadrangle CNDDB search radius, but this community does not occur within the BSA. The only vegetation community identified in the BSA is landscaped vegetation, which is not considered highly imperiled by CDFW.

The Sunnyvale West Channel is a partially concrete-lined flood control channel occurring within the BSA that ultimately connects to the Guadalupe Slough, which flows into the southern portion of San Francisco Bay. Because it has a direct connection with a TNW of the United States (San Francisco Bay), the Sunnyvale West Channel is a non-wetland water of the United States subject to USACE jurisdiction and also is a water of the state subject to San Francisco Bay RWQCB jurisdiction. However, where this feature occurs in the BSA it is culverted underground and thus would not be considered a sensitive natural community.

The Project will not impact any sensitive natural communities and no mitigation would be necessary.

4.2 Special-status Species

As described above, no special-status plant or wildlife species are expected to occur in the BSA due to a lack of soil types or suitable habitat. The Project will not impact any special-status plant or wildlife species.

4.3 Other Protected or Managed Biological Resources

This section includes a description of nesting birds, trees, and invasive plant species present in the BSA.

4.3.1 NESTING BIRDS

As mentioned in Chapter 2, under Regulatory Requirements, nesting birds and raptors are protected by the MBTA and CFGC (Sections 3503 [bird nests], 3503.5 [raptors], 3511 [fully protected bird species], and 3513 [migratory birds]).

The trees and shrubs within the undeveloped portions of the BSA provide suitable nesting substrate for numerous bird species that are protected by the MBTA and CFGC. No active nests were observed during the March 2015 survey, but an inactive cliff swallow (*Petrochiledon*

pyrrhonota) nest was observed under the northern portion of the Mathilda Avenue overpass above US 101. This species could nest under the overpass in the future.

Vegetation clearing, ground disturbance, and construction-generated noise and vibration could result in direct or indirect mortality of nesting birds through crushing, parental abandonment of young, reduced fitness, reduction in number of available prey, and degradation or loss of habitat. Removal of trees or other vegetation could result in the destruction of active bird nests. Birds that nest on existing structures within or near the BSA could be disturbed by the demolition or modification of these structures (particularly the Mathilda Avenue overpass above US 101). As mentioned above, one inactive cliff swallow nest was observed attached to a vertical support column below the Mathilda Avenue overpass above US 101 and the species could nest under the overpass in the future. Implementation of avoidance and minimization measures, described below, would avoid or reduce impacts on nesting migratory birds in the BSA.

Avoidance and Minimization Efforts

To avoid impacts on nesting bird species such as cliff swallow, construction activity within 100 feet of all bridges will be scheduled to avoid the avian nesting season (February 1 through August 31, or earlier than August 31 if surveys determine that swallows have completed nesting for the season). Construction disturbance during the breeding season could result in the incidental loss of eggs or nestlings, either directly through the destruction or disturbance of active nests or indirectly by causing the abandonment of nests. With implementation of avoidance practices for nesting birds, this type of impact would not be considered substantial for either colonial nesters or other bird species that could potentially nest in or adjacent to the Project disturbance area due to the local and regional abundances of these species and/or the low magnitude of the potential impact of the Project to these species. However, the following measures will be implemented to ensure that Project activities comply with the MBTA and California Fish and Game Code.

- Avoidance of Nesting Bird Season. To the extent feasible, Project activities should be scheduled outside the avian nesting season to avoid impacts to nesting birds (including raptors) protected under the MBTA and California Fish and Game Code. The nesting season for most birds in Santa Clara County typically extends from February 1 through August 31, although some raptors may nest as early as January 1.

- Pre-construction/Pre-disturbance Surveys for Nesting Birds. If it is not possible to schedule Project activities between September 1 and January 1, then pre-construction surveys for nesting birds will be conducted by a qualified biologist to ensure that no nests will be disturbed during Project implementation. These surveys will be conducted no more than 48 hours prior to the initiation of Project activities. During this survey, a qualified biologist will inspect all potential nesting habitats (e.g., trees, shrubs, and overpasses) within 300 feet of impact areas for raptor nests and within 100 feet of impact areas for nests of non-raptors. If an active nest (i.e., a nest with eggs or young, or any completed raptor nest attended by adults) is found sufficiently close to work areas to be disturbed by these activities, the biologist, in consultation with CDFW, will determine the extent of a disturbance-free buffer zone to be established around the nest (typically 300 feet for raptors and 50–100 feet for other species), to ensure that no nests of species protected by the MBTA and California Fish and Game Code will be disturbed during Project implementation.

- Nest Deterrence. If Project activities will not be initiated until after the start of the nesting season, potential nesting substrate (e.g., bushes, trees, structures, and other vegetation) that is scheduled to be removed by the Project, if any, may be removed prior to the start of the nesting season (e.g., prior to January 1) to reduce the potential for initiation of nests.

4.3.2 TREES

Approximately 626 trees were identified in the BSA (Table 1). Many of the trees within the BSA meet the size requirements to be considered protected by the City of Sunnyvale, according to Sunnyvale Municipal Code 19.94; however, VTA and Caltrans are not subject to the City's tree ordinance or protection policies.

A conservative estimate of the total number of trees in the BSA (626), of which a lesser number could be affected, has been provided in this NES-MI. Damage to or removal of any trees will be avoided to the maximum extent practicable. The majority of these existing trees will be unaffected by the Project's construction or operation. The intent of the City of Sunnyvale's tree preservation ordinance is to maintain the benefits to the community provided by trees, including keeping public rights-of-way cooler in the summer, providing aesthetic value, and removing air pollutants, to name a few. Damage to and/or removal of trees reduces these benefits to the community. Additionally, trees provide habitat and food sources to local wildlife.

Avoidance and Minimization Efforts

To the maximum extent practicable, damage to or removal of trees will be avoided by the Project. If trees need to be removed or are damaged as a result of the Project, they will be replaced within the Project corridor, to the extent feasible. Native trees with a DBH of less than 12 inches will be replaced at a 2:1 ratio. Native trees with a DBH of 12 inches or more will be replaced at a 3:1 ratio. If urban trees (nonnatives and ornamentals) are replaced with native trees, a reduced mitigation ratio of 1:1 for all trees smaller than 12 inches DBH, and 2:1 for all trees with a DBH of 12 inches or more, will be implemented. These trees will be irrigated and maintained for a period of not less than 3 years. If trees cannot be replaced at the stated ratios within the Project corridor, in-lieu fees will be paid to an appropriate fund so that trees can be planted elsewhere within the City of Sunnyvale limits.

4.4 Invasive Species

As discussed in Chapter 3, the introduction and spread of invasive plants adversely affect natural plant communities by displacing native plant species that provide shelter and forage for wildlife.

Table 2 names 16 invasive plant species identified in the BSA. Infestation of the BSA by these species is confined to the ruderal ground cover of the landscaped vegetation community because the landscaped vegetation is surrounded by development (Figure 2).

The landscaped vegetation is not considered a sensitive natural community and the BSA is entirely within a developed area; therefore, the Project is not likely to contribute to the spread of invasive species to sensitive natural communities in adjacent lands. Further, numerous invasive species already occur within the BSA; therefore, the BSA itself is not as sensitive to the introduction of other invasive species compared with areas that lack invasive species. The Project does have the potential to spread invasive plant species to uninfested areas outside the Project limits if plants removed during construction are not disposed of or transported correctly.

4.4.1 AVOIDANCE AND MINIMIZATION EFFORTS

To minimize introduction and spread of non-native invasive plant species, the following avoidance and minimization efforts will be implemented by the Project:

- Prior to construction, Project disturbance areas infested with invasive plant species will be identified, mapped and cleared of vegetation. All vegetative material will be incinerated off-site or disposed of in a landfill, taking care to prevent any seed dispersal during the process;
- During construction, vehicles and all equipment will be washed (including wheels, undercarriages, and bumpers) before and after entering the Project area. Vehicles will be cleaned at existing construction yards or legally operating car washes. In addition, tools such as chainsaws, hand clippers, pruners, etc., will be washed before and after entering the Project work area; and
- Following Project implementation, areas where vegetation was removed within the BSA will be either hydroseeded with native seed from a local source or planted with landscaping vegetation and properly maintained per Caltrans standards to reduce the risk of non-native invasive species establishment. Native species and/or drought-tolerant plants should be used in landscaping to the extent practicable.

Chapter 5 – Conclusions and Regulatory Determination

5.1 Federal Endangered Species Act Consultation Summary

ICF biologists obtained a USFWS list of threatened and endangered species potentially occurring in the BSA vicinity on January 6, 2016. In addition, ICF queried the CNDBB and CNPS online inventory for special-status plant and wildlife species occurrences in the BSA vicinity, including federally listed species, prior to field surveys. Based on the results of the database query and the results of the surveys, no federally listed species are expected to occur in the BSA due to its location within a dense urban environment and consequent lack of suitable habitat. As such, consultation with the USFWS and/or NMFS pursuant to the ESA is not required.

5.2 Wetland and Non-Wetland Waters Summary

The Sunnyvale West Channel is culverted underground at two locations in the BSA. This feature is identified in the wetlands assessment (Appendix D) as a water of the United States that is subject to USACE jurisdiction (this determination is subject to verification by the USACE). This feature is also assumed to be a water of the state that is subject to jurisdiction by the San Francisco Bay RWQCB. Because the Project will not impact this channel, no federal or state permits are required and no mitigation is necessary. Cumulative impacts to wetland and non-wetland waters within the BSA are not anticipated.

5.3 Invasive Species

The Project has limited potential to spread invasive plant species. Implementation of avoidance and minimization efforts described in Chapter 4 would reduce the introduction and spread of invasive plant species to or from the Project area. Therefore, the Project is ***not expected to result in an increase*** of invasive plant species within and adjacent to the Project's boundaries. Due to the limited potential of invasive plant species to spread within the BSA and adjacent land, cumulative impacts are not likely.

5.4 Other Protected or Managed Biological Resources

5.4.1 NESTING BIRDS

Project activities and the removal of trees or other vegetation could result in direct or indirect impacts on nesting birds through mortality due to nest destruction, parental abandonment of young, reduced fitness, reduction in number of available prey, and degradation or loss of habitat. Implementation of the avoidance and minimization measures described in Chapter 4 would avoid or reduce impacts on nesting birds in the BSA. Thus, the Project is ***not likely to impact*** nesting birds. The BSA is relatively developed, it is subject to routine vehicular and human disturbance, and the majority of trees within it are not native and/or have been planted as landscape cover. Further, implementation of the avoidance and minimization measures described in Chapter 4 would avoid impacts to nesting birds. Similar nesting bird avoidance measures are expected to be implemented by other projects in the surrounding region. For these reasons, the project is not anticipated to have a cumulative impact to nesting birds in the region.

5.4.2 TREES

The Project will avoid damage to and removal of trees to the greatest extent practicable; however, tree trimming and removal may need to occur within the Project limits. No tree removal permit would be required because VTA and Caltrans are not subject to local tree ordinances or tree removal permit requirements. Nonetheless, if trimming or removal of any trees is determined to be necessary to construct the Project, the loss of trees will be mitigated by replacing trees within the Project corridor at ratios described in Chapter 4. Thus, the Project is ***not expected to have substantial impact*** on trees within the BSA. Since, the project is not expected to have a substantial impact on trees in the region, cumulative impacts are not anticipated.

Chapter 6 – References

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Memorandum

Date:	January 28, 2016
To:	Lani Lee Ho (VTA), Sajeeni DeAlwis-Mima (VTA)
Cc:	Tim Lee (WMH), Christine Fukasawa (ICF), Karin Bouler (ICF)
From:	Peter Hardie INCE (ICF), Eric Moskus (ICF)
Subject:	**Mathilda Avenue Improvements at SR-237 and US 101 Project CEQA only Significance Threshold**

Introduction

This memo discusses CEQA noise significance thresholds in the context of the CEQA-only noise study that is being prepared for the Mathilda Avenue Improvements at SR-237 and US 101 Project (Project).

The Protocol dated May 2011 provides direction for how a Noise Study Report (NSR) which is subject to CEQA only (where a Federal Nexus does not trigger the requirements of CFR 772) should be evaluated and presented. The guidance in Protocol states "Under CEQA, a determination must be made as to whether the proposed Project will result in significant adverse environmental effects (i.e., significant environmental impacts). A significant environmental effect under CEQA generally is defined as a substantial or potentially substantial adverse change in the physical environment." (See Protocol page 37). A more detailed discussion of substantial adverse change will be addressed as follows.

The primary purpose of this memo is to describe the requirement in the Protocol that discuss the identification of a substantial increase (i.e., what noise level increase during the design-year (2040), relative to the existing (2013) [or no-build] condition would signify as a substantial increase).

Background

The Protocol, as discussed above, directs a CEQA-only NSR to identify the relative increase in noise level between the design-year build condition and the existing condition. The Protocol specifically states: "A significant environmental effect under CEQA generally is defined as a substantial or potentially substantial adverse change in the physical environment." The protocol also states, "Section 15125 of the State CEQA Guidelines states that this environmental setting normally will constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. Because CEQA focuses on comparisons to the existing conditions baseline, Caltrans determines the significance of noise impacts under CEQA based on a comparison of design-year with-Project conditions to the existing

conditions baseline." (See Protocol page 37). The design-year no-build condition can be used to show the Project-only contribution relative to the design-year build condition in some cases. As the NSR only identifies the relative increase between these time periods, it is not within the purview of the analyst to document a significance determination within the NSR. The significance determination is left to be discussed and determined in the Environmental Document (ED). As such the relative increase must be defined for the purposes of CEQA significance.

The Protocol states, "No single numerical threshold is used on all projects. In the past, Caltrans definition for a substantial increase in noise (defined in the Protocol as a 12 dB increase between existing and design-year with-Project conditions) has been used. This 12 dB increase should not necessarily be used for all projects. There could be cases where an increase less than 12 dB would approach significance (such as a quiet rural environment) or where a 12 dB increase would not necessarily be deemed significant (noisy urban environment.) It is important to note as well that a 3 dBA difference is generally the point at which the human ear will perceive a difference in noise level."

The absolute future noise level predicted is also a key factor in determining significance. If two people are speaking, 67 dBA is the approximate noise level that would interfere with human speech. Therefore, if the absolute future noise level is less than 67 dBA that may be a factor in determining that the noise impact is less than significant. Lastly, in determining significance under CEQA, it is important to take into account the setting of the impact. According to State CEQA Guidelines, Section 15064(b), an ironclad definition of significant effect is not always possible because the significance of an activity may vary with the setting." (See Protocol page 38).

Research into the defined significance thresholds for CEQA-only NSR's identified two other sources: the US 101 Express Lanes Project ED and the City of Sunnyvale's General Plan. A more detailed discussion of these two documents is provided in the Discussion section, as follows.

Discussion

The Protocol is in essence leaving the CEQA determination open to interpretation. The discussion above refers to a 12 dB increase (design-year build condition relative to the existing condition), which is Caltrans interpretation of a substantial increase to satisfy the requirements of CFR 772. The Protocol also discusses that a 12 dB increase may not be applicable for all situations when judging CEQA significance. The determination of a substantial increase should be judged relative to the environment where the project is taking place. For instance, similar to the FTA Noise and Vibration Manual's Increase in Cumulative Noise Level (see page 3-6 of the FTA Noise and Vibration Manual [Figure 1 as follows]) when a project area has a generally low ambient noise level, the relative project increase (design-year build condition relative to the existing condition) can be larger. This is shown by in the attached figure where an existing noise exposure of 40 dBA correlates to a project noise exposure increase of 10 dB before a moderate impact has occurred. Comparatively an existing noise exposure of 50 dBA would allow for a 5 dB increase before a moderate impact would occur. As such, a 12 dB increase (the Caltrans threshold for substantial increase for NEPA) may not be appropriate in an urban environment. A more conservative increase (i.e. less than an increase of 12 dB) may be appropriate.

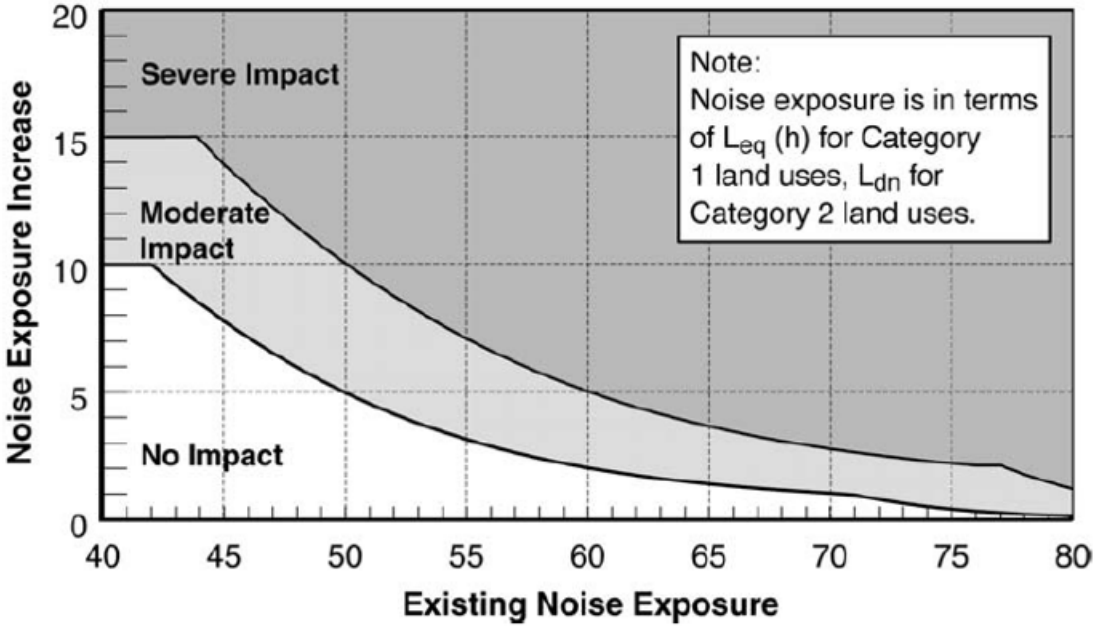


Figure 1. Increase in Cumulative Noise Levels Allowed by Criteria (Land Use Cat. 1 & 2)

Source: FTA Manual, Figure 3-2.

Table 1, attached to this memorandum, shows the preliminary predicted noise increases at 30 modeling locations between the design-year build condition and the existing condition. With inclusion of Alternative 1, the design-year noise levels relative to the existing condition increase no more than 2 dB. With inclusion of Alternative 2, the design-year noise levels relative to the existing condition increase no more than 3 dB. It is important to note that the threshold of perception for noise increases is generally considered 3 dB. It is also important to note, that 5 dB increase in noise levels is considered readily perceptible and that a 10 dB increase is considered a doubling of the loudness of the noise level.

With respect to the responsibility for identifying the threshold by which a substantial increase should be judged, the Protocol states, "The determination of CEQA significance therefore is left to the Project Development Team (PDT) for each project because the team is the most knowledgeable about the specifics of the project area and is in the best position to make the significance determination."

Other Sources

US-101 Express Lanes Project:

Noise analysis of the US 101 Express Lane Project (on US 101 between Morgan Hill and Palo Alto, crossing through the Project area) was conducted in 2013. Per the November 2014 IS/MND prepared for that project, a 0-3 dbA increase in noise levels was not considered a substantial project related noise level increase. This project's noise impact significance (refer to Section 2.2.7.5 of the IS/MND) was evaluated based on the difference between the existing baseline noise level and the build noise level. The analysis found that the difference ranged from 0-3 dbA, and stated that an increase of 3 dbA is considered to be barely detectable to the human ear. As such, under CEQA it was found that changes in traffic noise from the project were considered to not result in a significant impact.

It should be noted that this project was a joint NEPA/CEQA IS-MND/EA and that Federal Funding was allocated to this project. As such, the noise analysis referred to the FTA Protocol definition of noise impact (an increase of 12 dbA or more), and did not set a separate CEQA-only noise significance threshold.

City of Sunnyvale General Plan:

The City of Sunnyvale's General Plan (refer to page 6-27) discusses a threshold by which to analyze significance:

> "Generally, a three dBA Ldn or greater change in noise level is considered "significant" because it can be noticed by the human ear. Most homes will continue to have acceptable noise levels in the future. For individual roadway projects, potential noise impacts are evaluated on a case-by-case basis. Despite the traffic noise, noise levels are considered "normally acceptable" for most homes today and most homes will continue to have normally acceptable noise levels in the future."

This is the threshold for CEQA significance that would generally be included in a CEQA document with no Caltrans oversight. The caveat that should be pointed out here is that the threshold is established in Ldn. Ldn is a 24 hour metric that establishes "penalties" for noise that is produced during a specific time period, (specifically noise levels between the hours of 10:00 PM and 7:00 AM). The traffic noise model analysis for this Project is analyzed in peak hour (L_{eq}[1hr]). These two different metrics are not directly correlative.

Conclusion

In conclusion, the threshold of significance for a substantial increase for the proposed Project should be discussed and identified by the PDT as they are the most knowledgeable about the Project, the relative Project environment, and the overall Project design. The specifics included within this memo should guide the PDT to a decision which will be applicable and defensible for the purposes of analysis of the Mathilda Avenue Improvements at SR-237 and US 101 Project and in the ED.

Table 1 – Preliminary Predicted Traffic Noise Levels

	Measurement Location	Existing Noise Level L_{eq}(h), dBA	Design-Year 2040 Noise Level without Project, Leq(h), dBA	Design-Year Noise Level with Project (Alt 1), Leq(h), dBA	Design-Year Noise Level with Project (Alt 2), Leq(h), dBA	Design-Year 2040 (Alt 1) Noise Level with Project minus No Project Conditions Leq(h), dBA	Design-Year 2040 (Alt 2) Noise Level with Project minus No Project Conditions Leq(h), dBA	Design-Year 2040 (Alt 1) Noise Level with Project minus Existing Conditions Leq(h), dBA	Design-Year 2040 (Alt 2) Noise Level with Project minus Existing Conditions Leq(h), dBA
M-1	--	73	74	74	74	0	0	1	1
M-2	--	66	67	67	67	0	0	1	1
M-3	--	63	64	64	64	0	0	1	1
M-4	--	67	69	69	69	0	0	2	2
M-5	--	63	64	64	64	0	0	1	1
M-6	ST-1	71	73	72	72	-1	-1	1	1
M-7	ST-2	66	68	68	68	0	0	2	2
M-8	--	59	60	60	60	0	0	1	1
M-9	--	56	56	56	56	0	0	0	0
M10	--	58	59	59	59	0	0	1	1
M-11	--	57	58	58	58	0	0	1	1
M-12	--	60	61	61	61	0	0	1	1
M-13	ST-3	68	69	69	69	0	0	1	1
M-14	--	60	61	61	61	0	0	1	1
M-15	--	60	61	61	61	0	0	1	1
M-16	--	63	64	64	64	0	0	1	1
M-17	--	62	64	64	64	0	0	2	2
M-18	ST-5	64	65	65	65	0	0	1	1
M-19	--	63	64	64	64	0	0	1	1
M-20	--	59	61	61	61	0	0	2	2

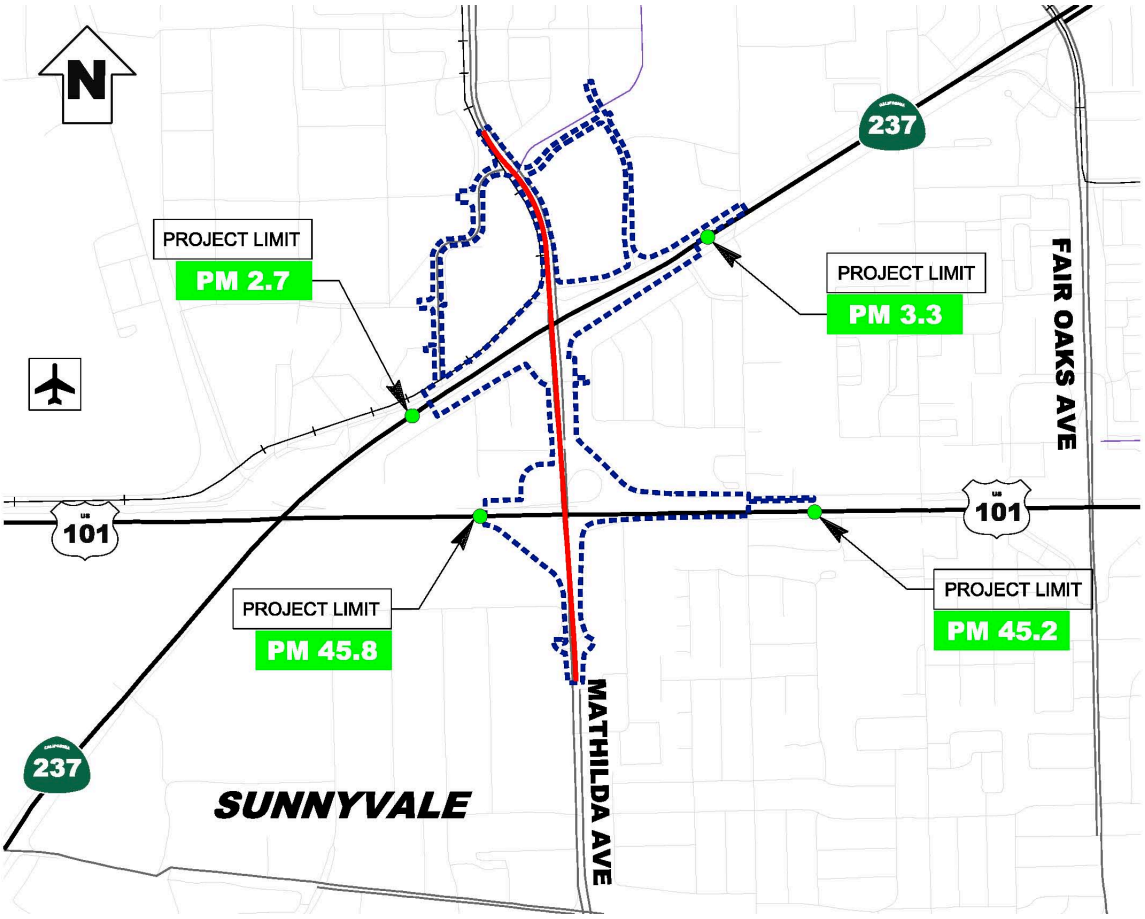
	Measurement Location	Existing Noise Level L_{eq}(h), dBA	Design-Year 2040 Noise Level without Project, Leq(h), dBA	Design-Year Noise Level with Project (Alt 1), Leq(h), dBA	Design-Year Noise Level with Project (Alt 2), Leq(h), dBA	Design-Year 2040 (Alt 1) Noise Level with Project minus No Project Conditions Leq(h), dBA	Design-Year 2040 (Alt 2) Noise Level with Project minus No Project Conditions Leq(h), dBA	Design-Year 2040 (Alt 1) Noise Level with Project minus Existing Conditions Leq(h), dBA	Design-Year 2040 (Alt 2) Noise Level with Project minus Existing Conditions Leq(h), dBA
M-21	--	67	68	68	68	0	0	1	1
M-22	ST-4	65	66	66	66	0	0	1	1
M-23	ST-6	64	65	66	65	1	0	2	1
M-24	--	68	69	69	69	0	0	1	1
M-25	--	65	67	67	67	0	0	2	2
M-26	ST-7	66	67	67	67	0	0	1	1
M-27	--	67	68	68	68	0	0	1	1
M-28	ST-8	68	69	69	69	0	0	1	1
M-29	--	60	62	61	61	-1	-1	1	1
M-30	ST-9	68	70	70	71	0	1	2	3

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

Paleontological Identification Report

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:

ICF, International

Dated: December 2015

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Paleontological Identification Report

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT

on Mathilda Avenue from Almanor Avenue to Innovation Way; on SR 237 from 0.3 mile south of US 101/SR 237 Junction to 0.3 mile east of Mathilda Avenue Undercrossing; and on US 101 from 0.5 mile south of Mathilda Avenue to SR 237/US 101/SR 237 Junction in City of Sunnyvale, in Santa Clara County

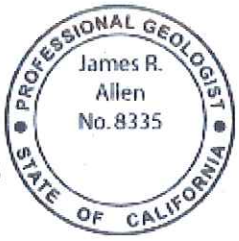
SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

December 2015

U.S. DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA

and

Cooperating Agency: Santa Clara Valley Transportation Authority



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California Department of Transportation, District 4

Statement of Compliance: Produced in compliance with California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this project.

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FIGURES

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1.0 PURPOSE OF STUDY

The purpose of this Paleontological Identification Report (PIR) is to document the presence of paleontological resources within the Mathilda Avenue Improvements at SR 237 and US 101 Project alignment in Santa Clara County, California. The California Department of Transportation (Caltrans) is the lead agency under the California Environmental Quality Act (CEQA).

This PIR was prepared in accordance with the Caltrans Standard Environmental Reference (SER), Volume 1, Chapter 8, *Paleontology* (Caltrans 2014) and follows guidelines set by the Society of Vertebrate Paleontologists, where feasible. The PIR serves as an initial screening to assess whether Project-related ground disturbance would take place in geologic units that have a high potential to contain sensitive paleontological resources.

PIR preparation included a windshield survey and reviews of literature and maps. The literature and maps were used to identify geologic units in the Project area, the potential for those geologic units to contain fossils, and the types of fossils that may be in or adjacent to the Project area. This PIR was prepared by James R. Allen, Professional Geologist (PG) of ICF International with review and final approval by Caltrans.

2.0 PROJECT DESCRIPTION

2.1 Introduction

Caltrans, in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 miles east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 miles east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.5 miles south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 miles south of SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately one mile. Figure 1 shows the location of the Project.

2.2 Purpose and Need

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Specifically, the goals and objectives of the Project are to:

- Reduce congestion and improve traffic operations along Mathilda Avenue and at the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges.
- Improve mobility for all travel modes in the area including motor vehicles, transit, bicycles, and pedestrians.
- Provide standard crosswalks and sidewalks along Mathilda Avenue, improving access to local destinations such as Moffett Park, the VTA Light Rail Transit (LRT) stations, and downtown Sunnyvale.

The Project is needed for the following reasons:

- Regional growth and new local development combined with inefficient roadway operations has resulted in substantial traffic congestion on Mathilda Avenue.

- Efficient access for all travel modes into and out of downtown Sunnyvale and development to the north of SR 237 is critical to a healthy and sustainable economy. Congestion on Mathilda Avenue adversely affects the economic vitality of the City of Sunnyvale.

Overall, the Project is needed to address several issues in the Project area including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, improvement of local roadway and freeway ramp operations, and provision of access to current and future economic development.

2.3 Build Alternatives

The Project alternatives that were developed to meet the purpose and need of the Project include Alternative 1, Alternative 2, and the No-Build Alternative (refer to Figure 2). Under the No-Build Alternative, no changes would be made to the existing local roadways or freeway system within the Project limits. No construction activities would occur, and there would be no change in the operations of the existing facilities.

The design features of the Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges with Mathilda Avenue. The Build Alternatives include design variations for reconfigured roadways and intersections, and construction of new signalized intersections. Proposed improvements included in the Build Alternatives to the south of Ross Drive along Mathilda Avenue and at the US 101 interchange, are identical. These improvements include new bicycle and pedestrian facilities, utility relocations, new storm water treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall. Unique improvements of the Build Alternatives occur to the north of Ross Drive on Mathilda Avenue and primarily include improvements related to construction of a diverging diamond interchange (DDI)[1] under Build Alternative 2 (Figure 3).

Roadway Improvements

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction of Mathilda Avenue;
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp;
- Realign and widen northbound ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp;
- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue;
- Modify Mathilda Avenue / Ross Drive signal intersection;
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way;[2]

[1] A diverging diamond interchange (DDI), also called a double crossover diamond interchange (DCD) is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (phases when a traffic signal allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

[2] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place development project.

- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection;
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration (see Figure 2a); and
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration (see Figure 2b and Figure 3). Eastbound Moffett Park Drive between Innovation Way and Mathilda Way would be diverted to Innovation Way to access Mathilda Avenue.

Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consider both Class II and Class III bikeways[3], based on available pavement widths within the project limits, and would connect to the existing Class III bikeway north of Innovation Way and Class I bikeway on the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered based on available pavement widths within the project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the project limits with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

3.0 REGULATORY SETTING

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

3.1 State Regulations and Policies

Under California law, paleontological resources are protected by CEQA.

California Environmental Quality Act

CEQA, Chapter 1, Section 21002 states:

> *It is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects.*

The CEQA Guidelines (Article 1, Section 15002(a)(3)) state that CEQA is intended to:

> *Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.*

[3] Class I bikeway is a bicycle path. Class II bikeway is a bicycle lane. Class III bikeway is bicycle route [Source: Highway Design Manual Index 1002.1]

Public Resources Code Section 5097.5

Public Resources Code Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of paleontological features on public lands, except where the agency with jurisdiction has granted express permission. For the purposes of this code section, public lands are defined as including lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation.

California Code of Regulations

California Code of Regulations (Title 14, Division 3, Chapter 1, *Natural Resources, Department of Parks and Recreation*) addresses paleontological resources. Specifically, Section 4307, subdivision a, prohibits destruction, disturbance, mutilation, and removal of geological materials and paleontological features on State Parks lands, although rockhounding is permitted. This is defined in Section 4301 as recreational gathering of naturally occurring "stones and minerals" found on the undisturbed ground surface and panning for gold in natural stream gravels, and presumably includes recreational collection of some types of fossil materials.

4.0 METHODOLOGY

Evaluation of paleontological resources along the Project alignment was based on review of the following materials.

- Project information, including the Project area of potential effect (APE) map and information on anticipated depth of excavation.
- Geologic mapping by Wentworth et al. (1999) and Brabb et al. (1998).
- Information on lithology and fossil content from the published geologic and paleontological literature.
- A search of the University of California, Berkeley Museum of Paleontology's (UCMP's) online collections database.
- Air photo inspection of the Project alignment.
- Windshield survey on September 6, 2015.
- Familiarity with area geology and fossil resources from prior projects evaluation of paleontological sensitivity/potential following the methods outlined in Chapter 8 of the Caltrans SER.

The SER, Chapter 8, briefly equates the significance of paleontological resources with their scientific importance, and recognizes that both concepts apply to individual fossil species, to fossil assemblages, and to geologic units as a whole. The SER offers two definitions of *significance*.

- **National** – This definition reflects language in legislation establishing the National Natural Landmark Program. The general definition used in the SER, Chapter 8 refers to "an area of national significance (as defined under 36 CFR 62) that contains an outstanding example of fossil evidence of the development of life on earth."
- **Scientific –** The SER recognizes that definitions of scientific significance may vary between agencies and between practitioners, but follows the usage established in work done for a landmark Caltrans project in the Cajon Pass area by identifying the term *significant* as generally applying to identified sites and deposits containing fossils (individual or assemblages) that are unique or unusual, diagnostically or stratigraphically important, and add to the existing body of stratigraphic, taxonomic, or regional knowledge. Particular importance is attached to undisturbed fossil materials found in their original context, because of their potential utility in stratigraphy, tectonics, geomorphology, paleoclimatology, and to the understanding of relationships between

aquatic and terrestrial species and "evolution in general." Because of their rarity, terrestrial vertebrate fossils are generally assigned greater significance. As applied to the entirety of a geologic unit, the SER's definition of *significance* reflects the "research potential" of the unit's known or suspected fossil content. Because actual fossil content is typically not known until after grading/excavation begins, decisions about the management of paleontological resources must be based on assessed potential rather than known content. Potential is evaluated based on the criteria presented below in Table 1. Consistent with prevailing practice in paleontological resources management (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995, revised 2010), the Caltrans process considers a geologic unit that contains significant paleontological resources anywhere within its geographic extent as having the same high potential everywhere it occurs.

Caltrans uses the tripartite scale shown in Table 1 to rank the sensitivity or potential for a particular geologic unit to contain paleontological resources.

Table 1 – Caltrans Definitions of Paleontological Potential

Caltrans Sensitivity Designation	Characteristics of Geologic Units in this Category
High Potential (High Sensitivity)	This category consists of rock units known to contain significant vertebrate, invertebrate, or plant fossils anywhere within their geographic extent, including sedimentary rock units that are suitable for the preservation of fossils, as well as some volcanic and low-grade metamorphic rock units. This category includes rock units with the potential to contain: ▪ Abundant vertebrate fossils; ▪ A few significant vertebrate, invertebrate, or plant fossils that may provide new and significant taxonomic, phylogenetic, ecological, and/or stratigraphic data; ▪ Areas that may contain datable organic remains older than Recent; ▪ Areas that may contain unique new vertebrate deposits, traces, and/or trackways; and ▪ Fossiliferous deposits with very limited geographic extent or an uncommon origin (e.g., tar pits and cave deposits).
Low Potential (Low Sensitivity)	This category includes sedimentary rock units* that ▪ Are potentially fossiliferous, but have not yielded significant fossils in the past; ▪ Have not yet yielded fossils, but have the potential to contain fossil remains; or ▪ Contain common and/or widespread invertebrate fossils of species whose taxonomy, phylogeny, and ecology are well understood. **Note that sedimentary rocks expected to contain vertebrate fossils are considered highly sensitive, because vertebrates are generally rare and found in more localized strata.*
No Potential (No Sensitivity)	This category includes rock units of intrusive igneous origin, most extrusive igneous rocks, and moderate- to high-grade metamorphic rocks.

Source: California Department of Transportation 2014 (Accessible: http://www.dot.ca.gov/ser/vol1/sec3/physical/Ch08Paleo/chap08paleo.htm)

5.0 GEOLOGICAL SETTING

The Project alignment is located in the northern Santa Clara Valley, in the California Coast Ranges geomorphic province of northern California. The Coast Ranges are characterized by a sub-parallel series of rugged, northwest-trending mountain ranges and valleys reflecting relatively young uplift associated with the active Pacific–North American plate boundary system (Norris and Webb, 1990; Atwater, 1988; Buising and Walker, 1995; Wakabayashi, 1999; Allen, 2003). The Santa Clara Valley lies between two of these ranges – the Santa Cruz Mountains and the Diablo Range – and is widely considered to represent the onland continuation of the same topographic depression that contains San Francisco Bay (Sedlock, 1995; Iwamura, 1995). The Bay Block is bounded on the west by a complex zone of reverse and dextral faults generally aligned with the Santa Cruz Mountains rangefront and including the Monte Vista, Berrocal, Shannon, Sargent, and Carnadero faults; and on the east by the dominantly dextral strike-slip southern Hayward and Calaveras faults and related structures (Helley and Wesling 1990, Wagner et al. 1990, Dibblee 2006).

The Project alignment follows the western margin of the Santa Clara Valley within the San Francisco Bay structural block (Buising and Walker, 1995; Wakabayashi, 1999; Allen, 2003), in the central portion of the Coast Ranges geomorphic province of California. Geologically, the project area is underlain by alluvial and fluvial deposits consisting of clay, silt, sand, and gravel. These deposits range in age from Holocene Alluvium and Pleistocene Older Alluvium to the Pliocene–Pleistocene Santa Clara Formation. Holocene deposits conceal Pleistocene deposits at depth. These deposits, both Holocene and Pleistocene, contain paleontological resources. Geologic mapping indicates that the Project is underlain by Holocene alluvium (Graymer et al., 2006) with an average thickness of about 55 feet (Helley, E.J., 1990).

6.0 STUDY RESULTS

The results of the literature and map review of geologic units in the vicinity of the Project are described in this section.

As shown in Figure 4, Project Area Geologic Map, the Project alignment is entirely situated on sediments of Holocene age alluvial fan deposits, fine facies (Qhff) (Geology, Knudsen et al 2006). The windshield survey on September 6, 2015 resulted in no observation of any outcrops within the Project area; therefore, visual inspection of outcroppings was not possible. Holocene strata are underlain at varying unknown depths by older sedimentary materials, including predominantly alluvial strata of Pleistocene age, underlain in turn by the older Santa Clara Formation and its regional equivalents, which presumably rest on bedrock at depth (Iwamura 1995, Stanley et al. 2002). All of these units consist of varying proportions of clay, silt, sand, and gravel. In general, deposits are coarser near the rangefronts and along former stream channels, with finer grained materials accumulated in overbank, floodplain, and basin settings on the valley floor (Helley and Wesling 1990, Wentworth et al. 1999, Brabb et al. 2000). Deposits are generally fine toward the Bay margin (California Department of Water Resources 1967).

6.1 Paleontological Sensitivity

This section discusses the paleontological sensitivity of the Holocene deposits within the Project area, shown in Figure 4. These resources may be encountered by deep excavations and boring or auger activities. The data is derived from an on-line University of California Museum of Paleontology search on September 7, 2015; and reviews at the U.S. Geological Survey and San Jose State Martin Luther King Jr., Library on September 8 and 9, 2015.

Fossils that have been recovered in Holocene deposits of the Santa Clara Formation were actually found to be of the Pleistocene-age, and, therefore, there was a clear miss-mapping of the area previously

(University of California Museum of Paleontology 2005). These fossils are: Rancholabrean (early Pleistocene) Columbian mammoth (*Mammuthus columbi*), pollen, fresh water snails (associated with Qpa or the Santa Clara Formation). Other fossils found in Qpa or Santa Clara Formation, which underlie the Holocene deposits, are: bison (*Bison latifrons* and *Bison* sp.) and mammoth of an unidentified species (*Mammuthus* sp.), freshwater mollusc fossils (Brabb et al. 2000), fern *Pteris calabazensis*, alder (*Alnus merriami*), sarvisberry, (*Amelanchier* sp.), incense cedar (*Calocedrus* sp.), buckthorn (*Ceanothus chaneyi*), mountain-mahogany (*Cercocarpus cuneatus*), pine (*Pinus* sp.), chokecherry (*Prunus merriami*), oak (*Quercus hannibali*) and currant (*Ribes stanfordianum*). Invertebrates include gastropods, *Fluminicola sanmateoensis* and *Parapholyx durhami*. Vertebrates include horses (*Equus* spp.); and bison (*Bison latifrons*), bony fish, and unidentified mammalian remains of Pleistocene age.

Quaternary Holocene Alluvial Fan Deposits, Fine Facies

Quaternary Holocene Alluvial Fan Deposits, Fine Facies (Qhff) are recognized by the United States Department of the Interior and the United States Geological Survey as being of recent to less than 11,800 years old (Geology, Knudsen et al 2006). Recent sedimentary deposits, such as those of Holocene age, are generally considered too young geologically to contain significant paleontological resources. Therefore, the Holocene deposits encompassing the Project area have a low potential to contain significant paleontological resources.

7.0 SUMMARY

The Project is situated on Holocene surficial deposits that are typically associated with non-fossil-bearing material due to age. Because of their relative rarity, and their potential to provide geochronologic information, vertebrate fossils are considered significant wherever they occur (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995), and the Santa Clara Valley area is no exception. Vertebrate materials in Holocene-mapped strata of the Santa Clara Valley are of particular interest and significance because, to date, the only vertebrate find documented from these units is the mammoth, which, as discussed above, is not actually of Holocene age; additional finds would have the potential to further clarify the stratigraphic and chronologic questions raised by the mammoth find. Although invertebrate and plant fossils are often considered less inherently significant than vertebrate remains (e.g., Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995, revised 2010), in this context, we also consider invertebrate and plant materials in Holocene-identified strata as potentially significant and are of particular interest because of their potential to provide additional geochronologic information bearing on the accuracy of age attributions in published geologic mapping.

The Project would not involve deep construction excavation into the native Holocene deposits for either Build Alternative. The No Build Alternative, likewise, would have no effect or negative impacts to paleontological resources. The majority of Project work, and all Project staging, would occur within the area already disturbed and consists largely of changing existing lanes and flows of traffic. The Project focuses on minor modifications and improvements requiring minimal and superficial ground disturbance. Project activities would, therefore, have little to no potential to encounter or impact paleontological resources.

7.1 Recommendations

No further paleontological study for the Project is necessary, as impacts to non-renewable paleontological resources are lacking for this Project.

8.0 PREPARER

This report was prepared by James R. Allen, Master of Science (CA-PG-8355). Mr. Allen has over 17 years of private, State, and Federal professional project experience in Paleontological Resources Management, laboratory work, geotechnical, environmental science and geology, coupled with groundwater studies, monitoring, and sampling. Mr. Allen has three years of experience conducting USGS laboratory work (grain size analysis, moisture content, stream gaging), and 14 years of private sector geotechnical work (core logging, mapping, groundwater studies), mapping geologic quadrangles for the California Geological Survey, fault trenching/core/soil logging, and environmental hazardous material clean-up work. In addition, Mr. Allen has teaching experience at San Jose State and San Francisco State universities. His experience includes extensive field work of mapping, sampling and locating, report writing, project management, managing work crews in the field for paleontology, hazardous material site remediation projects, geotechnical residential and commercial, general geological investigations, CEQA-NEPA compliance report writing for protected paleontological, biological, and archeological resources, soil and rock core/hallow-stem auger logging, cone penetration test observation, construction observation, foundation inspections, dam, bridge and tunnel geotechnical investigations, landslide mapping and repair observation and project management work. He conducted geologic mapping for the California Geological Survey as well as for private sector projects, paleoseismic trenching on numerous Bay Area faults, test-pit logging, extensive soil and core logging, groundwater sampling, site characterization, resources assessments, sensitivity reporting, and information searches. In addition, he is experienced in laboratory work processing sand, soil, and rock sampling, provided petrographic thin section analysis reports, soil density testing and compaction lab and field analysis on numerous projects, sample excavation and preparation, and monitoring and mitigation. He has authored and co-authored dozens of professional and research publications focused on the seismic activity, paleontology, and geological background of California.

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Figures

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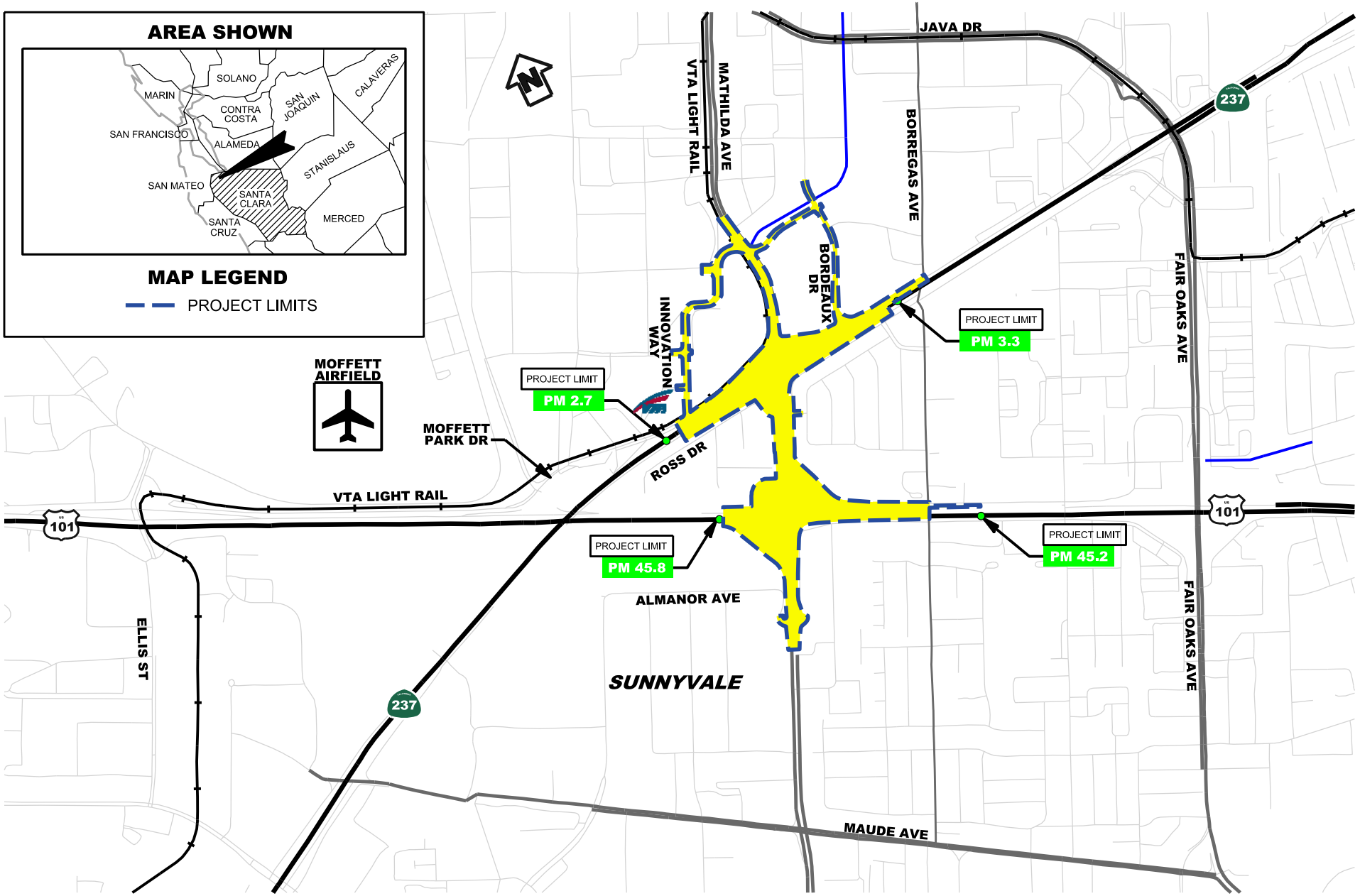
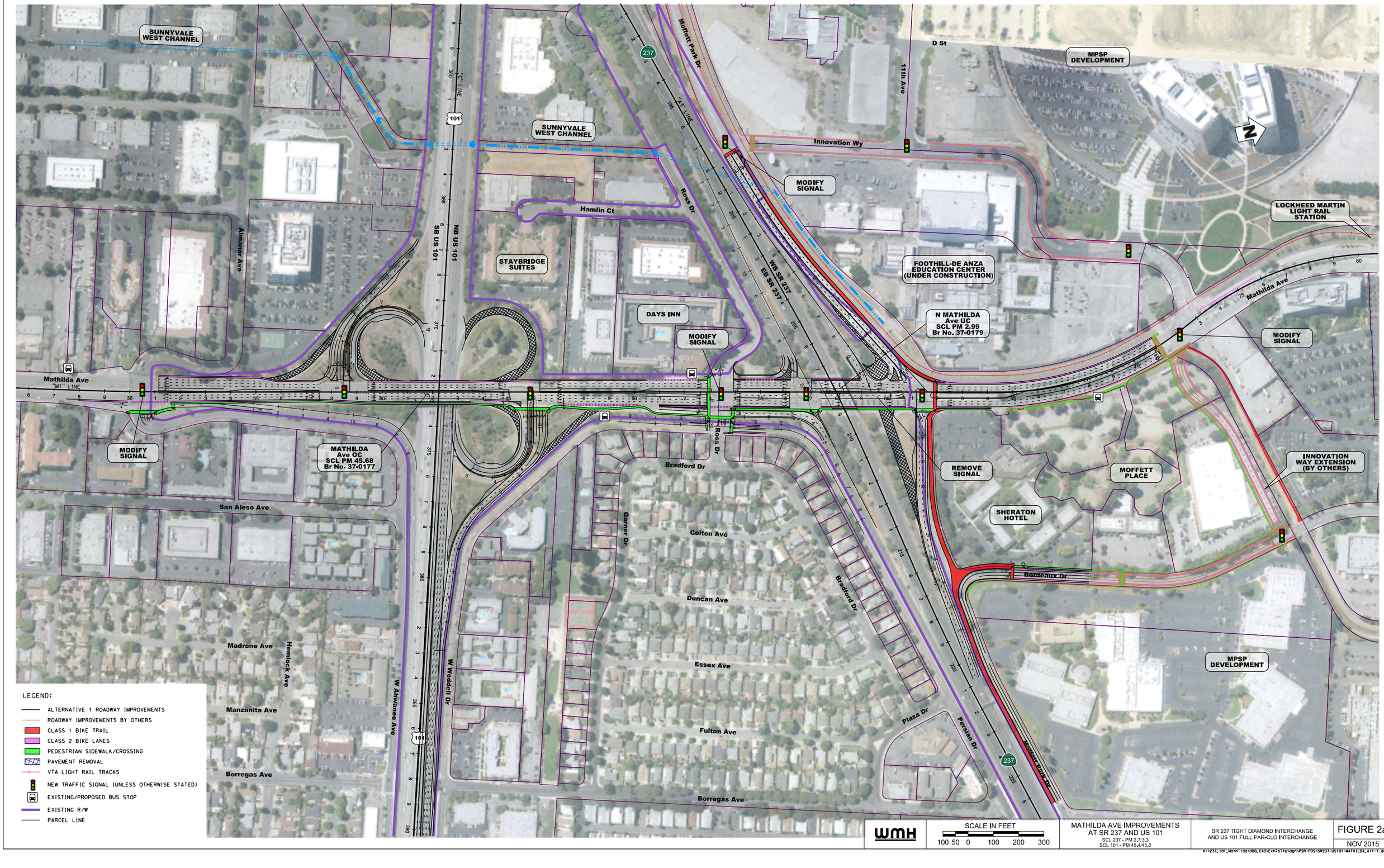


Prepared By: WMH

Mathilda Avenue Improvement at SR 237 and US 101

PROJECT LOCATION MAP

Figure 1



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MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2,7/3,3
SCL 101 - PM 45,4/45,8

SR 237 TIGHT DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 2a
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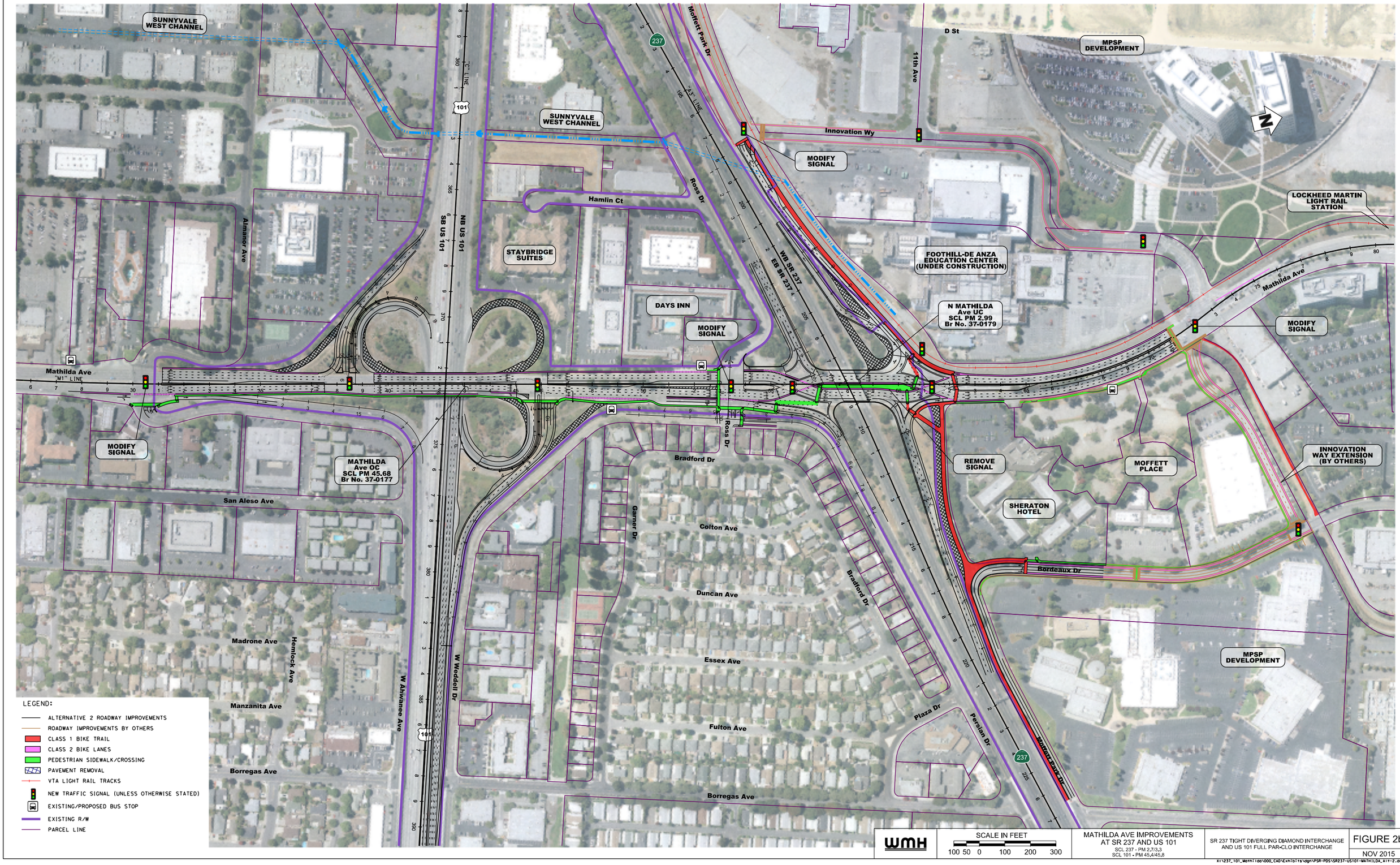

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SCALE IN FEET
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MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2.7/3.3
SCL 101 - PM 45.4/45.8

SR 237 TIGHT DIVERGING DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 2b
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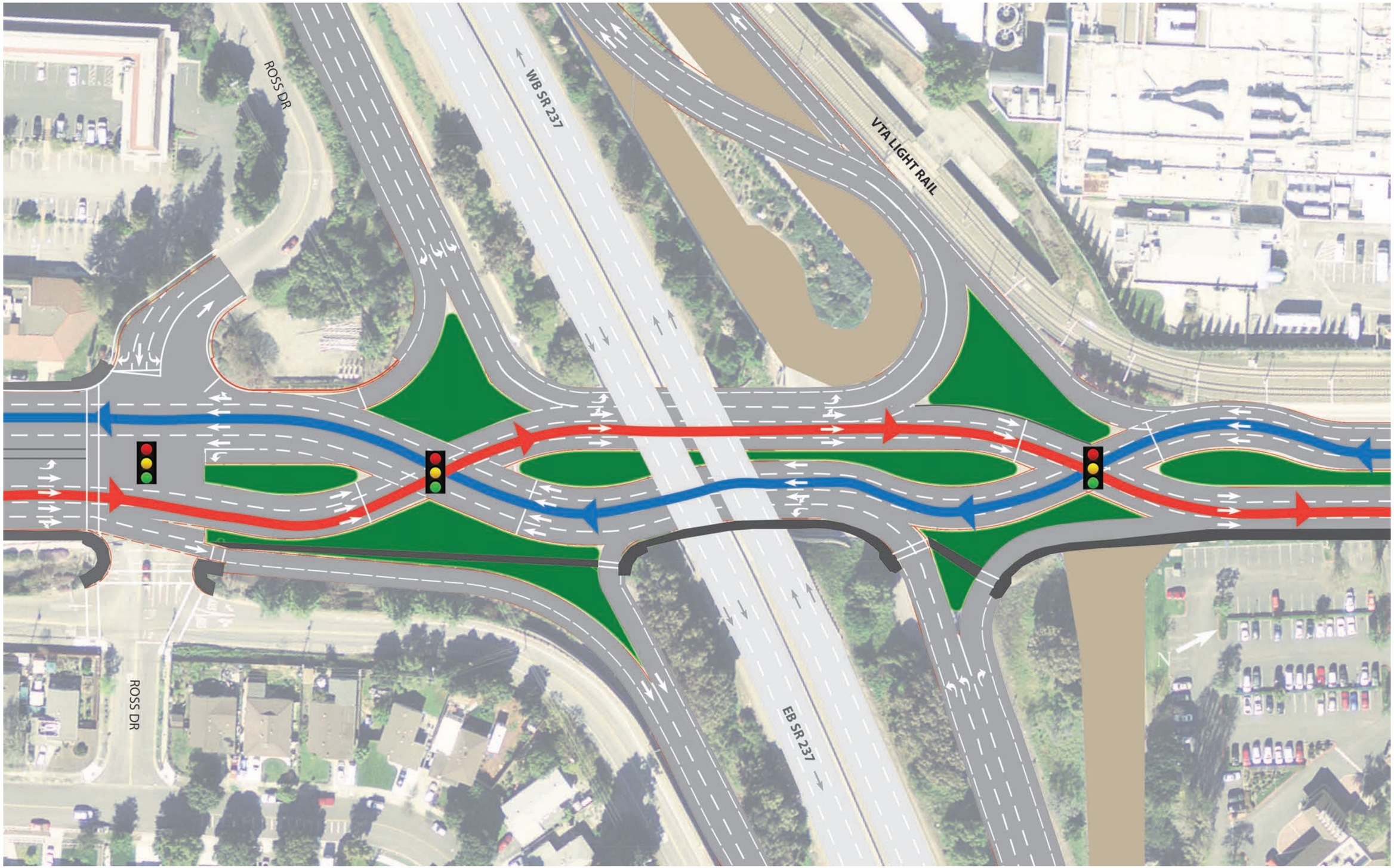

WMH	NOT TO SCALE	MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101 SCL 237 - PM 2.7/3.3 SCL 101 - PM 45.4/45.8	DIVERGING DIAMOND INTERCHANGE (DDI) ILLUSTRATION	FIGURE 3 JULY 2015

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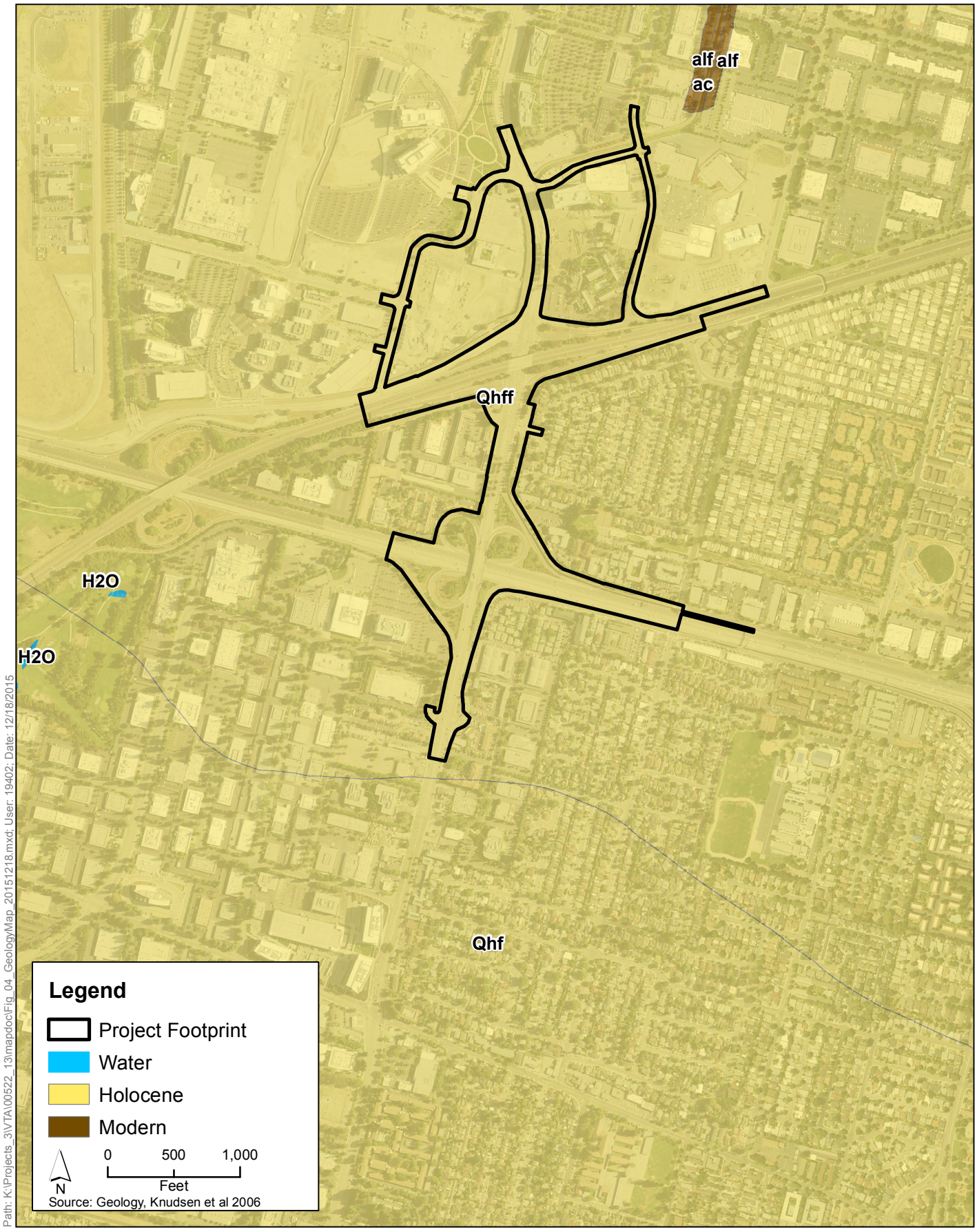


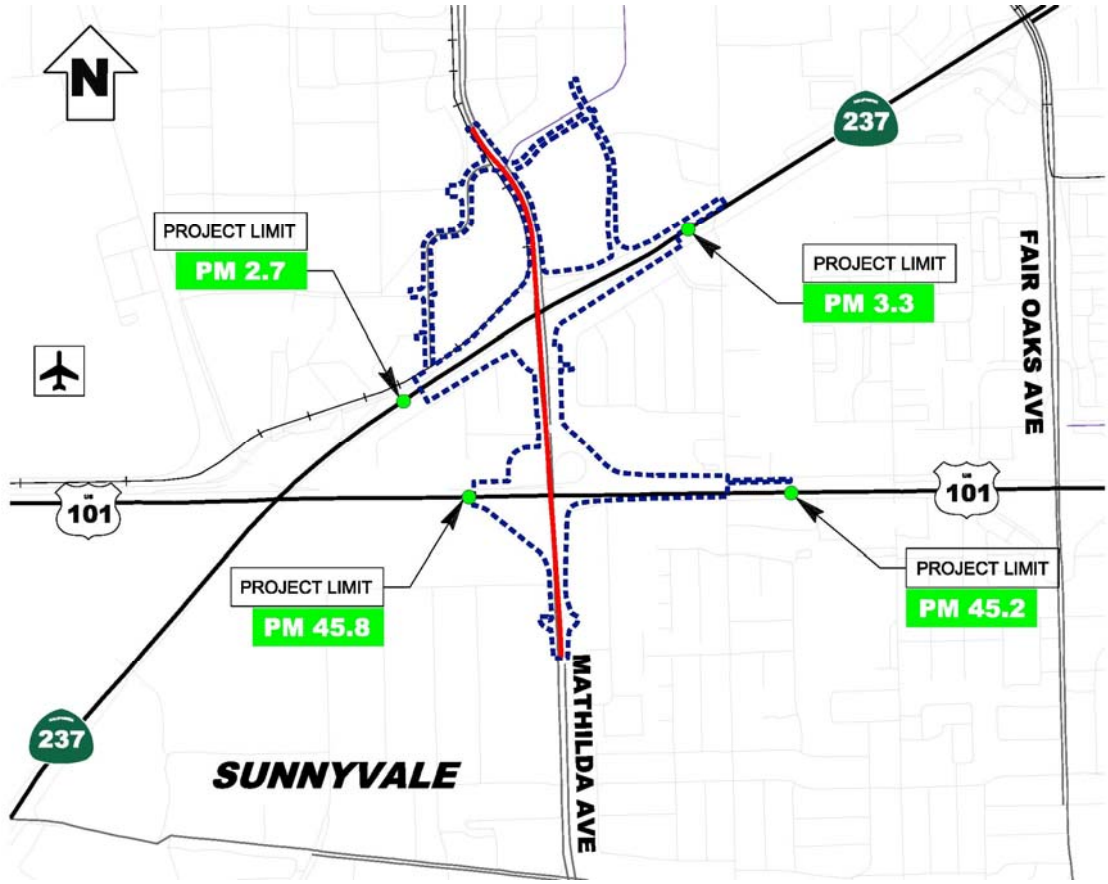
Figure 4
Project Area Geologic Map
Mathilda Avenue Improvements at SR 237 and US 101 Project

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

PRELIMINARY GEOLOGICAL ASSESSMENT

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:
BASELINE Environmental Consulting

Dated: October 2015

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PRELIMINARY GEOLOGICAL ASSESSMENT

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT

on Mathilda Avenue from Almanor Avenue to Innovation Way; on SR 237 from 0.3 mile south of US 101/SR 237 Junction to 0.3 mile east of Mathilda Avenue Undercrossing; and on US 101 from 0.5 mile south of Mathilda Avenue to SR 237/US 101/SR 237 Junction in City of Sunnyvale, in Santa Clara County

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

October 2015

U.S. DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA
and
Cooperating Agency: Santa Clara Valley Transportation Authority

Prepared By: _____ Date: 12/21/2015

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Approved By: _____ Date: 12/22/15

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California Department of Transportation, District 4

Statement of Compliance: Produced in compliance with National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this Project.

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PRELIMINARY GEOLOGICAL ASSESSMENT
FOR THE
MATHILDA AVENUE IMPROVEMENTS
AT SR 237 AND US 101 PROJECT

EXECUTIVE SUMMARY

BASELINE Environmental Consulting ("BASELINE") conducted this Preliminary Geological Assessment for the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project). The Project proposes to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route 237/Mathilda Avenue and U.S. Highway 101/Mathilda Avenue interchanges (Figure 1). Two Build Alternatives, Build Alternative 1 and Build Alternative 2, are being considered for the Project (Figures 2a and 2b). Project improvements for both Build Alternatives would include reconfiguration of existing roadways and intersections, new bicycle and pedestrian facilities, utility relocations, new stormwater treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall.

The purpose of this Preliminary Geological Assessment was to describe existing geological, seismic, and mineral resource conditions in the Project vicinity, evaluate related hazards that could impact proposed construction activities and/or operations, and provide preliminary recommendations for mitigation. As summarized in Matrix 1, below, the potentially significant Project impacts identified in the assessment were associated with soil erosion, expansive soils, corrosive soils, seismic shaking, and liquefaction; the impacts apply to both of the Build Alternatives. These hazards could affect the structural integrity of Project structures, such as new pavement, retaining walls, overhead sign foundations, and utility relocations, as well as traffic operations.

MATRIX 1: Summary of Impacts for each Build Alternative

Impact	Build Alternatives	
	1	2
Soil Erosion	X	X
Expansive Soils	X	X
Corrosive Soils	X	X
Surface Fault Rupture		
Seismic Shaking	X	X
Seismic Liquefaction	X	X
Seismic Landslides		
Mineral Resources		

Note: X = impact

Once a preferred Build Alternative has been chosen, BASELINE recommends performing a site-specific geotechnical investigation to evaluate geologic and seismic hazards identified in this report and to provide detailed design measures that comply with Caltrans' standards for construction. In addition, development and implementation of Best Management Practices during construction and operation is recommended to minimize soil erosion in accordance with National Pollutant Discharge Elimination System permits.

PRELIMINARY GEOLOGICAL ASSESSMENT
FOR THE
MATHILDA AVENUE IMPROVEMENTS
AT SR 237 AND US 101 PROJECT

1. INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 miles east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 miles east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.5 miles south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 miles south of SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately 1 mile. Figure 1 shows the location of the Project.

The purpose of this Preliminary Geological Assessment was to document existing geological, seismic, and mineral resource conditions in the Project vicinity, evaluate related hazards that could impact proposed construction activities and/or operations, and provide preliminary recommendations for mitigation. This assessment was prepared by BASELINE Environmental Consulting with review and approval by Caltrans.

2. PROJECT DESCRIPTION

This section describes the purpose and scope of the proposed Project.

2.1 Purpose and Need

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Specifically, the goals and objectives of the Project are to:

- Reduce congestion and improve traffic operations along Mathilda Avenue and at the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges.
- Improve mobility for all travel modes in the area including motor vehicles, transit, bicycles, and pedestrians.
- Provide standard crosswalks and sidewalks along Mathilda Avenue, improving access to local destinations such as Moffett Park, the VTA Light Rail Transit (LRT) stations, and downtown Sunnyvale.

The Project is needed for the following reasons:

- Regional growth and new local development combined with inefficient roadway operations has resulted in substantial traffic congestion on Mathilda Avenue.
- Efficient access for all travel modes into and out of downtown Sunnyvale and development to the north of SR 237 is critical to a healthy and sustainable economy. Congestion on Mathilda Avenue adversely affects the economic vitality of the City of Sunnyvale.

Overall, the Project is needed to address several issues in the Project area including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, improvement of local roadway and freeway ramp operations, and provision of access to current and future economic development.

2.2 Project Description and Alternatives

The Project alternatives that were developed to meet the purpose and need of the Project include Alternative 1 (Figure 2a), Alternative 2 (Figure 2b), and the No-Build Alternative. Under the No-Build Alternative, no changes would be made to the existing local roadways or freeway system within the Project limits. No construction activities would occur, and there would be no change in the operations of the existing facilities.

The design features of the two Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges with Mathilda Avenue. The Build Alternatives include design variations for reconfigured roadways and intersections, and construction of new signalized intersections. Proposed improvements included in the Build Alternatives south of Ross Drive on Mathilda Avenue and at the US 101 interchange, are identical. This includes new bicycle and pedestrian facilities, utility relocations, new storm water treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall. Unique improvements, north of Ross Drive on Mathilda Avenue, primarily include improvements related to construction of a diverging diamond interchange[1] under Build Alternative 2 (Figure 3).

2.2.1 Roadway Improvements

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction of Mathilda Avenue.
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp.

[1] A diverging diamond interchange, also called a double crossover diamond interchange, is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (a signal phase allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

- Realign and widen northbound ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp.
- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue.
- Modify Mathilda Avenue / Ross Drive signal intersection.
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.[2]
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection.
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration (see Figure 2a).
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration (see Figure 2b and Figure 3). Eastbound Moffett Park Drive between Innovation Way and Mathilda Way would be diverted to Innovation Way to access Mathilda Avenue.

2.2.2 Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consider both Class II and Class III bikeways[3], based on available pavement widths within the project limits, and would connect to the existing Class III bikeway north of Innovation Way and Class I bikeway on the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered based on available pavement widths within the project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the project limits with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

3. METHODOLOGY

As shown in Figure 1, the limits of the Project site include all areas that could potentially be disturbed during construction of the proposed improvements. BASELINE performed this assessment in accordance Chapter 7 of the Caltrans *Environmental Handbook* (Caltrans, 2015a) to support the preliminary engineering and environmental review of the Project. The scope of services for this Preliminary Geological Assessment included review of documents, databases, maps, and geospatial data from Caltrans, the United States Geological Survey (USGS), the United States Department of Agriculture (USDA), and the California Geological Survey (CGS) to

[2] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place development project.

[3] Class I bikeway is a bicycle path. Class II bikeway is a bicycle lane. Class III bikeway is bicycle route [Source: Highway Design Manual Index 1002.1]

describe existing conditions and identify known or potential hazards in the Project vicinity. These hazards were then evaluated to determine potential impacts related to each Build Alternative. Preliminary mitigation measures were then formulated for the Build Alternatives.

4. EXISTING CONDITIONS AND HAZARDS

This section describes the physical setting, geologic hazards, seismic hazards, and mineral resources in the Project vicinity.

4.1 Physical Setting

The Project site is located in the Coast Ranges Geomorphic Province of northern California. The regional structure of the Coast Ranges consists of northwest-trending folds and faults associated with the San Andreas Fault Zone. As a result, northwest-trending ranges of low mountains and intervening valleys dominate this region. The elevation profile of the Project site is relatively flat and varies from about 20 to 40 feet (NAVD 88) along Mathilda Avenue (USGS, 2015) (Figure 4). Geologic mapping indicates that the Project is generally underlain by Holocene alluvium (Graymer et al., 2006) with an average thickness of about 55 feet (Helley, E.J., 1990).

The Bay Area has a Mediterranean climate characterized by wet winters and dry summers. The annual average rainfall reported at the San Jose International Airport approximately 5 miles southeast of the Project is about 12 inches (Western Regional Climate Center, 2015). The Project site is located in the Santa Clara Valley that drains north toward the San Francisco Bay. The Project crosses one waterway, Sunnyvale West Channel, near the intersection of Moffett Park Drive and Innovation Way and the intersection of Mathilda Avenue and Innovation Way. The Sunnyvale West Channel generally drains north (Figure 4), eventually discharging into the San Francisco Bay.

Ambient groundwater level data were reviewed from the State Water Resources Control Board's (2015) *GeoTracker* database for monitoring wells at two leaking underground storage tank sites near the Project: the Texaco site at 724 Mathilda Avenue and the Professional Center site at 102 Persian Drive. Depth to groundwater generally ranges from about 7 to 15 feet below ground surface and groundwater generally flows to the north-northeast at both of the sites. Based on the regional topography and previously measured groundwater levels, groundwater is expected to flow to the north-northeast across the Project site.

4.2 Geologic Hazards

Soil survey data was reviewed from the USDA, Natural Resources Conservation Service (NRCS), to identify and evaluate existing soil conditions and geologic hazards in the Project vicinity. The entire Project site is underlain by Urbanland-Hangerone complex, which is a combination of native alluvium, disturbed soils, and imported fill materials. Descriptions of the soil features (e.g., thickness, permeability, and corrosion potential) are included in Appendix A. Potential

geologic hazards of concern include soil erosion, expansion, and corrosion. Soil survey information related to geologic hazards are discussed further, below.

4.2.1 Soil Erosion Hazards

Erosion is the detachment, movement, and redistribution of soil particles by forces of water, wind, and/or gravity. On the Project site, erosion from rain and stormwater runoff are the dominant natural erosion processes. The rate of soil erosion during a rain event is a function of the slope, vegetative cover, and soil properties. The primary soil properties that influence the erodibility of a soil are texture, structure, organic matter content, and permeability. The collective influence of these soil properties on the erodibility of a soil is described by the soil-erodibility factor (K) (USDA, 1997).

Soils with K factors between about 0.25 and 0.4 are moderately susceptible to water erosion and K factors greater than 0.4 are highly susceptible to water erosion (Institute of Water Research, Michigan State University, 2002). The Hangerone component of soils on the Project site have properties that are moderately susceptible to water erosion with K factors as high as 0.37 (USDA NRCS, 2015). The extent of fill materials on the Project site and their susceptibility to water erosion has not been evaluated. The overall susceptibility of soils to erosion often increases during excavation and grading activities as vegetative cover is removed and/or local gradients and slope lengths are increased.

4.2.2 Expansive Soil Hazards

Expansive soils are characterized by the potential for shrinking and swelling as the moisture content of the soil decreases and increases, respectively. Shrink-swell potential is influenced by the amount and type of clay minerals present and can be measured by the percent change of the soil volume, which is known as the "linear extensibility." Linear extensibility values ranging from about 6 to 9 percent have a high expansion potential and values exceeding 9 percent have a very high expansion potential. Soils mapped within 45 inches below ground surface on the Project site have high to very high expansion potentials with liner extensibility values ranging from 6 to 12 percent (USDA NRCS, 2015).

4.2.3 Corrosive Soil Hazards

Uncoated subsurface steel and concrete structures are susceptible to corrosion based on the moisture content, texture, acidity, electrical conductivity, and sulfate and sodium content of the soil. Soils mapped on the Project site have a high potential to corrode uncoated steel and a moderate potential to corrode concrete (USDA NRCS, 2015).

4.3 Seismic Hazards

The Project site is located in the San Francisco Bay Area, which includes numerous active faults identified by the CGS under the Alquist-Priolo Earthquake Fault Zoning Act. Caltrans defines a fault as "active" if it has ruptured in the late-Quaternary (the last 750,000 years). This definition is broader than that used by CGS, which defines an active fault as one that has ruptured in the

Holocene (the last 11,000 years). Potential seismic hazards associated with active faults include surface fault rupture, seismic shaking, liquefaction, and landslides.

According to the current *Caltrans Fault Database* (Caltrans, 2012a), the closest active faults to the Project site are the Cascade and Silver Creek faults located about 3.9 miles southwest and 4.5 miles northeast of the Project site, respectively (Figure 5). Since these faults are considered active by Caltrans, they are further evaluated in this assessment; however, it should be noted CGS has not documented evidence of movement within the last 750,000 years along these faults (Jennings and Bryant, 2010). Other active faults identified in the *Caltrans Fault Database* that are located within 10 miles of the Project site include the Monte Vista-Shannon, San Andreas, and Hayward faults (Figure 5).

4.3.1 Surface Fault Rupture Hazards

Surface rupture occurs when the ground surface is broken due to fault movement during an earthquake. The location of surface rupture generally occurs along an existing (usually active) fault trace. As described in Caltrans guidelines (Caltrans, 2007a), areas susceptible to surface fault rupture are delineated by the CGS Alquist-Priolo Earthquake Fault Zones and/or are located near fault traces shown on the *1996 Caltrans California Seismic Hazard Map* (which is now superseded by the *Caltrans Deterministic PGA Map* [Caltrans, 2007b]). The CGS Alquist-Priolo Earthquake Fault Zones have up to about a ¼-mile buffer around the surface traces of faults that have been active within Holocene time (the last 11,000 years). The *Caltrans Deterministic PGA Map* contains less detail than the mapped CGS Alquist-Priolo Earthquake Fault Zones, but includes traces of faults that have been active since the late-Quaternary time (the last 750,000 years) and are capable of producing an earthquake with a moment magnitude[4] of 6.0 or greater. As shown on Figure 5, the closest active fault to the Project site is the Cascade fault located about 3.9 miles southwest of the Project.

4.3.2 Seismic Ground Shaking Hazards

Seismic ground shaking generally refers to all aspects of motion of the earth's surface resulting from an earthquake, and is normally the major cause of damage in seismic events. The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The magnitude of a seismic event is a measure of the energy released by an earthquake; it is assessed by seismographs that measure the amplitude of seismic waves. The intensity of an earthquake is a subjective measure of the perceptible effects of a seismic event at a given point. The Modified Mercalli Intensity scale (MMI) is the most commonly used scale to measure the subjective effects of earthquake intensity in values ranging from I to XII. Intensity can also be quantitatively measured using strong motion seismographs that record the peak ground acceleration (PGA) in terms of percent of acceleration force of gravity (%g). Descriptions of the MMI scale and PGA equivalents are summarized in Table 1.

[4] The amount of energy that is released during an earthquake.

According to the current *Caltrans Fault Database* (Caltrans, 2012), the maximum moment magnitude (M_{Max}) for the largest reasonable earthquake expected along active faults within about 10 miles of the Project site ranges from 6.4 to 8.0 (Table 2). BASELINE used *Caltrans ARS Online V2.3.06* (Caltrans, 2015b) to estimate preliminary PGA values at the center of the Project site associated with the M_{Max} earthquake from nearby active faults. Since the Project site is located on Holocene alluvium, preliminary PGA values were estimated by BASELINE assuming near surface soils with an average shear wave velocity of 270 meters per second. As summarized in Table 2, the preliminary PGA estimated at the center of the Project site for the M_{Max} earthquake along active faults within 10 miles of the Project site ranged from 56 to 72%g, which can result in severe to violent ground shaking.

4.3.3 Seismic Liquefaction Hazards

Liquefaction is the temporary transformation of loose, saturated, granular sediments to a fluid-like state as a result of seismic ground shaking. In the process, the soil undergoes transient loss of strength, which commonly causes ground displacement such as sand boils, settlement, and lateral spreading. CGS has developed Seismic Hazard Zone Maps that delineate areas susceptible to liquefaction that require additional investigation to determine the extent and magnitude of potential ground failure. According to CGS (2006), the Project site is located within a Seismic Hazard Zone for liquefaction.

4.3.4 Seismic Landslide Hazards

Landslides can occur as either rapid movement of large masses of soil or imperceptibly slow movement of soils on slopes. The primary factors influencing the stability of a slope are the nature of the underlying soil or bedrock and the geometry of the slope (height and steepness). Landslides are generally triggered by rainfall, excavation, or seismic activities. The CGS Seismic Hazard Zone Maps delineate areas susceptible to seismically-induced landslides that require additional investigation to determine the extent and magnitude of potential ground failure. According to CGS (2006), the Project site is not located within a Seismic Hazard Zone for seismically-induced landslides.

4.4 Mineral Resource Hazards

In compliance with the Surface Mining and Reclamation Act, CGS has designated mineral resources in areas within California subject to irreversible land uses that would preclude mineral extraction. Land has been classified by the State Geologist into Mineral Resource Zones (MRZs) based on geologic and economic factors. The MRZs include classifications for construction materials, industrial and chemical mineral materials, metallic and rare minerals, and non-fluid mineral fuels. The mapping of MRZs is intended to help identify and preserve significant mineral deposits for future use. The entire Project site is classified as MRZ-1 (Kohler-Antablin, 1996), which indicates that significant mineral deposits are not likely present (Figure 6).

The California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) regulates oil, gas, and geothermal drilling activities and assists in locating and

reviewing the status of wells located near or beneath proposed improvements. The closest DOGGR well is mapped about 12 miles northeast of the Project site (Figure 6). No oil, gas, or geothermal wells were mapped on or adjacent to the Project site (DOGGR, 2015).

5. EVALUATION OF IMPACTS

This section evaluates the potential impacts of geologic and seismic hazards, as well as mineral resources, associated with both construction and operation of the Build Alternatives. As summarized in Matrix 1, below, there are no impacts specific to one of the individual Build Alternatives.

MATRIX 1: Summary of Impacts for each Build Alternative

Impact	Build Alternatives	
	1	2
Soil Erosion	X	X
Expansive Soils	X	X
Corrosive Soils	X	X
Surface Fault Rupture		
Seismic Shaking	X	X
Seismic Liquefaction	X	X
Seismic Landslides		
Mineral Resources		

Note: X = impact

5.1 Geologic Impacts

5.1.1 Soil Erosion Impacts

Soils mapped on the Project site have properties that are moderately susceptible to water erosion. Project construction activities, such as grading and excavation, could significantly impact the stability of existing soils and increase the overall potential for soil erosion across the Project site. During Project construction, erosion could cause significant impacts related to sedimentation in storm drains, loss of top soils, gullies on slopes, and undermining of engineered fills beneath foundations or roadways. Long-term significant impacts to the Project could include undercutting of roadways by uncontrolled stormwater runoff.

5.1.2 Expansive Soil Impacts

Soils mapped within 45 inches of the ground surface on the Project site have a high to very high expansion potential. Project structures (e.g., new pavement and retaining walls) and utilities built in expansive soils could be significantly impacted by seasonal shrink-swell effects.

5.1.3 Corrosive Soil Impacts

Soils mapped on the Project site have a high potential to corrode uncoated steel and a moderate potential to corrode concrete. Corrosive soils could significantly impact Project structures (e.g., retaining walls) and underground utilities containing steel that are not properly protected.

5.2 Seismic Impacts

1.1.1 Surface Fault Rupture Impacts

The Project site is not located within a mapped Alquist-Priolo Earthquake Fault Zone and is not near an active fault trace shown on the *Caltrans Deterministic PGA Map* (Figure 5); therefore, impacts from surface fault rupture would not be expected on the Project site.

5.2.1 Seismic Ground Shaking Impacts

Based on estimates of preliminary PGA values associated with M_{Max} earthquakes along nearby active faults (Table 2), the Project site could experience severe to violent ground shaking (VIII to IX on the MMI scale). Significant seismic shaking damages could include rupturing of underground pipelines, and cracking and distortion of pavement, walls, and foundations. These potential impacts are present under existing conditions; however, new pavement, retaining walls, and foundations for overhead signs proposed under the Project could significantly increase the risk of structural damage if not properly designed.

5.2.2 Seismic Liquefaction Impacts

The Project site is located within a Seismic Hazard Zone for liquefaction. Potential liquefaction could result in surface impacts to the Project site (e.g., sand boils, settlement, or lateral spreading). Such impacts could affect the structural integrity of roadways and bridges and damage underground utilities. These potential impacts are present under existing conditions; however, new Project construction could significantly increase the risk of structural damage if not properly designed.

5.2.3 Seismic Landslide Impacts

The Project site is not located within a Seismic Hazard Zone for seismically-induced landslides; therefore, landslides would not be expected to impact the Project site.

5.3 Mineral Resource Impacts

Significant mineral resources (including oil, gas, or geothermal) have not been mapped on or adjacent to the Project site. Therefore, the Project would not be expected to impact existing or potential mineral resources.

6. MITIGATION OF IMPACTS

This section presents preliminary recommendations to mitigate all identified impacts related to geologic and seismic hazards to levels equal to or better than existing conditions.

6.1 Mitigation of Geologic Hazards

During subsequent engineering phases for the chosen Build Alternative, a geotechnical investigation should be performed by a professional engineer or geologist to document and further evaluate potential soil expansion and corrosion hazards near proposed improvements (e.g., retaining walls). Based on the findings of the investigation, specific recommendations that comply with Caltrans' standards for construction should be made for the Project design.

Construction, operation, and maintenance of the chosen Build Alternative should implement erosion and sediment control measures in accordance with the *National Pollutant Discharge Elimination System* permits.

6.2 Mitigation of Seismic Hazards

During subsequent engineering phases for the chosen Build Alternative, a geotechnical investigation should be performed by a professional engineer or geologist to document and further evaluate liquefaction and seismic shaking hazards near proposed improvements (e.g., retaining walls). Based on findings of the investigation, specific recommendations that comply with Caltrans' standards for construction should be made for the Project design.

7. CONCLUSIONS

Geologic and seismic hazards that could impact or be impacted by construction and operation of the Build Alternatives include soil erosion, expansive soils, corrosive soils, seismic ground shaking, and liquefaction. These hazards could affect the structural integrity of Project structures, such as new pavement, new retaining walls, and potential utility relocations, as well as traffic operations. A site-specific geotechnical investigation is recommended to document and evaluate geologic and seismic hazards identified in this report and to provide detailed design measures for the Project design of the chosen Build Alternative that complies with Caltrans' standards for construction. In addition, development and implementation of BMPs during construction and operation are recommended to minimize soil erosion.

8. QUALIFICATIONS OF PREPARERS

This report was prepared by Patrick Sutton from BASELINE under the direct supervision of a professional geologist, Bruce Abelli-Amen. Patrick Sutton is an environmental engineer with over 10 years of experience preparing technical reports related to geology, hydrogeology, air quality, and hazardous materials. Bruce Abelli-Amen is a principal of BASELINE and has over 25 years of experience preparing and reviewing technical documents. The resumes for BASELINE staff are included Appendix B.

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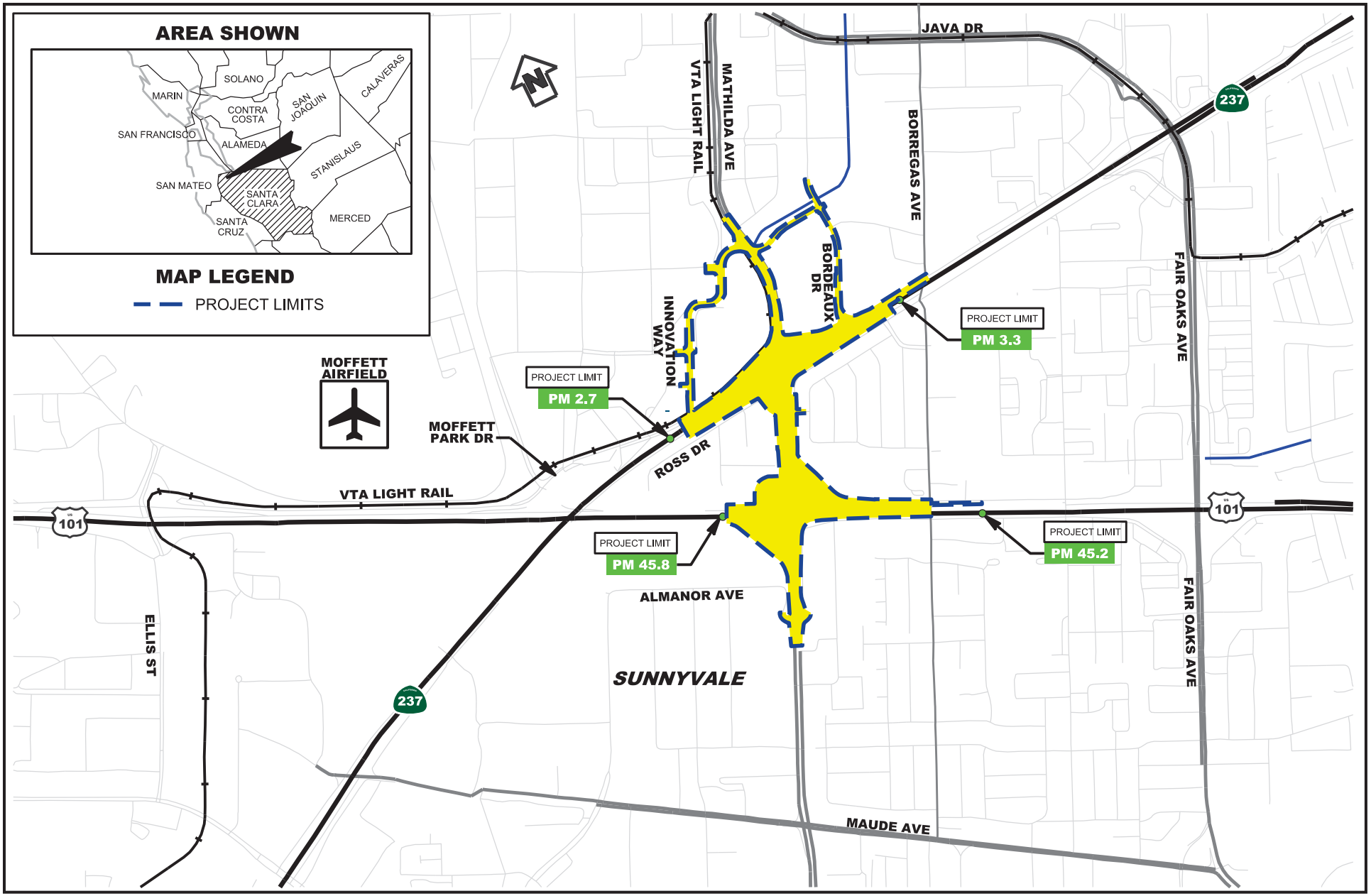
FIGURES

Project Location

Figure 1



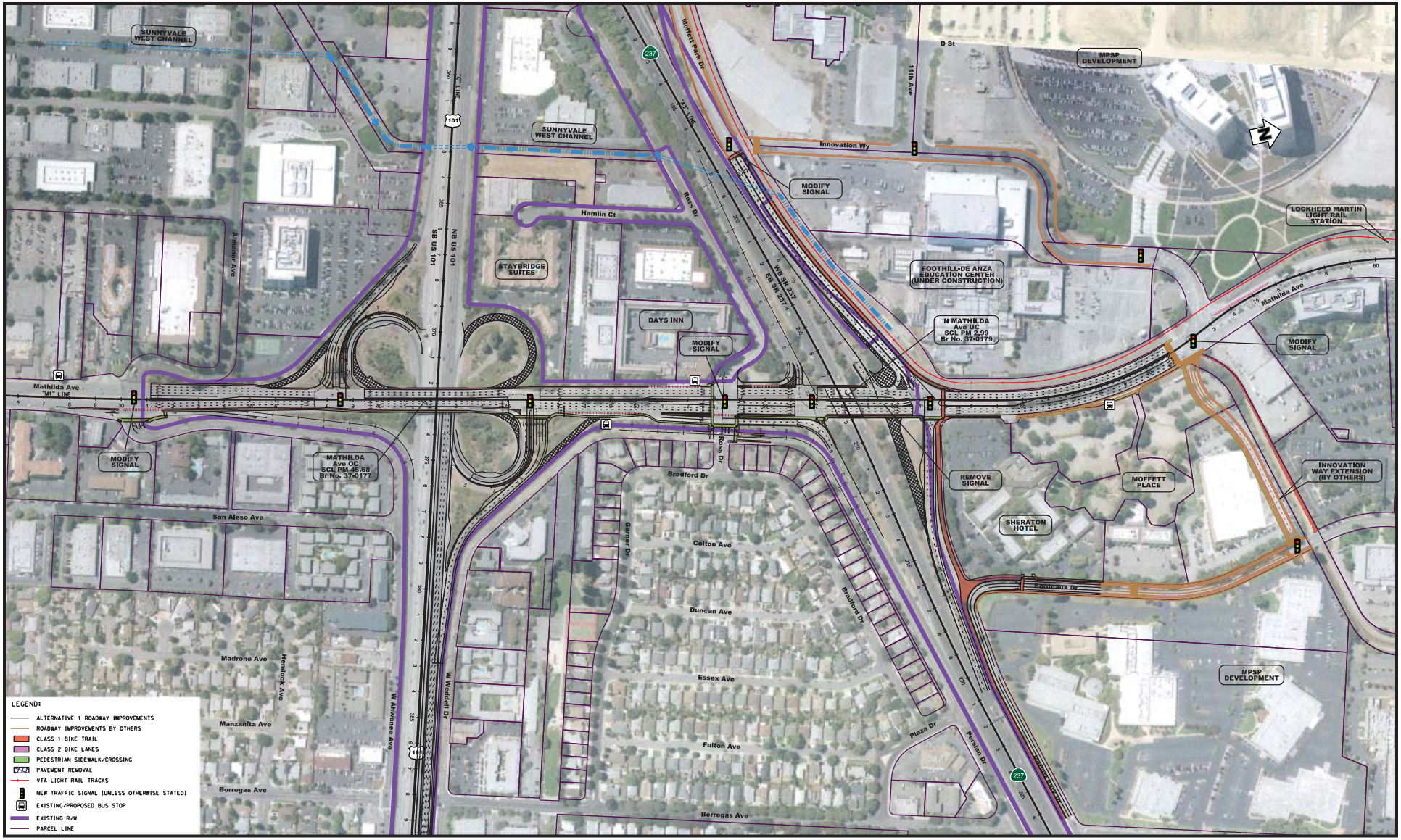
Source: WMH, 2015

Mathilda Avenue Improvements at SR 237 and US 101 Project

Note: Not to Scale

Build Alternative 1

Figure 2a



Mathilda Avenue Improvements at SR 237 and US 101 Project

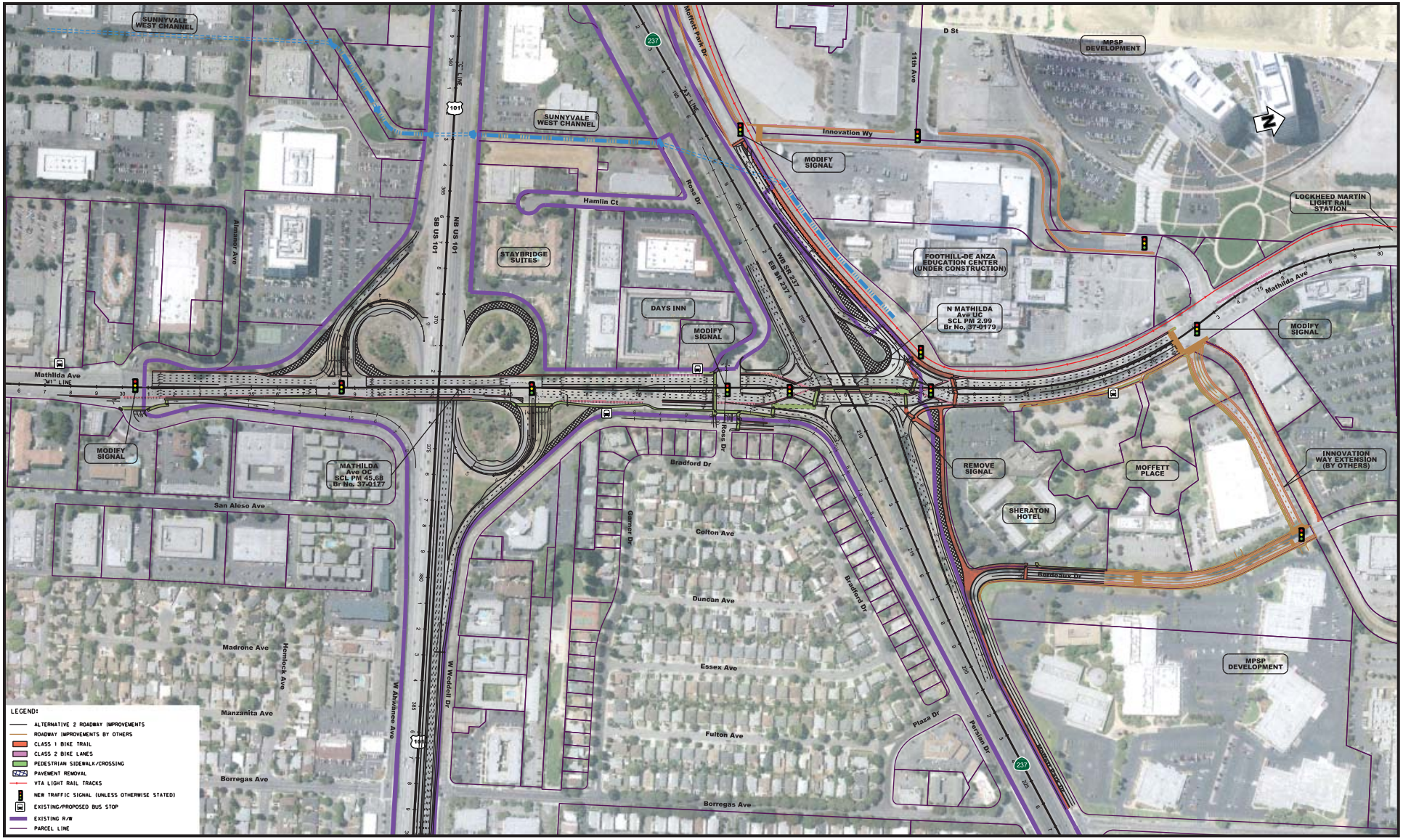
0 550 Feet

N

15304-00.02360 Figure 2a 12/22/15

Build Alternative 2

Figure 2b



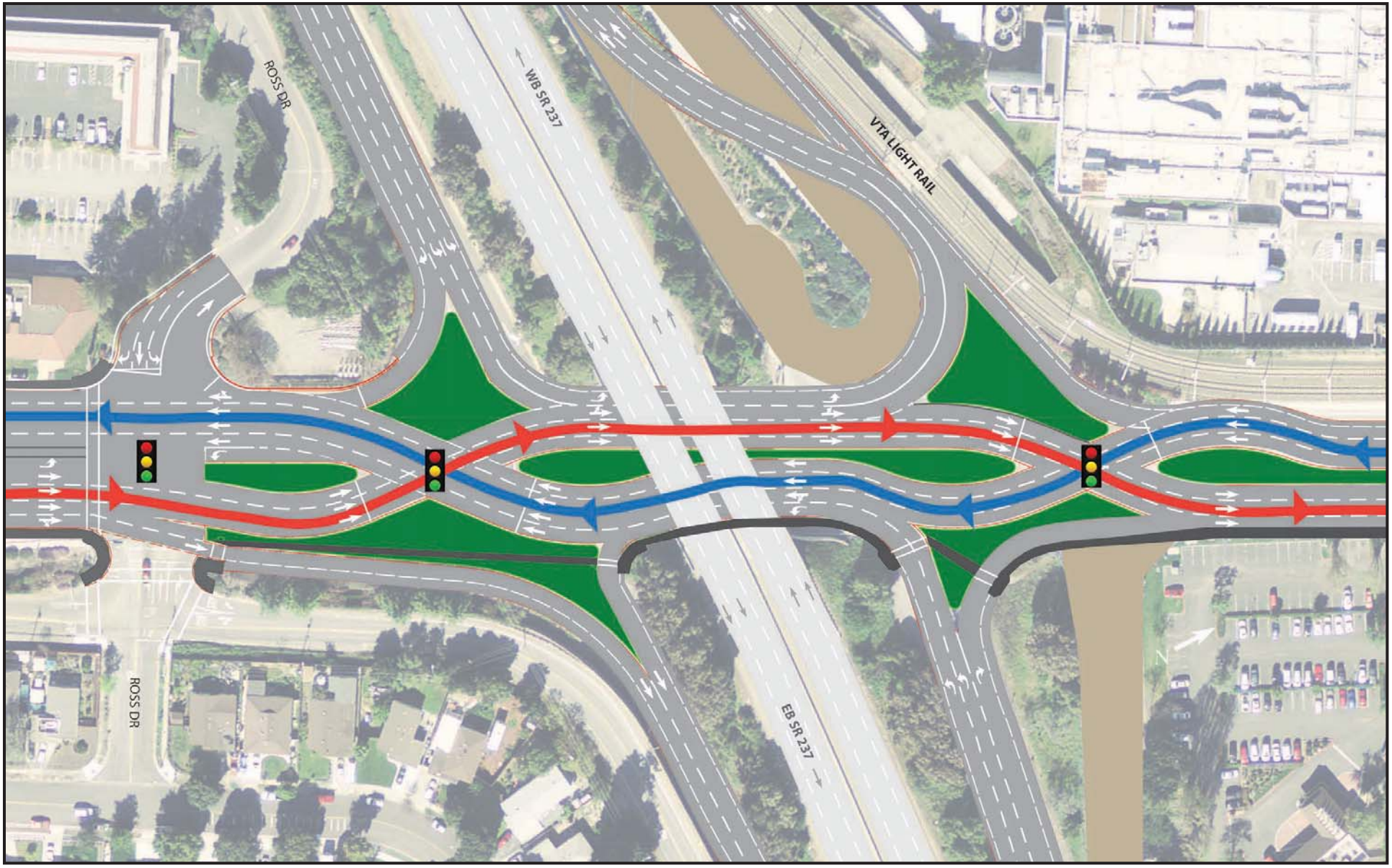
Mathilda Avenue Improvements at SR 237 and US 101 Project

N

0 550 Feet

Diverging Diamond Interchange Illustration

Figure 3



Source: WMH, 2015

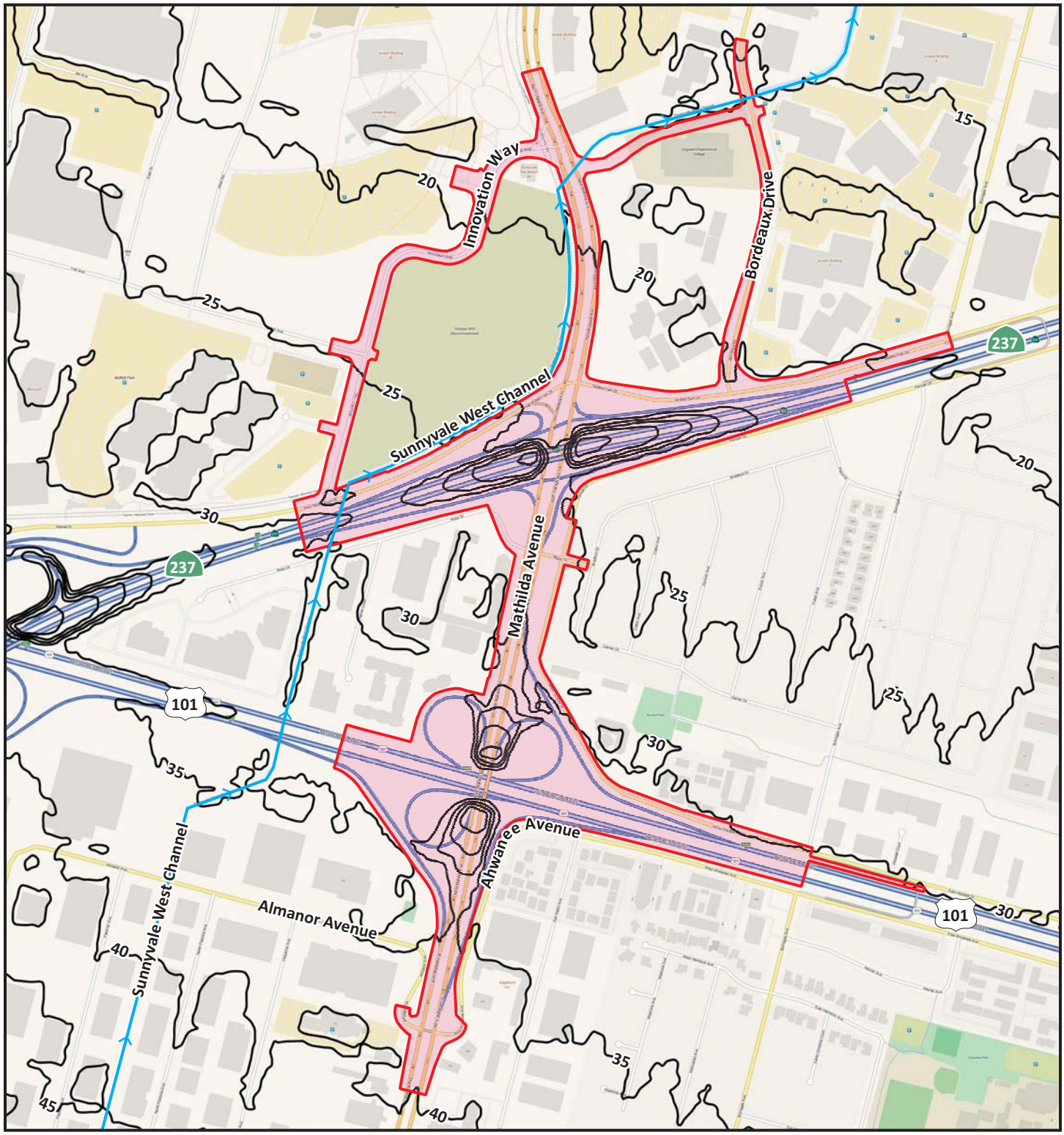
Mathilda Avenue Improvements at SR 237 and US 101 Project

N

Note: Not to Scale

Physical Setting

Figure 4



Legend

- Project Limits
- 30 — Surface Elevation Contour (feet, NAVD 88)
- Surface Water Flow Direction

Base: MapQuest OpenStreetMap, 2015
Source: Surface Elevation Contours (USGS, 2015)

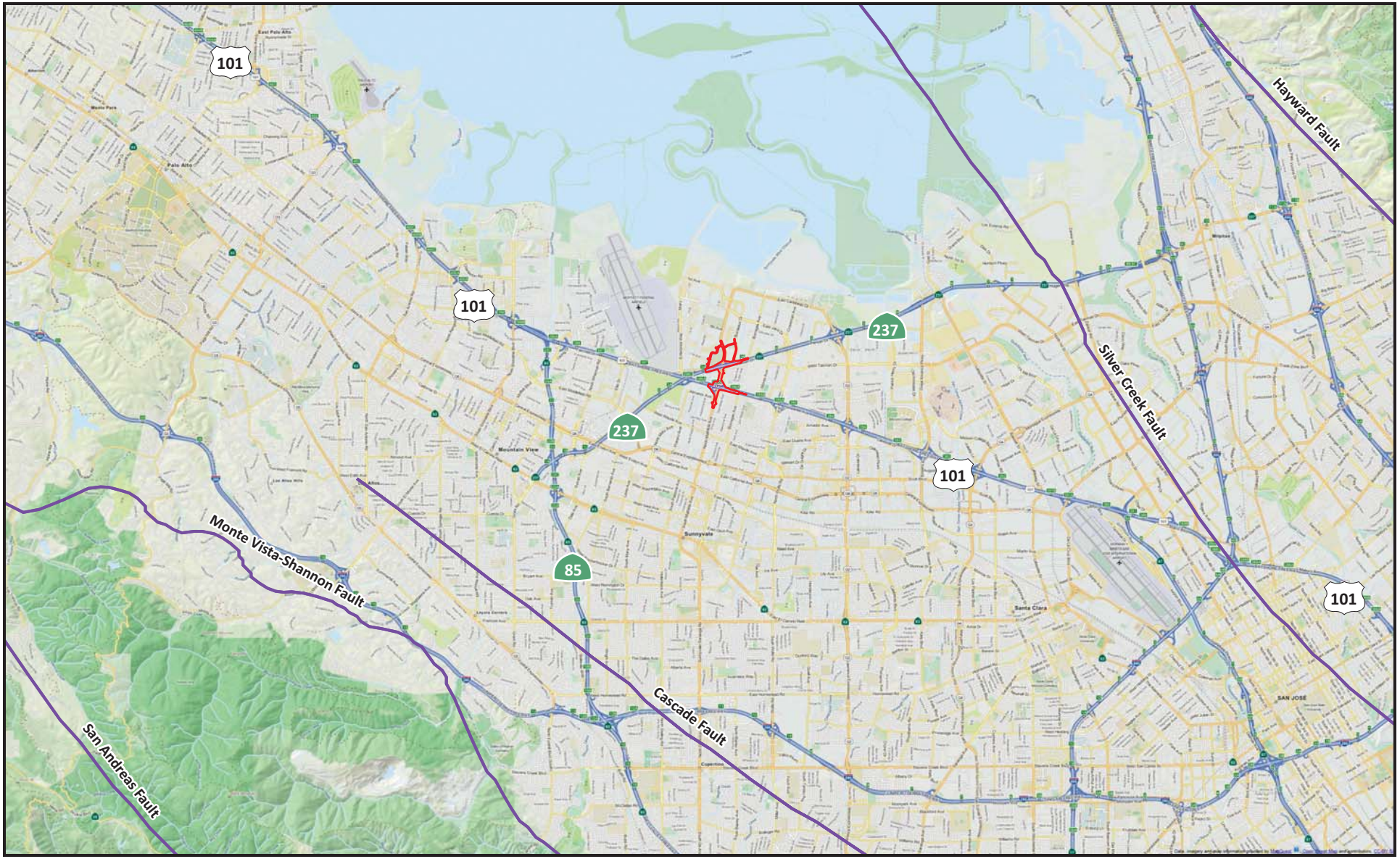
Mathilda Avenue Improvements at SR 237 and US 101 Project

0 650 Feet N

15305-00.02360 Figure 4 12/22/15

Seismic Hazards

Figure 5



Legend

Project Limits

Active Fault

Base: MapQuest OpenStreetMap, 2015
Source: Active Faults (Caltrans, 2012a)

0 1.9 Miles N

Mathilda Avenue Improvements at SR 237 and US 101 Project

Mineral Resource Zones and DOGGR Wells

Figure 6

Legend

Project Limits

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) Well

Source: Mineral Resource Zones (Kohler-Antablin, 1996)
DOGGR Wells (DOGGR, 2015)

Mathilda Avenue Improvements at SR 237 and US 101 Project

0 3 Miles N

TABLES

TABLE 1: Modified Mercalli Intensity Scale

MMI Scale	PGA [1] (%g)	Percieved Shaking	Description of Ground Motion Intensity [2]
I	<0.17	None	Not felt except by a very few under especially favorable circumstances.
II	0.17-1.4	Weak	Felt only by a few persons at rest, especially on upper floors of buildings. Delicately suspended objects may swing.
III	0.17-1.4	Weak	Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration like passing of truck. Duration estimated.
IV	1.4-3.9	Light	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors dis-turbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.
V	3.9-9.2	Moderate	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.
VI	9.2-18	Strong	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.
VII	18-34	Very Strong	Everybody runs outdoors. Damage negligible in building of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys bro-ken. Noticed by persons driving motor cars.
VIII	34-65	Severe	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial col-lapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.
IX	65-124	Violent	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked con-spicuously. Underground pipes broken.
X	>124	Extreme	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.
XI	>124	Extreme	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.
XII	>124	Extreme	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted.

Notes

MMI = Modified Mercalli Intensity; %g = percent of acceleration force of gravity

[1] Wald, D.J., Quitoriano, V., Heaton, T.H., and Kanamori, H., 1999. *Relationship between Peak Ground Acceleration, Peak Ground Velocity, and Modified Mercalli Intensity in California. Earthquake Spectra, V. 15, no. 3, p. 557-564.*

[2] United States Geological Survey, 2014. *The Modified Mercali Intensity Scale* . http://earthquake.usgs.gov/learn/topics/mercalli.php. Accessed 6 May.

TABLE 2: Summary of Parameters used to Estimated Ground Shaking Hazards

Active Fault Name	Distance (miles)	M_{max}	PGA (%g)	MMI Scale	Perceived Shaking
Cascade	3.9	6.7	72	IX	Violent
Silver Creek	4.5	6.9	71	IX	Violent
Monte Vista-Shannon	5.4	6.4	60	VIII	Severe
Hayward	8.4	7.3	56	VIII	Severe
San Andreas	9.7	8	61	VIII	Severe

Notes

M_{Max} = maximum moment magnitude

PGA = peak ground acceleration

%g = percent of acceleration force of gravity

MMI = Modified Mercalli Intensity

Ground shaking hazards estimated using Caltrans ARS Online V2.3.06 (Caltrans, 2015b).

The relationship between the MMI scale and PGA values are summarized in Table 1.

APPENDICES

APPENDIX A

USDA SOIL SURVEY DATA

Soil Map—Santa Clara Area, California, Western Part
(Project Limits)

Map Scale: 1:7,550 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 100 200 400 600

Feet: 0 350 700 1400 2100

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

* Label inserted by BASELINE Enviornmental Consulting.

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 3, Sep 18, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 26, 2010—Nov 3, 2013

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Santa Clara Area, California, Western Part (CA641)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
145	Urbanland-Hangerone complex, 0 to 2 percent slopes, drained	36.8	100.0%
Totals for Area of Interest		**36.8**	**100.0%**

Santa Clara Area, California, Western Part

145—Urbanland-Hangerone complex, 0 to 2 percent slopes, drained

Map Unit Setting

National map unit symbol: 1nszw
Elevation: 0 to 220 feet
Mean annual precipitation: 14 to 24 inches
Mean annual air temperature: 57 to 61 degrees F
Frost-free period: 275 to 325 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 70 percent
Hangerone, drained, and similar soils: 25 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Disturbed and human-transported material

Description of Hangerone, Drained

Setting

Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear, convex
Parent material: Alluvium derived from metamorphic and sedimentary rock and/or alluvium derived from metavolcanics

Typical profile

A1 - 0 to 9 inches: clay
A2 - 9 to 17 inches: clay
Bw - 17 to 27 inches: clay
Bk - 27 to 35 inches: clay
Ck - 35 to 45 inches: clay loam
C - 45 to 72 inches: gravelly loam
2Ab - 72 to 89 inches: clay

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Poorly drained

Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 25 percent
Gypsum, maximum in profile: 2 percent
Salinity, maximum in profile: Nonsaline to slightly saline (0.2 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum in profile: 5.0
Available water storage in profile: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C

Minor Components

Bayshore

Percent of map unit: 2 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Clear lake

Percent of map unit: 2 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Embarcadero

Percent of map unit: 1 percent
Landform: Basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear

Data Source Information

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 3, Sep 18, 2014

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Physical Soil Properties–Santa Clara Area, California, Western Part														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
145—Urbanland-Hangerone complex, 0 to 2 percent slopes, drained														
Urban land	—	—	—	—	—	—	—	—	—					
Hangerone, drained	0-9	-21-	-38-	27-42- 45	1.40-1.45 -1.50	1.40-3.00-4.00	0.17-0.19-0. 21	6.0- 7.5- 9.0	1.0- 2.0- 4.0	.28	.28	5	4	86
	9-17	-16-	-34-	27-51- 55	1.40-1.45 -1.50	1.40-3.00-4.00	0.17-0.19-0. 21	6.0- 7.5- 9.0	0.8- 1.1- 2.0	.24	.24			
	17-27	-16-	-34-	35-50- 60	1.35-1.40 -1.45	0.42-1.00-1.40	0.14-0.15-0. 16	9.0-10.5-12.0	0.8- 1.1- 2.0	.24	.24			
	27-35	-19-	-38-	35-44- 60	1.35-1.40 -1.45	0.42-1.00-1.40	0.14-0.15-0. 16	9.0-10.5-12.0	0.5- 0.9- 1.5	.28	.28			
	35-45	-25-	-42-	30-34- 60	1.35-1.40 -1.45	0.42-1.00-1.40	0.14-0.15-0. 16	9.0-10.5-12.0	0.4- 0.6- 0.8	.37	.37			
	45-72	-44-	-32-	20-24- 35	1.60-1.65 -1.70	42.00-50.00-14 1.00	0.05-0.06-0. 07	0.0- 3.0- 9.0	0.1- 0.3- 0.5	.10	.20			
	72-89	-22-	-29-	20-49- 50	1.45-1.50 -1.55	4.00-10.00-14.0 0	0.15-0.18-0. 20	3.0- 6.0- 9.0	0.1- 0.1- 0.3	.20	.20			

Data Source Information

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 3, Sep 18, 2014

Soil Features

This table gives estimates of various soil features. The estimates are used in land use planning that involves engineering considerations.

A *restrictive layer* is a nearly continuous layer that has one or more physical, chemical, or thermal properties that significantly impede the movement of water and air through the soil or that restrict roots or otherwise provide an unfavorable root environment. Examples are bedrock, cemented layers, dense layers, and frozen layers. The table indicates the hardness and thickness of the restrictive layer, both of which significantly affect the ease of excavation. *Depth to top* is the vertical distance from the soil surface to the upper boundary of the restrictive layer.

Subsidence is the settlement of organic soils or of saturated mineral soils of very low density. Subsidence generally results from either desiccation and shrinkage, or oxidation of organic material, or both, following drainage. Subsidence takes place gradually, usually over a period of several years. The table shows the expected initial subsidence, which usually is a result of drainage, and total subsidence, which results from a combination of factors.

Potential for frost action is the likelihood of upward or lateral expansion of the soil caused by the formation of segregated ice lenses (frost heave) and the subsequent collapse of the soil and loss of strength on thawing. Frost action occurs when moisture moves into the freezing zone of the soil. Temperature, texture, density, saturated hydraulic conductivity (Ksat), content of organic matter, and depth to the water table are the most important factors considered in evaluating the potential for frost action. It is assumed that the soil is not insulated by vegetation or snow and is not artificially drained. Silty and highly structured, clayey soils that have a high water table in winter are the most susceptible to frost action. Well drained, very gravelly, or very sandy soils are the least susceptible. Frost heave and low soil strength during thawing cause damage to pavements and other rigid structures.

Risk of corrosion pertains to potential soil-induced electrochemical or chemical action that corrodes or weakens uncoated steel or concrete. The rate of corrosion of uncoated steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based mainly on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Special site examination and design may be needed if the combination of factors results in a severe hazard of corrosion. The steel or concrete in installations that intersect soil boundaries or soil layers is more susceptible to corrosion than the steel or concrete in installations that are entirely within one kind of soil or within one soil layer.

For uncoated steel, the risk of corrosion, expressed as *low*, *moderate*, or *high*, is based on soil drainage class, total acidity, electrical resistivity near field capacity, and electrical conductivity of the saturation extract.

For concrete, the risk of corrosion also is expressed as *low*, *moderate*, or *high.* It is based on soil texture, acidity, and amount of sulfates in the saturation extract.

Report—Soil Features

Soil Features–Santa Clara Area, California, Western Part									
Map symbol and soil name	**Restrictive Layer**				**Subsidence**		**Potential for frost action**	**Risk of corrosion**	
	Kind	**Depth to top**	**Thickness**	**Hardness**	**Initial**	**Total**		**Uncoated steel**	**Concrete**
		Low-RV-High	*Range*		*Low-High*	*Low-High*			
		In	*In*		*In*	*In*			
145—Urbanland-Hangerone complex, 0 to 2 percent slopes, drained									
Urban land	Manufactured layer	- 0-	—	Indurated	0	24-79	None		
Hangerone, drained		—	—		0	24-79	None	High	Moderate

Data Source Information

Soil Survey Area: Santa Clara Area, California, Western Part
Survey Area Data: Version 3, Sep 18, 2014

APPENDIX B

QUALIFICATIONS OF PREPARERS

Bruce Abelli-Amen, P.G., C.Hg.

Principal
Certified Hydrogeologist

M.S., Environmental Systems, Applied Geology, Humboldt State University, 1988
B.A., Geological Sciences, UC Santa Barbara
40-hour OSHA training, 1985
Certified Hydrogeologist No. 96, 1995
Professional Geologist No. 5593, 1993
25 years of experience

Recent Projects

- Yolo County Central Landfill Soil Borrow Site EIR, Project Manager
- New Irvington Tunnel EIR, Hetch Hetchy Water Conveyance System, SFPUC, EIR and Groundwater Project Manager
- Port of San Francisco, Municipal Stormwater Program Manager
- SFPUC Westside Groundwater Basin Monitoring Program Manager
- City Place EIR, Santa Clara, Project Manager for Geology, Groundwater Hydrology and Water Quality, and Hazardous Materials sections.
- Doyle Drive Replacement Project, San Francisco, Technical Lead on Hydrology and Water Quality and Groundwater Monitoring
- Apple Campus EIR, Cupertino, Project Manager for Geology, Hazards, and Hydrology EIR sections

Bruce Abelli-Amen is a Principal, Certified Hydrogeologist, and a CEQA project manager. He also manages hazardous materials investigations. He has experience in all phases of CEQA and NEPA projects, including managing large multi-disciplinary teams of specialists in the preparation of Expanded Initial Studies, Mitigated Negative Declarations, and Environmental Impact Reports and Statements. He has managed CEQA projects for landfill decommissioning, new wastewater treatment plants, mining projects, mixed-use developments, and major water conveyance infrastructure projects.

He also has experience with construction management and permitting, which provides useful insights into the development of feasible and practical mitigation measures for identified significant CEQA impacts. He is currently leading the Groundwater Management Program during construction of the SFPUC's New Irvington Tunnel between Sunol Valley and Fremont.

He is also currently assisting the Port of San Francisco with their NPDES compliance programs (both the Industrial General Permit and the Phase II MS4 General Permit. Under this program, BASELINE collects stormwater runoff samples, updates the Port's website with current content, assists with education and outreach, and completes annual reports.

He has designed and implemented groundwater aquifer tests and remediation systems for the cleanup of contaminated shallow groundwater aquifers. He has managed numerous UST investigations and is familiar with local, state, and federal regulatory requirements for such investigations. He has experience managing large-scale soil and groundwater remediation projects. He has supervised soil excavation, bioremediation, and backfill operations.

What Our Clients Say:

Bruce Abelli-Amen's performance for the Port of San Francisco is excellent. Bruce is client-focused, anticipates my project needs, and offers creative solutions if problems arise. The BASELINE team has consistently provided great service and most importantly, there are no surprises! I know that I will get a topnotch product. – Shannon Alford, Port of San Francisco

Patrick Sutton

Environmental Engineer

M.S., Civil and Environmental Engineering, University of California – Davis

B.S., Environmental Science, Dickinson College

10 years of experience

Recent Projects

- I-680 Northbound HOV/Express Lane Project, Manager for the Caltrans Initial Site Assessment and Preliminary Geological Assessment.
- Yolo County Central Landfill Soil Borrow Site EIR, Technical Lead for Air Quality, Climate Change, Geology, Hazardous Materials, Hydrology, Mineral Resources, and Paleontology.
- Mountain View General Plan EIR, Technical Lead for Hazardous Materials.
- New Irvington Tunnel Project, Water Resource Database Manager for over 40 domestic water supply wells.

Recent Publications

- Sutton, P.T. and T.R Ginn, 2014. Sustainable in-well vapor stripping: A design, analytical model, and pilot study for groundwater remediation. Journal of Contaminant Hydrology. 171 32-41.
- ASTM D6771-15 (Under Review), Standard Practice Low-Flow Purging and Sampling for Wells Used for Groundwater Quality Investigations. ASTM International.

Patrick Sutton is an environmental engineer. He has prepared numerous CEQA evaluations for air quality, climate change, geology, paleontology, hazardous materials, and water quality related to residential, commercial, and industrial projects, as well as large infrastructure developments. Mr. Sutton has also prepared many Phase I Environmental Site Assessments in accordance with ASTM standards and Initial Site Assessments and Preliminary Site Investigations in accordance with Caltrans requirements. His proficiency in a wide range of technical software (Microsoft Access, GIS, air quality and groundwater models, and graphics design) allows him to thoroughly and efficiently assess and mitigate environmental concerns.

Mr. Sutton has worked as a field technician for hazardous waste sites, and managed state-funded and privately-financed soil and groundwater remediation projects. Remediation projects have included service stations, landfills, drycleaners, railroads, and other commercial properties impacted by hazardous materials releases. As a current member of ASTM, Mr. Sutton is revising the standard for low-flow purging and sampling commonly applied during environmental investigations to improve estimates of contaminant concentrations in groundwater.

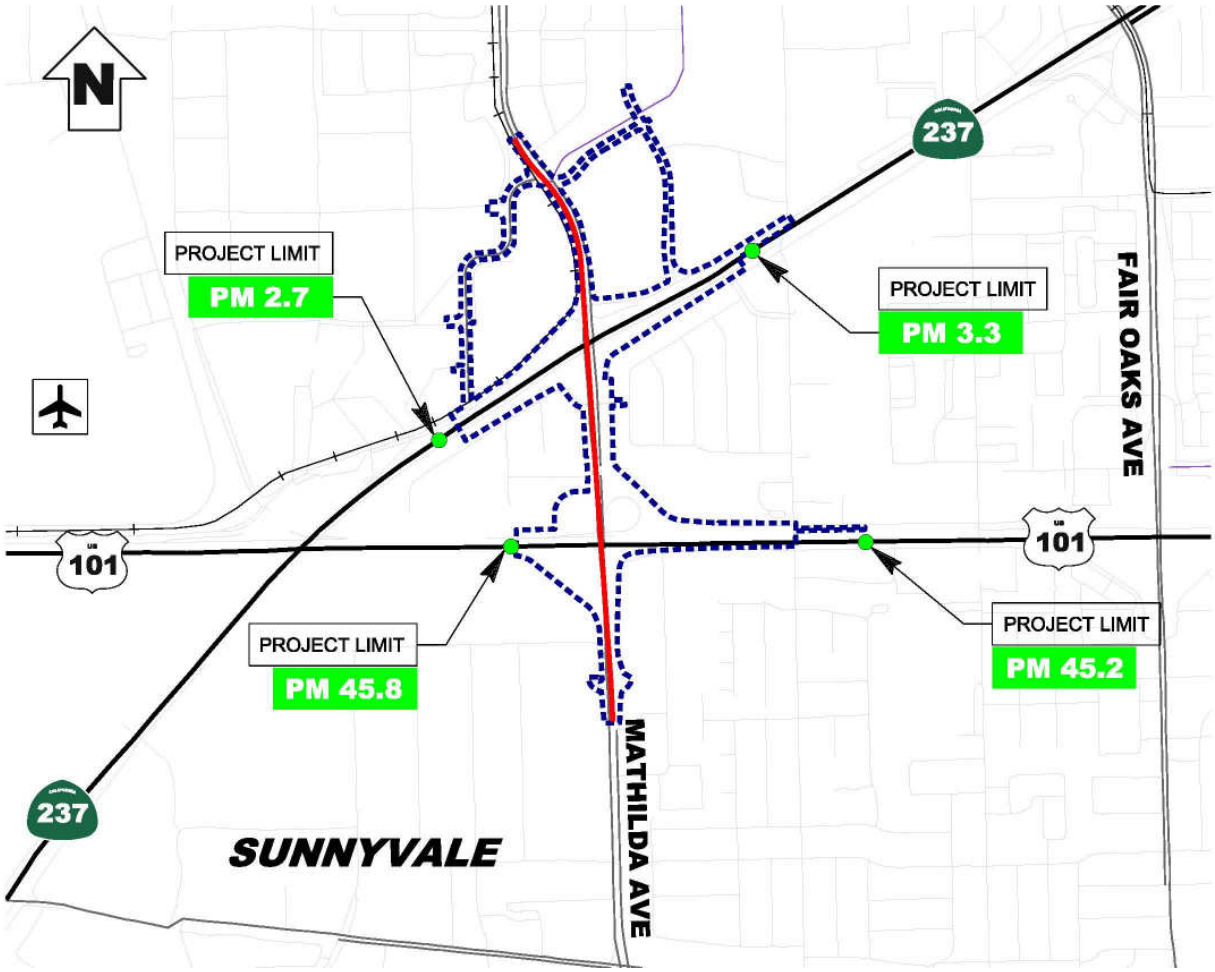
In 2014, Mr. Sutton designed and modeled a sustainable in-well vapor stripping system to remove chlorinated solvents from groundwater, and to provide an affordable alternative to conventional remediation technologies. In cooperation with the Central Valley Regional Water Quality Control Board, a successful pilot test of the technology was implemented at a dry cleaner site in Sonora, California. Mr. Sutton has also supervised the installation and maintenance of a variety of remediation systems, such as air sparge and soil vapor extraction, enhanced bioremediation, permanganate injection, and groundwater extraction. Through his work associated with assessing, investigating, and remediating hazardous materials in the subsurface, he has developed an excellent perspective on how to satisfy both regulatory and technical requirements to properly manage hazardous material concerns.

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

SUMMARY OF FLOODPLAIN ENCROACHMENT

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:
WRECO

Dated: December 2015

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Overview

This memo was prepared by WRECO for the California Department of Transportation, District 4. The purpose of this memo is to examine and analyze the existing Federal Emergency Management Agency (FEMA) floodplains within the limits of the "Mathilda Avenue Improvements at SR 237 and US 101 Project," document any potential impacts or encroachments upon these floodplains, and recommend any avoidance, minimization, or mitigation that may be required. The Floodplain Evaluation Report Summary is provided in Appendix A. Technical Information for Location Hydraulic Study is provided in Appendix B.

1. INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 miles east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 miles east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.3 miles south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 miles south of SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately one (1) mile. Figure 1 shows the location of the Project, and Figure 2 shows the vicinity of the Project.

1.1 Project Description and Alternatives

The Project alternatives that were developed to meet the purpose and need of the Project include Alternative 1, Alternative 2, and the No-Build Alternative (refer to Figure 3 and Figure 4). Under the No-Build Alternative, no changes would be made to the existing local roadways or freeway system within the Project limits. No construction activities would occur, and there would be no change in the operations of the existing facilities.

The design features of the two (2) Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges with Mathilda Avenue. The Build Alternatives include design variations for reconfigured roadways and intersections, and construction of new signalized intersections. Proposed improvements included in the Build Alternatives south of Ross Drive on Mathilda Avenue and at the US 101 interchange, are identical. This includes new bicycle and pedestrian facilities, utility relocations, new storm water treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall. Unique improvements, north of Ross Drive on Mathilda Avenue, primarily include improvements related to construction of a diverging diamond interchange (DDI)[1] under Build Alternative 2 (Figure 4).

[1] A diverging diamond interchange (DDI), also called a double crossover diamond interchange (DCD), is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows

Roadway Improvements

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction of Mathilda Avenue
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp
- Realign and widen northbound ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp
- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue
- Modify Mathilda Avenue / Ross Drive signal intersection
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.[2]
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration (see Figure 3)
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration (see Figure 4). Eastbound Moffett Park Drive between Innovation Way and Mathilda Way would be diverted to Innovation Way to access Mathilda Avenue

Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consider both Class II and Class III bikeways[3], based on available pavement widths within the project limits, and would connect to the existing Class III bikeway north of Innovation Way and Class I bikeway on the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered based on available pavement widths within the project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the project limits with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

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vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (a signal phase allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

[2] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place development project.

[3] Class I bikeway is a bicycle path. Class II bikeway is a bicycle lane. Class III bikeway is bicycle route [Source: Highway Design Manual Index 1002.1]

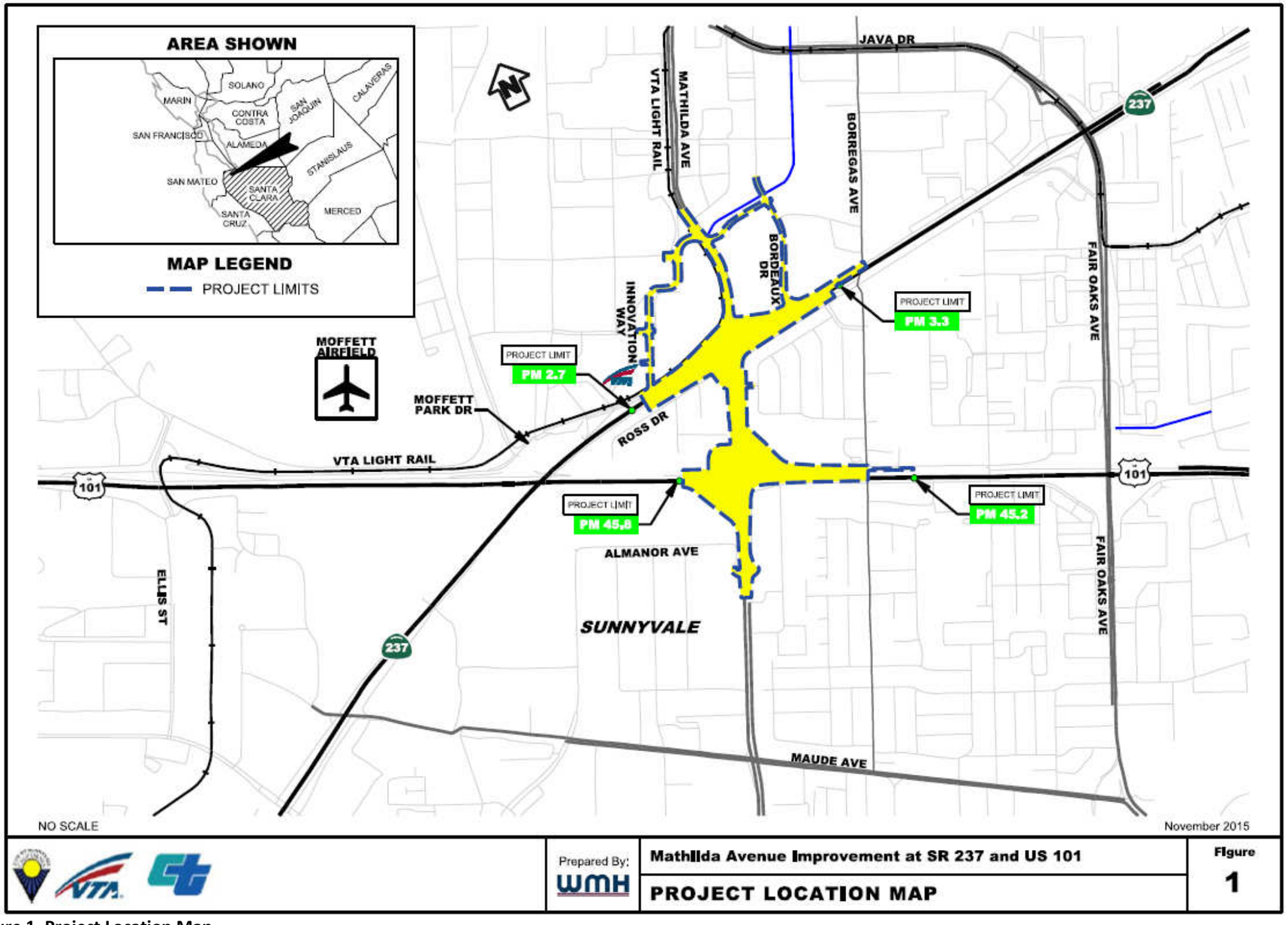

Figure 1. Project Location Map

Source: WMH Corporation

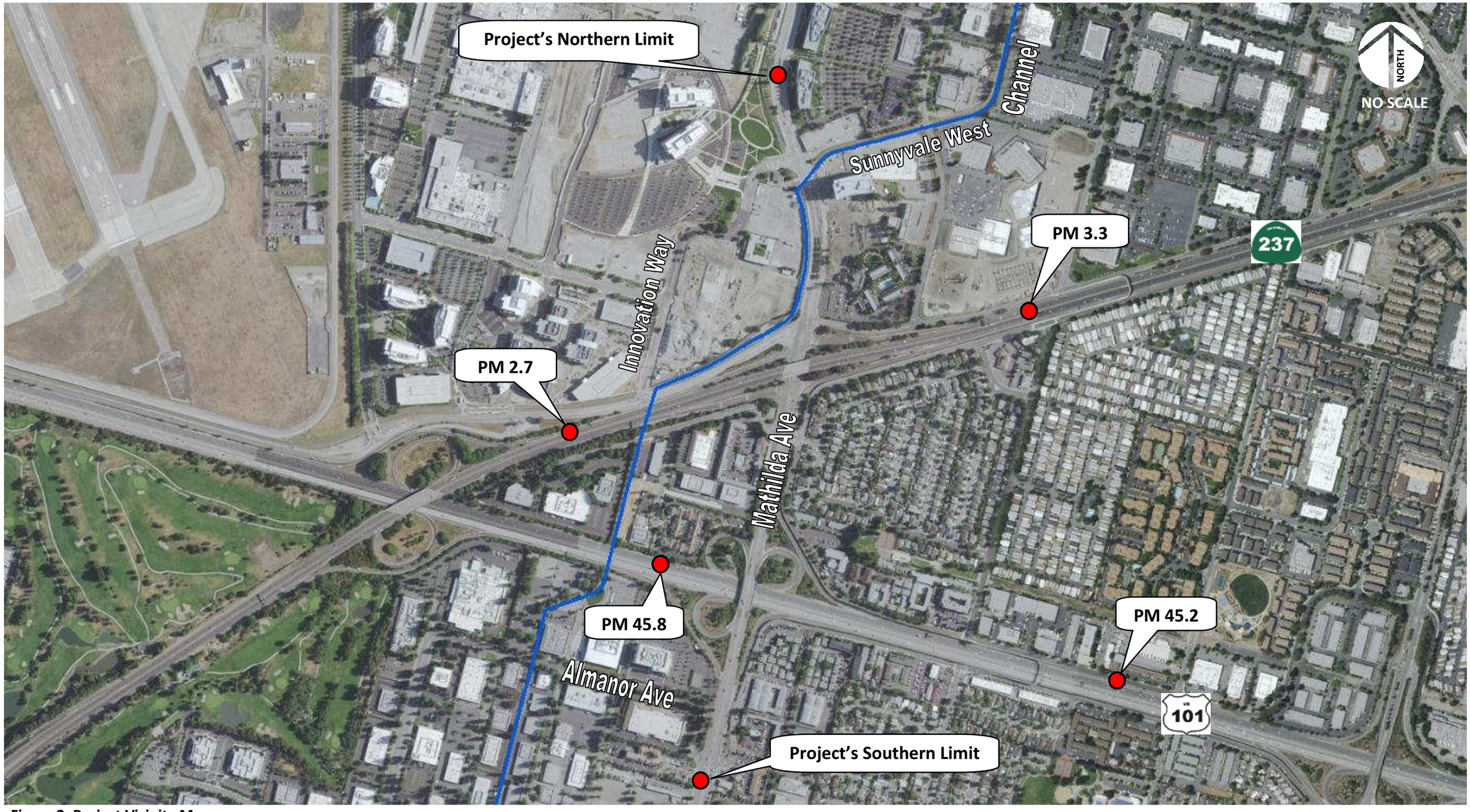

Figure 2. Project Vicinity Map

Source: Caltrans, Environmental System Research Institute (ESRI) and Santa Clara Valley Water District (SCVWD)

SUNNYVALE WEST CHANNEL
SUNNYVALE WEST CHANNEL
Mofferr Park Dr
D St
MPSP DEVELOPMENT
11th Ave
Innovation Wy
MODIFY SIGNAL
LOCKHEED MARTIN LIGHT RAIL STATION
Almanor Ave
"C" LINE
NB US 101
SB US 101
"A3" LINE
WB SR 237
EB SR 237
Hamlin Ct
Ross Dr
STAYBRIDGE SUITES
FOOTHILL-DE ANZA EDUCATION CENTER (UNDER CONSTRUCTION)
DAYS INN
N MATHILDA Ave UC SCL PM 2.99 Br No. 37-0179
Mathilda Ave
MODIFY SIGNAL
"M1" LINE
MODIFY SIGNAL
MATHILDA Ave OC SCL PM 45.68 Br No. 37-0177
Ross Dr
Bradford Dr
REMOVE SIGNAL
MOFFETT PLACE
INNOVATION WAY EXTENSION (BY OTHERS)
SHERATON HOTEL
San Aleso Ave
Garner Dr
Colton Ave
Bordeaux Dr
Duncan Ave
Bradford Dr
Madrone Ave
Hemlock Ave
W Weddell Dr
MPSP DEVELOPMENT
Essex Ave
W Ahwanee Ave
Plaza Dr
Persian Dr
Manzanita Ave
Fulton Ave
Borregas Ave
Borregas Ave
Moffett Park Dr

LEGEND:

- ALTERNATIVE 1 ROADWAY IMPROVEMENTS
- ROADWAY IMPROVEMENTS BY OTHERS
- CLASS 1 BIKE TRAIL
- CLASS 2 BIKE LANES
- PEDESTRIAN SIDEWALK/CROSSING
- PAVEMENT REMOVAL
- VTA LIGHT RAIL TRACKS
- NEW TRAFFIC SIGNAL (UNLESS OTHERWISE STATED)
- EXISTING/PROPOSED BUS STOP
- EXISTING R/W
- PARCEL LINE

WMH

SCALE IN FEET
100 50 0 100 200 300

MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2.7/3.3
SCL 101 - PM 45.4/45.8

SR 237 TIGHT DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 3
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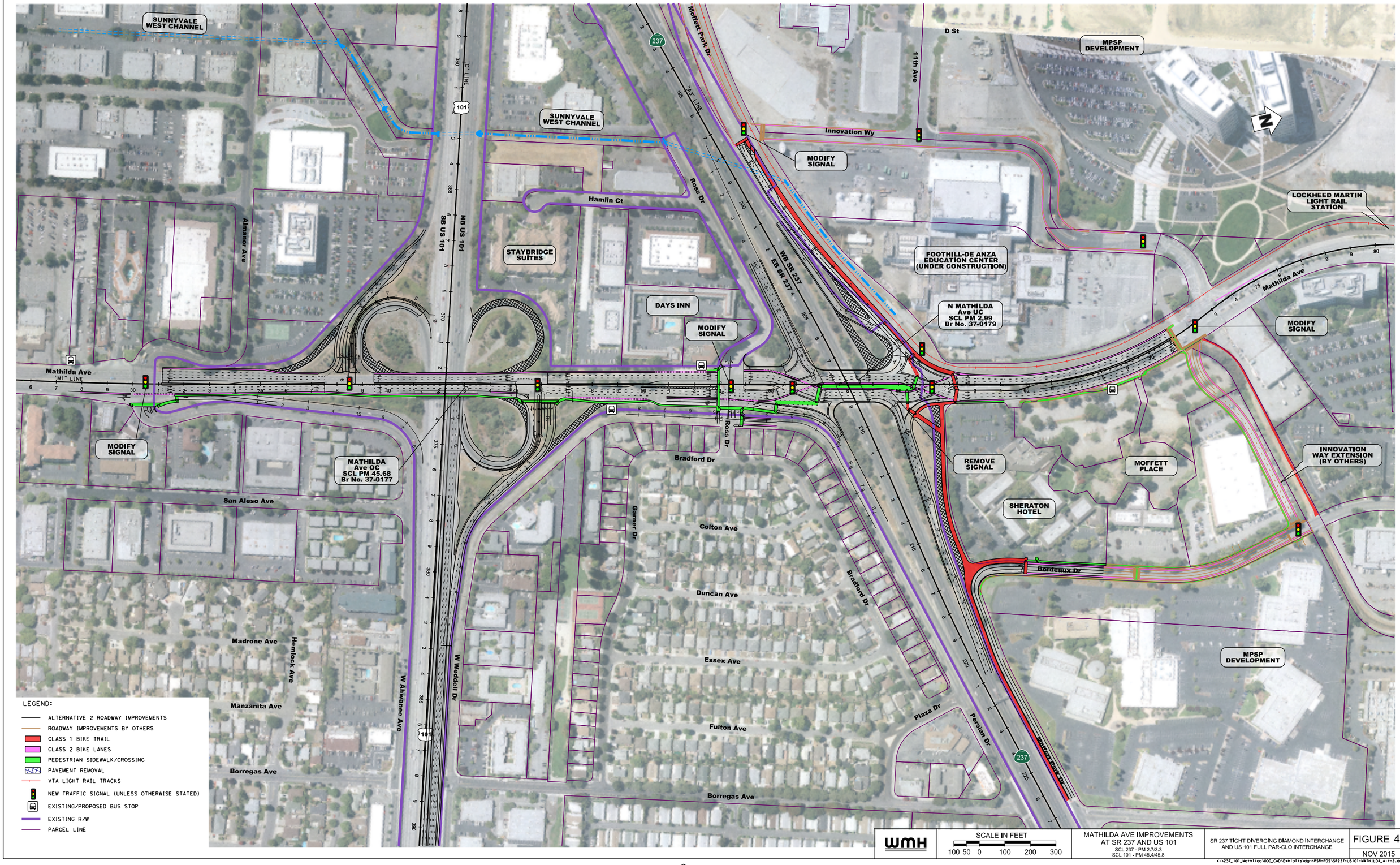

WMH

SCALE IN FEET
100 50 0 100 200 300

MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2.7/3.3
SCL 101 - PM 45.4/46.8

SR 237 TIGHT DIVERGING DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 4
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1.2 Project Background

The SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges are primary access points on the state highway system to the City of Sunnyvale and important local destinations such as downtown Sunnyvale, the Sunnyvale Caltrain Station to the south, and an expanding high-tech business district to the north. The Project is also located within the "Golden Triangle," an area bordered by US 101, SR 237, and Interstate 880 (I-880) that includes parts of Sunnyvale, Santa Clara, North San Jose, and Milpitas. The Golden Triangle is named for the high concentration of employment centers, and US 101, SR 237, and I-880 are heavily used commute corridors to destinations within and beyond the Golden Triangle.

1.3 Regulatory Setting

This section summarizes the regulatory requirements associated with the floodplain that are mandated at federal, state, and local levels.

1.3.1 Executive Order 11988

Executive Order 11988 (Floodplain Management) directs all federal agencies to avoid, to the extent possible, long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. Requirements for compliance are outlined in Title 23, Code of Federal Regulations, Part 650, Subpart A (23 CFR 650A) titled "Location and Hydraulic Design of Encroachment on Floodplains."

If the preferred alternative involves significant encroachment onto the floodplain, the final environmental document (final Environmental Impact Statement or Finding of No Significant Impact) must include:

- The reasons why the proposed action must be located in the floodplain,
- The alternatives considered and why they were not practicable, and
- A statement indicating whether the action conforms to applicable State or local floodplain protection standards.

1.3.2 California's National Flood Insurance Program

FEMA is the nationwide administrator of the National Flood Insurance Program (NFIP), which is a program that was established by the National Flood Insurance Act of 1968 to protect lives and property, and to reduce the financial burden of providing disaster assistance. Under the NFIP, FEMA has the lead responsibility for flood hazard assessment and mitigation, and it offers federally backed flood insurance to homeowners, renters, and business owners in communities that choose to participate in the program. FEMA has adopted the 100-year floodplain as the base flood standard for the NFIP. FEMA is also concerned with construction that would be within a 500-year floodplain for proposed projects that are considered "critical actions," which are defined as any activities where even a slight chance of flooding is too great. FEMA issues Flood Insurance Rate Maps (FIRMs)

for communities that participate in the NFIP. These FIRMs present delineations of flood hazard zones.

In California, nearly all of the State's flood-prone communities participate in the NFIP, which is locally administered by the California Department of Water Resources' (DWR) Division of Flood Management. Under California's NFIP, communities have a mutual agreement with the State and federal government to regulate floodplain development according to certain criteria and standards, which is further detailed in the NFIP.

The Project is located within FIRM number 06085C0045H, as shown in Figure 5.

1.3.3 Santa Clara County Floodplain Data

Typically, each county (or community) has a Flood Insurance Study (FIS), which is used to locally develop FIRMs and Base Flood Elevations (BFEs). Santa Clara County's effective FIS identifies special flood hazard areas and other flood areas within unincorporated and incorporated areas of the county.

The Project is covered by FIS numbers 06085CV001B, 06085CV002B, 06085CV003B, and 06085CV004B.

1.4 Design Standards

This section presents the design standards relevant to the chance of flooding.

1.4.1 FEMA Standards

The FEMA standards are employed for design, construction, and regulation to reduce flood loss and to protect resources. Two types of standards are often employed: design criteria and performance standards.

A design criterion or specified standard dictates that a provision, practice, requirement, or limit be met; e.g., using the 100-year flood and establishing floodway boundaries so as not to cause more than a 1-foot increase in flood stages.

A performance standard dictates that a goal is to be achieved, leaving it to the individual application as to how to achieve the goal; e.g., providing protection to the regulatory flood, keeping post-development stormwater runoff the same as pre-development, or maintaining the present quantity and quality of water in a wetland.

The 100-year flood and floodplain have been adopted as a common design and regulatory standard in the United States. The NFIP adopted it in the early 1970s, and it was adopted as a standard for use by all federal agencies with the issuance of Executive Order 11988. States or local agencies are free to impose a more stringent standard within their jurisdiction.

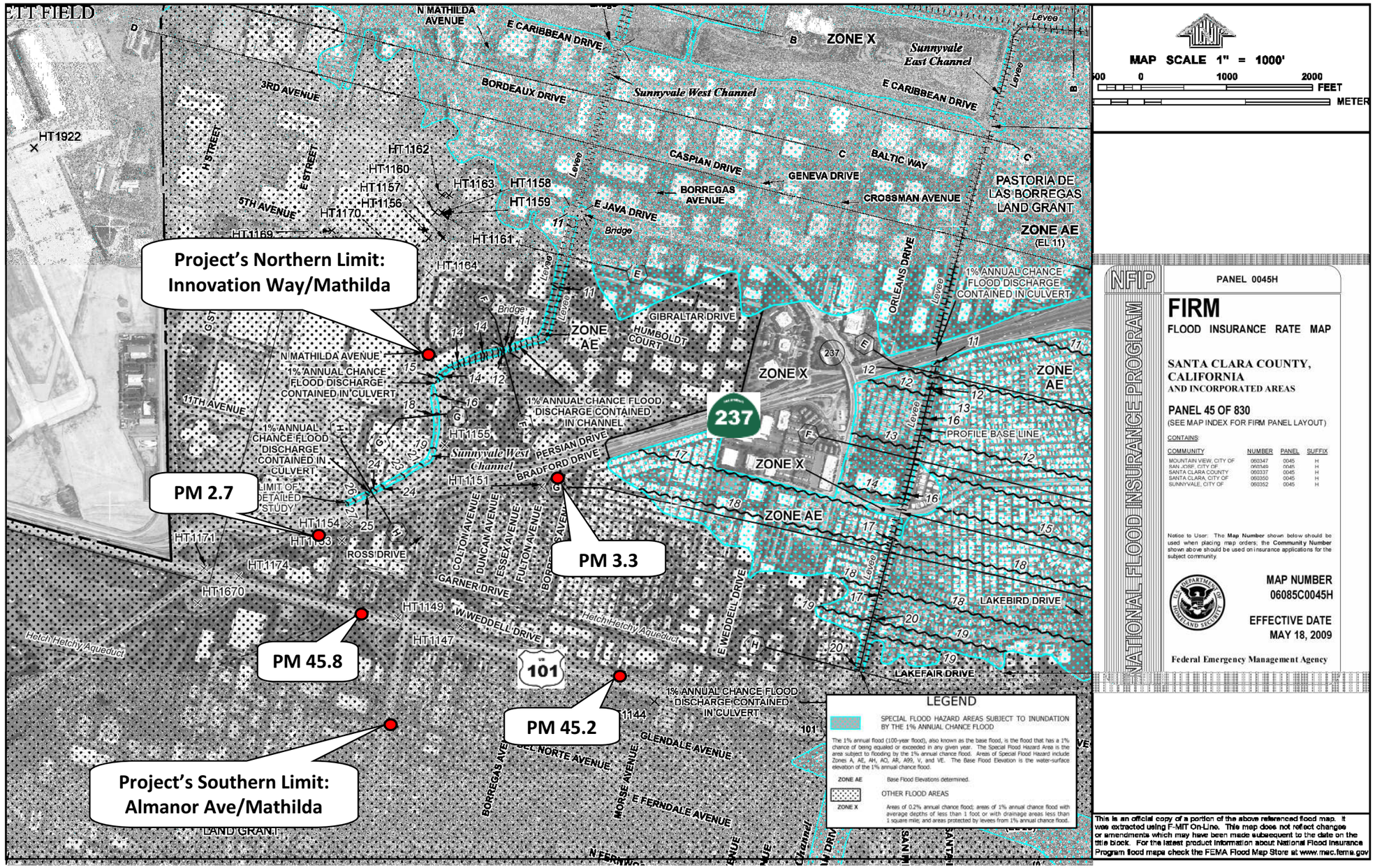

Figure 5. Flood Insurance Rate Map for the Project Area

Source: FEMA

2. AFFECTED ENVIRONMENT

This section describes the physical setting of the Project area. The Project limits cover approximately one mile along Mathilda Avenue between US 101 and SR 237 in the City of Sunnyvale, as well as the US 101 and SR 237 ramps and intersections with Mathilda Avenue.

2.1 Geographic Location

The geographic coordinates shown on the FEMA FIRMs and used in the FIS for Santa Clara County are referenced to the North American Datum of 1983 (NAD83).

2.2 Vertical Datum

The elevations shown in the FEMA FIRMs and FIS for Santa Clara County are referenced to the North American Vertical Datum of 1988 (NAVD88).

2.3 Creek, Stream, and River Crossings

Within the Project limits, Sunnyvale West Channel crosses SR 237 through a culvert at approximately PM 2.8 (see Figure 2). The channel also crosses Mathilda Avenue through a culvert approximately 100 feet south of Innovation Way. After crossing Mathilda Avenue, the channel becomes an open channel and flows northeast. Runoff from the Project is expected to be collected by the Caltrans or City of Sunnyvale stormwater drainage system instead of directly discharging to the channel at these crossings. Runoff from the Project would eventually discharge to San Francisco Bay. Figure 2 and Figure 6 show the location of the Sunnyvale West Channel within the Project vicinity.

2.4 Watershed Description

The Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) identifies the Project as being located within the Sunnyvale West Watershed (see Figure 7). The watershed has a drainage area of 7.6 square miles and is almost entirely urbanized.

The Sunnyvale West Channel is the receiving water body. The channel is approximately 3 miles in length. The channel originates from Maude Avenue as a concrete pipe culvert until it reaches Almanor Avenue in the northeastern direction. The channel becomes an earth-excavated channel from Almanor Avenue to Mathilda Avenue. The channel flows northeast to Guadalupe Slough via the Moffett Channel, and then ultimately drains to San Francisco Bay.

2.5 FEMA Floodplains

The FEMA FIRMs were researched for floodplain information. A Zone AE floodplain area is associated with Sunnyvale West Channel. FIRM number 06085C0045H identifies SR 237, US 101, and Mathilda Avenue in the Project limits as being within areas classified as shaded Zone X. The description of Zone AE in the Project vicinity is “1% annual chance flood discharge contained in channel.” The description of shaded Zone X in this FIRM is “areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less

than 1 square mile; and areas protected by levees from 1% annual chance flood" (see Figure 5 and Figure 6 for the flood hazard areas).

Hydrologic Engineering Center data (HEC-2) for the Sunnyvale West Channel was obtained from the Santa Clara Valley Water District website. The results show that the 100-year flood is contained in the channel.

2.6 Traffic

The SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges are primary access points on the state highway system for the City of Sunnyvale and important local destinations. US 101, SR 237, and I-880 are heavily used commute corridors to destinations within and beyond the Golden Triangle.

Mathilda Avenue is used for emergency supply and evacuation, emergency vehicle access, school buses, and mail delivery. Approximately 45,000 vehicles travel on Mathilda Avenue south of SR 237 on an average weekday, and traffic is projected to exceed 2,000 vehicles per hour during the AM and PM peak hours by 2040 per the Project Study Report-Project Development Support (WMH Corporation, 2015).

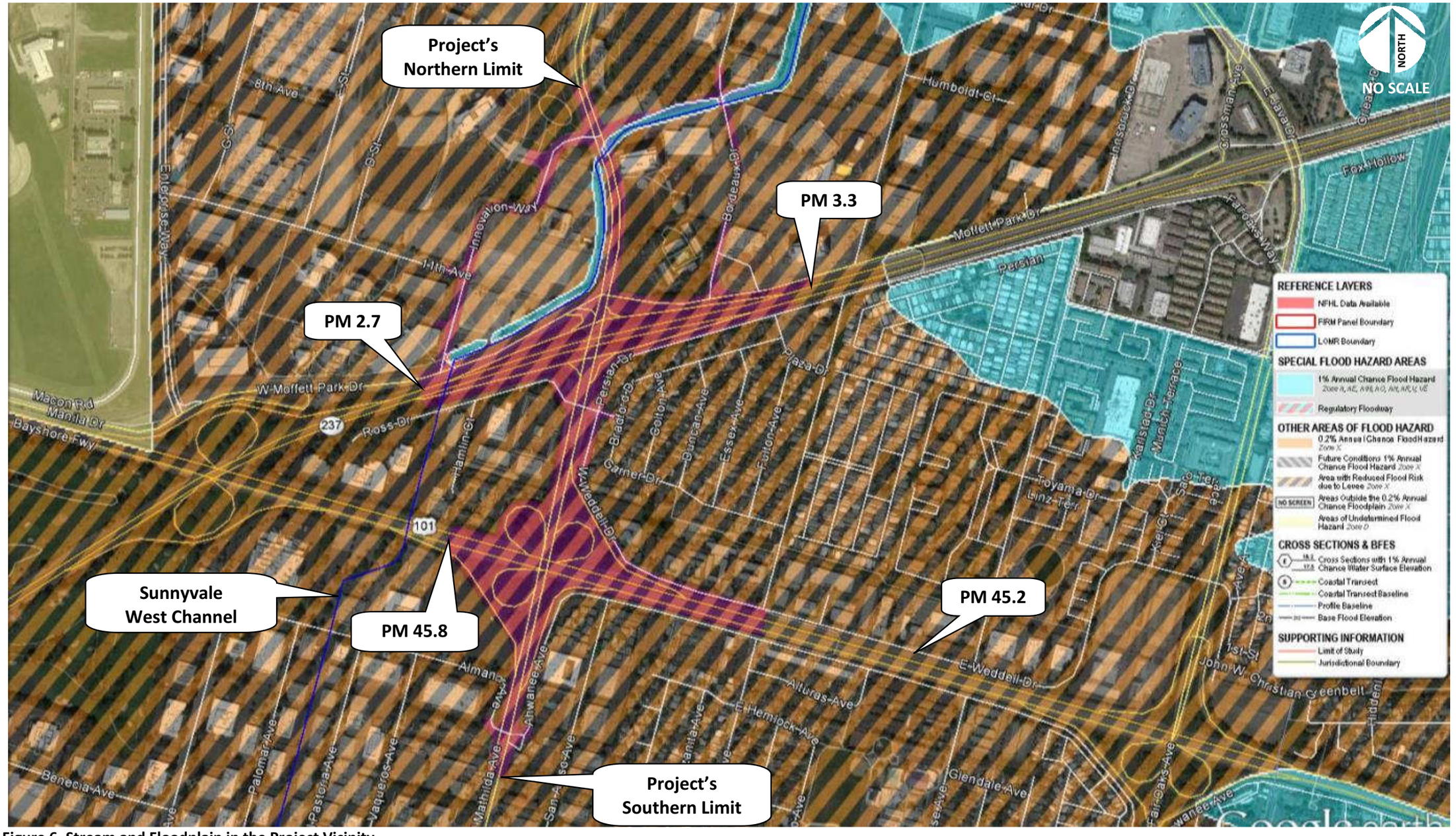

Figure 6. Stream and Floodplain in the Project Vicinity

Source: FEMA, Google Earth, Santa Clara County and WMH Corporation

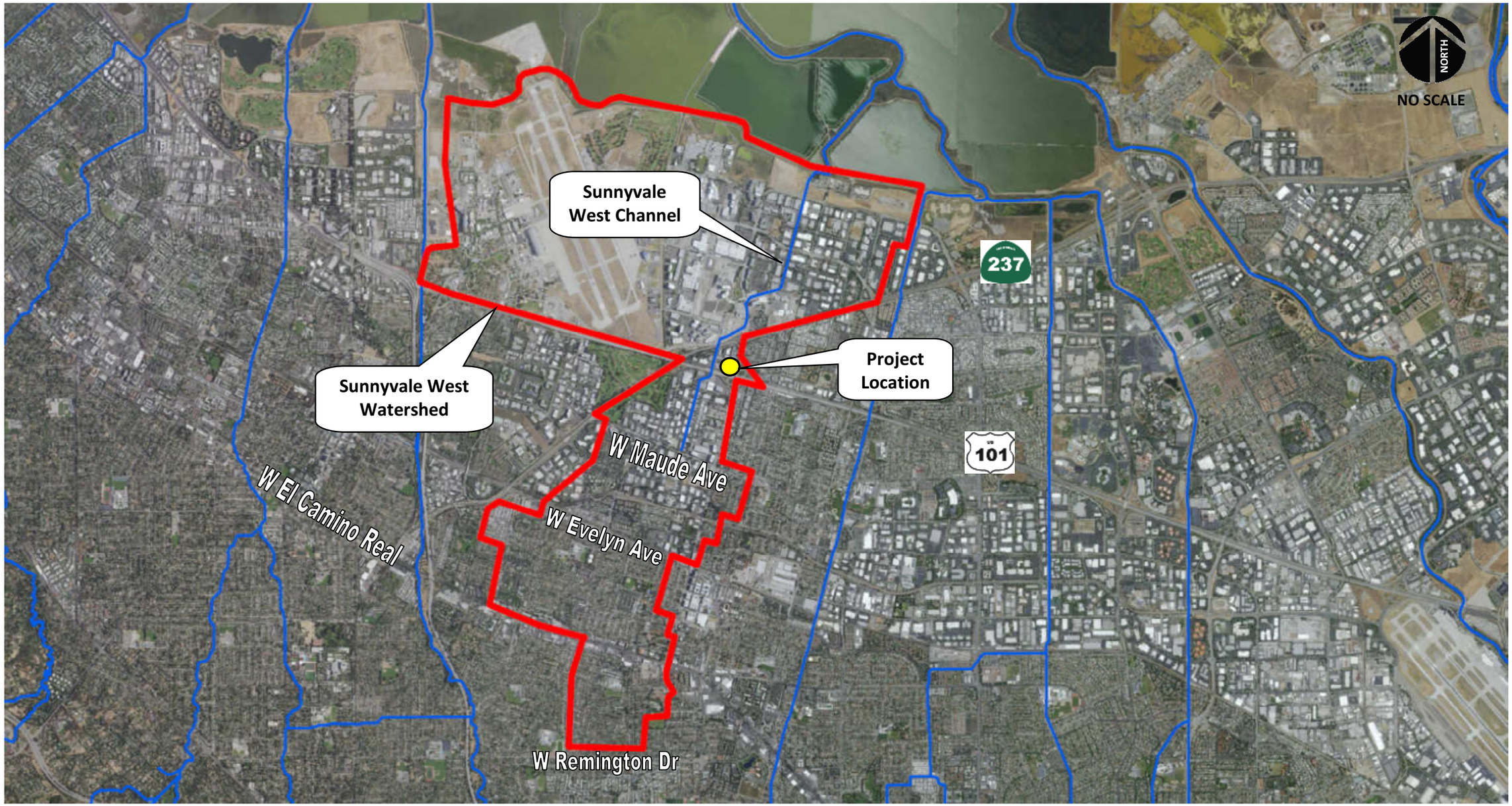

Figure 7. Sunnyvale West Watershed

Source: Santa Clara County

3. ENVIRONMENTAL CONSEQUENCES AND PROJECT IMPACTS

3.1 Summary of Potential Encroachments

The Federal Highway Administration (FHWA) defines a significant encroachment as a highway encroachment, and any direct support of likely development within the 100-year floodplain, that would involve one or more of the following construction or flood-related impacts: 1) significant potential for interruption or termination of a transportation facility that is needed for emergency vehicles or provides a community's only evacuation route; 2) a significant adverse impact on the natural and beneficial floodplain values; 3) support of probable incompatible floodplain development; or 4) longitudinal encroachments (1994).

3.1.1 Potential Traffic Interruptions

The Project's roadway improvements are outside of the 100-year floodplain. Practical detour routes are available, including on roads parallel to Mathilda Avenue, which would remain available during Project construction. Traffic interruptions are not anticipated.

3.1.2 Potential Impacts on Natural and Beneficial Floodplain Values

Natural and beneficial floodplain values include, but are not limited to: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

Impacts to natural and beneficial floodplain values are not anticipated. The Project's roadway improvements are outside of the 100-year floodplain.

3.1.3 Support of Probable Incompatible Floodplain Development

As defined by the FHWA, the support of incompatible 100-year floodplain development will encourage, allow, serve, or otherwise facilitate incompatible 100-year floodplain development, such as commercial development or urban growth.

New access to undeveloped land would not be added with the Project improvements, and the Project would not support probable incompatible floodplain development.

3.1.4 Longitudinal Encroachments

As defined by the FHWA, a longitudinal encroachment is an action within the limits of the 100-year floodplain that is longitudinal to the normal direction of the floodplain. A longitudinal encroachment is "[a]n encroachment that is parallel to the direction of flow. Example: A highway that runs along the edge of a river is, usually considered a longitudinal encroachment." The requirement for consideration of avoidance alternatives must be included in a Location Hydraulic Study by including an evaluation and a discussion of the practicability of alternatives to any significant encroachment or any support of incompatible floodplain development.

Because the Project's roadway improvements are outside of the 100-year floodplain, and only minor improvements (e.g. signal modifications, restriping, etc.) are proposed within the Zone AE area, there are no longitudinal encroachments.

3.2 Risk Associated with Implementation of the Project

As defined by the FHWA, risk means the consequences associated with the probability of flooding attributable to an encroachment. It includes the potential for property loss and hazard to life during the service life of the bridge and roadway.

The potential risks associated with the implementation of the Project include a study of the following: 1) change in land use, 2) fill inside the floodplain, 3) change in the 100-year flood elevation, or 4) change in impervious surface area.

3.2.1 Change in Land Use

The Project would not result in changes to the existing land uses within the Project area or the surrounding areas. The Project proposes to improve the existing ramps and roadways; therefore, the area will remain a transportation corridor after Project completion. The areas surrounding the Project are currently developed with commercial and residential land uses, and the Project does not propose to change these land uses.

3.2.2 Fill Inside the Floodplain

The Project would result in fill; however, those cut and fill areas are not located within the 100-year floodplain, so no fill within the 100-year floodplain would result from the Project.

3.2.3 Change in the 100-Year Flood Elevation

No change in the 100-year flood elevation is expected as a result of the Project.

3.2.4 Change in Impervious Surface Area

Alternative 1 would add approximately 2 acres of impervious area, and Alternative 2 would add approximately 3 acres. However, given the size of the watershed (7.6-square-mile drainage area), the increase in impervious area from either alternative is not expected to impact the 100-year floodplain or 100-year flood elevations.

3.2.5 Summary of Risk

Based on the facts presented above, there is a low risk of floodplain impact associated with the Project.

4. AVOIDANCE, MINIMIZATION, AND/OR MITIGATION MEASURES

The Project would not result in floodplain impacts because all the major improvements in the Project are outside of the 100-year floodplain. The Project would increase the impervious area, but under either Build Alternative, the area would be small compared to the watershed and would not significantly increase flows or affect floodplain areas. In addition, downstream of the Sunnyvale

West Channel from Mathilda Avenue will be improved by the SCVWD proposed Sunnyvale East and West Channels Flood Protection Project. Therefore, no floodplain avoidance or minimization measures are considered, and mitigation measures are not required for this Project under either Build Alternative.

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Appendix A Floodplain Evaluation Report Summary

FLOODPLAIN EVALUATION REPORT SUMMARY

Dist. 04 Co. SCL Rte. SR 237, US 101
P.M. 2.7/3.3, 45.2/45.8 EA: 04-4H2900 Bridge No. n/a
Federal-Aid Project Number: n/a

Limits:
On Mathilda Avenue, from Almanor Avenue to Innovation Way. On SR 237, from 0.3 miles south of the US 101/SR 237 Intersection (PM 2.7) to 0.3 miles east of the Mathilda Avenue overcrossing (PM 3.3). On US 101, from 0.3 miles south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 miles south of SR 237/US 101 Interchange (PM 45.8).

Floodplain Description:
The Project is generally located within FEMA shaded Zone X. The FEMA FIRM has been identified this shaded Zone X areas as "areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood". The Zone AE areas associated with the Sunnyvale West Channel encompasses portions of the Innovation Way/Mathilda Avenue intersection, and has been identified in the FEMA FIRM as "1% annual chance flood discharge contained in culvert".

		No	Yes
1.	Is the proposed action a longitudinal encroachment of the base floodplain?	X	
2.	Are the risks associated with the implementation of the proposed action significant?	X	
3.	Will the proposed action support probable incompatible floodplain development?	X	
4.	Are there any significant impacts on natural and beneficial floodplain values?	X	
5.	Routine construction procedures are required to minimize impacts on the floodplain. Are there any special mitigation measures necessary to minimize impacts or restore and preserve natural and beneficial floodplain values? If yes, explain.	X	
6.	Does the proposed action constitute a significant floodplain encroachment as defined in 23 CFR, Section 650.105(q).	X	
7.	Are Location Hydraulic Studies that document the above answers on file? If not explain.		X

PREPARED BY:

_____ *Date* _____
Local Agency/Consulting Project Engineer *(capital and 'on' system projects)*

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

Appendix B Technical Information for Location Hydraulic Study

TECHNICAL INFORMATION FOR LOCATION HYDRAULIC STUDY

Dist. 04 Co. SCL Rte. SR 237, US 101
P.M. 2.7/3.3, 45.2/45.8 EA: 04-4H2900 Bridge No. n/a
Federal-Aid Project Number: n/a

Floodplain Description:
The Project is generally located within FEMA shaded Zone X. The FEMA FIRM has been identified this shaded Zone X areas as "areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood". The Zone AE areas associated with the Sunnyvale West Channel encompasses portions of the Innovation Way/Mathilda Avenue intersection, and has been identified in the FEMA FIRM as "1% annual chance flood discharge contained in culvert".

1. Description of Proposal *(include any physical barriers i.e. concrete barriers, soundwalls, etc. and design elements to minimize floodplain impacts)*
The Project proposes to reconfigure lanes on Mathilda Avenue and modify the US 101/Mathilda Avenue and SR 237/Mathilda Avenue interchanges. The proposed improvements included modification to on- and off-ramps; removal, addition, and signalization of intersections, provision of new left-turn lanes. In addition, the Project would includes new bicycle and pedestrian facilities, utility relocations, new storm water treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and new retaining wall.

2. ADT: Current 45,000 Projected 48,000 (2040)

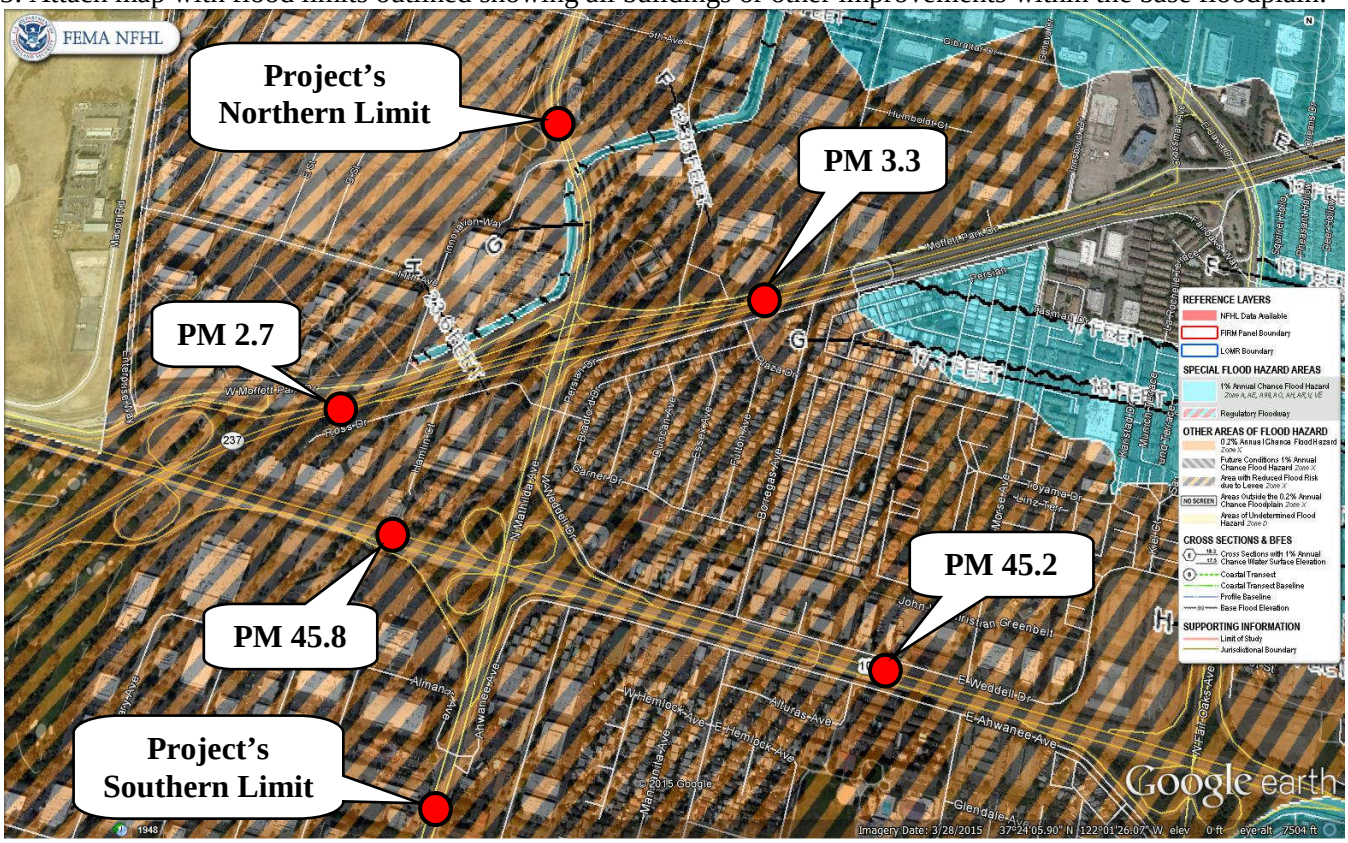
3. Hydraulic Data:

Base Flood:	Q_{100}=	360	cfs	WSE_{100}= 16 ft (NAVD 88)
The flood of record, if greater than Q_{100}	Q=	n/a	cfs	WSE=
Overtopping flood	Q=	n/a	cfs	WSE=

Are NFIP maps and studies available? NO ____ YES X

4. Is the highway location alternative within a regulatory floodway? NO X YES ____

5. Attach map with flood limits outlined showing all buildings or other improvements within the base floodplain.



Dist. 04 Co. SCL Rte. SR 237, US 101
P.M. 2.7/3.3, 45.2/45.8 EA: 04-4H2900 Bridge No. n/a
Federal-Aid Project Number: n/a

Potential Q100 backwater damages:

A.	Residences?	NO X	YES
B.	Other Bldgs?	NO X	YES
C.	Crops?	NO X	YES
D.	Natural and beneficial Floodplain values?	NO X	YES

"Natural and beneficial flood-plain values" shall include but are not limited to fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge.

6. Type of Traffic:

A. Emergency supply or evacuation route?	NO	YES X
B. Emergency vehicle access?	NO	YES X
C. Practicable detour available?	NO	YES X
D. School bus or mail route?	NO	YES X

7. Estimated duration of traffic interruption for 100-year event hours: n/a

8. Estimated value of Q100 flood damages (if any) – moderate risk level.

A.	Roadway	$ n/a
B	Property	$ n/a
	Total	$ n/a

9. Assessment of Level of Risk

Low X
Moderate
High

For High Risk projects, during design phase, additional Design Study Risk Analysis may be necessary to determine design alternative.

PREPARED BY:

Signature:
I certify that I have conducted a Location Hydraulic Study consistent with 23 CFR 650 and that the information summarized in items numbers 3, 4, 5, 7, and 9 of this form is accurate.

_____ *Date* _____
Local Agency/Consulting Hydraulic Engineer *(local assistance projects)*

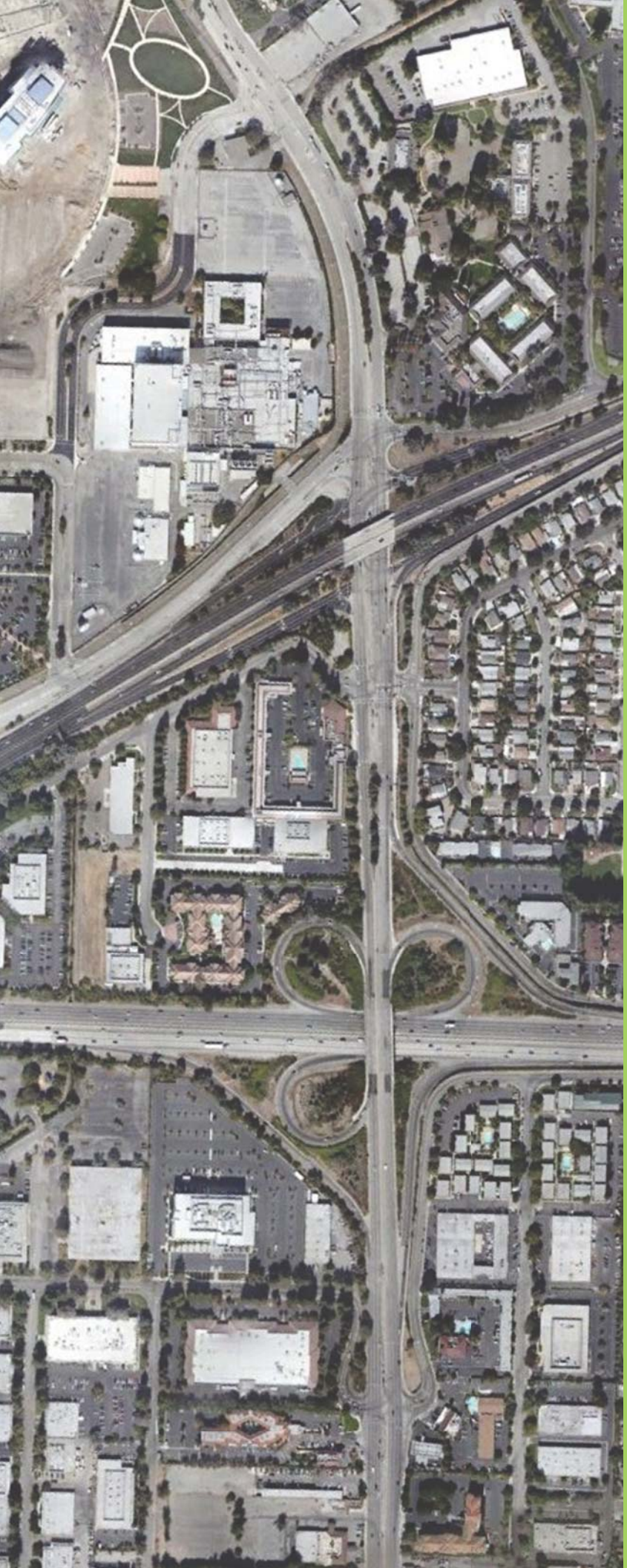
Is there any longitudinal encroachment, significant encroachment, or any support of incompatible Floodplain development? NO X YES

If yes, provide evaluation and discussion of practicability of alternatives in accordance with 23 CFR 650.113

Information developed to comply with the Federal requirement for the Location Hydraulic Study shall be retained in the project files.

I certify that item numbers 1, 2, 6 and 8 of this Location Hydraulic Study Form are accurate and will ensure that Final PS&E reflects the information and recommendations of said report:

_____ *Date* _____
Local Agency/Consulting Project Engineer (*local assistance projects)*



Prepared by
FEHR PEERS

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Mathilda Avenue Improvements at SR 237 and US 101

Final Traffic Operations Analysis and Report

Final

Traffic Operations Analysis Report: Mathilda Avenue Improvements between SR 237 and US 101 Project

Prepared for:
VTA
Caltrans
City of Sunnyvale

June 2016

SJ13-1460

FEHR PEERS

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1. INTRODUCTION

The primary goal of the Mathilda Avenue at SR 237 and US 101 Project is to reduce congestion and improve traffic operations within project limits on Mathilda Avenue between SR 237 and US 101 while improving mobility for all travel modes in the area.

Regional growth, local development, and constrained geometrics have resulted in substantial traffic congestion on Mathilda Avenue, a main arterial roadway providing access into and out of downtown Sunnyvale and development to the north of SR 237. Without efficient access to these locations, the economic vitality and sustainability of Sunnyvale is adversely affected. Mathilda Avenue between SR 237 and US 101 currently carries approximately 2,500 and 2,700 vehicles during peak direction in the AM and PM peak hour, respectively. Traffic demand on SR 237 at Mathilda Avenue has increased in the past several years due to regional and local land use development. Continued growth in traffic demand in the study area would exacerbate congestion levels thereby adversely affecting mobility and safety. The purpose of this project is to reduce congestion and improve traffic operations on Mathilda Avenue between SR 237 and US 101 while considering enhanced mobility for all travel modes in the area. The scope and scale of the project is intended to provide locally-scaled transportation improvements in the near term that address multiple existing deficiencies in a cost-effective manner.

PURPOSE OF REPORT

The purpose of this Traffic Operations Analysis Report (TOAR) is to present existing and anticipated future transportation conditions for Mathilda Avenue at SR 237 and US 101. The results contained in this report serve as the basis for the traffic operations section of the Project Approval/Environmental Document (PA/ED) and associated Environmental Impact Report (EIR) being completed pursuant to the California Environmental Quality Act (CEQA). The Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale are proceeding with an EIR for the following reasons:

- Under the Build Alternatives, traffic from the closure of Moffett Park Drive would be diverted to a new access point to be construction at Mathilda Avenue and Innovation Way. Based on the past studies, the Mathilda Avenue/Innovation Way intersection in the Year 2025 is predicted to operate at Level of Service (LOS) F in the PM peak hour. This intersection exceeds the Congestion Management Program threshold of LOS E and mitigation may not be feasible due to potential right-of-way impacts.
- Right-of-way concerns for the project include acquisition of a private road (Innovation Way) and loss of access to a private business (Sheraton Hotel).
- The project considers two Build Alternatives to be equally analyzed. One of the alternatives includes a diverging diamond-style interchange, an innovative design potentially subject to additional scrutiny.
- Under an EIR, a more robust public outreach process is required that will assure potential issues of concern by the public and other stakeholders are identified, documented, and considered in the analysis.

- The City has been challenged several times on the basis of CEQA adequacy in past project efforts, most notably the Mary Avenue Extension Project, which is located in the same general area as the project.
- The City of Sunnyvale is the local sponsor of the project, and the City Council has stated preference for an EIR.

The scope and scale of the project is intended to provide locally-scaled transportation improvements in the near term that address multiple existing deficiencies. The Santa Clara VTA, the City of Sunnyvale, and Caltrans District 4 are collaborating to advance this project through the approval process. Conditions are described for all travel modes, including automobiles, trucks, bicycles, pedestrians and surface transit. However, the primary focus of this report is on the expected automobile traffic operations that would result from implementation of the proposed project with bicycle and pedestrian facilities and transit services qualitatively discussed under Existing Conditions.

Prior to this TOAR, the project team completed the Alternatives Analysis and Project Initiation phases of the project. Caltrans approved the Project Study Report – Project Development Support (PSR / PDS) in February 2015.

PROJECT DESCRIPTION

The project is located within the City of Sunnyvale in Santa Clara County, California. The project proposes to improve local roadway operations on Mathilda Avenue in the City of Sunnyvale from Almanor Avenue and the US 101 / Mathilda Avenue interchanges. Two build alternatives are analyzed in this Report. Build Alternative I would modify westbound SR 237 ramps to provide a diamond configuration. Build Alternative 2 would modify Mathilda Avenue and SR237 ramps to provide a diverging diamond configuration.

The Build Alternatives would consist of the following roadway improvements:

- Provision of three continuous through lanes in each direction of Mathilda Avenue.
- Removal of the northbound US 101 loop off-ramp and shifting of traffic to the northbound US 101 diagonal off-ramp.
- Realignment and widening of the northbound ramps and signalize ramp intersection with Mathilda Avenue and construct a left-turn lane on southbound Mathilda Avenue to access the northbound US 101 on-ramp.
- Realignment of southbound US 101 off-ramp and loop on-ramp and signalization of the ramp intersection with Mathilda Avenue.
- Modification of the Mathilda / Ross Drive signalized intersection.
- Closure of Moffett park Drive between Bordeaux Drive and Mathilda Avenue and shifting traffic to Bordeaux Drive and Innovation Way.
- Removal of westbound SR 237 ramp signal intersection; realignment of westbound SR 237 off-ramp outside Moffett Park Drive and modification of the signalized intersection.

In general, proposed bicycle and pedestrian improvements in the project area would be consistent with the City of Sunnyvale 2006 Bicycle Plan and the Santa Clara Countywide Bicycle Plan (August 2008) and would include the following components:

- Upgrading existing pedestrian facilities to incorporate Americans with Disabilities Act (ADA) standards including curb ramps to all crosswalks.
- Incorporating pavement delineation with new crosswalk markings.
- Installation of pedestrian countdown signals.
- Realignment and signalizations of ramp termini to provide new pedestrian crossings, where feasible.
- Bicycle improvements on Moffett Park Drive would consist of a Class I bicycle path between Bordeaux Drive and Mathilda Avenue.
- Bicycle improvements on Mathilda Avenue will consider Class II bicycle lanes based on available pavement widths and provision of pedestrian facilities within the project limits, and would connect to the existing Class III bicycle route north of Innovation Way.

Under the No Build Alternative, no changes would be made to the existing local roadways or freeway system within the project limits.

REPORT ORGANIZATION

The report is organized into the following sections:

Data Collection and Analysis Methodology – Chapter 2 presents the study area, data collection and operational analysis methodologies.

Existing Conditions – Chapter 3 presents the existing physical and operational characteristics of the transportation system within the study area.

Travel Demand Forecasts – Chapter 4 presents future year (2018 and 2040) peak period traffic forecasts for the study area.

Year 2018 Traffic Operations Analysis – Chapter 5 presents year 2018 traffic operations analysis results.

Year 2040 Traffic Operations Analysis – Chapter 6 presents year 2040 traffic operations analysis results.

Traffic Analysis Summary – Chapter 7 presents an overall summary of the traffic operations analysis results.

2. DATA COLLECTION AND ANALYSIS METHODOLOGY

This chapter presents the study area, data collection and operational analysis methodologies. It is consistent with that presented in the updated final methodology memorandum dated August 2015 on study assumptions, methodologies and approach.

STUDY AREA

The study area is located within the City of Sunnyvale in Santa Clara County, California. It includes Mathilda Avenue between Almanor Avenue-Ahwanee Avenue and Fifth Avenue, including the interchanges at SR 237 and US 101. **Figure 1** illustrates the transportation analysis study area, which is generally bounded by Fifth Avenue to the north, Almanor Avenue-Ahwanee Avenue to the south, Fair Oaks Avenue to the east, and northbound US 101 on ramp at Moffett Park Drive to the west. This study evaluates the following intersections:

1) Mathilda Avenue/Fifth Avenue
2) Mathilda Avenue/Innovation Way
3) Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps
4) Mathilda Avenue/SR 237 EB Ramps
5) Mathilda Avenue/Ross Drive
6) Mathilda Avenue/US 101 NB Ramps (Build intersection)
7) Mathilda Avenue/US 101 SB Ramps (Build intersection)
8) Mathilda Avenue/Ahwanee Avenue-Almanor Avenue
9) US 101 NB On-Ramp/Moffett Park Drive
10) Innovation Way/Moffett Park Drive
11) Innovation Way/Eleventh Avenue (unsignalized)
12) Innovation Way/Juniper Networks Driveway (unsignalized)
13) Bordeaux Drive/Innovation Way (future intersection)

In addition, this study evaluates the following freeway mainline segments:

1) SR 237
    a. Lawrence Expressway to Fair Oaks Avenue
    b. Fair Oaks Avenue to Mathilda Avenue
    c. Mathilda Avenue to US 101 Ramps
    d. US 101 Ramps to Maude Avenue
2) US 101
    a. Lawrence Expressway to Fair Oaks Avenue
    b. Fair Oaks Avenue to Mathilda Avenue
    c. Mathilda Avenue to SR 237 Ramps
    d. SR 237 Ramps to Ellis Street

Study Intersections

Freeway Study Segment

Figure 1

Vicinity Map
Mathilda Avenue Improvements

DATA COLLECTION

Extensive traffic and transportation data collection efforts were undertaken between 2013 and 2015 to determine existing peak hour traffic volumes, truck percentages, lane configurations, travel times throughout the corridor and mainline segments, and queues on key roadways within the study area. Existing and proposed pedestrian/bicycle facilities were identified and transit service information for routes within the area was also collected.

LOCAL STREET SYSTEM TRAFFIC DATA

Weekday intersection turning movement, pedestrian and bicycle counts were conducted during the morning (7:00 AM to 9:00 AM) and evening (4:00 PM to 7:00 PM) peak periods at six of the study intersections in November 2013. The remainder of the intersections use count data that was collected on the dates presented in **Table 2-1** during the morning and evening peak periods on a typical weekday. All counts were conducted while schools were in session.

TABLE 2-1: INTERSECTION COUNT DATES

	Intersection	Count Date
1	Mathilda Avenue/Fifth Avenue	11/13/2013
2	Mathilda Avenue/Innovation Way	11/13/2013
3A	Mathilda Avenue/Moffett Park Drive	2/12/2013
3B	Mathilda Avenue/SR 237 WB Ramps	11/13/2013
4	Mathilda Avenue/SR 237 EB Ramps	11/13/2013
5	Mathilda Avenue/Ross Drive	2/12/2013
6	Mathilda Avenue/US 101 NB Diagonal Off-Ramp	11/13/2013
	Mathilda Avenue/US 101 NB Loop Off-Ramp/On-Ramp	11/13/2013
7	Mathilda Avenue/US 101 SB Loop On-Ramp	11/13/2013
	Mathilda Avenue/US 101 SB Diagonal Off-Ramp/On-Ramp	11/13/2013
8	Mathilda Avenue/Ahwanee Avenue-Amanor Avenue	2/13/2013
9	US 101 NB On-Ramp/Moffett Park Drive	2/12/2013
10	Innovation Way/Moffett Park Drive	11/18/2014
11	Innovation Way/Eleventh Avenue (unsignalized)	5/27/2015
12	Innovation Way/Juniper Networks Driveway (unsignalized)	5/27/2015
13	Bordeaux Drive/Innovation Way (future intersection)	5/27/2015

Source: Fehr & Peers, 2016.

Peak hour volumes, intersection controls, and lane configurations for the study intersections are shown in **Figure 2**. The peak hour volumes presented reflect minor adjustments to the raw traffic counts to ensure balanced vehicle trips between adjacent intersections.

The peak hour volumes presented reflect adjustments to the raw traffic counts to ensure balanced vehicle trips between closely spaced intersections. Intersection turning movement volumes were balanced among the study intersections for use in the Synchro/SimTraffic model. The ramp intersections were adjusted in the Synchro/SimTraffic model to account for peak hour traffic demand. The raw traffic count data is presented in **Appendix A**.

LOCAL STREET SYSTEM TRAVEL SPEED DATA

Travel speed data along the Mathilda Avenue corridor was obtained from GPS travel-time surveys on November 21, 2013. Travel speeds along Mathilda Avenue indicate excessive congestion among the closely spaced intersection on Mathilda Avenue near SR 237 in the morning and evening peak period.

For validation purposes along Mathilda Avenue, the GPS travel-time surveys were used to verify travel time and congestion along the Mathilda Avenue corridor in the model.

MAINLINE AND RAMP COUNTS

Year 2013 mainline counts and HOV percentages along US 101 and SR 237 were developed from the following sources and as seen in **Table 2-2**:

- US 101 Express Lanes Project – Existing Conditions and Model Calibration Report, dated January 16, 2013, prepared by DKS
- Phase II of the SR 237 Express Lanes Project – Existing Conditions Traffic Report, dated August 14, 2013, prepared by DKS
- Caltrans 2013 Census Data, received in September 2015

Ramp volumes were primarily based on the Caltrans 2013 census data received in September 2015 or based on traffic counts collected at the ramp terminal intersections from 7:00AM to 9:00AM and from 4:00PM to 7:00PM.

TABLE 2-2: STUDY AREA COUNT DATA SOURCES

Data Source	Study Location
Intersection Turning Movement – February 2013, November 2013, May 2015	All study intersections during the AM and PM peak periods.
Daily Volumes – November 2013	Twenty-four hour tube counts were performed at the following locations: • Mathilda Avenue between Innovation Way and Moffett Park Drive • Mathilda Avenue between Ross Drive and US 101 • Mathilda Avenue between US 101 and Almanor Avenue-Ahwanee Avenue • Moffett Park Drive between Innovation Way and Mathilda Avenue • Moffett Park Drive between Mathilda Avenue and Bordeaux Drive
Mainline Counts/Bottlenecks – November 2013	SR 237 mixed-flow and HOV lane counts were collected at the pedestrian over-crossing between the Mathilda Avenue and Fair Oaks Avenue interchanges.
US 101 Express Lanes Project	US 101 HOV percentages. US 101 northbound mainline count volume prior to the Lawrence Expressway ramps.
Caltrans 2013 Census Data	US 101 ramp counts between Lawrence Expressway and Ellis Street. US 101 southbound mainline count at the SR 237 interchange.
Phase II of the SR 237 Express Lanes Project	SR 237 freeway count/demand volumes prior to the Fair Oaks Avenue off-ramp (westbound) and prior to the Maude Avenue on-ramp (eastbound).

Source: Fehr & Peers, 2016.

SR 237 Mainline and Ramp Volumes

SR 237 Count Volumes

Mainline traffic count volumes presented in Phase II of the SR 237 Express Lanes Study were used to determine Year 2013 mainline count volumes within the study area.

Traffic counts performed at the ramps as part of Phase II of the SR 237 Express Lanes Study was used at all ramp locations with the exception of the Mathilda Avenue ramps. Mathilda Avenue volumes were determined using the turning movement counts performed in November 2013 along the Mathilda Avenue corridor.

The raw traffic count data is presented in **Appendix A**.

SR 237 Demand Volumes

Year 2013 demand volumes along the SR 237 mainline were taken directly from Phase II of the SR 237 Express Lanes Study at the locations where counts performed (just west of the US 101 interchange for eastbound and just west of Lawrence Expressway for westbound). Ramp demand volumes were taken directly from Phase II of the SR 237 Express Lanes Study with the exception of the Mathilda Avenue ramps.

In order to determine the Year 2013 demand volume at the Mathilda Avenue ramps, the counts performed in November 2013 and the demand estimated in Phase II of the SR 237 Express Lanes Study were compared

to determine the appropriate demand. To be the most conservative along the Mathilda Avenue corridor, the maximum volume between these two sources was used as the estimated demand volume for the Mathilda Avenue ramps. Mainline volumes were then balanced upstream and downstream of the count location using the ramp demand volumes.

SR 237 mainline and ramp peak period demand volumes are shown on **Figure 3A** and **Figure 4A** for morning and evening peak hours, respectively. **Table 2-2** presents the data sources for the study area ramps and mainline segments.

US 101 Mainline and Ramp Volumes

US 101 Count Volumes

Caltrans provided Year 2013 traffic census counts at all of the ramps within the study area. This data was used at all ramp locations with the exception of the Mathilda Avenue ramps and the SR 237 interchange. Mathilda Avenue volumes were determined using the turning movement counts performed in November 2013 along the Mathilda Avenue corridor. In most cases, the turning movement counts resulted in higher ramp volumes than the census count data provided by Caltrans. The SR 237 interchange volumes were determined based on the traffic counts presented in Phase II of the SR 237 Express Lanes Study which uses counts from March-April 2013.

For southbound US 101 mainline, Caltrans also provided a 2013 traffic census count located just north of the SR 237 off-ramp. Mainline volumes at other mainline segments were estimated by subtracting off-ramp volumes and adding on-ramp volumes.

The US 101 Express Lanes Study presents Year 2011 traffic count data within the study area for northbound US 101. For northbound US 101 mainline, data from the US 101 Express Lanes study was used and a growth rate was applied. In order to be consistent with Year 2013 data used for other portions of US 101, a growth factor of 2.4 and 4.2 percent was applied to the Year 2011 AM and PM peak period traffic count data, respectively. These growth factors were derived by comparing 2011 counts from the US 101 Express Lanes Project, 2011 and 2013 Performance Measurement System (PeMS) data, and Caltrans 2013 census data for the AM and PM peak periods to account for average traffic growth rates between 2011 and 2013.

The raw traffic count data is presented in **Appendix A**.

US 101 Demand Volumes

Northbound AM and southbound PM mainline demand volumes were estimated by calculating the difference between the count and the demand presented in the US 101 Express Lanes Study and then applying that difference to the Year 2013 mainline count. This was done in order to account for queues that exist in these peak directions. Southbound AM and northbound PM mainline demand volumes were set equal to the count because Year 2013 observations showed there were no mainline queues in the non-peak directions.

Ramp demand volumes were estimated by calculating the difference between the count and the demand presented in the US 101 Express Lanes Study and then applying that difference to the Year 2013 count with the exception of the SR 237 interchange and the Mathilda Avenue ramps. In order to maintain consistency in volumes at the US 101/SR 237 interchange, the demand volumes at the SR 237 interchange were determined from Phase II of the SR 237 Express Lanes Study. These volumes were counted in 2013 as part of Phase II of the SR 237 Express Lanes Study. Demand was estimated using field observations performed for that analysis.

To determine the demand volume at the Mathilda Avenue ramps, the counts performed in November 2013 and the demand estimated in the US 101 Express Lanes Study were compared to determine the appropriate demand. To be the most conservative along the Mathilda Avenue corridor, the maximum volume between these two sources was used as the estimated demand volume for the Mathilda Avenue ramps. Mainline volumes were then balanced upstream and downstream of the count location using the ramp demand volumes.

US 101 mainline and ramp peak period demand volumes are shown on **Figure 3B** and **Figure 4B** for morning and evening peak hours, respectively. **Table 2-2** presents the data sources for the study area ramps and mainline segments.

Occupancy Data

High-occupancy vehicle (HOV) lanes exist along both directions of US 101 in the study area and on SR 237 in the eastbound direction starting approximately 700 feet east of the Mathilda Avenue on-ramp.

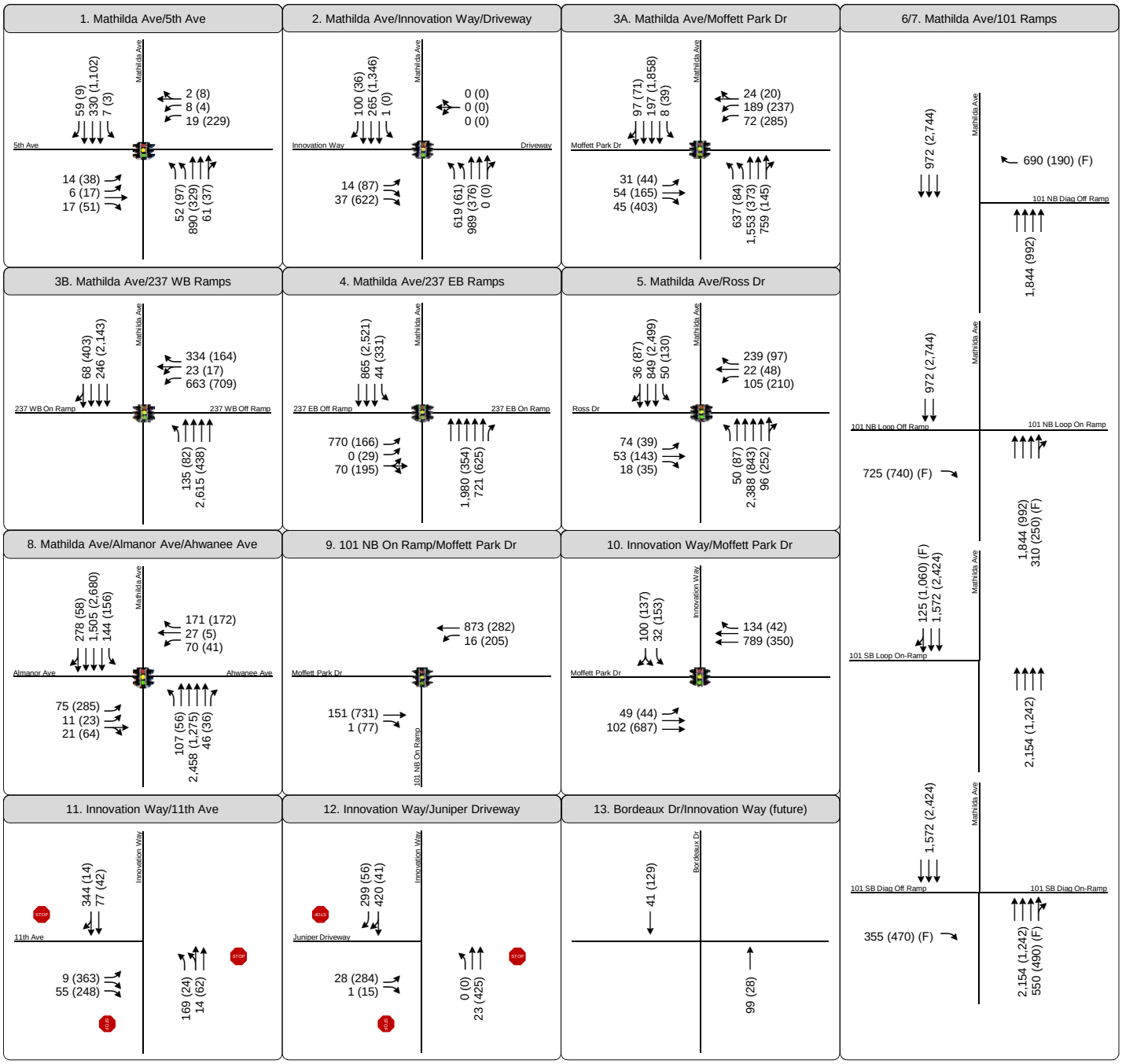
HOV percentages for US 101 were based on data presented in the US 101 Express Lanes Study.

A mid-week manual AM and PM peak period (7:00 AM to 9:00 AM and 4:00 PM to 7:00 PM) traffic count was collected on November 13, 2013 at the pedestrian overcrossing between the Mathilda Avenue and Fair Oaks Avenue interchanges to determine HOV and mixed-flow volumes in queue along SR 237. The eastbound count indicates that HOVs represent eight and 26 percent of the morning and evening peak period traffic, respectively. **Table 2-3** summarizes the percent of traffic that travels within the HOV lanes for both freeways.

TABLE 2-3: MAINLINE AVERAGE PERCENT HOVS

Segment	AM Peak Period Percentage (%)	PM Peak Period Percentage (%)
Northbound US 101	17	13
Southbound US 101	17	20
Westbound SR 237	No HOV	No HOV
Eastbound SR 237	8	26

Source: US 101 Express Lanes Project, January 2013; Fehr & Peers, November 2013.

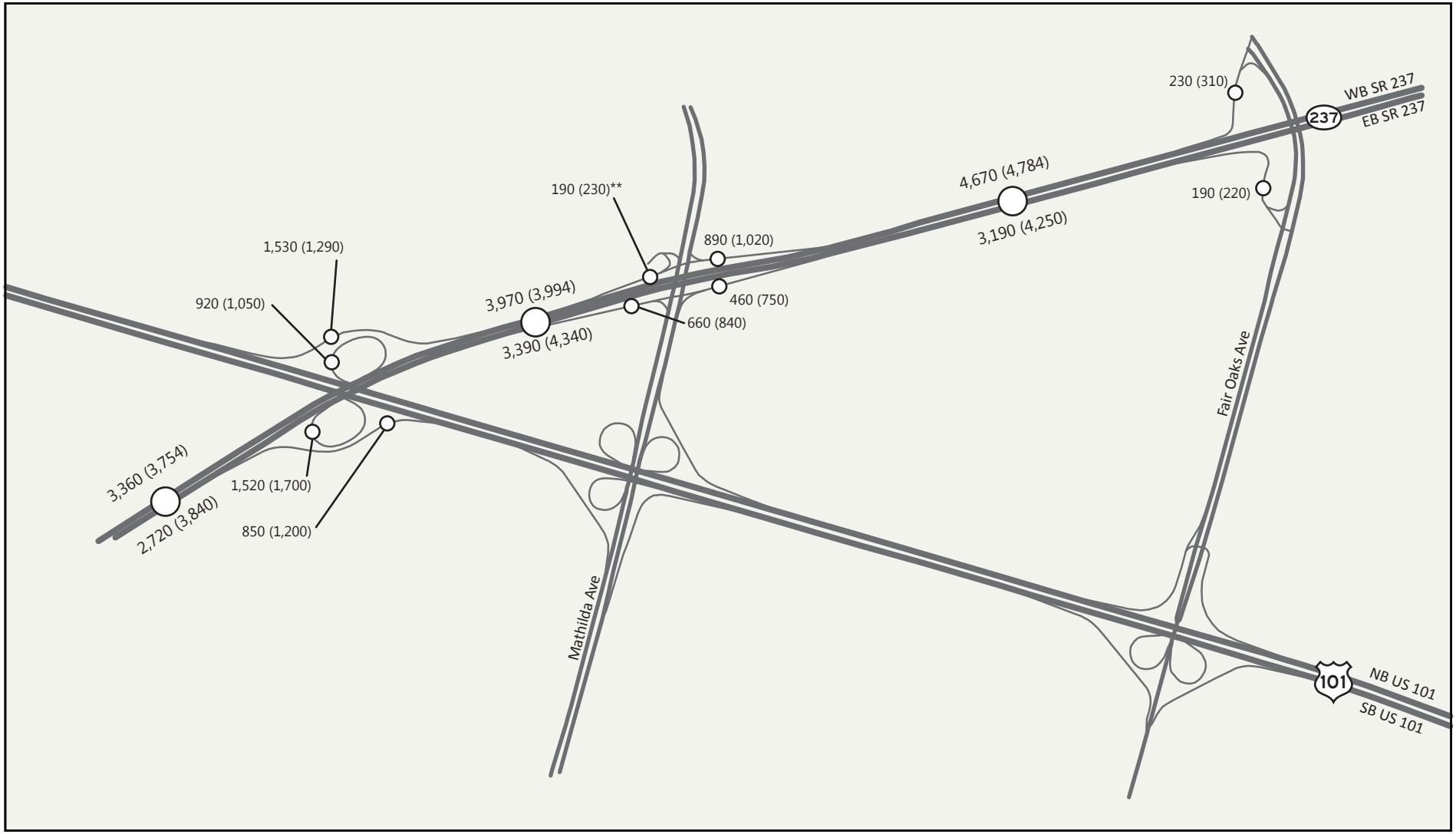


(##) - AM(PM) Peak Hour Demand Volumes

(F) - Unsignalized (free) Movement

Figure 2

Mathilda Interchange Project
Existing (2013) Intersection Demand Peak Hour Volumes and Lane Configurations

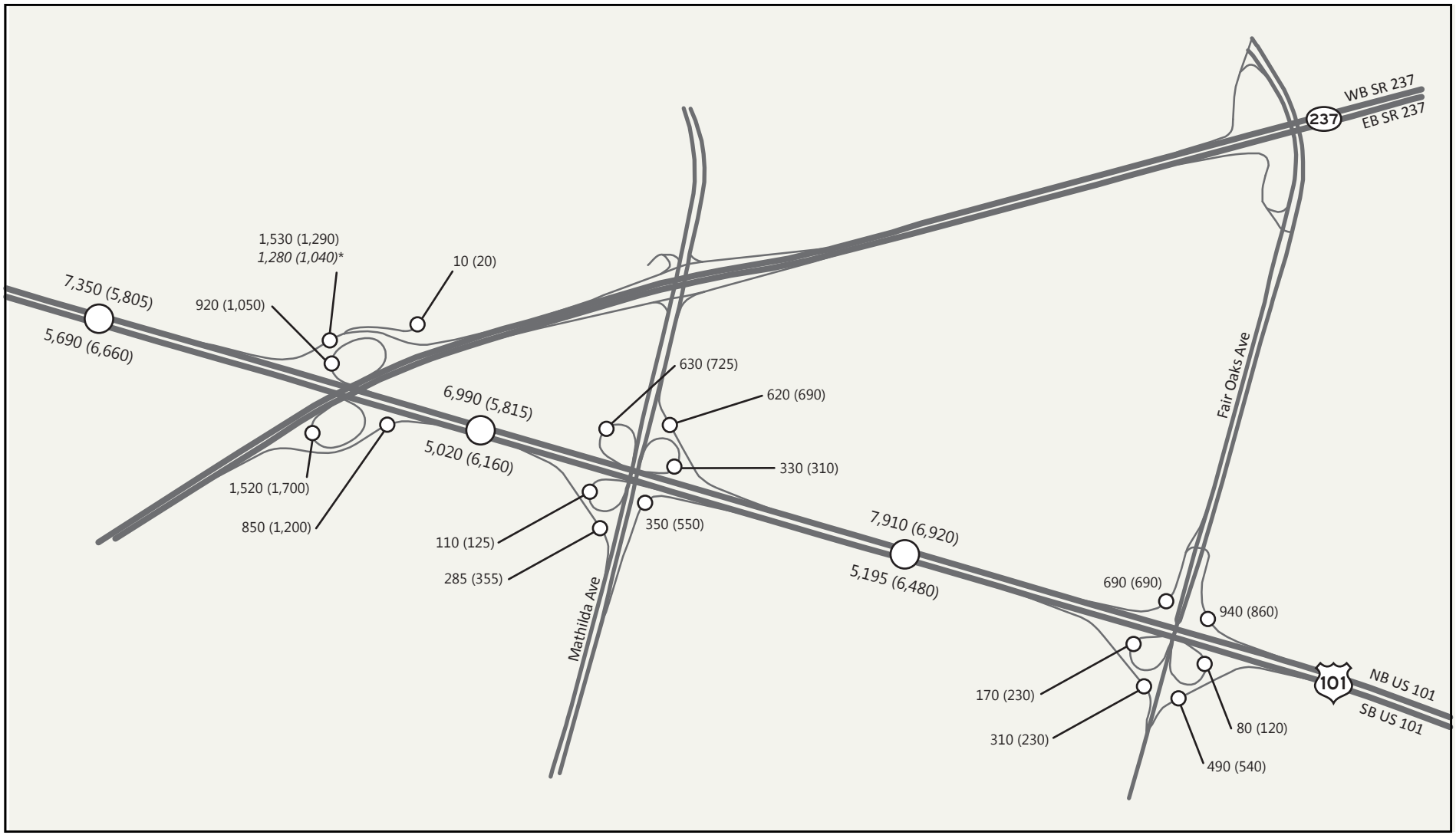


○ 7:00 AM (8:00 AM) Segment/Ramp Volume Location

** Ramp volume may not match ramp terminal intersection due to slip ramp form Moffett Park Drive.

Figure 3A

Mathilda Interchange Project
Freeway and Ramp Demand Volumes - State Route 237
Existing (2013) AM Peak Period

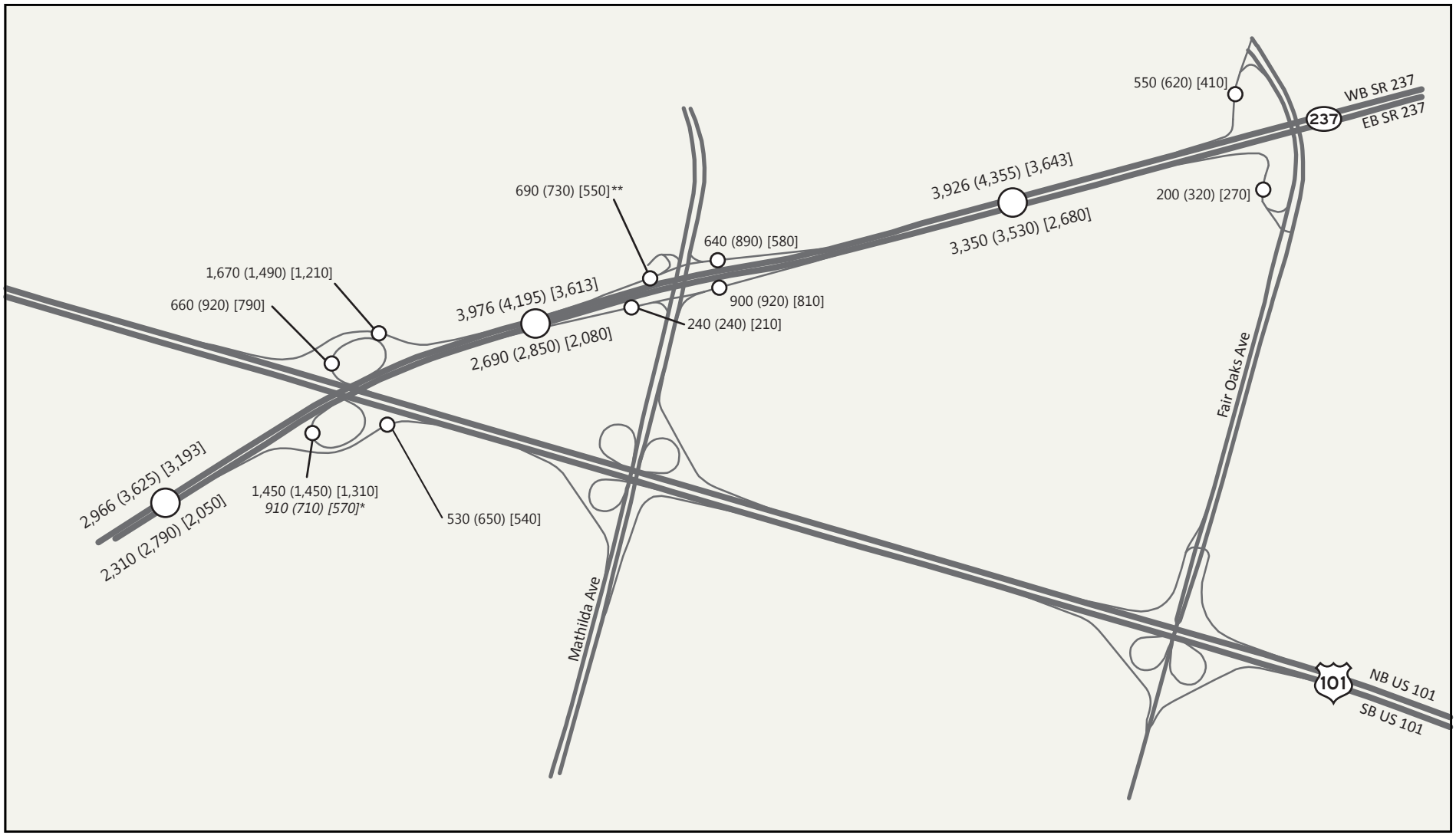


○ 7:00 AM (8:00 AM) Segment/Ramp Volume Location

* The constrained on-ramp demand is shown in italics and reflects the condition that not all of the off-ramp unconstrained demand is delivered downstream due to congestion.

Figure 3B

Mathilda Interchange Project
Freeway and Ramp Demand Volumes - US Route 101
Existing (2013) AM Peak Period



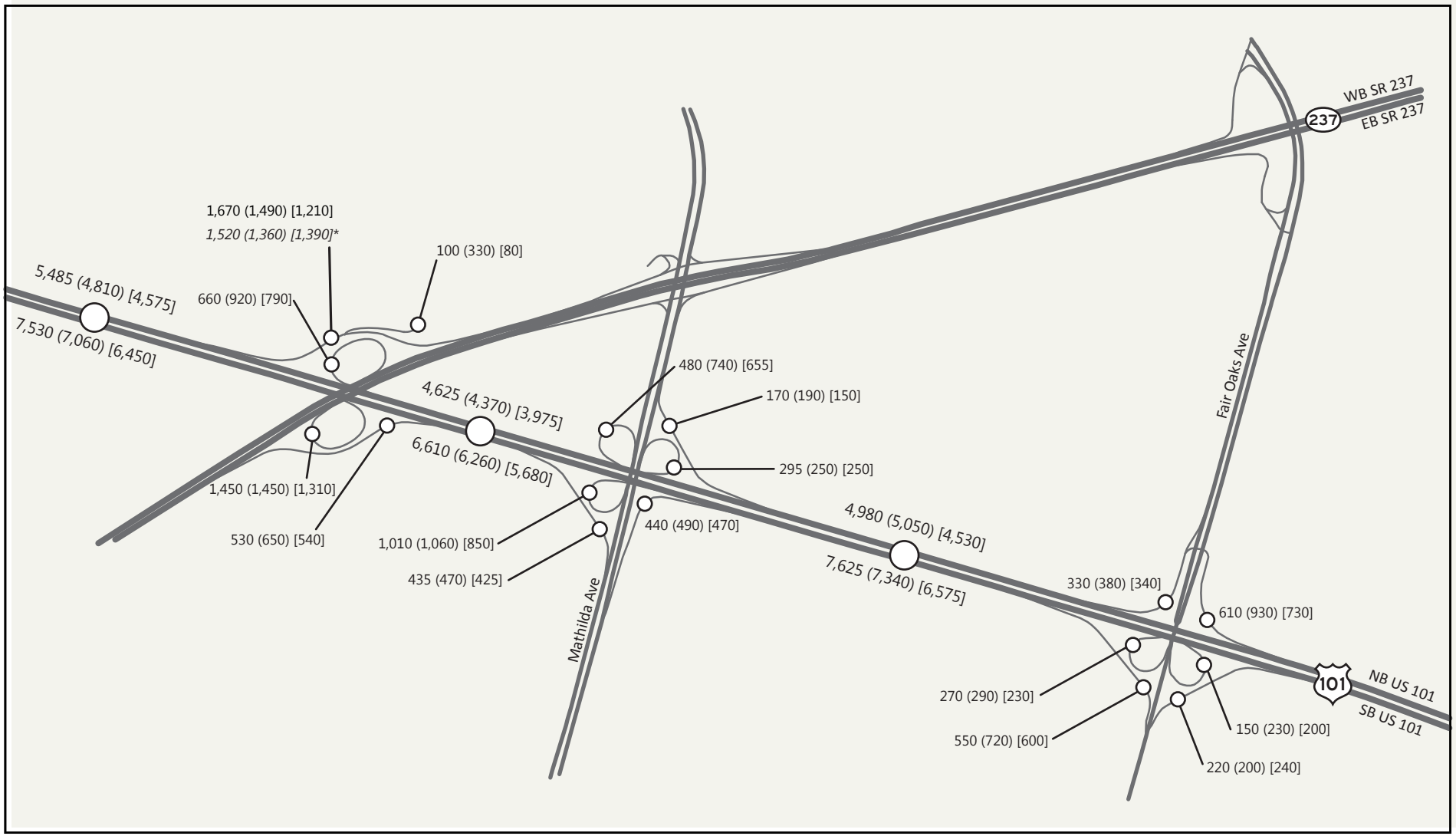
○ 4:00 PM (5:00 PM) [6:00 PM] Segment/Ramp Volume Location

* The constrained on-ramp demand is shown in italics and reflects the condition that not all of the off-ramp unconstrained demand is delivered downstream due to congestion.

** Ramp volume may not match ramp terminal intersection due to slip ramp form Moffett Park Drive.

Figure 4A

Mathilda Interchange Project
Freeway and Ramp Demand Volumes - State Route 237
Existing (2013) PM Peak Period



○ 4:00 PM (5:00 PM) [6:00 PM] Segment/Ramp Volume Location

* The constrained on-ramp demand is shown in italics and reflects the condition that not all of the off-ramp unconstrained demand is delivered downstream due to congestion.

Figure 4B

Mathilda Interchange Project

Freeway and Ramp Deamnd Volumes - US Route 101

Existing (2013) PM Peak Period

MAINLINE TRAVEL SPEED DATA

Mainline travel speed data for the study corridor was obtained from both GPS travel-time surveys and the INRIX database. INRIX provides a traffic flow archive with the capability to capture speeds reported at the segment level for specific days and times of day. INRIX data is gathered from a variety of sources, including in-vehicle GPS systems, mobile smart phones, and roadway sensors.

Mainline travel speeds along the SR 237 and US 101 study corridors were obtained using the INRIX database for November 21, 2013. Fehr & Peers also performed AM and PM peak period floating-car travel time surveys on November 21, 2013 along both directions of SR 237 and US 101 within the study area. Fehr & Peers compared the INRIX speed data for November 21, 2013 to various other weekdays in November 2013 to confirm that bottlenecks and observed queues represent a typical weekday condition. Travel speeds along westbound SR 237 and northbound US 101 indicate that there was congestion during the morning peak period due to a downstream bottleneck on US 101 near the SR 85 and Shoreline Boulevard ramps that causes spillback onto US 101 and SR 237 within the study area. Observations indicate that vehicle queues occasionally also spill back onto westbound SR-237 during the morning peak period. Southbound US 101 experienced congestion during the PM peak period due to a downstream bottleneck at De La Cruz Boulevard and Trimble Road ramps that causes spillback on US 101 within the study area.

For validation purposes along SR 237, the travel time runs presented in Phase II of the SR 237 Express Lanes Study were used. The travel times presented in the express lanes report match the volumes presented in the report, which are the volumes that were used for purposes of this analysis. Although our travel times were used for comparison purposes with INRIX data, the travel time runs from Phase II of the SR 237 Express Lanes Study were used for FREQ validation because they were completed at the same time that mainline and ramp counts were conducted.

For validation purposes along US 101, the travel time runs performed between Lawrence Expressway and Ellis Street on November 21, 2013 were used.

Detailed speed and travel time data by segment for the AM and PM peak periods is provided in **Appendix B** and **Appendix C** for US 101 and SR 237, respectively. **Table 2-4** and **Table 2-5** provides peak period travel speed and time summaries for SR 237 and US 101 within the study area.

TABLE 2-4: EXISTING US 101 MAINLINE AVERAGE WEEKDAY TRAVEL TIMES AND SPEEDS

Time Period	Northbound US 101[1]		Southbound US 101[2]	
	Average Time (min:sec)	Average Speed (mph)	Average Time (min:sec)	Average Speed (mph)
AM Peak Period				
7:00 AM to 8:00 AM	06:33	20	02:17	55
8:00 AM to 9:00 AM	05:26	24	02:13	57
PM Peak Period				
4:00 PM to 5:00 PM	N/A	N/A	08:13	15
5:00 PM to 6:00 PM	03:31	37	10:20	12
6:00 PM to 7:00 PM	02:20	56	07:27	17

Notes:
1. Travel time and speed are reported between Fair Oaks Avenue and just north of SR 237 On-Ramp.
2. Travel time and speed are reported between just north of SR 237 and half way between Fair Oaks Avenue and Lawrence Expressway.

Source: Fehr & Peers, November 2013.

TABLE 2-5: EXISTING SR 237 MAINLINE AVERAGE WEEKDAY TRAVEL TIMES AND SPEEDS

Time Period	Westbound SR 237[1]		Eastbound SR 237[2]	
	Average Time (min:sec)	Average Speed (mph)	Average Time (min:sec)	Average Speed (mph)
AM Peak Period				
7:00 AM to 8:00 AM	02:36	51	02:00	62
8:00 AM to 9:00 AM	02:00	65	02:24	62
PM Peak Period				
4:00 PM to 5:00 PM	02:06	63	02:00	62
5:00 PM to 6:00 PM	03:36	37	02:12	62
6:00 PM to 7:00 PM	02:30	53	02:12	62

Notes:
1. Travel time and speed are reported between Lawrence Expressway On-Ramp and just west of US 101 On-Ramp. Observations indicate that AM peak period travel speeds on westbound SR 237 are occasionally lower than reported in this table, due to queue spillbacks from the downstream bottleneck on northbound US 101 at Shoreline Boulevard.
2. Travel time and speed are reported between west of US 101 Off-Ramp and Lawrence Expressway Off-Ramp.

Source: Phase II of the SR 237 Express Lanes, August 2013.

MATHILDA CORRIDOR TRAVEL SPEED DATA

Travel time surveys were performed on northbound and southbound Mathilda Avenue during the AM peak period and PM peak period on Tuesday, November 23, 2013. The surveys were collected using Global Positioning Systems (GPS) data logger units. **Table 2-6** presents the travel time for each direction and peak period. Based on the data collected, the peak direction is northbound in the AM peak period and southbound in the PM peak period. Travel time run information can be found in **Appendix D**.

TABLE 2-6: EXISTING MATHILDA AVENUE AVERAGE WEEKDAY TRAVEL TIMES AND SPEEDS[1]

Time Period	Northbound Mathilda Avenue		Southbound Mathilda Avenue	
	Average Time (min:sec)	Average Speed (mph)	Average Time (min:sec)	Average Speed (mph)
AM Peak Hour	04:17	23	04:12	20
PM Peak Hour	05:15	17	05:00	17

Notes:

1. Travel time and speed are reported between just north of San Aleso Avenue and just south of Java Drive.

Source: Fehr & Peers, 2013.

FIELD OBSERVATIONS

Field observations of traffic congestion and queues were conducted during the AM and PM peak periods in November 2013 while local schools were in session and during the same period that intersection traffic counts were collected. These field observations were supplemented by additional observations performed in July 2015 for the Mathilda Avenue corridor. Below is a summary of the major queues observed in the study area.

Mathilda Avenue Observations

In the morning peak period, majority of traffic was observed traveling northbound on Mathilda Avenue. The SR 237 westbound off-ramp was observed to queue beyond the turn pockets and the SR 237 eastbound ramp had queues that extended to approximately the end of the turn pockets. Moffett Park Drive had few queues except in the northbound direction which was observed to steadily have vehicles queued between the Moffett Park Drive and SR 237 Westbound Ramps intersections. No queues were observed at any of the US 101 ramps during the morning peak period. Despite the large volume of traffic traveling northbound, traffic queues that formed at the four closely spaced intersection surrounding the SR 237 ramps typically dissipated during the green phase of each signal cycle.

In the evening peak period, eastbound queues at Moffett Park Drive extended to the Innovation Way intersection. Majority of vehicles turned right onto southbound Mathilda Avenue and a smaller portion turned right onto westbound SR 237 ramps. Westbound Moffett Park Drive had queues that extended out of pocket. SR 237 ramps had some queues but generally did not experience the same volume as the morning peak period. At the intersection of Mathilda Avenue and Innovation Way, the eastbound queue extended past the Juniper Networks Driveway during cycles when VTA light rail was entering the intersection. The queue would remain around the Juniper Networks Driveway during all other cycles. Vehicles traveling southbound on Mathilda Avenue were observed to back up to Innovation Way occasionally. In the evening peak period, no excessive queue spillback was observed at the US 101 ramps.

US 101 Observations

In the northbound direction, traffic was observed to travel at less than free-flow speed in the morning throughout the study segments due to general congestion throughout the mainline. In the AM peak period,

a bottleneck was observed to begin north of the Ellis Street interchange and extend to south of the Lawrence Expressway interchange. No other on- or off-ramps were observed to cause excessive queuing onto the freeway mainline.

In the southbound direction, traffic was observed to travel at less than free-flow speed in the evening throughout the study segments due to general congestion throughout the mainline. In the PM peak period, a bottleneck that exists south of the study segments was observed to spill back throughout the study segments. The queues began to decrease after 6pm, but still remained throughout most of the study network. No other on- or off-ramps were observed to cause excessive queuing onto the freeway mainline.

SR 237 Observations

In the morning peak period, there was little to no congestion throughout the study segments. A majority of the congestion occurred in the westbound direction at the US 101 interchange. Vehicles attempting to merge into the backed-up US 101 northbound auxiliary lane caused excessive queues to back up past the Mathilda Avenue ramps. In addition, westbound SR 237 vehicles continuing past the US 101 interchange continued to travel slowly as the US 101 northbound loop on-ramp has very little merging distance and vehicles from the ramp are entering SR 237 at slower speeds.

In the evening peak period, the SR 237 eastbound mixed-flow lanes were observed to have some congestion east of the study mainline segments that continued to worsen later in the peak period, but was not observed to adversely affect the study mainline segments. The eastbound HOV lane was observed to move at free-flow speeds through the study segments. The westbound direction continued to see congestion starting at the US 101 northbound ramps that backed up to around the Mathilda Avenue ramps.

ROADWAY SYSTEM AND ANALYSIS METHODOLOGY

The traffic operations analysis methodologies and key assumptions for intersections and mainline facilities are described below.

INTERSECTIONS

Traffic operations for the study area were analyzed using the Synchro/SimTraffic 8.0 software program. Synchro/SimTraffic is based on procedures outlined in the Transportation Research Board's *2010 Highway Capacity Manual* (*HCM*). Use of the SimTraffic simulation model allows the study area to be analyzed as an interconnected roadway network, which is useful to accurately analyze vehicle interactions along study roadways and to reflect potential vehicle queue impacts in the study area.

The SimTraffic models were validated to existing conditions using the criteria outlined in *Guidelines for Applying Traffic Micro-simulation Modeling Software* (California Department of Transportation, 2002) and additional validation criteria developed by Fehr & Peers. Chapter 3 contains more detailed information about the development of the simulation models and the calibration and validation process.

The analysis results include a descriptive term known as level of service (LOS). LOS is a measure of traffic operating conditions, which varies from LOS A (indicating free-flow traffic conditions with little or no delay) to LOS F (representing over-saturated conditions where traffic flows exceed design capacity resulting in long queues and delays). These ratings represent the perspective of drivers and are an indication of the comfort and convenience associated with driving.

The LOS is determined differently depending on the type of control at the intersection. For side-street stop-controlled intersections, the LOS rating is based on the weighted average control delay of the side-street. At all-way stop-controlled and signalized intersections, the LOS rating is based on the weighted average control delay of all movements measured in seconds per vehicle. Peak hour traffic volumes, lane configurations, and signal timing plans were used as inputs for the LOS calculations. **Table 2-7** summarizes the relationship between the average control delay per vehicle and LOS for signalized and unsignalized intersections. Results from SimTraffic were used to determine delay and LOS at all intersections.

Peak hour factors (PHF) used in the analysis were based on the results of the data collection effort. Global peak hour factors were determined for the study area by taking a weighted average of all of the study intersections. The global PHF was calculated at 0.92 for the AM peak hour and 0.95 for the PM peak hour.

TABLE 2-7: INTERSECTION LEVEL OF SERVICE THRESHOLDS

Level of Service	Signalized Intersection Control Delay (sec/veh)[1]	Unsignalized Intersection Control Delay (sec/veh)[1]	General Description
A	0 – 10.0	0 – 10.0	Little to no congestion or delays.
B	10.1 – 20.0	10.1 – 15.0	Limited congestion. Short delays.
C	20.1 – 35.0	15.1 – 25.0	Some congestion with average delays.
D	35.1 – 55.0	25.1 – 35.0	Significant congestion and delays.
E	55.1 – 80.0	35.1 – 50.0	Severe congestion and delays.
F	> 80.0	> 50.0	Total breakdown with extreme delays.

Notes:

1. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay.

Source: 2010 Highway Capacity Manual, Transportation Research Board, 2010.

MAINLINE FACILITIES

The freeway mainline segments and ramp junction operations were analyzed using the FREQ macroscopic modeling software. FREQ is a freeway-modeling tool that evaluates basic mainline segments, weaving segments, HOV lanes, and ramp metering. The advantage of FREQ compared to the 2010 Highway Capacity Manual (HCM) method is that FREQ evaluates the corridor as a system and HCM evaluates the corridor's individual sections in isolation. FREQ accounts for traffic operations of one freeway section influencing the operations of adjacent sections. From a traffic engineering perspective, a calibrated/validated FREQ model is a better tool for estimating traffic operations than HCM and therefore was used for this study.

Freeway facility operations are also described with the term level of service. LOS is a qualitative description of traffic flow based on speed, travel time, delay, and freedom to maneuver, with six levels, ranging from LOS A (i.e., free-flow operating conditions) to LOS F (i.e., heavily congested, over-capacity conditions). LOS E represents "at-capacity" operations. When volumes exceed capacity, stop-and-go conditions result and operations are designated as LOS F. The service level for a freeway section is based on vehicle density expressed as passenger cars/lane/mile. **Table 2-8** presents a summary of the relationship between density and level of service for freeway sections and ramp junctions.

TABLE 2-8: FREEWAY LEVEL OF SERVICE CRITERIA

Level of Service	Description	Basic Mainline Segment Density Criteria[1]
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	≤ 11.0
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11.0 to 18.0
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18.0 to 26.0
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	> 26.0 to 35.0
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35.0 to 45.0
F	Represents a breakdown in flow.	> 45.0

Notes:

1. Density in passenger cars per mile per lane

Source: 2010 Highway Capacity Manual.

Corridor Measures of Effectiveness

It is often useful to supplement the individual segment analyses with system-wide performance measures such as vehicle miles of travel, average travel time, average travel speed, and vehicle hours of delay to obtain a better understanding of overall traffic operations. This information can be particularly useful when comparing project alternatives. Several Measures of Effectiveness (MOEs) computed by the FREQ models were used to quantify traffic operations of the US 101 and SR 237 corridors:

- **Vehicle Miles of Travel (VMT)** – is a measure of the total vehicle throughput of the corridor. This measure takes into consideration the actual volume served versus the demand and the trip lengths of those vehicles and travelers.
- **Average Travel Time (ATT)** – is a measure of the time it takes (on average) to travel from one end of a corridor to the other during the peak period. The travel time calculation considers the average delay throughout the corridor, vehicle queues, and friction caused by merging vehicles.

- **Average Travel Speed (ATS)** – is directly related to average travel time and the corridor length.
- **Vehicle Hours of Delay (VHD)** – is the total amount of delay incurred during the peak periods due to congestion and demand exceeding the capacity of the freeway.
- **Maximum Individual Vehicle Delay** – is the maximum delay in minutes experienced by an individual driver during the peak hour relative to driving the corridor under free-flow conditions.

Mainline Weaving Sections

Per Caltrans' requirements, the LOS for freeway weaving sections was also determined using the Leisch Method as outlined in Figure 504.7A in Caltrans' *Highway Design Manual* (HDM), 6th Edition. The Leisch Method calculates the LOS based on the service flow (passenger cars/ per hour/ per lane) through the weaving section.

3. EXISTING (2013) TRANSPORTATION CONDITIONS

This chapter describes the existing (2013) conditions of the roadway facilities, pedestrian and bicycle facilities, and transit service. It also presents existing traffic volumes and operations for the study intersections and freeway segments with the level of service.

EXISTING (2013) ROADWAY SYSTEM

As noted above, **Figure 1** illustrates the traffic study area, which is generally bounded by Fifth Avenue to the north, Almanor Avenue-Ahwanee Avenue to the south, Fair Oaks Avenue to the east, and northbound US 101 on ramp at Moffett Park Drive to the west. The following provides a brief description of the key facilities.

Mathilda Avenue is primarily a north-south six-lane divided arterial serving the downtown Sunnyvale area and Caltrain to the south and an expanding high-tech business community to the north. Within the study area, Mathilda Avenue serves as the main access to the residential communities on the east side of Mathilda Avenue and the only access to the landlocked area contained within the US 101/SR 237/Mathilda triangle with access through Ross Drive. Mathilda Avenue is one of the designated truck routes for trucks over three tons in weight in the City of Sunnyvale. The speed limit is 45 mph and on-street parking is prohibited in the study area. Approximately 45,000 vehicles travel on Mathilda Avenue south of SR 237 on an average weekday. Within the study area, sidewalks are located along the entire east side of Mathilda Avenue and on the west side of Mathilda Avenue north of Moffett Park Drive. There are no bicycle facilities on Mathilda Avenue within the study area.

State Route 237 is an east-west freeway/highway starting at SR 82 in the City of Mountain View and ending approximately 11 miles east at I-680 in the City of Milpitas. Within the study area, the SR 237 freeway provides two mixed-flow lanes in each direction and one additional auxiliary lane in each direction between US 101 and Mathilda Avenue. In addition, a High Occupancy Vehicle (HOV) lane is provided east of Mathilda Avenue in the eastbound direction and turns into an Express Lane to the east of the Zanker Road overpass. The westbound direction includes an Express Lane starting at the I-880 connector which then changes into an HOV lane at the North First Street overpass and ends just east of Fair Oaks Avenue. SR 237 east of Mathilda Avenue currently carries approximately 90,000 vehicles on a daily basis.

US 101 is primarily a north-south freeway that connects Northern California, southern Santa Clara County, and Southern California. Within Caltrans District 4, US 101 begins at the San Benito/Santa Clara County line (PM 0.0) and terminates at the Sonoma/Mendocino County line (PM 56.94). Within the study area, US 101 provides three mixed-flow lane plus one HOV lane in each direction, while an auxiliary lane is also provided is the southbound direction between SR 237 and Mathilda Avenue. US 101 south of Mathilda Avenue currently carries approximately 154,000 vehicles on a daily basis.

Innovation Way is a four-lane, north-south road serving the development in the northwest area of the Mathilda Avenue/SR 237 interchange. It connects Mathilda Avenue with West Moffett Park Drive and has

two lanes in each direction. The speed limit is 25 mph with on-street parking prohibited. Bicycle facilities are not provided on Innovation Way and sidewalks are provided for pedestrians along both sides of Innovation Way at the Mathilda Avenue intersection.

Moffett Park Drive runs parallel to SR 237 on the north side of the freeway. West of Mathilda Avenue, Moffett Park Drive has two lanes in each direction and runs parallel to the VTA light rail tracks. Moffett Park Drive has one lane in each direction east of Mathilda Ave. The intersection of Mathilda Avenue/Moffett Park Drive is closely spaced to the SR 237/Mathilda Avenue interchange. Given the existing geometry, the channelization of traffic from the westbound SR 237 off-ramp to West Moffett Park Drive is disallowed. Within the study area, the speed limit is 40 mph with on-street parking prohibited. There are generally no bicycle or pedestrian facilities on Moffett Park Drive throughout the study area; however, Class II bicycle lanes are present on Moffett Park Drive east of Bordeaux Drive.

Ross Drive is a two-lane undivided local street that provides the only access to businesses that lie within the Mathilda Avenue/SR 237/US 101 triangle. On the east side of Mathilda Avenue, Ross Drive provides access to a large residential area where there are buffered sidewalks throughout the development and crosswalks at stop-controlled intersections. There are no existing bicycle facilities on the east side of Ross Drive. The west side of Ross Drive does not provide any pedestrian or bicycle facilities. The Ross Drive/Mathilda Avenue intersection is closely spaced to the SR 237/Mathilda Avenue interchange. The speed limit is 25 mph with on-street parking prohibited.

Almanor Avenue is a two-lane street that runs parallel to US 101 connecting Mathilda Avenue to North Mary Avenue. The speed limit is 30 mph with on-street parking prohibited. There are no bicycle facilities along Almanor Avenue, and pedestrian facilities are limited to the west/south side of the roadway.

Ahwanee Avenue is two-lane arterial that runs parallel to US 101 connecting Mathilda Avenue to Fair Oaks Boulevard. The speed limit is 35 mph with on-street parking permitted along most parts of Ahwanee Avenue on the south side of the street. There are no bicycle facilities along Ahwanee Avenue, and pedestrian facilities are limited to the east/south side of the roadway.

Bordeaux Drive is a two-lane undivided local street that provides connection between Moffett Park Drive and Mathilda Avenue. A two-way left-turn lane (TWLTL) is provided between Moffett Park Drive and West Java Drive. There are no pedestrian facilities along Bordeaux Drive. While there is a shoulder that can accommodate bicyclists, it is not defined as a Class II bicycle facility.

EXISTING TRUCK ROUTES

There are several truck routes in the study area and nearby. Mathilda Avenue is a designated truck route between Sunnyvale-Saratoga Road and Caribbean Drive. Other truck routes in Sunnyvale nearby the study area also include the following:

- Caribbean Drive between Mathilda Avenue and Lawrence Expressway
- Java Drive between Mathilda Avenue and Fair Oaks Avenue
- Evelyn Avenue between Wolfe Road and Bernardo

- Fair Oaks Avenue between Evelyn Avenue and Arques Avenue
- Fair Oaks Avenue between SR 237 and US 101.

EXISTING (2013) FREEWAY INTERCHANGES

US 101 / Mathilda Avenue interchange is partially a Type F-2 configuration (partial cloverleaf) with access to all directions with the exception of two movements: southbound Mathilda Avenue to US 101 northbound and US 101 southbound to northbound Mathilda Avenue. For access to southbound US 101, there is a slip from northbound Mathilda Avenue and a loop ramp from southbound Mathilda Avenue. For access from southbound US 101, there is a slip ramp to southbound Mathilda Avenue. Access to northbound US 101 is provided via a loop ramp from northbound Mathilda Avenue and access from northbound US 101 is provided via a slip ramp to northbound Mathilda Avenue and a loop ramp for southbound Mathilda Avenue. The ramp termini are not signalized and the on-ramps are metered.

SR 237 / Mathilda Avenue interchange is a Type L-1 configuration (tight diamond) that provides full access to SR 237 and Mathilda Avenue. For access to and from westbound SR 237, there is a diagonal on-ramp and off-ramp controlled by a traffic signal at the intersection with Mathilda Avenue. For access to and from eastbound SR 237, there is also a diagonal on-ramp and off-ramp controlled by a traffic signal at the intersection with Mathilda Avenue. The westbound on-ramp has ramp metering facilities, but it is not turned on during the AM or PM peak period. The eastbound on-ramp does not have ramp metering facilities.

Moffett Park Drive / US 101 Northbound On-Ramp is a single-lane on-ramp located along Moffett Park Drive to the west of the Mathilda Avenue / Moffett Park Drive intersection. This on-ramp merges with the westbound SR 237 off-ramp that connects to northbound US 101. The ramp terminus is signalized, and the on-ramp is not metered.

EXISTING (2013) INTERSECTION TRAFFIC OPERATIONS

Existing intersection lane configurations, and signal timings were used to calculate levels of service for the study intersections during the AM and PM peak hours for Existing Conditions. The peak hour turning movement volumes were balanced throughout the network in order to run microsimulation. The results of the LOS analysis were calculated using SimTraffic 8.0 software and are presented in **Table 3-4**. LOS calculation sheets are presented in **Appendix E**.

INTERSECTION MODEL DEVELOPMENT

SimTraffic models were developed representing the existing AM and PM peak hour traffic conditions for the local streets. An extensive model calibration and validation process was followed to ensure that the modeled results are consistent with the observed conditions on the local streets.

The majority of model development was performed using Synchro before converting the network into the SimTraffic software. The Synchro models include all of the study intersections and were coded with the peak hour counts, posted speed limit, vehicle mix, and signal timings. Traffic signal timing and phasing

information for the signalized intersections were obtained from the respective agencies and municipalities (i.e., City of Sunnyvale and Caltrans). Additional detail such as turn pocket lengths and intersection spacing was coded into the model based on field observations and aerial photography. The following represents the initial SimTraffic parameters used in the modeling before calibration:

- Free flow speed = posted speed limit
- Left-turn turning speed = 15 mph
- Right-turn turning speed = 9 mph
- Vehicle lengths
  - Car 1 = 18 feet
  - Car 2 = 16 feet
- Vehicle Occurrence
  - Cars:
    - 50% Car 1
    - 50% Car 2
  - Heavy Vehicles:
    - 50% Single unit truck
    - 50% Semi truck 2
- Driver Behavior
  - Yellow phase reaction time for drivers 1-4 set equal to driver 5
  - Green phase reaction time for drivers 1-4 set equal to driver 5
  - Gap acceptance factor for drivers 1-4 set equal to driver 5
  - Mandatory/Positioning Distance Adjustment to be within 80%-125% range

Calibration

SimTraffic models reflecting existing field conditions require calibration to ensure that traffic volumes, queue lengths, and other operational observations are replicated satisfactorily. The final calibrations settings will be carried forward into the alternatives analysis of future year conditions (to be address in a subsequent technical memorandum).

The following calibration process was employed to determine if the model results were satisfactorily replicating the existing conditions:

1. Make a base model run with default parameters
2. Compare predicted and field-observed performance measures and assess differences
3. Assess differences between predicted and field-observed performance measures
4. Select reasonable model input changes to reduce differences
5. Make a new model run with selected input changes
6. Repeat process until predictions meet or exceed published criteria

Validation

Model validation is a process where the overall model traffic performance is verified against field measurements for traffic performance, such as traffic volumes, travel times, average speeds, queue lengths, and average delays.

Validation Criteria

The major validation criteria based on the *Guidelines for Applying Traffic Micro-simulation Modeling Software* used in this study are:

1. The model simulated total intersection volumes should be within five percent of the existing 2013 traffic volumes.
2. The simulation model should replicate noticeable field queues to the analyst's satisfaction.

Model Parameter Adjustments

The initial model runs did not replicate field traffic volumes or observed queues using the default analysis parameters. These model parameters were adjusted where appropriate to more closely match field-observed conditions. Driver aggressiveness factors were the most common adjustments made to the model.

These factors impact the vehicle headways and ultimately the saturation flow rates. Headways in urban areas with congested conditions are often lower than areas with un-congested conditions, resulting in higher saturation flow rates as drivers follow other vehicles more closely and drive more aggressively. The following model adjustments were made:

1. Mathilda Avenue / Fifth Avenue

- AM and PM – Changed southbound and eastbound right-turn speed to 15 MPH

2. Mathilda Avenue / Innovation Way

- AM and PM – Changed southbound and eastbound right-turn speed to 15 MPH

3A. Mathilda Avenue / Moffett Park Drive

- AM and PM – Adjusted northbound and southbound headway factors to 0.8
- AM and PM – Adjusted northbound mandatory and positioning distances
- AM and PM – Changed southbound right-turn speed to 15 MPH
- PM – Adjusted eastbound headway factor to 0.8
- PM – Adjusted mandatory and positioning distances
- PM – Changed eastbound right-turn speed to 20 MPH

3B. Mathilda Avenue / SR 237 Westbound Ramps

- AM and PM – Adjusted northbound, southbound, and westbound headway factors to 0.8
- AM and PM – Changed westbound left-turn speed to 25 MPH
- AM and PM – Adjusted westbound right-turn speed to 15 MPH
- AM – Adjusted westbound mandatory distance
- PM – Adjusted southbound mandatory distance
- PM – Adjusted southbound right-turn speed to 20 MPH

4. Mathilda Avenue / SR 237 Eastbound Ramps

- AM and PM – Adjusted northbound and southbound headway factors to 0.8
- AM and PM – Adjusted northbound mandatory and positioning distances
- AM and PM – Changed northbound right-turn speed to 35 MPH
- AM and PM – Changed eastbound right-turn speed to 15 MPH

5. Mathilda Avenue / Ross Drive

- AM and PM – Adjusted northbound and southbound headway factors to 0.8
- AM and PM – Adjusted northbound mandatory and positioning distances
- AM and PM – Changed northbound, southbound, eastbound, and westbound left-turn speeds to 20 MPH
- PM – Adjusted eastbound and westbound headway factors to 0.8
- PM – Adjusted southbound mandatory and positioning distances

8. Mathilda Avenue / Almanor Avenue-Ahwanee Avenue

- AM – Adjusted northbound headway factor to 0.8
- PM – Adjusted southbound mandatory and positing distances

10. Innovation Way / Moffett Park Drive

- AM and PM – Changed southbound right-turn speed to 15 MPH

11. Innovation Way / Eleventh Avenue

- AM and PM – Changed eastbound right-turn speed to 15 MPH

Intersection Volume Validation Results

SimTraffic is a stochastic model where different random seed numbers generate different driver behaviors (e.g., accepting available gaps for turns, changing lanes, etc.) and system results. The *Guidelines for Applying Traffic Micro-simulation Modeling Software* recommends multiple runs to account for this stochastic nature of the model and to achieve confidence in the simulated results. Thus, all results presented in this section are the average of ten model runs with different seed numbers.

Table 3-1 presents the intersection volume validation results. Balanced demand volumes and balanced count volumes are both presented in **Table 3-1** to demonstrate that not all of the demand from the ramps is served, but the amount of traffic that is able to reach each intersection is being served. The SimTraffic model was run using demand volumes, but only the amount that was counted is actually being served.

As shown in **Table 3-1**, the total intersection model volumes at all intersections are within five percent of the counts during the AM peak hour. In the PM peak hour, only two intersections are not within the five percent of the counted volume due to lane utilization limitations of SimTraffic. In the field, it was observed that vehicles making an eastbound right-turn onto southbound Mathilda Avenue would use all available southbound lanes, enabling 10-12 vehicles to fill the southbound lanes between the SR 237 Westbound Ramps and Moffett Park Drive intersections. Due to the lane utilization limitations of SimTraffic, only about four vehicles per signal cycle are able to fill up the southbound lanes. Because of this, the eastbound queues was observed to be excessive in the SimTraffic model and spill back through Intersection #10 and #11. This causes the percent of demand served at Intersection #10 and #11 to be below the 95 percent threshold and the delay and LOS results to display slightly worse results than observed in the field. This SimTraffic limitation will be considered when presenting future conditions for No Build and Build Alternatives where the west leg of Moffett Park remains open conditions at this intersection. This limitation will not be a factor for Build Alternatives where the west leg of Moffett Park Drive is closed as a part of the project.

A detailed comparison by movement is included in **Appendix E**. With respect to traffic volumes, the models are considered sufficiently validated.

TABLE 3-1: MODEL VOLUME VALIDATION RESULTS SUMMARY

	Intersection	AM Peak Hour					PM Peak Hour				
		Count[1]	Demand[2]	SimTraffic[3]	SimTraffic /Count[4]	SimTraffic /Demand[5]	Count[1]	Demand[2]	SimTraffic[3]	SimTraffic /Count[4]	SimTraffic /Demand[5]
1	Mathilda Avenue / Fifth Avenue	1,385	1,465	1,436	1.04	0.98	1,614	1,924	1,793	1.11	*0.93*
2	Mathilda Avenue / Innovation Way	1,945	2,025	1,963	1.01	0.97	2,118	2,528	2,223	1.05	*0.88*
3A	Mathilda Avenue / Moffett Park Drive	3,586	3,666	3,528	0.98	0.96	3,163	3,724	3,329	1.05	*0.89*
3B	Mathilda Avenue / SR 237 Westbound Ramps	3,982	4,084	3,949	0.99	0.97	3,399	3,956	3,487	1.03	*0.88*
4	Mathilda Avenue / SR 237 Eastbound Ramps	4,380	4,450	4,274	0.98	0.96	3,777	4,221	3,819	1.01	*0.90*
5	Mathilda Avenue / Ross Drive	3,901	3,980	3,832	0.98	0.96	3,983	4,470	4,087	1.03	*0.91*
6	Mathilda Avenue / US 101 Northbound Ramps (project)	-	-	-	-	-	-	-	-	-	-
7	Mathilda Avenue / US 101 Southbound Ramps (project)	-	-	-	-	-	-	-	-	-	-
8	Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	4,870	4,913	4,927	1.01	1.00	4,851	4,851	4,611	0.95	0.95
9	US 101 Northbound On-Ramp / Moffett Park Drive	1,041	1,041	1,009	0.97	0.97	1,234	1,295	1,200	0.97	*0.93*
10	Innovation Way / Moffett Park Drive	1,206	1,206	1,170	0.97	0.97	1,336	1,413	1,278	0.96	*0.90*
11	Innovation Way / Eleventh Avenue	668	668	648	0.97	0.97	681	753	734	1.08	0.98
12	Innovation Way / Juniper Networks Driveway	771	771	758	0.98	0.98	721	821	756	1.05	*0.92*
13	Bordeaux Drive / Innovation Way (future)	140	140	138	0.99	0.99	157	157	160	1.02	1.02

Notes: *Italics* indicate that the intersection did not meet the 95 percent volume served requirement.

1. Intersection count is the peak hour volume for all approaches to the intersection.
2. Intersection demand includes any unserved volume at each intersection and then is balanced among intersections.
3. Average served volumes based on ten SimTraffic runs.
4. Modeled traffic volume expressed as a ratio of **observed** traffic volume. For example: 1.00 indicates an exact replication of field conditions.
5. Modeled traffic volume expressed as a ratio of **demand** traffic volume. For example: 1.00 indicates all demand is served.

Source: Fehr & Peers, 2016.

Queues and Congestion Validation Results

Intersections are generally designed to accommodate 95th percentile queue lengths. The 95th percentile queue lengths for each of the study intersections are presented in **Table 3-2**. In general, the simulation models replicated observed queues to the analyst's satisfaction based on the field data listed in Chapter 2. A detailed summary by movement is included in **Appendix E**. With respect to traffic queue lengths, the models are considered validated.

TABLE 3-2: MODEL QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
1. Mathilda Avenue / Fifth Avenue	NB-L	425	75	125
	NB-T	1,150	275	150
	SB-L	225	50	50
	SB-T	1,375	125	1,050
	SB-R	225	25	150
	EB-L	625	50	75
	EB-T	625	25	25
	EB-R	625	25	50
	WB-L	925	50	500
	WB-T	75	50	75
2. Mathilda Avenue / Innovation Way	NB-L	400	375	75
	NB-T	1,075	200	150
	SB-L	75	25	0
	SB-T	1,150	125	**1,450**
	SB-R	225	100	**350**
	EB-L	125	50	125
	EB-R	200	50	**275**
3. Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	NB-L (MP)	125	125	50
	NB-L (237)	200	150	**225**
	NB-T	325	**400**	200
	SB-L (MP)	175	50	75
	SB-T	1,200	200	**1,275**
	EB-L (MP)	350	50	**900**
	EB-T (MP)	1,100	125	**1,400***
	EB-R (MP)	1,100	50	**625**
	WB-L (MP)	300	125	**325**
	WB-T (MP)	650	250	250
	WB-L (237)	1,125	650	1,100
	WB-R (237)	325	**400**	**500**

TABLE 3-2: MODEL QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
4. Mathilda Avenue / SR 237 Eastbound Ramps	NB-T	275	**325**	125
	NB-R	275	**300**	100
	SB-L	200	100	**225**
	SB-T	200	**275**	**300**
	EB-L	1,075	325	125
	EB-LTR	450	275	275
5. Mathilda Avenue / Ross Drive	NB-L	150	100	150
	NB-T	2,200	950	450
	SB-L	125	125	**200**
	SB-T	250	**275**	**350**
	EB-L	650	150	250
	EB-T	75	**100**	**125**
	EB-R	50	**75**	**75**
	WB-L	75	**300**	**925**
	WB-T	75	**125**	**125**
	WB-R	75	**100**	**100**
6. Mathilda Avenue / US 101 NB Ramps**	N/A	N/A	N/A	N/A
7. Mathilda Avenue / US 101 SB Ramps**	N/A	N/A	N/A	N/A
8. Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	NB-L	375	325	125
	NB-T	675	675	325
	NB-R	75	75	75
	SB-L	125	**225**	**200**
	SB-T	2,200	**575**	**1,225**
	EB-L	350	100	250
	EB-T	125	75	125
	WB-L	250	125	100
	WB-T	625	150	75
	WB-R	75	125	**100**
9. US 101 Northbound On-Ramp / Moffett Park Drive	EB-T	875	50	750
	EB-R	150	25	**250**
	WB-L	900	50	250
	WB-T	900	125	0

TABLE 3-2: MODEL QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
10. Innovation Way / Moffett Park Drive	SB-L	525	50	200
	SB-LTR	525	100	325
	EB-L	225	75	**275**
	EB-T	900	75	**975**
	WB-T	975	325	150
	WB-R	225	125	25
11. Innovation Way / Eleventh Avenue	NB-L	125	75	25
	NB-LT	500	75	75
	SB-T	775	150	75
	EB-L	125	50	125
	EB-R	1,150	50	100
12. Innovation Way / Juniper Driveway	NB-L	125	25	50
	NB-T	900	50	25
	SB-T	300	250	100
	SB-R	300	175	100
	EB-L	300	50	**1,000**
	EB-R	300	25	250
13. Bordeaux Drive/Innovation Way***	N/A	N/A	N/A	N/A

Notes: **Bold** denotes locations where storage length is exceeded.

*Synchro/SimTraffic includes the vehicles stopped trying to enter the right-turn lane as queuing length for the through movement. Queuing is not observed in the field or in the SimTraffic simulation to queue back from the stop bar to the calculated queue length of 1,400 feet.

**Indicates intersection is signalized under Build 1 and Build 2 Alternatives, but operates as a free movement under the No Build Alternative.

***This intersection does not exist under Base Year Conditions (2013).

1. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left-turn movement, T-through movement, R-right-turn movement, (MP)-turn onto/from Moffett Park Drive, (237)-turn onto/from SR 237 WB Ramps.

2. Available storage lengths are provided on a "per lane" basis. For example, an available storage of 425 means each lane in the associated movement has a storage length of 425 feet.

Source: Fehr & Peers, 2016.

Peak Hour Travel Time Validation Results

Table 3-3 compares the observed peak hour travel times to the calibrated Mathilda Avenue model peak hour travel times for the study segments.

TABLE 3-3: MATHILDA AVENUE PEAK HOUR TRAVEL TIME VALIDATION RESULTS

Peak Direction	Average Travel Time from Field Measurements (mm:ss)[1]	Average Travel Time from SimTraffic Model (mm:ss)	Percent Difference
Mathilda Avenue Northbound[2]			
AM Peak Hour	04:17	06:35	54%
PM Peak Hour	05:15	05:10	-1%
Mathilda Avenue Southbound[2]			
AM Peak Hour	04:12	05:40	35%
PM Peak Hour	05:00	13:55	178%

Notes:

1. Travel time data was extracted from GPS travel time runs performed along Mathilda Avenue in November 2013 and confirmed through observations conducted by Fehr & Peers in November 2013.

2. Travel time runs begin north of the San Aleso Avenue intersection and end south of the Lockheed Martin Way-Java Drive intersection.

Source: Fehr & Peers, 2016.

PEAK HOUR LEVEL OF SERVICE RESULTS

Existing intersection traffic operations were evaluated using the calibrated/validated SimTraffic models developed for the 14 study intersections. The simulation models were recorded for the AM and PM peak hours with a 15-minute seeding period. **Table 3-4** presents the simulated intersection level of service results for each of the study intersections and Fehr & Peers' analysis worksheets are presented in **Appendix E.**[1] As the simulation results show, all study intersections operate at LOS D or better during the AM and PM peak hours, except the following locations:

- Mathilda Avenue / Innovation Way (Intersection #2) – PM peak hour;
- Mathilda Avenue / Moffett Park Drive (Intersection #3) – PM peak hour;
- Mathilda Avenue / SR 237 Westbound Ramp (Intersection #4) – PM peak hour;
- Mathilda Avenue / Ross Drive (Intersection #6) – AM peak hour;
- US 101 Northbound On-Ramp / Moffett Park Drive (Intersection #10) – PM peak hour;
- Innovation Way / Moffett Park Drive (Intersection #11) – PM peak hour;
- Innovation Way / Juniper Networks Driveway (Intersection #13) – PM peak hour.

Operations at each of these intersection are discussed in more detail below.

[1] Please note that Synchro and SimTraffic worksheets are provided for the study intersection in **Appendix C** for informational purposes to present key modeling inputs including lanes, volumes, and signal timing. The results presented in **Table 3-4** are from the Fehr & Peers analysis worksheets, which are the average of ten SimTraffic model runs.

TABLE 3-4: EXISTING PEAK HOUR INTERSECTION ANALYSIS[1]

	Intersection	Traffic Control[2]	Peak Hour[3]	Delay[4]	LOS[5]	Movements Operating at LOS F[6]
1	Mathilda Avenue / Fifth Avenue	Signal	AM PM	14.8 **112.4**	B **F**	AM: N/A PM: SBL/T/R, WBL/T/R
2	Mathilda Avenue / Innovation Way	Signal	AM PM	20.6 **168.9**	C **F**	AM: N/A PM: SBT/R
3	Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	Signal	AM PM	**131.0** **286.7**	**F** **F**	AM: SBT, WBL (MPD), WBR (237) PM: NBL (237), SBL/T/R (MPD/237), EBL/T/R, WBL/T/R (237)
4	Mathilda Avenue / SR 237 Eastbound Ramps	Signal	AM PM	30.1 20.3	C B	AM: N/A PM: N/A
5	Mathilda Avenue / Ross Drive	Signal	AM PM	**94.6** 46.7	**F** D	AM: NBT/R PM: WBL/T/R
6	Mathilda Avenue / US 101 Northbound Ramps (project)	Slip Ramp	AM PM	N/A N/A	N/A N/A	N/A N/A
7	Mathilda Avenue / US 101 Southbound Ramps (project)	Slip Ramp	AM PM	N/A N/A	N/A N/A	N/A N/A
8	Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	Signal	AM PM	52.3 48.8	D D	AM: SBL PM: SBL
9	US 101 Northbound On-Ramp / Moffett Park Drive[7]	Signal	AM PM	4.6 **65.6**	A **E**	AM: N/A PM: EBT
10	Innovation Way / Moffett Park Drive[7]	Signal	AM PM	12.4 **81.5**	B **F**	AM: N/A PM: EBL/T
11	Innovation Way / Eleventh Avenue	AWSC	AM PM	7.7 6.8	A A	AM: N/A PM: N/A
12	Innovation Way / Juniper Networks Driveway	AWSC	AM PM	11.9 **120.6**	B **F**	AM: N/A PM: NBT, EBL
13	Bordeaux Drive / Innovation Way (future)	N/A	AM PM	N/A N/A	N/A N/A	N/A N/A

Notes: Results in **bold** represent unacceptable levels of service, N/A=not applicable.

1. Results based on SimTraffic simulation of ten runs.
2. Signal – signalized intersection, AWSC – all-way stop-controlled intersection, Free – uncontrolled intersection
3. AM – morning peak hour, PM – evening peak hour
4. Average control delay calculated using the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2010) methodology and Synchro/SimTraffic 8.0 analysis software. For signalized and all-way stop-controlled intersections, average control delay is for the intersection, as a whole.
5. For signalized and all-way stop-controlled intersections the LOS for the intersection as a whole is presented.
6. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left turn movement, T-through movement, R-right turn movement, MPD-Moffett Park Drive, 237-SR 237 On/Off-Ramp.
7. The delay and LOS during the PM peak hour for these intersections is worse than what was observed in the field due to limitation of SimTraffic described earlier in the chapter.

Source: Fehr & Peers, 2016.

Intersection #1 – Mathilda Avenue / Fifth Avenue

The Mathilda Avenue / Fifth Avenue intersection operates at LOS F during the PM peak hour due to the high levels of delay and congestion on the southbound through and eastbound right-turn approaches as vehicles travel toward the SR 237 and US 101 interchanges. In addition, the light rail causes additional delay for the eastbound right-turn approach.

Intersection #2 – Mathilda Avenue / Innovation Way (Signalized)

The Mathilda Avenue / Innovation Way intersection operates at LOS F during the PM peak hour due to high levels of delay and congestion on the southbound through and eastbound right-turn approaches as vehicles travel toward the SR 237 and US 101 interchanges. In addition, the light rail causes additional delay for the eastbound right-turn approach.

Intersection #3 – Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramp (Signalized)

The Mathilda Avenue / Moffett Park Drive intersection operates at LOS F during the AM peak hour due to the high levels of delay and congestion traveling northbound on Mathilda Avenue from Mathilda Avenue and SR 237 Westbound Off-Ramp. Delay and congestion is also excessive in the PM peak hour (LOS F) due to the southbound through and eastbound right-turn approaches as vehicles travel toward the SR 237 and US 101 interchanges. The westbound left-turn approach also experiences a fair amount of delay, but the queues do not extend past the Bordeaux Drive intersection.

In the field, it was observed that vehicles making an eastbound right-turn onto southbound Mathilda Avenue would use all available southbound lanes enabling 10-12 vehicles to fill the southbound lanes between the SR 237 Westbound Ramps and Moffett Park Drive intersections. Due to the limitations of SimTraffic, only four vehicles per cycle are able to fill up the southbound lanes. Because of this, the eastbound queues was observed to be excessive in the SimTraffic model and spill back through Intersection #10 and #11.

Intersection #5 – Mathilda Avenue / Ross Drive (Signalized)

The Mathilda Avenue / Ross Drive intersection operates at LOS F during the AM peak hour due to high levels of delay and congestion on the northbound through, westbound right-turn, and eastbound left-turn approaches as vehicles travel toward the SR 237 interchange.

Intersection #9 – US 101 Northbound On-Ramp / Moffett Park Drive (Signalized)

The US 101 Northbound On-Ramp / Moffett Park Drive intersection operates at LOS E during the PM peak hour due to the high levels of delay and congestions on the eastbound through approach as vehicles travel toward Mathilda Avenue to access SR 237 and US 101 Southbound interchanges. The eastbound through experiences excessive queues that were not observed in the field due to the limitations of SimTraffic as described under Intersection #3 (3.3.2.2).

Intersection #10 – Innovation Way / Moffett Park Drive (Signalized)

The Innovation Way / Moffett Park Drive intersection operates at LOS F during the PM peak hour due to the high levels of delay and congestions on the eastbound through and southbound left-turn approaches as vehicles travel toward Mathilda Avenue to access SR 237 and US 101 interchanges. The eastbound through experiences excessive queues that were not observed in the field due to the limitations of SimTraffic as described under Intersection #3 (3.3.2.2).

Intersection #12 – Innovation Way / Juniper Networks Driveway (All-Way Stop-Controlled)

The Innovation Way / Juniper Networks Driveway intersection operates at LOS F during the PM peak hour due to high levels of delay and congestion on the eastbound left-turn and northbound through approaches as vehicles travel toward Mathilda Avenue to access the SR 237 and US 101 interchanges. This is a large all-way stop controlled intersection where vehicles queue back through the intersection during phases when light-rail pass through the Mathilda Avenue / Innovation Way intersection.

MATHILDA CORRIDOR TRAVEL TIME RUNS

Congested travel time was calculated using the SimTraffic arterial report and results can be found in **Table 3-5**. The results, which can be found in **Appendix D**, contains information about the speed and travel time for the Mathilda Avenue corridor between San Aleso Avenue and Java Drive.

TABLE 3-5: MATHILDA AVENUE TRAVEL TIMES[1]

Direction	Peak Hour	Free flow Travel Time (s)[2]	Congested Travel Time (s)	Delay (s)
Mathilda Avenue Northbound	AM	116.2	395.9	279.7
	PM	116.2	310.5	194.3
Mathilda Avenue Southbound	AM	116.2	339.6	223.4
	PM	116.2	835.2	719.0

Notes:

1. Travel time runs begin north of the San Aleso Avenue intersection and end south of the Lockheed Martin Way-Java Drive intersection (approximately 1.44 miles).
2. Free flow speed is calculated assuming a travel speed of 45 miles per hour.

Source: Fehr & Peers, 2016.

EXISTING (2013) FREEWAY MAINLINE OPERATIONS

The Existing Conditions operating conditions of US 101 and SR 237 were analyzed using the calibrated FREQ models. Existing peak hour levels of service from the FREQ models are presented in **Table 3-9** for US 101 freeway and **Table 3-10** for SR 237 freeway. **Appendix F** provides the FREQ analysis worksheets.

FREQ models representing northbound and southbound US 101 and eastbound and westbound SR 237 were developed to evaluate freeway mainline traffic operations during the weekday AM and PM peak

periods. Eight FREQ models were developed: US 101 Northbound AM and PM, US 101 Southbound AM and PM, SR 237 Eastbound AM and PM, SR 237 Westbound AM and PM. For the US 101 model, the study limits of the FREQ model extend between Shoreline Boulevard and SR 87 due to the length of observed queuing. The model was validated for a shorter section of the corridor including segments between Fair Oaks Avenue and just north of SR 237. The study limits for the SR 237 FREQ model extend between Lawrence Expressway and Maude Avenue.

Existing demand volumes and roadway lane configurations were used to develop the existing conditions models. These models were then calibrated so that the model queuing, travel times, and speeds were consistent with the observed queuing, travel times, and speeds. The models were then used to evaluate traffic operations and the corridor MOEs.

MAINLINE MODEL DEVELOPMENT

The number of lanes on the mainline and ramps were obtained from field observations, and distances between each ramp gore point were obtained from aerial photography. The traffic volume data was input in hourly time increments to account for traffic fluctuations during the peak periods with exception of the SR 237 WB models. The SR 237 WB models included 30-minute time slices in order to more accurately depict peak period queuing and speeds. The following represents the initial default parameters used in the modeling before calibration:

- Free flow speed = 65 miles per hour (mph)
- Speed delay curve = 30 mph
- Mainline capacity = 2,000 vehicles per hour per lane (vphpl)
- HOV lane capacity = 1,650 vphpl
- Ramp capacity for standard merge/diverge = 1,500 vphpl
- Ramp capacity for above-standard merge/diverge or lane add = 2,000 vphpl
- Auxiliary lane capacity = the minimum of the on-ramp or off-ramp peak hour volume

Calibration

FREQ models reflecting existing field conditions require calibration to ensure that traffic volumes, queue lengths, and other operational observations are replicated satisfactorily. The final calibrations settings will be carried forward into the alternatives analysis of future year conditions (to be address in a subsequent technical memorandum).

Based on the recommended calibration procedures presented in the FREQ *Freeway Analysis Manual* (June 30, 2009) the following calibration process was employed:

1. Make a base model run with default parameters
2. Compare predicted and field-observed performance measures

3. Assess differences between predicted and field-observed performance measures
4. Select reasonable model input changes to reduce differences
5. Make a new model run with selected input changes
6. Repeat process until predictions are acceptable

Validation

Model validation is a process where the overall model traffic performance is verified against field measurements for traffic performance, such as peak hour travel time, bottleneck locations and durations, and queues.

Validation Criteria

To determine if the model predictions were within acceptable tolerances, the following validation criteria were used from the FREQ *Freeway Analysis Manual*:

Criteria	Acceptable Targets
Bottlenecks	Replicated by model at each location
Duration of queuing	Start and end times within 1 time increment
Queue length	Within 10 percent of actual length
Peak hour travel time	Within 10 percent of actual travel time

Model Parameter Adjustments

The initial base model run with the default parameters did not result in the model replicating observed field conditions for the southbound PM and the northbound AM models. Specifically, the FREQ models did not replicate the field-observed bottlenecks and the travel times through the corridor were generally faster than measured in the field. A bottleneck is a mainline segment operating at capacity, or LOS E by definition, which results in upstream mainline queues. As recommended, reasonable model input changes were made to reduce the differences until the model replicated field observed conditions within acceptable targets. **Table 3-6** summarizes the changes made to the FREQ default parameters to achieve model validation.

TABLE 3-6: CHANGES TO FREQ PARAMETERS FOR MODEL CALIBRATION

Parameter	Default	Calibrated	Reason for Change
Free Flow Speed	65 mph	Varies between 60 mph and 65 mph	Changes made to reflect current design conditions and upstream bottlenecks.
Speed Delay Curve	30 mph	No Change	---
Mainline Capacity	2,000 vphpl	US 101 - 1,960 vphpl; SR 237 EB – 2,200 vphpl	Changes made to reflect observed bottleneck and resulting queue length. The capacity was adjusted to demonstrate that a bottleneck does not form at this location, yet all of the demand volume is served as shown by the throughput count at the SR 237 pedestrian overcrossing and speed data at this location.
HOV Lane Capacity	1,650 vphpl	No Change	---
Ramp Capacity for Standard Merge/Diverge	1,500 vphpl	No Change	---
Ramp Capacity for Above-Standard Merge/Diverge	2,000 vphpl	No Change	---
Weaving Analysis	Disengaged	No Change	---

Source: Fehr & Peers, 2016.

Bottleneck Validation Results

Table 3-7 presents the validation results for the bottleneck locations. As shown in **Table 3-7**, the AM and PM models adequately reflect observed conditions.

TABLE 3-7: BOTTLENECK VALIDATION RESULTS

Freeway / Direction / Peak Hour	Criteria	Observed[3]	FREQ Model	Difference
US 101 Northbound AM	Location A[1]	Bottleneck develops north of study area limits.	Bottleneck develops north of study area limits.	None
	Queue length and duration	Entire study area is in queue between 7:00 AM and 9:00 AM as a result of a bottleneck outside the study area. The queue extends past the Fair Oaks Avenue Off-Ramp (queue extends beyond study area limits).	Entire study area is in queue between 7:00 AM and 9:00 AM as a result of a bottleneck outside the study area. The queue extends past the Fair Oaks Avenue Off-Ramp (queue extends beyond study area limits).	None
US 101 Southbound PM	Location A[2]	Bottleneck develops south of study area limits.	Bottleneck develops south of study area limits.	None
	Queue length and duration	Entire study area is in queue between 4:00 PM and 6:00 PM as a result of a bottleneck outside the study area. The queue extends past the Ellis Street On-Ramp (queue extends beyond study area limits). Between 6:00 PM and 7:00 PM the queue recedes to about the SR 237 interchange (within the study area).	Entire study area is in queue between 4:00 PM and 6:00 PM as a result of a bottleneck outside the study area. The queue extends past the Ellis Street On-Ramp (queue extends beyond study area limits). Between 6:00 PM and 7:00 PM the queue recedes to about the SR 237 interchange (within the study area).	None
SR 237 Westbound AM	At US 101 Northbound Off-Ramp	Bottleneck develops at US 101 Off-Ramp location due to congestion on US 101 causing spillback onto SR 237.	Bottleneck develops at US 101 Off-Ramp location due to congestion on US 101 causing spillback onto SR 237.	None
	Queue length and duration	Queue spills back beyond the Mathilda Avenue interchange during the peak period.	Queue spills back beyond the Mathilda Avenue interchange during the peak period.	None
SR 237 Eastbound PM	No queue observed within the study segments.			

Notes:

1. Bottleneck that develops during the AM peak period along NB US 101 is beyond the study area limits.
2. Bottleneck that develops during the PM peak period along SB US 101 is beyond the study area limits.
3. Queue length based on field observations, travel time runs, and INRIX travel speed databases. Queues extend to the general location denoted.

Source: Fehr & Peers, 2016.

Peak Hour Travel Time Validation Results

Table 3-8 compares the observed peak hour travel times to the calibrated FREQ model peak hour travel times for the study segments. As shown in **Table 3-8**, the AM and PM peak hour models were calibrated to within the acceptable 10 percent maximum deviation.

TABLE 3-8: PEAK HOUR TRAVEL TIME VALIDATION RESULTS

Peak Direction		Average Travel Time from Field Measurements (mm:ss)[1]	Average Travel Time from FREQ Model (mm:ss)	Percent Difference
US 101 Northbound				
AM Peak Hour	7:00-8:00AM	06:33	06:29	1%
PM Peak Hour	5:00-6:00 PM	03:31	03:17	6%
US 101 Southbound				
AM Peak Hour	7:00-8:00AM	02:17	02:06	8%
PM Peak Hour	5:00-6:00 PM	10:20	10:11	1%
SR 237 Westbound				
AM Peak Hour	7:00-8:00AM	02:36	02:28	5%
PM Peak Hour	5:00-6:00 PM	03:36	03:39	-2%
SR 237 Eastbound				
AM Peak Hour	8:00-9:00AM	02:24	02:13	7%
PM Peak Hour	5:00-6:00 PM	02:12	02:07	4%

Notes:

1. Travel time data was extracted from the Phase II of the SR 237 Express Lanes Study and GPS travel time runs performed along US 101 in November 2013 and confirmed through observations conducted by Fehr & Peers in November 2013.

Source: Fehr & Peers, 2016.

PEAK HOUR LEVEL OF SERVICE RESULTS

The existing operating conditions of US 101 and SR 237 were analyzed using the calibrated FREQ models. Existing study period levels of service from the FREQ model are presented in **Table 3-9** and US 101 and **Table 3-10** for SR 237. **Appendix F** provides the FREQ analysis worksheets.

TABLE 3-9: EXISTING US 101 PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type	Number of Lanes	AM Peak Hour		PM Peak Hour	
			Density[1] (vphpl)	LOS[2]	Density[1] (vphpl)	LOS[2]
US 101 Northbound			***7AM-8AM***		***5PM-6PM***	
Fair Oaks Off-Ramp	Diverge	3 Mixed 1 HOV	**75.4**	**F**	25.8	C
Fair Oaks Off-Ramp to Fair Oaks On-Ramp	Basic	3 Mixed 1 HOV	**68.1**	**F**	21.5	C
Fair Oaks On-Ramp	Merge	3 Mixed 1 HOV	**53.8**	**F**	23.4	C
Fair Oaks On-Ramp to Mathilda NB Off Ramp	Basic	3 Mixed 1 HOV	**55.6**	**F**	23.4	C
Mathilda NB Off-Ramp	Diverge	3 Mixed 1 HOV	**57.3**	**F**	23.4	C
Mathilda NB Off-Ramp to Mathilda NB On-Ramp	Basic	3 Mixed 1 HOV	**61.4**	**F**	22.5	C
Mathilda NB On-Ramp	Merge	3 Mixed 1 HOV	**61.3**	**F**	23.8	C
Mathilda NB On-Ramp to Mathilda SB Off-Ramp	Basic	3 Mixed 1 HOV	**61.5**	**F**	23.8	C
Mathilda SB Off-Ramp	Diverge	3 Mixed 1 HOV	**61.7**	**F**	23.8	C
Mathilda SB Off-Ramp to SR 237 WB Off-Ramp	Basic	3 Mixed 1 HOV	**66.1**	**F**	20.3	C
SR 237 WB Off-Ramp	Diverge	3 Mixed 1 HOV	**70.1**	**F**	20.3	C
SR 237 WB Off-Ramp to SR 237 WB On-Ramp	Basic	3 Mixed 1 HOV	**82.2**	**F**	**13.6**	**F**
SR 237 WB On-Ramp	Merge	3 Mixed 1 HOV	**74.3**	**F**	**35.8**	**F**
SR 237 WB On-Ramp to Ellis	Basic	3 Mixed 1 HOV	**76.9**	**F**	**59.8**	**F**
US 101 Southbound			***7AM-8AM***		***5PM-6PM***	
Ellis On-Ramp to SR 237 EB Off-Ramp	Basic	3 Mixed 1 HOV	23.8	C	**107.4**	**F**
SR 237 EB Off-Ramp	Diverge	3 Mixed 1 HOV	23.8	C	**91.7**	**F**
SR 237 EB Off-Ramp to SR 237 EB On-Ramp	Basic	3 Mixed 1 HOV	17.0	B	**158.2**	**F**
SR 237 EB On-Ramp	Merge	3 Mixed 1 HOV	15.7	B	**181.7**	**F**

TABLE 3-9: EXISTING US 101 PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type	Number of Lanes	AM Peak Hour		PM Peak Hour	
			Density[1] (vphpl)	LOS[2]	Density[1] (vphpl)	LOS[2]
SR 237 EB On-Ramp to Mathilda Off-Ramp	Weave	3 Mixed, 1 AUX 1 HOV	15.7	B	**186.2**	**F**
Mathilda Off-Ramp	Diverge	3 Mixed 1 HOV	15.7	B	**182.8**	**F**
Mathilda Off-Ramp to Mathilda SB On-Ramp	Basic	3 Mixed 1 HOV	19.6	C	**151.4**	**F**
Mathilda SB On-Ramp	Merge	3 Mixed 1 HOV	20.1	C	**109.5**	**F**
Mathilda NB On-Ramp	Merge	3 Mixed 1 HOV	21.7	C	**97.7**	**F**
Mathilda NB On-Ramp to Fair Oaks SB Off-Ramp	Basic	3 Mixed 1 HOV	21.7	C	**102.6**	**F**
Fair Oaks SB Off-Ramp	Diverge	3 Mixed 1 HOV	21.7	C	**97.1**	**F**
Fair Oaks SB Off-Ramp to Fair Oaks SB On-Ramp	Basic	3 Mixed 1 HOV	20.2	C	**128.7**	**F**
Fair Oaks SB On-Ramp	Merge	3 Mixed 1 HOV	15.7	B	**171.8**	**F**
Fair Oaks NB Off-Ramp	Diverge	3 Mixed 1 HOV	15.7	B	**172.9**	**F**
Fair Oaks NB Off-Ramp to Fair Oaks NB On-Ramp	Basic	3 Mixed 1 HOV	20.6	C	**126.8**	**F**
Fair Oaks NB On-Ramp	Merge	3 Mixed 1 HOV	22.8	C	**117.5**	**F**

Notes: **Bold** font indicates LOS F conditions. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Density presented in vehicles per hour per lane for the mixed-flow lanes.
2. LOS presented for the mixed-flow lanes.

Source: Fehr & Peers, 2016.

TABLE 3-10: EXISTING SR 237 PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type	Number of Lanes	AM Peak Hour		PM Peak Hour	
			Density[1] (vphpl)	LOS	Density[1] (vphpl)	LOS
SR 237 Westbound			***7AM-8AM***		***5PM-6PM***	
Lawrence On-Ramp to Crossman On-Ramp	Basic	3 Mixed	23.0	C	19.2	B
Crossman On-Ramp	Merge	3 Mixed	24.5	C	22.1	C
Crossman On-Ramp to Mathilda Off-Ramp	Basic	3 Mixed	24.5	C	**47.9**	**F**
Mathilda Off-Ramp	Diverge	3 Mixed	27.1	C	**55.0**	**F**
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed	40.4	E	**84.4**	**F**
Mathilda On-Ramp to US 101 NB Off-Ramp	Weave	2 Mixed, 1 AUX	**48.4**	**F**	**53.3**	**F**
US 101 NB Off-Ramp to US 101 NB On-Ramp	Basic	2 Mixed	18.5	B	19.4	B
US 101 NB On-Ramp	Merge	2 Mixed	26.7	C	28.2	D
Maude Off-Ramp	Diverge	2 Mixed	26.7	C	28.2	D
SR 237 Eastbound			***8AM-9AM***		***5PM-6PM***	
Maude On-Ramp to US 101 SB Off-Ramp	Weave	2 Mixed, 1 AUX	19.7	C	14.3	B
US 101 SB Off-Ramp to US 101 SB On-Ramp	Basic	2 Mixed	20.3	C	16.5	B
US 101 SB On-Ramp	Merge	2 Mixed, 1 AUX	22.3	C	14.6	B
US 101 SB On-Ramp to Mathilda Off-Ramp	Basic	2 Mixed, 1 AUX	22.3	C	14.6	B
Mathilda Off-Ramp	Diverge	2 Mixed, 1 AUX	22.3	C	14.6	B
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed	29.0	D	20.1	C
Mathilda On-Ramp	Merge	2 Mixed	38.7	E	29.4	D
Mathilda On-Ramp to Start HOV Lane	Basic	2 Mixed	33.3	D	22.2	C
Start HOV Lane to Persian Off-Ramp	Diverge	2 Mixed 1 HOV	33.3	D	22.2	C
Persian Off-Ramp to Lawrence	Basic	2 Mixed 1 HOV	32.5	D	19.6	C

Notes: **Bold** font indicates LOS F conditions. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Density presented in vehicles per hour per lane for the mixed-flow lanes.

Source: Fehr & Peers, 2016.

Leisch Method Weaving Analysis

Auxiliary lanes are provided intermittently along US 101 and SR 237 in both directions within the study area. **Table 3-11** summarizes the peak hour mainline weaving operations at locations that provide an auxiliary lane using the Leisch Method.[2] The Leisch Method analysis was applied for the demand mainline and ramp volumes.

TABLE 3-11: EXISTING PEAK HOUR WEAVING ANALYSIS BASED ON LEISCH METHOD

Segment	Direction	Number of Lanes	AM Peak Hour LOS	PM Peak Hour LOS
US 101				
SR 237 EB on-ramp to Mathilda Avenue off-ramp	SB	4 Mainline 1 Aux Lane	LOS C (8AM-9AM)	LOS D (4PM-5PM)
SR 237				
Mathilda Avenue on-ramp to US 101 NB off-ramp	WB	2 Mainline 1 Aux Lane	LOS D (7AM-8AM)	LOS F (5PM-6PM)
US 101 on-ramp to Mathilda Avenue off-ramp	EB	2 Mainline 1 Aux Lane	LOS E (8AM-9AM)	LOS B (5PM-6PM)

Source: Fehr & Peers, 2016.

As the results show, the weave sections operate between LOS B and LOS F. **Appendix G** provides the Leisch analysis worksheets. These results differ from the FREQ results presented in **Table 3-9** and **Table 3-10** for the following reasons:

- FREQ is not a weaving analysis tool.
- Leisch Method uses default mainline capacities while FREQ models use calibrated capacities to reflect observed conditions.
- Leisch Method evaluates mainline segments in isolation so that bottlenecks and mainline queuing do not impact downstream or upstream traffic. FREQ models consider the effects of the bottlenecks and mainline queuing on the entire mainline system.

FREEWAY SYSTEM PERFORMANCE

Existing hourly system-wide MOEs for the two-hour AM and three-hour PM peak period results are presented in **Table 3-12** through **Table 3-13**. **Appendix F** provides the FREQ analysis worksheets. Each of the MOEs is discussed below.

Vehicle Miles Traveled (VMT)

VMT represents the total distance traveled by all vehicles using the US 101 and SR 237 study corridors. VMT is the sum of the volume served for each segment multiplied by the length of each segment. The highest

[2] Procedures for Analysis and Design of Weaving Sections: A Users Guide. Jack E. Leisch, October 1985. The Leisch Method is one of the methodologies accepted by Caltrans for the analysis of freeway weaving sections.

VMT along the US 101 corridor occurs during the southbound PM peak period, while the lowest occurs during the southbound AM peak period. The highest VMT along the SR 237 corridor occurs during the westbound PM peak period, while the lowest occurs during the eastbound AM peak period.

Average Travel Time (ATT)

The Average Travel Time (ATT) for US 101 is longest in the southbound direction during the PM peak period, with an average time of 9 minutes and 29 seconds resulting in an average travel speed of 13 mph. The average travel speed along US 101 was about 20 mph during for the northbound AM peak period. SR 237 experienced the highest average travel time during the westbound PM peak period with a time of 2 minutes and 49 seconds. The lowest average travel time on SR 237 was eastbound in the PM peak period with a travel time of 2 minutes and 6 seconds.

Vehicle Delay

Vehicle delay is the amount of delay incurred during the peak period as a result of congestion and demand exceeding the capacity of a freeway segment. Vehicle delays were computed using the FREQ model output and are represented in units of vehicle-hours. For this study, vehicle delay is defined as the difference between the time it takes to travel a segment at a speed below the free-flow speed and the free-flow speed. It is important to note that this definition of vehicle delay is different from the definition used within the Mobility Performance Report (MPR) managed by Caltrans' Mobility Performance Reporting and Analysis Program. Vehicle delay in the MPR is defined as the time it takes to travel a segment at a recorded congested speed and the travel time at 35 mph (i.e., speeds above 35 mph are not considered congested).

As shown in **Table 3-12**, during the PM peak period the US 101 southbound direction experiences 1,695 vehicle-hours of delay compared to 662 vehicle-hours of delay for the northbound direction in the AM peak period. US 101 generally operates at free flow during the northbound PM and southbound AM study periods at 45 mph and 60 mph, respectively. **Table 3-13** shows that during the AM peak period, the SR 237 westbound direction experiences 41 vehicle-hours of delay compared to 11 vehicle-hours of delay for the eastbound direction during the PM peak period.

TABLE 3-12: EXISTING US 101 STUDY PERIOD MEASURES OF EFFECTIVENESS[1]

Measures of Effectiveness	AM Peak Period	PM Peak Period
Northbound		
Vehicle Miles of Travel (vehicle-miles)	20,110	24,630
Average Travel Time (min:sec) [1]	06:25	02:52
Average Travel Speed (mph) [1]	20	45
Mainline Vehicle Delay (vehicle-hours)	662	160
Maximum Individual Vehicle Delay (min:sec)	04:30	01:18
Southbound		
Vehicle Miles of Travel (vehicle-miles)	17,800	28,150
Average Travel Time (min:sec)	02:07	09:29
Average Travel Speed (mph)	60	13
Mainline Vehicle Delay (vehicle-hours)	24	1,695
Maximum Individual Vehicle Delay (min:sec)	00:11	08:16

Notes:

1. Average Travel Time and Average Travel Speed differ from those presented in Table 2-4. Table 2-4 demonstrates the travel time and speed for each hour within the peak period and Table 3-12 demonstrates the travel time and speed for the peak period.

Source: Fehr & Peers, 2016.

TABLE 3-13: EXISTING SR 237 STUDY PERIOD MEASURES OF EFFECTIVENESS[1]

Measures of Effectiveness	AM Peak Period	PM Peak Period
Westbound		
Vehicle Miles of Travel (vehicle-miles)	18,560	23,060
Average Travel Time (min:sec) [1]	02:22	02:49
Average Travel Speed (mph) [1]	56	47
Mainline Vehicle Delay (vehicle-hours)	41	136
Maximum Individual Vehicle Delay (min:sec)	00:25	01:37
Eastbound		
Vehicle Miles of Travel (vehicle-miles)	17,650	20,720
Average Travel Time (min:sec)	02:08	02:06
Average Travel Speed (mph)	62	63
Mainline Vehicle Delay (vehicle-hours)	12	11
Maximum Individual Vehicle Delay (min:sec)	00:10	00:04

Notes:

1. Average Travel Time and Average Travel Speed differ from those presented in Table 2-5. Table 2-5 demonstrates the travel time and speed for each hour within the peak period and Table 3-13 demonstrates the travel time and speed for the peak period.

Source: Fehr & Peers, 2016.

EXISTING (2013) TRANSIT SERVICE AND FACILITIES

The project area includes the Lockheed Martin and the Moffett Park light rail transit (LRT) stations, which are on the Mountain View to Winchester Avenue LRT line (Line 902) operated by the VTA. VTA also operates bus service in the area. **Figure 5** shows the existing transit service near the project site, which is described in detail below and summarized in **Table 3-14.** The table includes the origin and destination, the operating hours, the headways, and the average peak load factors for each route. The average peak load factor is a measure of resource utilization. It compares the supply of seats on a bus versus the average peak number of on-board passengers at any time during the peak period. For all-day service, the average peak load factor is based on the average over the entire day. A load factor of 1.0 would indicate that all seats are full.

TABLE 3-14: EXISTING TRANSIT SERVICE

Route	From	To	Weekdays			Weekends	
			Load Factor[1]	Operating Hours	Peak Headway[2] (minutes)	Operating Hours	Headway[2] (minutes)
Bus Service (VTA)							
32	San Antonio Transit Center	Santa Clara Transit Center	0.35	5:45 a – 8:03 p	30 – 60	8:50 a – 5:51 p (Saturday Only)	60 (Saturday Only)
26	Eastridge Transit Center	Lockheed Martin Transit Center	0.53	5:21 a – 11:49 p	30	6:24 a – 10:45 p	30 – 60
54	De Anza College		0.45	6:01 a – 9:30 p	30	7:58 a – 7:52 p	45 – 60
120	Fremont BART Station		0.69	6:12 a – 9:17 a 4:05 p – 7:10 p	AM: 6 SB Trips PM: 6 NB Trips	No Service	
121	Gilroy Transit Center		0.53	4:30 a – 9:17 a 3:00 p – 7:37 p	AM: 9 SB Trips PM: 9 NB Trips	No Service	
122	Santa Teresa LRT Station		0.34	5:52 a – 6:45 a 4:48 p – 5:58 p	AM: 1 NB Trip PM: 1 SB Trip	No Service	
321	Great Mall/Main Transit Center		0.12	8:10 a – 8:46 a 5:50 p – 6:32 p	AM: 1 WB Trip PM: 1 EB Trip	No Service	
328	South San Jose		0.30	6:00 a – 8:40 a 4:55 p – 7:13 p	AM: 2 NB Trips PM: 2 SB Trips	No Service	
826 (ACE)	ACE Great America Station		N/A	6:16 a – 9:38 a 3:11 p – 6:39 p	4 WB Trips – AM 4 EB Trips – PM	No Service	
Mary/Moffett Area Caltrain Shuttle	Mountain View Caltrain Station	Alma Plaza	N/A	7:05 a – 10:21 a 2:50 p – 6:30 p	AM: 4 NB Trips PM: 4 SB Trips	No Service	
Light Rail Service (VTA)							
902	Downtown Mountain View	Winchester	0.42	5:06 a –12:09 a	15	6:02 a – 12:05 a	30

Notes:

1. Average peak load factor is the ratio of the average peak number of on-board passengers aboard during the peak period to supply of seats.
2. Headways are defined as the time interval between two transit vehicles traveling in the same direction over the same route.

Source: VTA, January 2014.

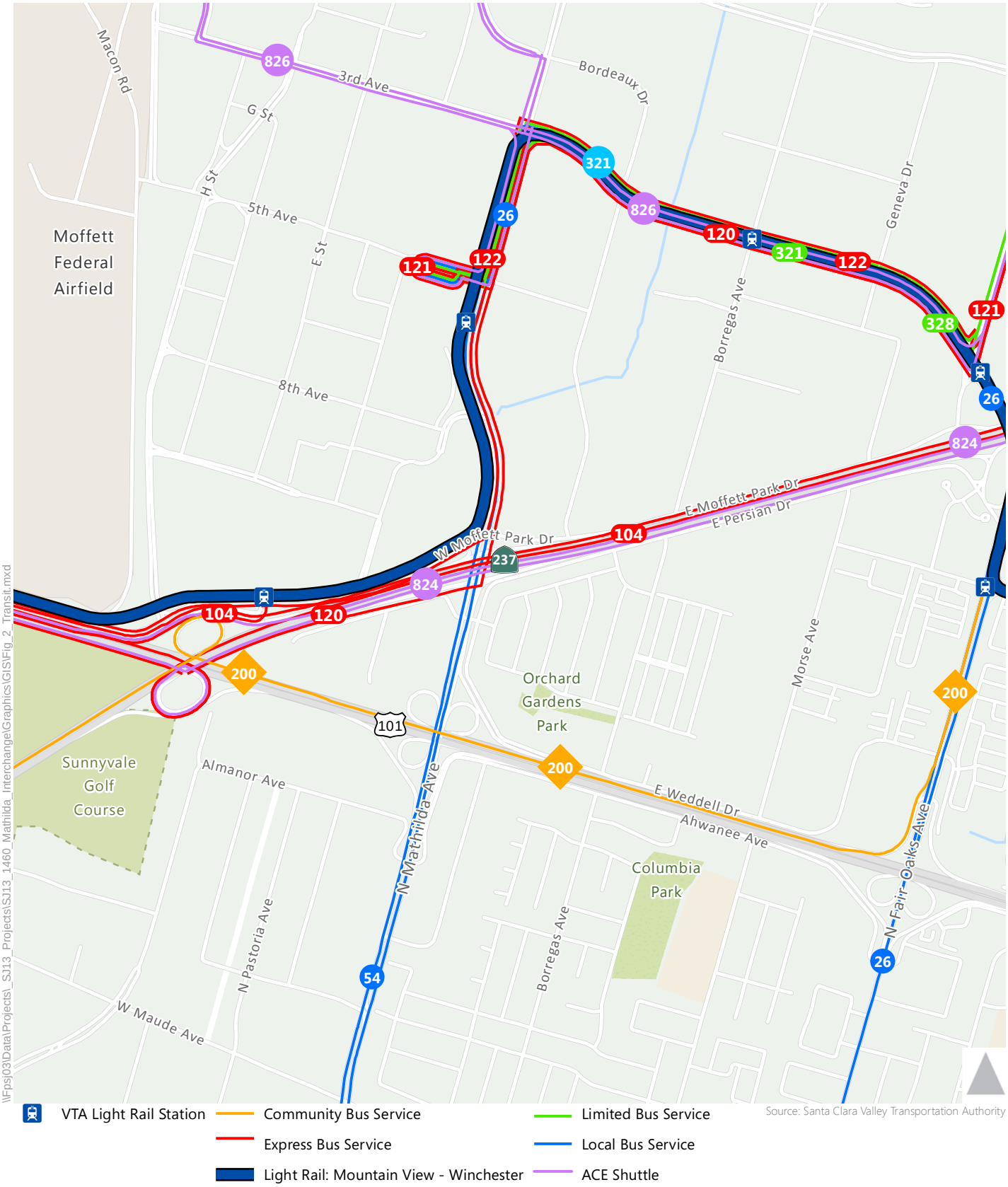


Figure 5

Existing Transit Service
Mathilda Avenue Improvements

VTA LRT AND LOCAL BUS ROUTES

The VTA Mountain View to Winchester Avenue LRT runs along Java Drive, Mathilda Avenue, Moffett Park Drive, and Manila Drive near the project. LRT Line 902 stops at the Lockheed Martin and the Moffett Park stations within the study area.

Bus Route 26 operates on Mathilda Avenue, Java Drive, and Fair Oaks Avenue. Route 26 provides service between the Eastridge Mall and Lockheed Martin/Moffett Park transit centers. Route 26 follows major arterials and travels through Sunnyvale, Cupertino, San Jose, and Campbell. Bus stops for Route 26 are provided at Java Drive and the Lockheed Martin/Moffett Park Transit Center.

Bus Route 54 operates on Mathilda Avenue, Java Drive, and Fair Oaks Avenue. Route 54 provides service between De Anza College and Sunnyvale/Fair Oaks Avenue. Bus stops for Route 54 are provided along Mathilda Avenue near Maude Avenue, Ahwanee Avenue, Ross Drive, and north of Moffett Park Drive at the Lockheed Martin/Moffett Park Transit Center.

Bus Route 32 operates on Central Expressway and Mathilda Avenue and can be used as a connection to Bus Route 54. Route 32 provides service between the San Antonio and Santa Clara transit centers. Route 32 follows major arterials and travels through Mountain View, Sunnyvale, and Santa Clara

EXPRESS AND LIMITED STOP BUS ROUTES

The VTA also runs several express bus routes and limited stop bus routes throughout the project area.

Bus Route 120 is an express bus route that operates on SR 237, Caribbean Drive, Java Drive, and Mathilda Avenue; it connects the Fremont BART Station to the Lockheed Martin Transit Center. Six Route 120 trips occur during each weekday peak period (to the project area in the morning and from it in the afternoon).

Bus Route 121 is an express bus route that operates on Lawrence Expressway, Caribbean Drive, Java Drive, and Mathilda Avenue; it connects the Gilroy Transit Center and Morgan Hill Caltrain Station to the Lockheed Martin Transit Center. Nine Route 121 trips occur during each weekday peak period (to the project area in the morning and from it in the afternoon).

Bus Route 122 is an express bus route that operates on US 101, Lawrence Expressway, Caribbean Drive, Java Drive, and Mathilda Avenue; it connects south the Santa Teresa LRT Station in San Jose to the Lockheed Martin Transit Center. One Route 122 trip occurs during each weekday peak period (away from the project area in the morning and to it in the afternoon).

Bus Route 321 is a limited stop bus route that operates on Lawrence Expressway, Caribbean Drive, Java Drive, and Mathilda Avenue; it connects the Great Mall Transit Center in Milpitas to the Lockheed Martin Transit Center. Two Route 321 trips occurs during each weekday peak period (away from the project area in the morning and to it in the afternoon).

Bus Route 328 is a limited stop bus route that operates on Lawrence Expressway, Caribbean Drive, Java Drive, and Mathilda Avenue; it connects south San Jose near Almaden Expressway to the Lockheed Martin Transit Center.

Additionally, *Bus Route 104* passes through the study area on US 101 and SR 237; it connects Palo Alto, Mountain View, Milpitas, and San Jose.

CALTRAIN AND ACE SHUTTLES

Caltrain provides intercity passenger rail service between San Francisco and San Jose, with extended service to Morgan Hill and Gilroy during weekday commute hours. Four *Mary/Moffett Area Caltrain Shuttle* runs connect the Mountain View Caltrain Station with office buildings in the Mary Avenue and Moffett Park areas. During weekday AM and PM commute periods, the Caltrain shuttle operates every 50 to 60 minutes on Mathilda Avenue with a stop near Ahwanee Avenue; there is another stop on Hamlin Court off Ross Drive. The Mountain View station is a designated express train station for Caltrain. Bus service between the Sunnyvale Caltrain Station and the Moffett Park area is provided by VTA Route 54. Additional private shuttles to the Moffett Park area from the Sunnyvale Caltrain Station are operated by local employers. These services are generally limited to the specific employer(s).

The *Altamont Corridor Express (ACE)* provides passenger rail service between Stockton and San Jose. The *ACE Red Line Shuttle (Route 826)* provides free shuttle service between buildings in the Moffett Park and the ACE Great America Station in Santa Clara. This shuttle operates on Mathilda Avenue north of the study area. Shuttle stops are provided at the Lockheed Martin/Moffett Park Transit Center. Four shuttle trips operate during each commute period with 60-minute headways in the morning and 30 to 80 minute headways in the evening.

LOCAL SHUTTLES

There are a number of local public and private shuttles specific to Moffett Park Area that provide service within Moffett Park and to surrounding neighborhoods and major transit facilities. The Moffett Park Business & Transportation Association provides information on available public shuttle programs to the tenants in Moffett Park.

EXISTING (2013) BICYCLE AND PEDESTRIAN FACILITIES

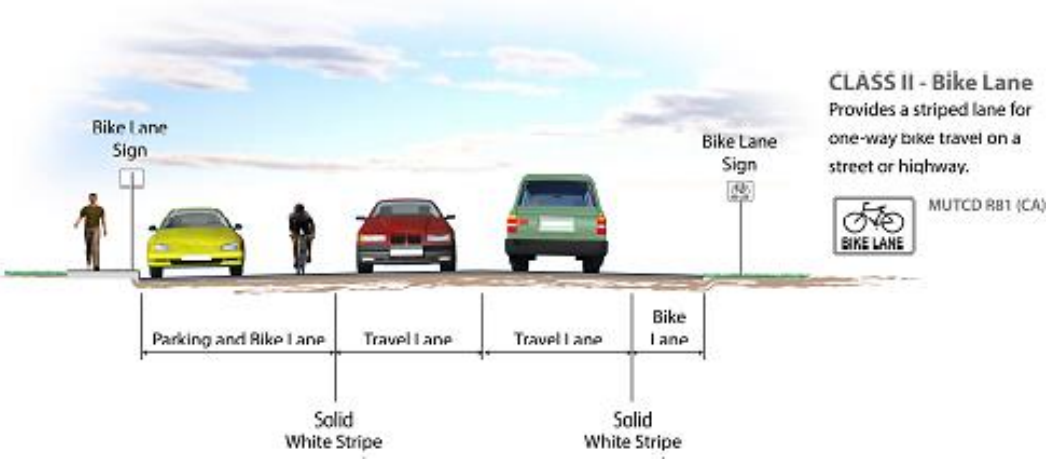
Pedestrian and bicycle volumes were collected at all study intersections in November 2013. Pedestrian and bicycle count worksheets are provided in **Appendix A**. There is moderate bicycle use along Moffett Park Drive during the peak hours; most other movements have only a few cyclists. Along Mathilda Avenue pedestrian volumes are low and due to the lack of pedestrian facilities on the project's frontage streets (Borregas Avenue, Bordeaux Drive, Moffett Park Drive) pedestrian activity is almost non-existent.

BICYCLE FACILITIES

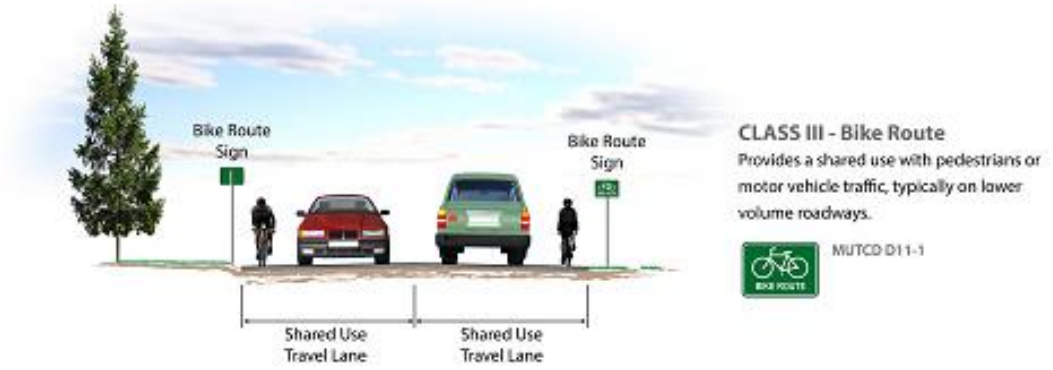
Bikeway planning and design in California typically relies on guidelines and design standards established by California Department of Transportation (Caltrans) in the *Highway Design Manual* (Chapter 1000: Bikeway Planning and Design).

- *Class I Bikeway (Bike Path)* provides a completely separate right-of-way and is designated for the exclusive use of bicycles and pedestrians with vehicle and pedestrian cross-flow minimized. In general, bike paths serve corridors not served by streets and highways or where sufficient right-of-way exists to allow such facilities to be constructed away from the influence of parallel streets and vehicle conflicts.

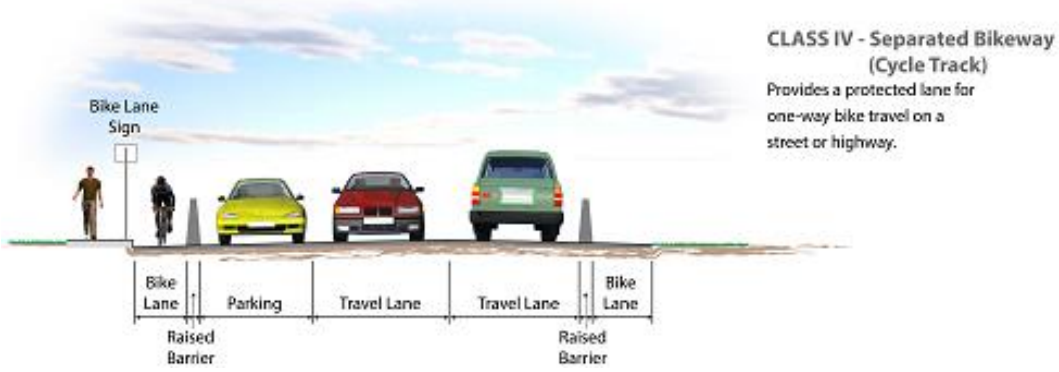
- *Class II Bikeways (Bike Lanes)* are lanes for bicyclists generally adjacent to the outer vehicle travel lanes. These lanes have special lane markings, pavement legends, and signage. Bicycle lanes are generally five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- *Class III Bikeway (Bike Route)* are designated by signs or pavement markings for shared use with pedestrians or motor vehicles, but have no separated bike right-of-way or lane striping. Bike routes serve either to: a) provide continuity to other bicycle facilities, or b) designate preferred routes through high demand corridors.



- *Class IV Bikeways (Cycletracks or Protected Bike Lanes)* provide a right-of-way designated exclusively for bicycle travel within a roadway and which are protected from other vehicle traffic with devices, including, but not limited to, grade separation, flexible posts, inflexible physical barriers, or parked cars



The *VTA Bicycle Technical Guidelines* (2012) recommend standards regarding bicycle facility dimension and provides supplemental information and guidance on when and how to better accommodate the many types of bicyclists. **Figure 6** shows the location of the existing bicycle facilities within the project study area. VTA has adopted the Santa Clara *Countywide Bicycle Plan* (CBP) in August 2008. The CBP guides the development of major bicycling facilities by identifying Cross County Bicycle Corridors and other projects of countywide or intercity significance. Several of these routes travel through the study area, including routes along Mary Avenue, Maude Avenue, Middlefield Road, Ellis Street, and Manila Drive/Moffett Park Drive.

Bicycle lanes are provided in both directions on both Bordeaux Drive (between Moffett Park Drive and Java Drive) and Borregas Avenue (between Moffett Park Drive and Caribbean Drive). Bicycle lanes are provided on Mathilda Avenue (north of Bordeaux Drive) and Moffett Park Drive (east of Bordeaux Drive). A bicycle route is designated on Mathilda Avenue from Bordeaux Drive to Innovation Way. A bicycle path extends from the north-east of the US 101/Mathilda Avenue interchange along the John W. Christian Greenbelt from Garner Drive to Morse Avenue, where it connects with existing Class II bike lanes along Weddell Drive. Multi-use Class I bicycle/pedestrian trails are provided along the San Francisco Bay Trail toward the north of the study area and the Calabazas Creek parallel and east of Lawrence Expressway along the eastern border of the City of Sunnyvale.

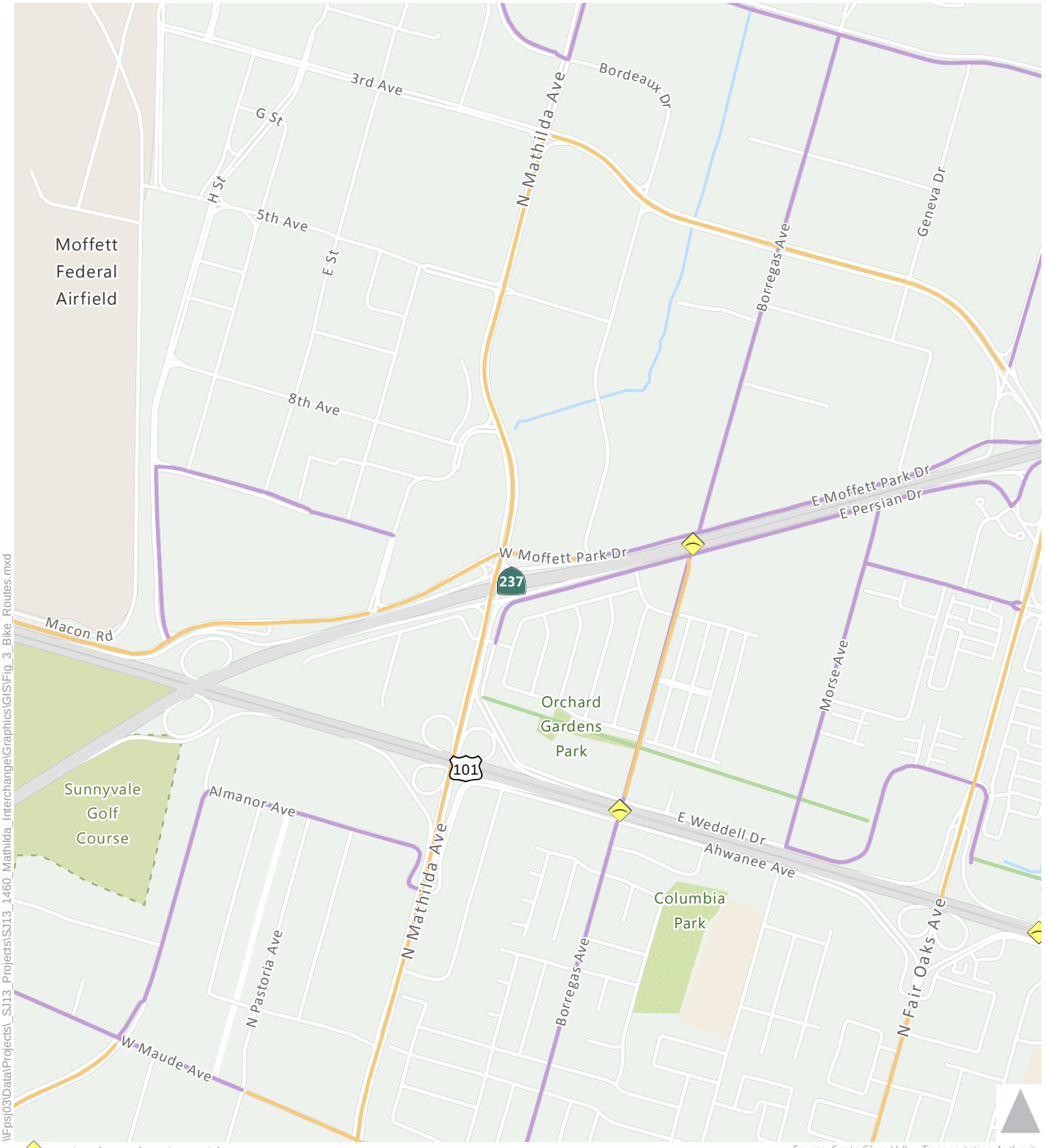


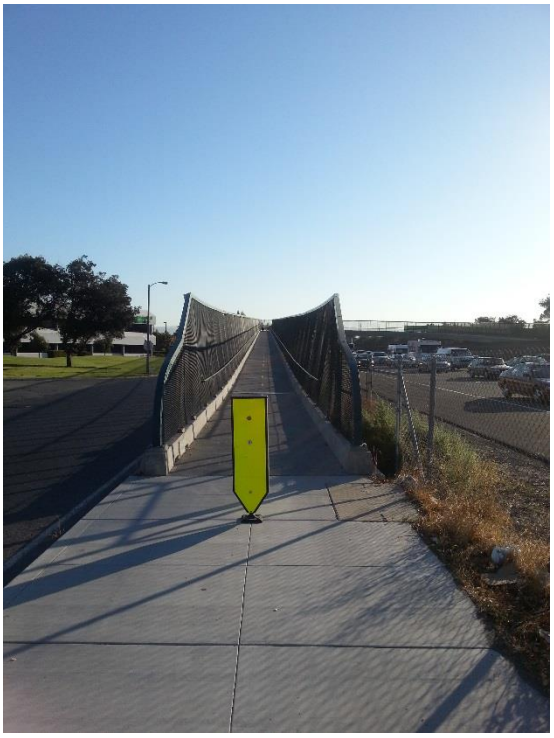
Figure 6

Existing Bicycle Facilities
Mathilda Avenue Improvements

PEDESTRIAN FACILITIES

Pedestrian facilities consist of sidewalks, crosswalks, and pedestrian signals at signalized intersections. In the project area there are no sidewalks on Moffett Park Drive, Bordeaux Drive or Borregas Avenue, though the City has identified sidewalks on Moffett Park Drive as a future pedestrian improvement. Most study intersections include crosswalks and pedestrian signals on all approaches.

Sidewalks are provided on both sides of Mathilda Avenue between Fifth Avenue and Moffett Park Drive. South of Moffett Park Drive sidewalks are provided on the east side of Mathilda Avenue until Ross Drive. At the Mathilda Avenue/SR 237 interchange, north-south pedestrian movements are limited to the east side of Mathilda Avenue and east-west crossing of Mathilda Avenue is prohibited within the interchange area. Pedestrians crossing Mathilda (east-west) have to use the crosswalk on the north leg of the Mathilda Avenue/Moffett Park Drive intersection. Sidewalks continue on the east side of Mathilda Avenue from the SR 237 interchange to south of the US 101 interchange, at which point sidewalks continue on both sides of Mathilda Avenue.



A multi-use pedestrian/bicycle bridge crosses SR 237 and US 101 east of Mathilda Avenue providing a pedestrian/bicycle connection between Moffett Park to the north and the residential neighborhood to the south. There is currently an uncontrolled crosswalk located on the west leg of the Moffett Park Drive/Borregas Avenue intersection; however, there are currently no sidewalks connecting to the crosswalk at any point of the intersection.

EXISTING (2013) COLLISION HISTORY DATA

This section summarizes collision statistics for key mainline and arterials within the study area.

LOCAL STREET COLLISION HISTORY

Three years (January 2011 – December 2013) of collision data on local streets within the project study limits was provided by the City of Sunnyvale Division of Transportation and Traffic. **Table 3-15** and **Table 3-16** summarize the city collision data on local streets within the project study limits by analysis location and by collision type, respectively.

Table 3-15 shows that 86 of the 548 reported collisions during the time period were injury collisions.

TABLE 3-15: LOCAL STREET COLLISION DATA – JANUARY 2011 THROUGH DECEMBER 2013

Location	Total Collisions	Collisions Involving Pedestrians	Collisions Involving Bicycles	Collisions Resulting in Injury	Collisions Resulting in Fatality
Moffett Park Dr. (Manila Dr. to Borregas Ave.)*	30	0	3	7	0
Mathilda Ave. (California Ave. to 5th Ave.)*	274	1	3	42	0
Moffett Park Dr./Borregas Ave. Intersection	3	0	1	1	0
Moffett Park Dr./Bordeaux Dr. Intersection	1	0	0	0	0
Moffett Park Dr./Enterprise Way Intersection	1	0	0	0	0
Moffett Park Dr./Innovation Way Intersection	1	0	0	1	0
Moffett Park Dr./Manila Dr. Intersection	1	0	0	0	0
Mathilda Ave./California Ave. Intersection	20	0	0	3	0
Mathilda Ave./Central Expressway Intersection	5	0	0	0	0
Mathilda Ave./Indio Way Intersection	14	0	0	3	0
Mathilda Ave./Maude Ave. Intersection	30	1	1	2	0
Mathilda Ave./Del Rey Ave. Intersection	8	0	0	2	0
Mathilda Ave./San Aleso Ave. Intersection	8	0	0	2	0
Mathilda Ave./Ahwanee Ave. Intersection	26	0	0	1	0
Mathilda Ave./US 101 SB On-Ramp Intersection	2	0	0	0	0
Mathilda Ave./US 101 NB On-Ramp Intersection	1	0	0	0	0
Mathilda Ave./Ross Dr. Intersection	26	0	0	7	0
Mathilda Ave./SR 237 EB Off-Ramp Intersection	20	0	0	2	0
Mathilda Ave./SR 237 Intersection	35	0	0	5	0
Mathilda Ave./SR 237 WB Ramps Intersection	13	0	0	3	0
Mathilda Ave./Moffett Park Dr. Intersection	24	0	1	5	0
Mathilda Ave./Innovation Way Intersection	5	0	0	0	0

Notes:

*Indicates collisions along a roadway segment, not at an intersection.

Source: City of Sunnyvale collision data January 1, 2011 to December 31, 2013.

TABLE 3-16: LOCAL STREET COLLISION TYPES – JANUARY 2011 THROUGH DECEMBER 2013

Collision Type	Total Percent (%)
Head-On	1.4
Sideswipe	2.4
Rear End	8.7
Broadside	9.6
Hit Object	4.2
Overturn	0.7
Auto/Pedestrian	0.4
Auto/Bicycle	2.0
Not Stated	70.6
Other	0.0

Source: City of Sunnyvale collision data January 1, 2011 to December 31, 2013.

A total of 548 collisions were reported on the local streets within the project study limits over a three-year period including 86 injury accidents (see **Table 3-15**). The highest number of accidents occurred at the intersection of Mathilda Avenue and the SR 237 ramp intersection. The intersections of Mathilda Avenue/Moffett Park Drive, Mathilda Avenue/Ross Drive, and Mathilda Avenue/Maude Avenue, also had high numbers of collisions.

Rear-end and broadside type collisions that are generally due to driver inattention, unsafe speeds, and lane changing in traffic congestion, accounted for 18 percent of the accidents.

MAINLINE COLLISION HISTORY

Caltrans staff provided collision data for SR 237 and US 101 through the study area for the three-year period between January 2011 and December 2013 through their Traffic Accident Surveillance and Analysis System (TASAS Table B). **Table 3-17** and **Table 3-18** summarize the state collision data by collision type and analysis location, respectively. Collision rates along the mainline were higher during the three year period compared to the statewide average for similar facilities. Having a higher than average collision rate can result in additional delay due to lane blockages and police activity related to these collisions.

As shown on **Table 3-18**, seven locations along the study area ramps and mainline experienced total collision rates higher than the statewide average.

TABLE 3-17: FREEWAY COLLISION TYPES – JANUARY 2011 THROUGH DECEMBER 2013

Code	Collision Type	SR 237		US 101	
		Mainline (%)	Ramps (%)	Mainline (%)	Ramps (%)
A	Head-on	0.0	6.7	0.0	4.3
B	Sideswipe	8.9	13.3	24.5	2.1
C	Rear End	78.6	43.3	55.8	25.5
D	Broadside	0.7	16.7	2.0	2.1
E	Hit Object	8.2	16.7	16.3	55.3
F	Overturn	2.2	3.3	1.4	10.7
G	Auto-Pedestrian	0.0	0.0	0.0	0.0
H	Other	0.7	0.0	0.0	0.0
-	Not Stated	0.7	0.0	0.0	0.0

Source: Caltrans TASAS data January 1, 2011 to December 31, 2013.

TABLE 3-18: FREEWAY COLLISION DATA – JANUARY 2011 THROUGH DECEMBER 2013

Location Description	Number of Collisions			Actual Collision Rate (acc/million veh miles)			Average Collision Rate (acc/million veh miles)		
	Total	Fatal	F+I	Total	Fatal	F+I	Total	Fatal	F+I
US 101 (PM 45.000 to 46.500)	147	0	42	0.58	0.000	0.17	0.80	0.003	0.25
US 101 (PM 45.544) NB off-ramp to NB Mathilda Ave.	2	0	0	0.44	0.000	0.00	0.75	0.004	0.24
US 101 (PM 45.631) SB on-ramp from NB Mathilda Ave.	5	0	2	**0.71**	0.000	**0.28**	0.57	0.003	0.18
US 101 (PM 45.644) NB on-ramp from NB Mathilda Ave.	4	0	0	**0.86**	0.000	0.00	0.73	0.002	0.21
US 101 (PM 45.721) SB on-ramp from SB Mathilda Ave.	1	0	0	0.19	0.000	0.00	0.73	0.002	0.21
US 101 (PM 45.734) NB off-ramp to SB Mathilda Ave.	10	0	3	**1.20**	0.000	**0.36**	1.06	0.003	0.30
US 101 (PM 45.821) SB off-ramp to SB Mathilda Ave.	3	0	2	0.52	0.000	**0.34**	0.75	0.004	0.24
US 101 (PM 46.111) SB off-ramp to EB SR 237	8	0	2	0.40	0.000	0.10	0.68	0.004	0.20
US 101 (PM 46.154) NB off-ramp to WB SR 237	12	0	3	**1.20**	0.000	**0.30**	0.68	0.004	0.20
US 101 (PM 46.156) 101/Seg NB on FR Frontage Rd	0	0	0	0.00	0.000	0.00	0.41	0.000	0.13
US 101 (PM 46.254) NB on FR WB 237/FRTGE Rd	2	0	0	0.08	0.000	0.00	0.18	0.001	0.06
SR 237 (PM M2.000 to R3.501)	135	1	44	**0.98**	**0.007**	**0.32**	0.94	0.006	0.30
SR 237 (PM M2.018) WB off-ramp to Maude/Middlefield	2	0	1	0.35	0.000	0.17	1.01	0.003	0.35
SR 237 (PM M2.055) EB on-ramp from Maude/Middlefield	1	0	0	0.00	0.000	0.19	0.63	0.002	0.22
SR 237 (PM 2.294) EB off-ramp to SB US 101	1	0	1	0.09	0.000	0.09	0.38	0.005	0.13
SR 237 (PM 2.661) WB off-ramp to NB US 101	3	0	0	0.12	0.000	0.00	0.38	0.005	0.13
SR 237 (PM 2.834) EB off-ramp to Mathilda Ave.	2	0	1	0.33	0.000	0.17	1.01	0.003	0.35
SR 237 (PM 2.841) WB on-ramp from Mathilda Ave.	3	0	1	0.47	0.000	0.16	0.63	0.002	0.22
SR 237 (PM 2.981) WB on-ramp from Moffett Park	0	0	0	0.00	0.000	0.00	0.46	0.001	0.13
SR 237 (PM 3.174) EB on-ramp from Mathilda Ave.	4	0	2	0.41	0.000	0.20	0.63	0.002	0.22
SR 237 (PM 3.181) WB off-ramp to Mathilda Ave.	14	0	8	**1.40**	0.000	**0.80**	1.01	0.003	0.35

Notes: **Bold** text denotes locations that exceed the statewide average.

Source: Caltrans TASAS data January 1, 2011 to December 31, 2013.

Along US 101, 147 mainline and 47 ramp collisions were recorded over a three-year period. During this period there were 54 collisions resulting in injury and no recorded fatalities. Seventy-six percent of the accidents occurred on the freeway mainline. Rear end, sideswipe, and hit object collisions accounted for up to 97 percent of the mainline accidents. These types of collisions are commonly due to driver inattention, travel at unsafe speeds and unsafe lane changing maneuvers. For collisions that occurred on freeway ramps, hit object and rear end were the primary collision types, with percentages totaling 81 percent.

Within the study limits, 135 mainline and 30 ramp collisions were recorded along SR 237 over a three-year period including one fatal and 58 injury collisions. Eighty-two percent of collisions occurred on the mainline. Rear end type collisions, which are often due to driver inattention, unsafe speeds, and lane changing in traffic congestion, accounted for up to 78 percent of the mainline collisions. For the ramp collisions, rear end, broadside, and hit object were the primary collision types totaling 77 percent of all ramp collisions.

Table 3-18 shows that actual collision rates on this section of US 101 are less than the statewide average for similar highway facilities. However, accident rates on the northbound US 101 loop on-ramp from NB Mathilda Avenue and loop off-ramp to SB Mathilda Avenue and the southbound US 101 on-ramp from NB Mathilda Avenue exceed the statewide average for similar highway facilities.

4. TRAVEL DEMAND FORECASTS

A summary of the forecasting process and results is presented in this chapter. A detailed description of the traffic forecasting process is presented in the Final Travel Demand Forecasting Memorandum for this project and can be found in **Appendix H**.

ANALYSIS SCENARIOS

The Santa Clara Valley Transportation Authority (VTA) model was used to develop forecasts for the Mathilda Avenue Improvements between SR 237 and US 101 project. Existing demand volumes and steps taken to validate the VTA model within the project study area can be found in the model validation memorandum found in **Appendix H**. This memorandum presents peak hour and peak period traffic forecasts for the following scenarios:

- Opening Year (2018) No Build
- Opening Year (2018) With Build
    - Alternative 1 (SR 237 Modified Diamond Interchange)
    - Alternative 2 (SR 237 Diverging Diamond Interchange)
- Design Year (2040) No Build
- Design Year (2040) With Build
    - Alternative 1 (SR 237 Modified Diamond Interchange)
    - Alternative 2 (SR 237 Diverging Diamond Interchange)

Appendix I includes conceptual geometric layouts of Alternative 1 and Alternative 2.

FORECAST ASSUMPTIONS

The model horizon years are 2018 and 2040. The future land use changes and regional transportation improvement projects for the two horizon years are summarized in this section.

GROWTH RATE ASSUMPTIONS

The land use assumptions include ABAG regional growth projections found in the VTA model under 2020 and 2040.[3] The annual growth rate in the project study area was verified and compared to the growth rate found in the City of Sunnyvale model. **Table 4-1** presents the annual growth rates by AM and PM peak hours found in the VTA model and used to develop future year forecasts. It also presents the annual growth rates found in the City of Sunnyvale model which was used to confirm the project area growth.

[3] The Year 2020 VTA model land use was used to estimate Year 2018 land use.

TABLE 4-1: VTA AND CITY OF SUNNYVALE MODEL GROWTH RATES

Model	Peak Hour	Annual Linear Growth Rate[1]	
		Inbound	Outbound
VTA	AM	1.3%	0.8%
	PM	1.4%	1.6%
City of Sunnyvale	AM	-0.2%	0.9%
	PM	1.2%	2.0%

Notes:

1. Growth rates were determined within a one mile radius of the project site as seen in **Appendix J**.

Source: Fehr & Peers, 2016.

Given that both models produce approximately the same amount of growth, the VTA model was deemed consistent with planned local land use changes and suitable for deriving future year travel demand forecasts.

ROADWAY NETWORK ASSUMPTIONS

The 2018 and 2040 roadway networks contain improvements in Santa Clara County's *Valley Transportation Plan* (*VTP*) *2040* and coordination with City of Sunnyvale, VTA, and Caltrans staff.

2018 No Build

There are many freeway improvements planned in the vicinity of the Mathilda Avenue interchanges as seen in **Table 4-2** below. Express Lanes on SR 237 and US 101 are assumed to be partially completed by 2018 and fully completed by 2040as are all of the ramp metering on both freeways. Ramp metering was also assumed completed by 2018. In terms of local roadway improvements, the Innovation Way extension between Mathilda Avenue and Bordeaux Drive is assumed to be completed with the Moffett Park development (currently under construction) and the Central Expressway auxiliary lanes are also assumed to be completed by 2018.

2040 No Build

In addition to the identified improvements under 2018, the Mary Avenue extension from its current location over US 101 and SR 237 to E Street on the north side is assumed to be completed by 2040. Freeway improvements included under 2040 include express lanes on SR 85, Lawrence Expressway / US 101 interchange improvements, and an auxiliary lane on US 101 southbound between Ellis Street and SR 237.

TABLE 4-2: ROADWAY NETWORK ASSUMPTIONS

Improvement	Included in Network Year	
	2018	2040
Freeway/Ramp Improvements		
SR 237 Eastbound Auxiliary Lanes – Mathilda Avenue to Fair Oaks Avenue	Yes	Yes
SR 237 Express Lanes – North First Street to Mathilda Avenue	Yes	Yes
SR 237 Express Lanes – Mathilda Avenue to SR 85	No	Yes
US 101 Express Lanes – Whipple Avenue in San Mateo County to Cochrane Road in Morgan Hill (one lane in each direction)	Yes	Yes*
US 101 Express Lanes – Whipple Avenue in San Mateo County to Cochrane Road in Morgan Hill (two lanes in each direction)	No	Yes
US 101 Southbound Auxiliary Lane – Ellis Street and SR 237	No	Yes
All freeway ramps metered on US 101 and SR 237 (includes widening of SR 237 EB on-ramp at Mathilda Avenue to two lanes)	Yes	Yes
SR 85 Express Lanes – US 101 to US 101	No	Yes
Lawrence Expressway Ramp Improvements at SR 237	No	Yes
Local Street Improvements		
Central Expressway Auxiliary Lanes – Mary Avenue and Lawrence Expressway	Yes	Yes
Innovation Way Extension – Mathilda Avenue to Bordeaux Drive	Yes	Yes
Mary Avenue Extension – extended as a 4-lane street to E Street on the north side of SR 237	No	Yes
Public Transit Improvements		
BART Extension – Fremont Station to Berryessa Station	Yes	Yes
Bus Rapid Transit (BRT) along El Camino Real and Stevens Creek Boulevard	Yes	Yes
BART Extension – Berryessa Station through downtown San Jose to Santa Clara	No	Yes
Increase in VTA Light-Rail service frequencies	No	Yes
Caltrain Electrification – Tamien Station to San Francisco Transbay Station	No	Yes

Notes:

*Express Lanes on US 101 will be expanded to two lanes in each direction by Year 2040.

Source: Valley Transportation Plan (VTP) 2040, Caltrans, VTA and City of Sunnyvale staff, Moffett Place EIR, Fehr & Peers, 2016.

With Build Alternatives

The 2018 and 2040 Build Alternative roadway networks were modified to reflect improvements that are part of the project alternatives. The Moffett Park Drive link between Mathilda Avenue and Bordeaux Drive was removed and the location of the SR 237 WB Off-Ramp was relocated to the current east leg of the Mathilda Avenue and Moffett Park Drive intersection. In addition, the US 101 NB Loop Off-Ramp was removed and links and turn penalties were adjusted to account for a full-access interchange at Mathilda Avenue and US 101. The roadway network surrounding the interchange will remain the same as No Build conditions.

TRAFFIC DEMAND FORECASTS

The model horizon years are 2018 and 2040; the Project Opening Year is 2018 and the Design Year is 2040.

2018 AND 2040 NO BUILD FORECASTS

Freeway mainline forecasts were developed using the difference method, which is a link-level adjustment procedure that adds the amount of growth projected by the model to the existing demand volumes. Future year intersection peak period hourly volumes were developed by using the existing relationships between the peak hour and peak period hourly volumes. The following presents the specific steps used to develop 2040 No Build intersection raw forecasts from the model:

- **Step 1** – Run the validated base year (2013) model to estimate existing AM and PM peak hour model traffic volumes.
- **Step 2** – Run the 2040 model to estimate AM and PM peak hour traffic forecasts.
- **Step 3** – Develop 2040 No Build raw forecasts using the maximum value of the following three formulas:
    1. 2040 Raw Forecasts = 2013 Peak Hour Demand Volume + (2040 Model Peak Hour Volume – Base Year Model Peak Hour Volume)
    2. 2040 Raw Forecasts = 2013 Peak Hour Demand Volume + 20
    3. Year 2040 Raw Forecasts = 2013 Peak Hour Demand Volume + (2013 Peak Hour Demand Volume * Annual Linear Growth Rate * Number of Years between 2040 and 2013)[4]
- **Step 4** – Check for reasonableness and make manual adjustments as necessary to ensure that volumes do not drop below existing levels or grow exponentially unless there is a specific reason. Also verify a balanced volume network.

Forecasts for 2018 were developed by applying linear interpolation between the 2013 existing demand volumes and 2040 demand volumes presented in this memorandum. Manual adjustments were made to account for the Mary Avenue extension which is not assumed to be completed by 2018.

2018 AND 2040 WITH BUILD FORECASTS

The project is a reconfiguration of an existing interchange and is not proposing to add capacity to US 101, SR 237, or to the surrounding roadway network system. Therefore, the project would not change overall travel demands compared to the No Build scenario, but is expected to change origin-destination patterns regarding the full-access interchange at Mathilda Avenue / US 101 and would result in a redistribution of traffic that reflects the proposed interchange modifications. As a result, the demand volumes into and out

[4] Sub-Area is defined as a one-mile radius around the project study area between Almanor Avenue and 5th Avenue on Mathilda Avenue.

of the study area would be the same as the No Build conditions. Furthermore, the demand volumes at study intersections outside the interchange area (e.g. north on Mathilda Avenue) would also be the same as No Build Conditions.

The 2040 model was run with Build Alternative 1 geometry to estimate the traffic redistribution among the three interchanges (Mathilda Avenue/US 101, Mathilda Avenue/SR 237, and US 101/SR 237) due to the alternative ramp configurations. In addition, the 2040 model was run with Build Alternative 2 geometry in order to determine the traffic redistribution between the Mary Avenue extension and Mathilda Avenue with the closure of eastbound traffic at the Moffett Park Drive and Mathilda Avenue intersection. The information obtained for the Build Alternative 2 was only used for 2040 forecasts as the Mary Avenue extension is not assumed complete by 2018.

Manual adjustments were made to ensure reasonableness.

FINAL NO BUILD AND WITH BUILD 2018 AND 2040 DEMAND FORECASTS

Intersection Forecasts

A brief comparison between the City of Sunnyvale travel demand model and the VTA travel demand model shows that the City model experiences a larger shift in traffic from Mathilda Avenue to Mary Avenue with the Mary Avenue extension. In order to account for some of the expected effect the Mary Avenue extension will have on the Mathilda Avenue corridor, approximately 200 peak direction vehicles, as well as a small proportion of off-peak direction vehicles, were shifted from Mathilda Avenue to Mary Avenue under the 2040 forecasts.

Figure 7 and **Figure 8** present the 2018 and 2040 No Build intersection forecasts, respectively. **Figure 9** and **Figure 10** present the 2018 and 2040 Build Alternative 1 intersection forecasts, while **Figure 11** and **Figure 12** present the 2018 and 2040 Build Alternative 2 intersection forecasts.

US 101 and SR 237 Mainline and Ramp Forecasts

The AM and PM peak period freeway (mainline and ramp) 2018 and 2040 demand volumes are presented in **Appendix K**. Note that since the two Build Alternatives contain the same ramp reconfiguration of existing interchanges, there is no difference in freeway forecasts between Build Alternative 1 and Alternative 2. As a result only a single set of 2018 and 2040 Build demand volumes are presented.

The percentage of vehicles on the assumed on the high-occupancy toll (HOT) lanes are found in **Table 4-3**. These percentages were determined by taking the maximum of the percentage found in the VTA travel demand forecasting model and the HOV percentage assumed under existing conditions.

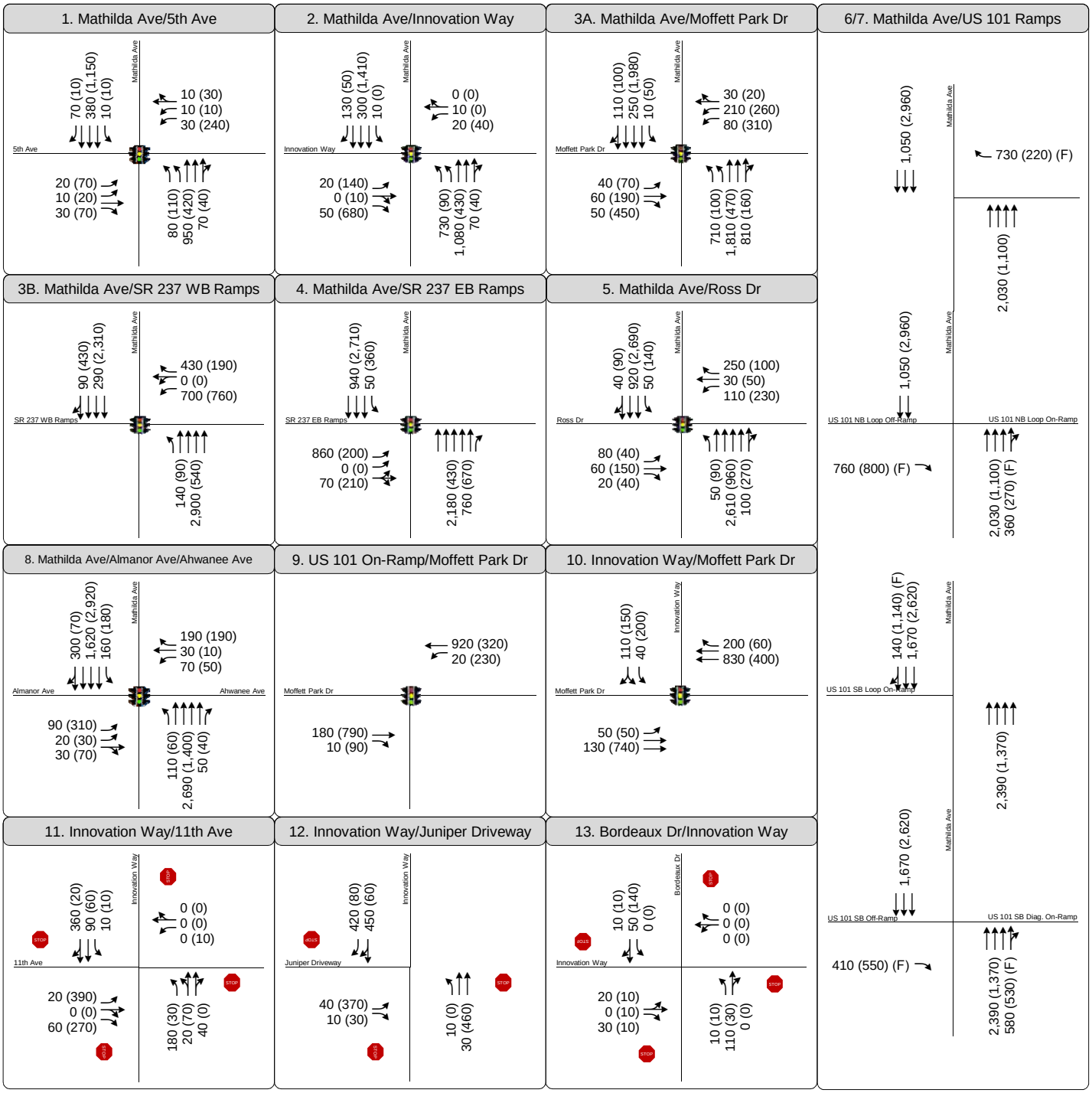
TABLE 4-3: FREEWAY MAINLINE HOT PERCENTAGE

Freeway Mainline	Peak Hour	HOT %[1]
US 101 Northbound	AM	19%
	PM	13%
US 101 Southbound	AM	17%
	PM	20%
SR 237 Westbound	AM	26%
	PM	16%
SR 237 Eastbound	AM	25%
	PM	26%

Notes:

1. HOT volume is a percent of the total volumes presented in this memorandum.

Source: Fehr & Peers, 2016.

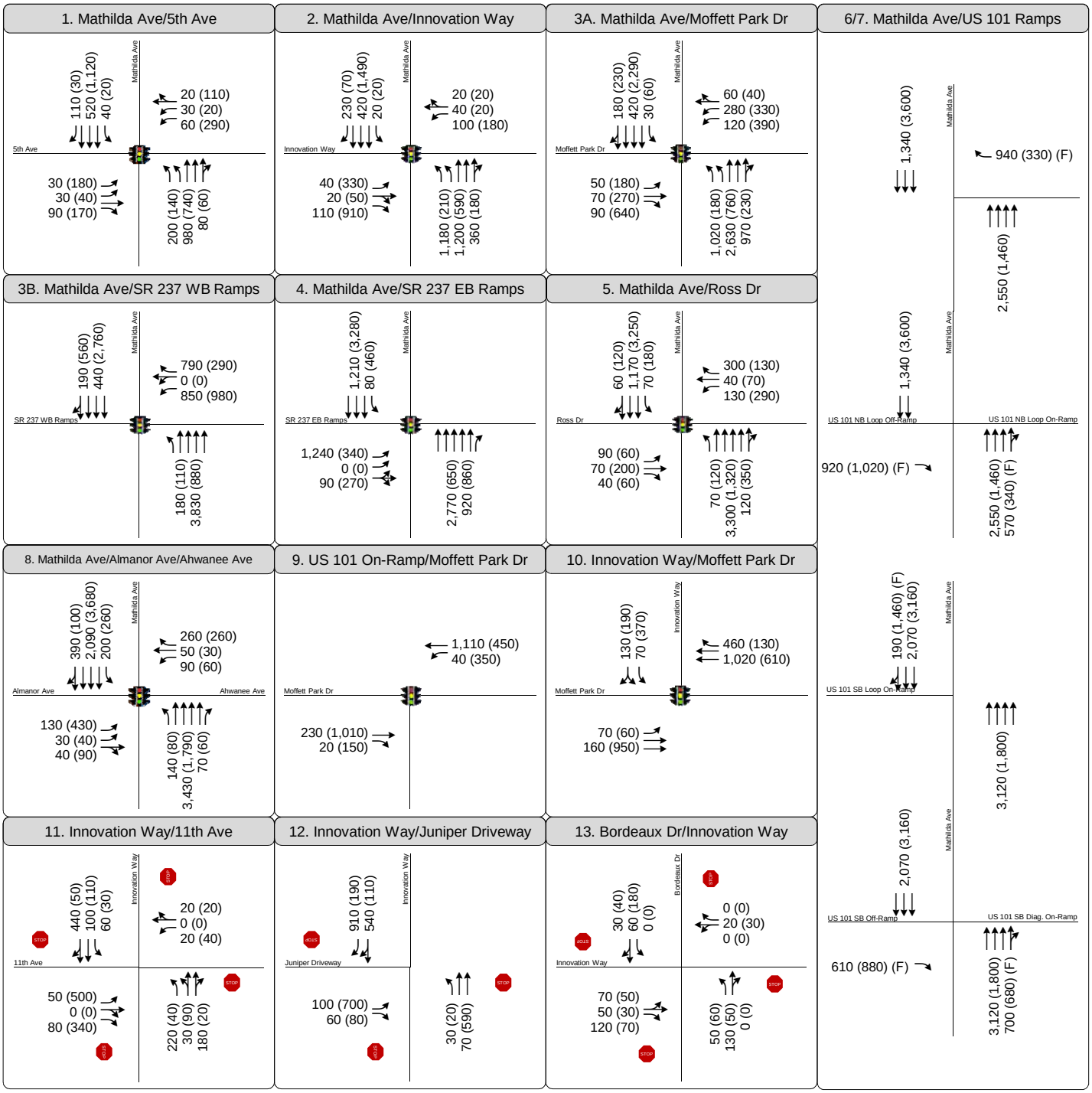


(##) - AM(PM) Peak Hour Demand Volumes

(F) - Unsignalized (free) Movement

Figure 7

Peak Hour Traffic Volumes and Lane Configurations - Mathilda Avenue - No Build 2018 Demand Volumes

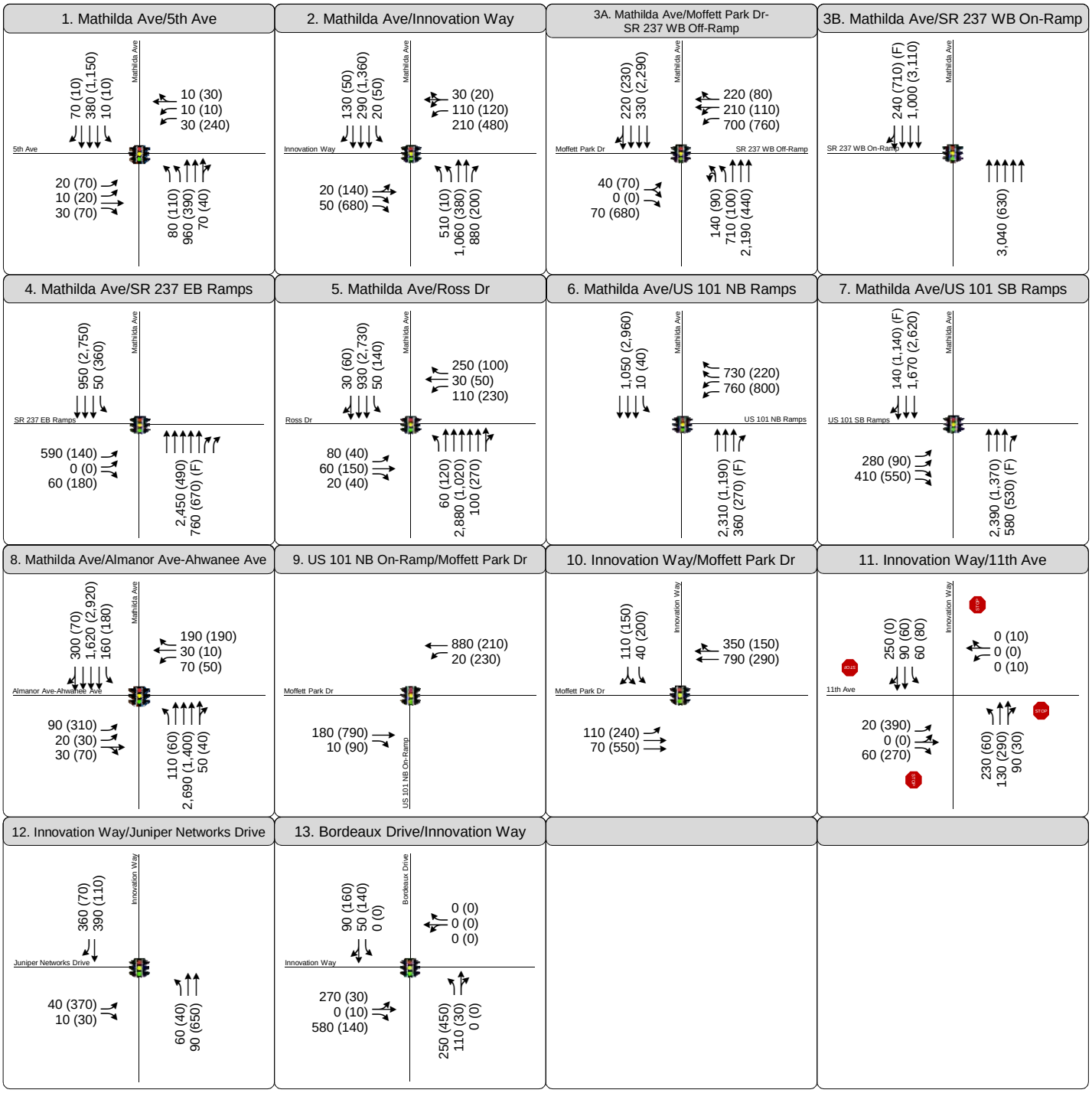


(##) - AM(PM) Peak Hour Demand Volumes

(F) - Unsignalized (free) Movement

Figure 8

Peak Hour Traffic Volumes and Lane Configurations - Mathilda Avenue - No Build 2040 Demand Volumes

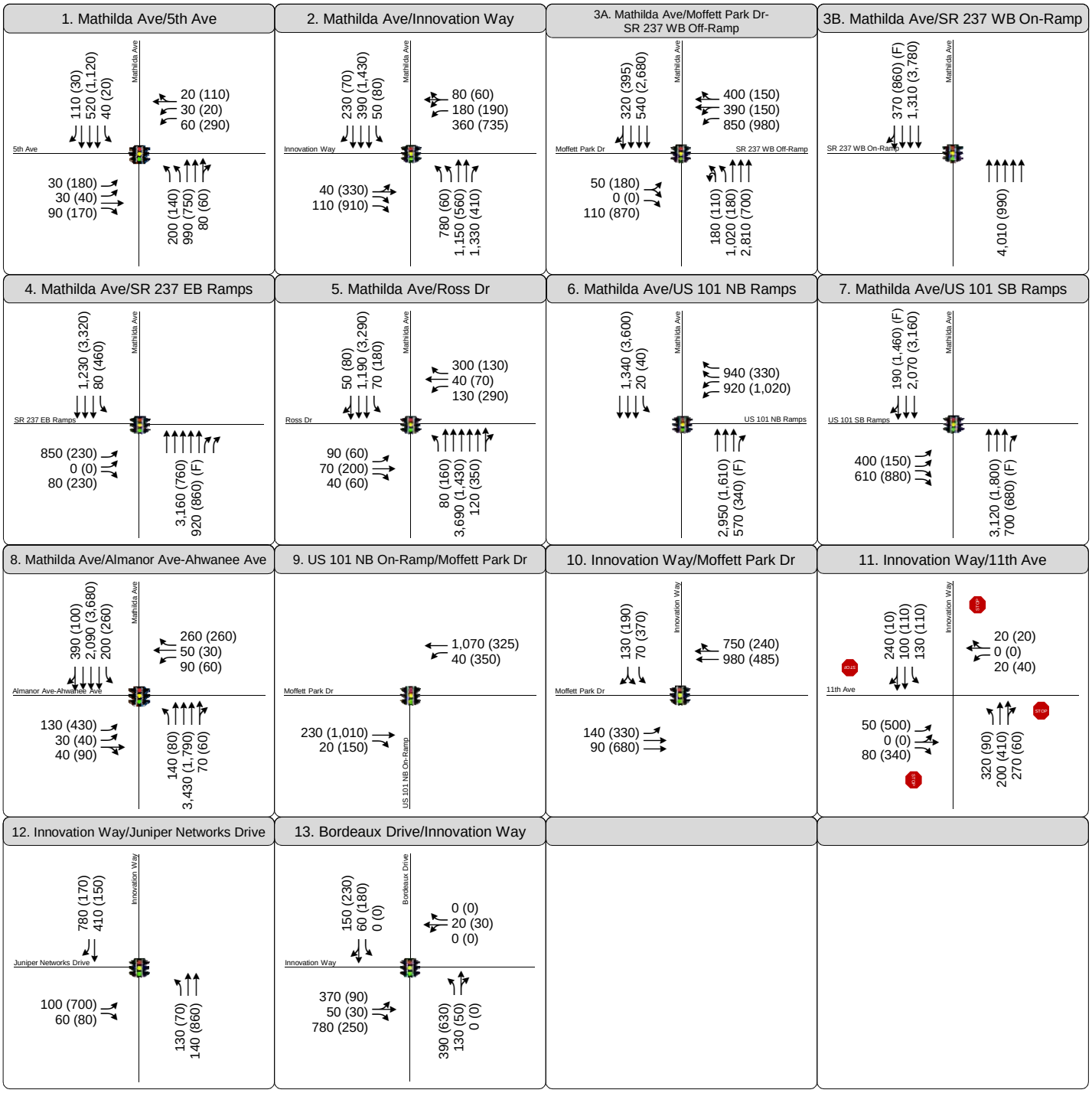


(##) - AM(PM) Peak Hour Demand Volumes

(F) - Unsignalized (free) Movement

Figure 9

Peak Hour Traffic Volumes and Lane Configurations - Mathilda Avenue - Build Alternative 1 2018 Demand Volumes

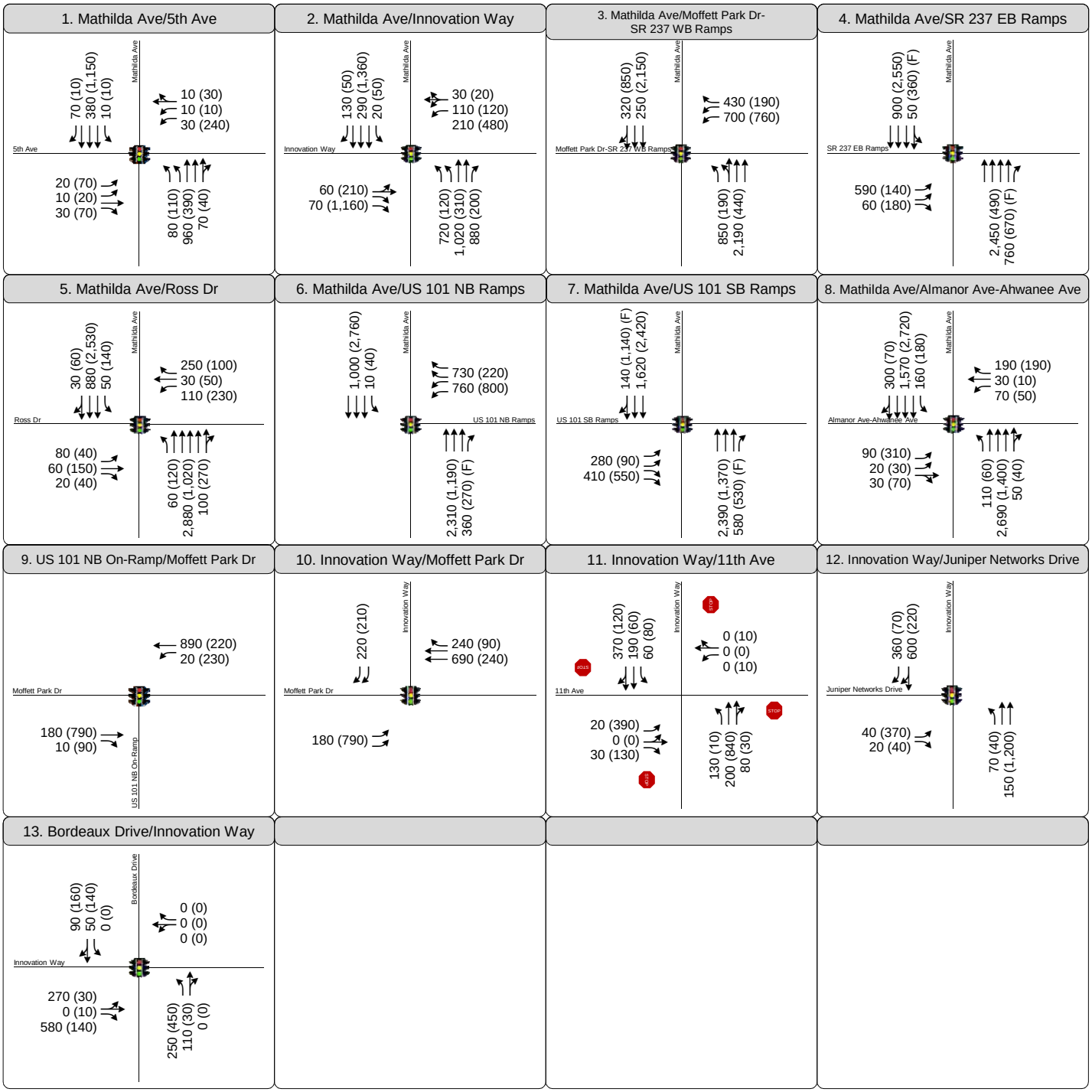


(##) - AM(PM) Peak Hour Demand Volumes

(F) - Unsignalized (free) Movement

Figure 10

Peak Hour Traffic Volumes and Lane Configurations - Mathilda Avenue - Build Alternative 1 2040 Demand Volumes

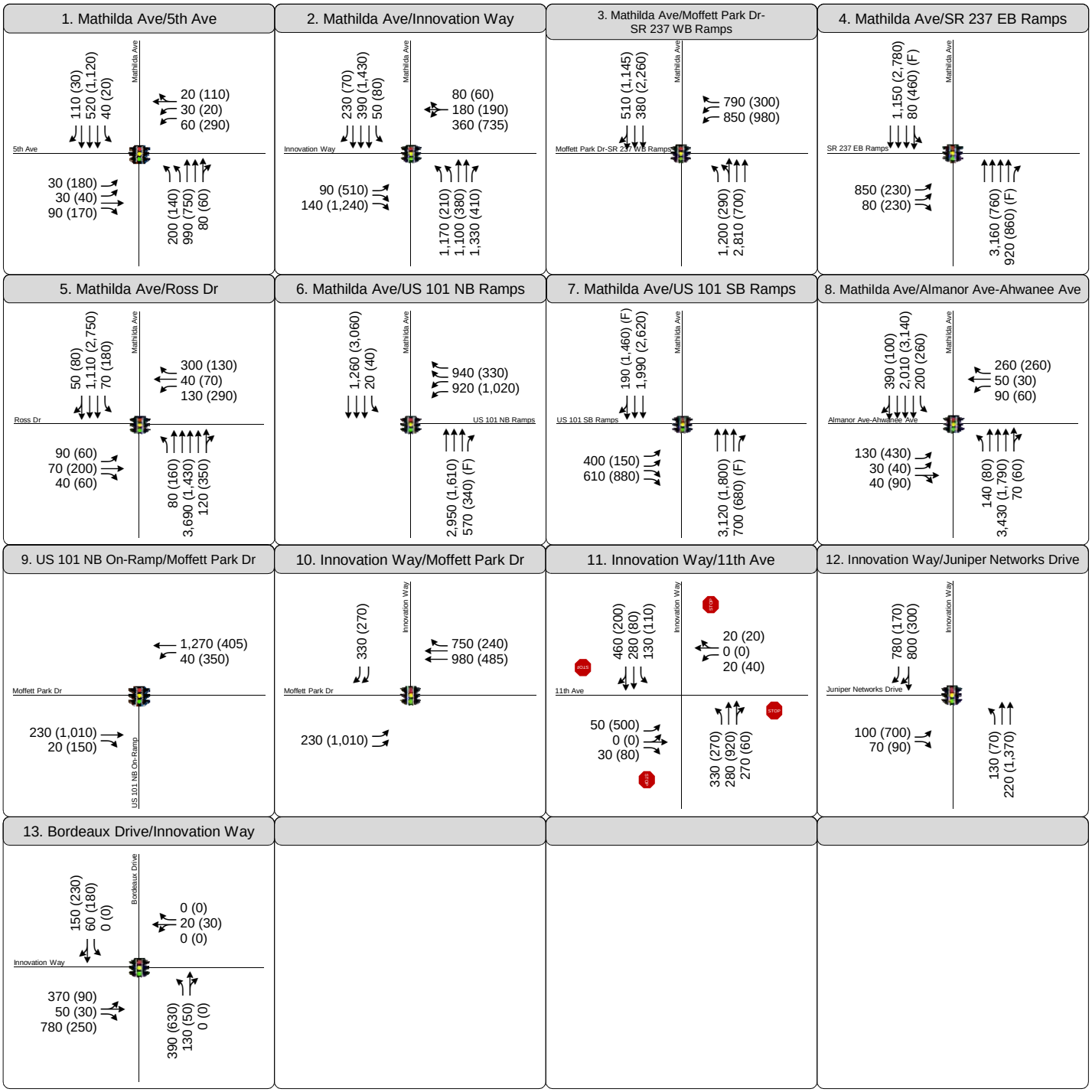


(##) - AM(PM) Peak Hour Demand Volumes

(F) - Unsignalized (free) Movement

Figure 11

Peak Hour Traffic Volumes and Lane Configurations - Mathilda Avenue - Build Alternative 2 2018 Demand Volumes



(##) - AM(PM) Peak Hour Demand Volumes

(F) - Unsignalized (free) Movement

Figure 12

Peak Hour Traffic Volumes and Lane Configurations - Mathilda Avenue - Build Alternative 2 2040 Demand Volumes

5. YEAR 2018 TRAFFIC OPERATIONS ANALYSIS

This chapter presents the results of the traffic operations analysis for year 2018, which is anticipated to be the opening year of the project. The analysis focuses on intersection and freeway operations for No Build and Build conditions. The process used to refine the traffic forecasts for the operations analysis is described, followed by the analysis results.

YEAR 2018 ROADWAY NETWORK ASSUMPTIONS

In order to conduct a traffic analysis that is consistent with CEQA guidelines and appropriate for preparation of an Environmental Document, it is necessary to develop reasonable assumptions about future infrastructure improvements. In the case of roadway infrastructure, an adequate environmental analysis requires that the analyst consider all major roadway improvements that are funded, as well as other reasonably foreseeable improvements that may have a direct effect on the project being studied. The roadway network assumptions for No Build and Build conditions are presented below.

Table 5-1 presents the intersection configuration under No Build, Alternative 1 and 2 at the major intersections being modified by the project. This information is useful in identifying locations where the project is substantially changing the intersection configuration and/or increasing capacity.

NO BUILD ASSUMPTIONS

Under this alternative, the existing facility would remain unchanged except for planned and programmed improvements including planned improvements at Mathilda Avenue and Innovation Way. This alternative does not meet the project Purpose and Need. Rather, it provides a basis for the analysis and evaluation of the Build Alternatives.

BUILD 1 ALTERNATIVE ASSUMPTIONS

The following section describes the Build Alternative 1 roadway and ramp configuration. The existing northbound US 101 loop off-ramp would be closed and traffic shifted to the northbound US 101 diagonal off-ramp. Northbound US 101 diagonal off-ramp and loop on-ramp would be realigned and widened to terminate at a new signalized intersection on Mathilda Avenue. Left-turn access from southbound Mathilda Avenue to northbound US 101 loop on-ramp would be provided. This new ramp configuration would provide full access to northbound US 101 by adding access to northbound US 101 from southbound on Mathilda Avenue.

The Southbound US 101 off-ramp and loop on-ramp would be realigned and widened to terminate at a new signalized intersection on Mathilda Avenue. Left-turn access from southbound US 101 off-ramp to northbound Mathilda Avenue would be provided. This new ramp configuration would provide full access to southbound US 101 by adding access to northbound on Mathilda Avenue from southbound US 101. The existing westbound SR 237 ramps would be realigned to accommodate local street improvements. The

westbound SR 237 off-ramp would be realigned with Moffett Park Drive on the west leg of the intersection and the signal at existing SR 237 westbound ramps would be removed. Moffett Park Drive access on the east side of Mathilda Avenue would be closed and traffic shifted to Bordeaux Drive and Innovation Way. Moffett Park Drive access west of Mathilda Avenue would remain open. Access to the westbound SR 237 on-ramp from northbound Mathilda Avenue would be accomplished with a U-turn movement at the new signalized intersection.

Three continuous through lanes would generally be provided in both directions on Mathilda Avenue through the interchanges. Pavement rehabilitation on Mathilda Avenue within the study limits would be considered.

Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities, and additional signage to improve wayfinding for freeway and local street access would be considered. A new Class II bicycle lane is proposed on both sides of Mathilda Avenue between Almanor Avenue and Innovation Way. The bicycle lanes would connect with the existing signed on-street bicycle route north of Innovation Way.

A new dedicated bicycle and pedestrian pathway, or a Class I bicycle facility, is proposed in both directions on Moffett Park Drive between Bordeaux Drive and Innovation Way. This bike facility would improve regional bicycle access through the study area and provide a dedicated connection across Mathilda Avenue connecting the east and west areas of the Moffett Business Park. The new Class I facility would also link with the north-south bikeway along Borregas Avenue to facilitate more convenient bicycle access from other parts of Sunnyvale.

Continuous sidewalks would be provided along both sides of Mathilda Avenue except on the west side of Mathilda between Ross Drive and Moffett Park Drive due to geometric constraints at the SR 237 Undercrossing structure. Crosswalks would be maintained at Ross Drive and Moffett Park Drive to allow pedestrians to cross Mathilda Avenue.

Collisions

Eliminating the northbound US 101 loop off-ramp and nonstandard weaving length with the northbound US 101 loop on-ramp, and signalizing the southbound US 101 on-ramp termini are design features that could help reduce congestion related collisions. Actual collision rates on this section of SR 237 are greater than the statewide average for similar highway facilities. The westbound SR 237 off-ramp also exceeds the statewide average for similar highway facilities. Reconfiguring the Moffett Park Drive intersection and providing additional storage for queuing vehicles on the ramp may also contribute to a reduction in congestion related collisions.

BUILD 2 ALTERNATIVE ASSUMPTIONS

The following section describes the Build Alternative 2 roadway and ramp configuration. The existing SR 237 ramps would be realigned and widened to accommodate a diverging diamond interchange

configuration. Existing signal intersections on Mathilda Avenue at the SR 237 ramps and Moffett Park Drive would be removed. New signalized intersections would be constructed at realigned SR 237 ramp termini. Traffic on Mathilda Avenue would be shifted to the opposite side of the road between SR 237 ramp termini to facilitate left-turn movements. Moffett Park Drive access on the east side of Mathilda Avenue would be closed and traffic shifted to Bordeaux Drive and Innovation Way. West Moffett Park Drive would remain open for westbound traffic.

Improvements for the US 101 ramps would be similar to the other Build Alternative. Three to four continuous through lanes would be provided in both directions on Mathilda Avenue through the interchanges. Pavement rehabilitation on Mathilda Avenue within the study limits would be considered. Local street improvements would generally be similar to Alternative 1.

Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities, and additional signage to improve wayfinding for freeway and local street access would be considered. Bicycle and pedestrian facility improvements would be similar to Alternative 1, with a new Class I bicycle facility along Moffett Park Drive improving regional bicycle access providing a dedicated connection across Mathilda Avenue connecting the east and west areas of the Moffett Business Park. The Class I bicycle facility cross the diverging diamond interchange with a single-stage crossing for bicyclists and pedestrians.

Pedestrian access through the diverging diamond interchange would follow a route that would include travel in the median of Mathilda Avenue through the SR 237 interchange area. The specific route and dimensions of the sidewalk between Ross Drive and Moffett Park Drive will be considered and confirmed by detailed traffic analysis and geometric design studies conducted during the PA&ED phase.

Collisions

Similar to Build Alternative 1, eliminating the northbound US 101 loop off-ramp and nonstandard weaving section with the northbound US 101 loop on-ramp, and signalizing the southbound US 101 on-ramp termini could help reduce congestion related collisions. Actual collision rates on this section of SR 237 and the westbound SR 237 off-ramp are greater than the statewide average for similar highway facilities. The westbound SR 237 off-ramp also exceeds the statewide average for similar highway facilities. Reconfiguring the Moffett Park Drive intersection and providing additional storage for queuing vehicles could also help reduce congestion related collisions.

TABLE 5-1: INTERSECTION CONFIGURATION UNDER NO BUILD, ALTERNATIVE 1, AND ALTERNATIVE 2

Intersection	Approach	No Build	Build 1 Alternative	Build 2 Alternative
1: Mathilda Avenue/Fifth Avenue	NB	2 left-turn lanes (425'), 2 through lanes, 1 shared through/right lane	Same as No Build	Same as No Build
	SB	1 left-turn lane (250'), 3 through lanes, 1 right-turn lane (250')	Same as No Build	Same as No Build
	EB	2 left-turn lanes (625'), 1 through lane, 1 right-turn lane (625')	Same as No Build	Same as No Build
	WB	2 left-turn lanes (925'), 1 shared through/right lane	Same as No Build	Same as No Build
2: Mathilda Avenue/Innovation Way	NB	2 left-turn lanes (400'), 3 through lanes, 1 shared through/right lane	2 left-turn lanes (700'), 2 through lanes, 1 right-turn lane (975') with overlap phase	2 left-turn lanes (700'), 2 through lanes, 1 right-turn lane (975') with overlap phase
	SB	1 left-turn lane (75'), 3 through lanes, 1 right-turn lane (225')	Same as No Build	Same as No Build
	EB	1 left-turn lane (200'), 1 shared through/right lane, 1 right-turn lane	1 shared left-turn/through lane, 2 right-turn lanes with overlap phase	1 shared left-turn/through lane, 2 right-turn lanes with overlap phase
	WB	1 left-turn lane (425'), 1 shared through/right lane	1 left-turn lane (425'), 1 shared left/through/right lane	1 left-turn lane (425'), 1 shared left/through/right lane
3: Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps	NB	2 left-turn lanes (125'), 2 through lanes, 1 shared through/right lane	2 left-turn lanes (350'), 3 through lanes	1 left-turn lane, 1 shared left-turn/through lane, 2 through lanes
	SB	1 left-turn lane (175'), 3 through lanes, 1 shared through/right lane	2 through lanes, 1 shared through/right lane	2 through lanes, 1 shared through/right lane
	EB (Moffett Park)	1 left-turn lane (350'), 1 through lane, 1 right-turn lane (1,100') with a second right-turn lane to a slip ramp	1 shared left/right lane, 1 right-turn lane	EB Moffett Park Drive is eliminated
	WB (Moffett Park)	2 left-turn lanes (300'), 1 shared through/right lane	WB Moffett Park Drive is eliminated	WB Moffett Park Drive is eliminated
	WB (SR 237 WB Off-Ramp)	1 left-turn lane (1,125'), 1 through lane, 1 right-turn lane (325')	1 left-turn lane (525'), 1 shared left/through lane, 1 shared through/right lane	2 left-turn lanes (1,075'), 1 right-turn lane (550')

TABLE 5-1: INTERSECTION CONFIGURATION UNDER NO BUILD, ALTERNATIVE 1, AND ALTERNATIVE 2

Intersection	Approach	No Build	Build 1 Alternative	Build 2 Alternative
4: Mathilda Avenue/SR 237 EB Ramps	NB	5 through lanes, 1 right-turn lane	5 through lanes, 2 right-turn slip ramp lanes	4 through lanes, 1 right-turn slip ramp lane
	SB	1 left-turn lane (200'), 3 through lanes	1 left-turn lane (325'), 3 through lanes	1 shared left-turn/through lane, 3 through lanes
	EB	2 left-turn lanes, 1 shared left/through/right lane (450')	2 left-turn lanes, 1 right-turn lane (450')	2 left-turn lanes, 1 right-turn lane (450')
5: Mathilda Avenue/Ross Drive	NB	1 left-turn lane (150'), 4 through lanes, 1 shared through/right lane	1 left-turn lane (250'), 5 through lanes, 1 shared through/right lane	1 left-turn lane (250'), 4 through lanes, 1 shared through/right lane
	SB	1 left-turn lane (150'), 2 through lanes, 1 shared through/right lane	1 left-turn lane (150'), 3 through lanes	1 left-turn lane (225'), 3 through lanes
	EB	1 left-turn lane, 1 through lane, 1 right-turn lane (50')	Same as No Build	Same as No Build
	WB	1 left-turn lane (75'), 1 through lane, 1 right-turn lane (75')	Same as No Build	Same as No Build
6: Mathilda Avenue/US 101 NB Ramps*	NB	Does not exist	3 through lanes, 1 right-turn lane (710')	3 through lanes, 1 right-turn lane (710')
	SB	Does not exist	1 left-turn lane (350'), 3 through lanes	1 left-turn lane (350'), 3 through lanes
	WB	Does not exist	2 left-turn lanes, 2 right-turn lanes (400' & 100')	2 left-turn lanes, 2 right-turn lanes (400' & 100')
7: Mathilda Avenue/US 101 SB Ramps*	NB	Does not exist	3 through lanes, 1 right-turn slip ramp lane	3 through lanes, 1 right-turn slip ramp lane
	SB	Does not exist	2 through lanes, 1 shared through/right lane	2 through lanes, 1 shared through/right lane
	EB	Does not exist	2 left-turn lanes (905'), 2 right-turn lanes (905')	2 left-turn lanes (905'), 2 right-turn lanes (905')

TABLE 5-1: INTERSECTION CONFIGURATION UNDER NO BUILD, ALTERNATIVE 1, AND ALTERNATIVE 2

Intersection	Approach	No Build	Build 1 Alternative	Build 2 Alternative
8: Mathilda Avenue/Ahwanee Avenue-Almanor Avenue	NB	1 left-turn lane (375'), 4 through lanes, 1 right-turn lane (75')	1 left-turn lane (375'), 3 through lanes, 1 shared through/right lane (75')	1 left-turn lane (375'), 3 through lanes, 1 shared through/right lane (75')
	SB	1 left-turn lane (125'), 3 through lanes, 1 shared through/right lane	1 left-turn lane (250'), 3 through lanes, 1 shared through/right lane	1 left-turn lane (250'), 3 through lanes, 1 shared through/right lane
	EB	2 left-turn lanes, 1 shared through/right lane (125')	Same as No Build	Same as No Build
	WB	1 left-turn lane (250'), 1 through lane, 1 right-turn lane (75')	Same as No Build	Same as No Build
9: US 101 NB On-Ramp/Moffett Park Drive	EB	1 through lane, 1 right-turn lane (150')	Same as No Build	Same as No Build
	WB	1 left-turn lane (850'), 1 through lane	Same as No Build	Same as No Build
10: Innovation Way/Moffett Park Drive	SB	1 left-turn lane (575'), 1 shared left/right lane	Same as No Build	2 right-turn lanes
	EB	1 left-turn lane (225'), 2 through lanes	Same as No Build	2 left-turn lanes
	WB	2 through lanes, 1 right-turn lane (225')	1 through lane, 1 shared through/right lane	2 through lane, 1 right-turn lane (200')
11: Innovation Way/Eleventh Avenue	NB	1 left-turn lane (125'), 1 shared left /through lane, 1 shared through/right lane	1 left-turn lane (125'), 1 through lane, 1 shared through/right lane	1 left-turn lane (125'), 1 through lane, 1 shared through/right lane
	SB	1 left-turn lane (125'), 1 through lane, 1 shared through/right lane	Same as No Build	Same as No Build
	EB	1 left-turn lane (100'), 1 shared through/right lane, 1 right-turn lane	1 left-turn lane (100'), 1 shared left-turn/through lane, 1 right-turn lane	1 left-turn lane (100'), 1 shared left-turn/through lane, 1 right-turn lane
	WB	1 left-turn lane, 1 shared through/right-turn lane	Same as No Build	Same as No Build

TABLE 5-1: INTERSECTION CONFIGURATION UNDER NO BUILD, ALTERNATIVE 1, AND ALTERNATIVE 2

Intersection	Approach	No Build	Build 1 Alternative	Build 2 Alternative
12: Innovation Way/Juniper Networks Driveway*	NB	1 left-turn lane (300'), 2 through lanes	Same as No Build	Same as No Build
	SB	1 shared through/right lane, 1 right-turn lane	1 through lane, 1 right-turn lane	1 through lane, 1 shared through/right-turn lane
	EB	1 left-turn lane (300'), 1 right-turn lane (300')	Same as No Build	Same as No Build
13: Bordeaux Drive/Innovation Way*	NB	1 left-turn lane (50'), 1 shared through/right lane	Same as No Build	Same as No Build
	SB	1 left-turn lane, 1 shared through/right lane	Same as No Build	Same as No Build
	EB	1 shared left/through lane, 1 right-turn lane (100')	Same as No Build	Same as No Build
	WB	1 shared left/through lane, 1 right-turn lane (100')	Same as No Build	Same as No Build

Notes:

*Indicates intersection is signalized under Build 1 and Build 2 Alternatives.

Source: Fehr & Peers and WMH, 2016.

CONSTRAINED VOLUME ANALYSIS APPROACH

The traffic forecasts presented in Chapter 4 are hourly demand volumes. Peak period congestion along US 101 and SR 237 is expected to worsen in the future, thus constraining the demand within the study area system. For local street operations the off-ramp demand volumes can result in an overestimate of the actual volume that would arrive at the US 101 and SR 237 interchanges when congestion is taken into consideration. Similarly, the on-ramp demand volumes can result in an overestimate of the actual volume that can access US 101 and SR 237. The traffic volumes used in the analysis are adjusted to account for congestion and are referred to as "constrained volumes". One of the limitations of using separate software analysis programs to perform the peak hour intersection analysis (Synchro/SimTraffic) and the peak period mainline analysis (FREQ) is that neither provides a seamless linkage with respect to constrained volumes. SimTraffic applies a stochastic modeling approach, while FREQ applies a deterministic modeling approach. To address these issues the following steps were undertaken:

- **Step 1** – Run initial set of FREQ models to determine constrained off-ramp volumes at the SR 237/US 101 interchange as well as at the Mathilda Avenue interchanges. The constrained Mathilda Avenue peak hour off-ramp volume was calculated by applying an adjustment factor to the peak hour demand forecast. The off-ramp adjustment factor = (upstream mainline segment constrained volume) ÷ (upstream mainline segment demand volume).
- **Step 2** – Run final set of SimTraffic models assuming the constrained off-ramp volume at the US 101 and SR 237 off-ramps calculated from Step 1. Once SimTraffic models are finalized, determine constrained volume at the on-ramps for the peak hour.
- **Step 3** – Run final set of FREQ models assuming constrained peak hour on-ramp volumes from Step 2.

This three-step approach was applied to the Year 2018 traffic operations analysis and Year 2040 traffic operations analysis summarized in Chapter 6.

YEAR 2018 INTERSECTION OPERATIONS

Year 2018 intersection traffic operations were evaluated using the calibrated/validated SimTraffic models developed for Existing Conditions. The simulation models were executed for the peak hour with a 30-minute seeding period. The following constrained volume factors were applied to the off-ramp demand volumes to account for congestion along US 101 and SR 237 (consistent with the three-step modeling approach described above):

- Westbound SR 237 off-ramp to Mathilda Avenue = 0.95 during the AM peak hour and 1.00 during the PM peak hour;
- Eastbound SR 237 off-ramp to Mathilda Avenue = 1.00 during the AM peak hour and 0.87 during the PM peak hour;
- Northbound US 101 off-ramp to Mathilda Avenue = 0.95 during the AM peak hour and 1.00 during the PM peak hour;

- Southbound US 101 off-ramp to Mathilda Avenue = 1.00 during the AM peak hour and 0.91 during the PM peak hour.

INTERSECTION DELAY, LOS, AND PERCENT DEMAND SERVED

Table 5-2 presents the Year 2018 simulated intersection level of service results and percent demand served for each of the study intersections under No Build and Build Alternatives (intersection queuing is described in the following section). Results in **bold** indicate locations operating at LOS F conditions. Analysis results worksheets are presented in **Appendix L**.[5]

No Build Conditions

As shown in **Table 5-2** the majority of study intersections are anticipated to operate at LOS F during the AM and/or PM peak hour under No Build conditions in the Year 2018. The percent demand served is on average 84 percent during the AM and PM peak hour. The low percent demand served is indicative of the projected traffic demand exceeding the capacity of the roadway system. The total vehicle hours of delay are estimated to be 1,319 in the AM peak hour and 1,504 in the PM peak hour.

Build 1 Alternative

Below is a brief summary of the operations at the study locations under Build 1 Alternative in the Year 2018 and how they compare to No Build conditions.

- *Mathilda Avenue/Fifth Avenue* – Intersection level of service is anticipated to remain unchanged (LOS B during the AM peak hour and LOS F during the PM peak hour). The overall intersection delay would also remain relatively unchanged (less than a 5 percent change) for the AM and PM peak hour. The percent demand served is anticipated to increase from 88 percent to 98 percent in the AM peak hour and decrease from about 86 percent to 80 percent in the PM peak hour. The decrease in PM percent demand served is due to queues from the downstream Mathilda Avenue/Innovation Way intersection that occasionally reach back to this intersection during the PM peak hour.
- *Mathilda Avenue/Innovation Way* – Intersection level of service is anticipated to remain unchanged (LOS D during the AM peak hour and LOS F during the PM peak hour). The overall intersection delay would also remain relatively unchanged (less than a 5 percent change) for the AM and PM peak hour. The percent demand served is anticipated to increase from 84 percent to 99 percent in the AM peak hour and decrease from about 80 percent to 77 percent in the PM peak hour. The slight decrease in PM percent demand served is due to additional traffic that will travel through this intersection due to the closure of Moffett Park Drive between Mathilda Avenue and Bordeaux Drive.
- *Mathilda Avenue/Moffett Park Drive/SR 237 Westbound Ramps* – Intersection level of service is anticipated to improve from LOS F to LOS D in the AM peak hour and remain unchanged at LOS F during the PM peak hour. Although the intersection would continue to operate at LOS F during

[5] Please note that Synchro and SimTraffic worksheets are provided for the study intersections in **Appendix L** for informational purposes to present key modeling inputs including lanes, volumes, and signal timings. The results presented in **Table 5-2** are from SimTraffic analysis output.

the PM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 30 percent compared to No Build conditions. The improvement in the peak hours is a result of eliminating the westbound Moffett Park Drive approach which reduces the number of signal phases at this location. The percent demand served is anticipated to increase from 81 percent to 98 percent in the AM peak hour and decrease slightly from about 83 percent to 82 percent in the PM peak hour.

- *Mathilda Avenue/ SR 237 Eastbound Ramps* – Intersection level of service is anticipated to improve from LOS F to LOS C in the AM peak hour and worsen from LOS B to LOS C during the PM peak hour. The PM peak hour conditions worsen under the Build 1 Alternative due to a higher southbound left-turn/northbound through volume conflict that increases the southbound left-turn movement delay. The volume arriving on the northbound approach is over 140 vehicles greater under the Build 1 Alternative than No Build conditions. The percent demand served is anticipated to increase from 78 percent to 97 percent in the AM peak hour and from 84 percent to 86 percent in the PM peak hour.
- *Mathilda Avenue/ Ross Drive* – Intersection level of service is anticipated to improve from LOS F to LOS C in the AM peak hour and from LOS F to LOS D during the PM peak hour. The percent demand served is anticipated to increase from 75 percent to 98 percent in the AM peak hour and from 84 percent to 88 percent in the PM peak hour.
- *Mathilda Avenue/ US 101 Northbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS D during the AM and PM peak hour. The percent demand served is estimated at 98 percent during the AM peak hour and 90 percent during the PM peak hour.
- *Mathilda Avenue/ US 101 Southbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS C during the AM peak hour and LOS B during the PM peak hour. The percent demand served is estimated at 98 percent during the AM peak hour and 92 percent during the PM peak hour.
- *Mathilda Avenue/ Almanor Avenue-Ahwanee Avenue* – Intersection level of service is anticipated to remain unchanged (LOS F) during the AM peak hour and improve from LOS F to LOS C in the PM peak hour. Although the intersection would continue to operate at LOS F during the AM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 70 percent compared to No Build conditions. The percent demand served is anticipated to increase from 82 percent to 98 percent in the AM peak hour and from 87 percent to 94 percent in the PM peak hour.
- *US 101 Northbound On-Ramp/Moffett Park Drive* – Intersection level of service is anticipated to remain unchanged (LOS A) during the AM peak hour and improve from LOS E to LOS A in the PM peak hour. The improvement in LOS during the PM peak hour is due to the lane reconfiguration at Mathilda Avenue and Moffett Park Drive from one left-turn/through lane and one right-turn lane to one shared left-turn/right-turn lane and one right-turn lane. This creates larger queue storage and increased vehicular throughput at Mathilda Avenue which results in less queue spillback at the US 101 Northbound On-Ramp and Moffett Park Drive intersection. The percent demand served is anticipated to increase from 87 percent to 99 percent in the AM peak hour and from 80 percent to 93 percent in the PM peak hour.
- *Innovation Way/Moffett Park Drive* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 50 percent compared to No

Build conditions. The improvement in delay during the PM peak hour is due to two factors. First, the lane reconfiguration at Mathilda Avenue and Moffett Park Drive from one left-turn/through lane and one right-turn lane to one-shared left-turn/right-turn lane and one right-turn lane which increases the amount of right-turn storage and right-turn throughput. Second, the eastbound through volume at Mathilda Avenue/Moffett Park Drive under No Build Conditions is now diverted to Innovation Way which results in a portion of the eastbound through volume at Innovation Way / Moffett Park Drive being shifted to the eastbound left-turn movement. The percent demand served is anticipated to increase from 86 percent to 100 percent in the AM peak hour and from 78 percent to 88 percent in the PM peak hour.

- *Innovation Way/Eleventh Avenue* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 55 percent compared to No Build conditions. The percent demand served is anticipated to increase from 85 percent to 99 percent in the AM peak hour and decrease from 90 percent to 88 percent in the PM peak hour.
- *Innovation Way/Juniper Networks Driveway* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 24 percent compared to No Build conditions. The percent demand served is anticipated to increase from 83 percent to 100 percent in the AM peak hour and from 73 percent to 87 percent in the PM peak hour.
- *Bordeaux Drive/Innovation Way* – Intersection level of service is anticipated to worsen from LOS A to LOS B during the AM peak hour and from LOS B to LOS F during the PM peak hour. The proposed project design would result in an increase over 330 percent in traffic volume at this location during the PM peak hour. The percent demand served is anticipated to decrease from 100 percent to 99 percent in the AM peak hour and from 100 percent to 61 percent in the PM peak hour.

The Build 1 Alternative would improve traffic conditions at most of the study locations but also worsen some of the study locations for at least one peak hour. During the AM peak hour the total vehicle hours of delay would be reduced from 1,319 to 493 (63 percent reduction) and from 1,504 to 1,285 (15 percent reduction) during the PM peak hour. The reduction in overall vehicle hours of delay for the AM and PM peak hour indicates the Build 1 Alternative would provide an overall benefit to the traffic operations in the study area compared to No Build conditions.

Build 2 Alternative

Below is a brief summary of the operations at the study locations under Build 2 Alternative in Year 2018 and how they compare to No Build conditions.

- *Mathilda Avenue/Fifth Avenue* – Intersection level of service is anticipated to remain unchanged (LOS B during the AM peak hour and LOS F during the PM peak hour). The overall intersection delay would also remain relatively unchanged (less than a 5 percent change) for the AM and PM peak hour. The percent demand served is anticipated to increase from 88 percent to 96 percent in the AM peak hour and increase from about 86 percent to 87 percent in the PM peak hour.

- *Mathilda Avenue/Innovation Way* – Intersection level of service is anticipated to remain unchanged during the PM peak hour (LOS F), but decrease from LOS D to LOS E during the AM peak hour. The overall intersection delay would increase by approximately 25 seconds in the AM peak hour due to the vehicle volume that shifts from Moffett Park Drive to Innovation Way. The PM peak hour delay decreases by approximately 50 seconds due to the additional capacity provided by the DDI traveling southbound on Mathilda Avenue. The percent demand served is anticipated to increase from 84 percent to 95 percent in the AM peak hour and increase from about 80 percent to 83 percent in the PM peak hour.
- *Mathilda Avenue/Moffett Park Drive/SR 237 Westbound Ramps* – Intersection level of service is anticipated to improve from LOS F to LOS C in the AM peak hour and from LOS F to LOS E during the PM peak hour. The overall intersection delay would decrease by well over 265 seconds in the AM peak hour and 220 seconds in the PM peak hour. The reduction in peak hour delay is a result of the efficient signal timing as a results of the DDI and the closure of Moffett Park Drive to Mathilda Avenue. The percent demand served is anticipated to increase from 81 percent to 95 percent in the AM peak hour and increase from about 83 percent to 87 percent in the PM peak hour.
- *Mathilda Avenue/ SR 237 Eastbound Ramps* – Intersection level of service is anticipated to improve from LOS F to LOS D in the AM peak hour and worsen from LOS B to LOS E during the PM peak hour. The PM peak hour conditions worsen under the Build 2 Alternative due to the eastbound right-turn lane from the SR 237 off-ramp and the close proximity of Ross Drive to the DDI. The DDI is able to throughput a higher demand as shown by the increase in percent demand served in the PM peak hour from 85 percent to 89 percent, however, this then backs up at Ross Drive preventing vehicles from the off-ramp to enter Mathilda Avenue. The percent demand served in the AM peak hour increases from 84 percent to 89 percent.
- *Mathilda Avenue/ Ross Drive* – Intersection level of service is anticipated to remain at LOS F in the AM peak hour and improve from LOS F to LOS E during the PM peak hour. The percent demand served is anticipated to increase from 75 percent to 92 percent in the AM peak hour and from 84 percent to 90 percent in the PM peak hour.
- *Mathilda Avenue/ US 101 Northbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS E during the AM peak hour and LOS D during the PM peak hour. The percent demand served is estimated at 95 percent during the AM peak hour and 92 percent during the PM peak hour.
- *Mathilda Avenue/ US 101 Southbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS C during the AM peak hour and LOS B during the PM peak hour. The percent demand served is estimated at 95 percent during the AM peak hour and 93 percent during the PM peak hour.
- *Mathilda Avenue/ Almanor Avenue-Ahwanee Avenue* – Intersection level of service is anticipated to remain unchanged (LOS F) during the AM peak hour and improve from LOS F to LOS D in the PM peak hour. Although the intersection would continue to operate at LOS F during the AM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 145 seconds of delay compared to No Build conditions. The percent demand served is anticipated to increase from 82 percent to 95 percent in the AM peak hour and from 87 percent to 96 percent in the PM peak hour.
- *US 101 Northbound On-Ramp/Moffett Park Drive* – Intersection level of service is anticipated to remain unchanged (LOS A) during the AM peak hour and improve from LOS E to LOS D in the PM

peak hour. The percent demand served is anticipated to increase from 87 percent to 95 percent in the AM peak hour and from 80 percent to 93 percent in the PM peak hour.

- *Innovation Way/Moffett Park Drive* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 2 Alternative the overall intersection delay would be reduced by over 45 percent compared to No Build conditions. The percent demand served is anticipated to increase from 86 percent to 95 percent in the AM peak hour and from 78 percent to 86 percent in the PM peak hour.
- *Innovation Way/Eleventh Avenue* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 2 Alternative the overall intersection delay would be reduced by over 40 percent compared to No Build conditions. The percent demand served is anticipated to increase from 85 percent to 96 percent in the AM peak hour and decrease from 90 percent to 86 percent in the PM peak hour.
- *Innovation Way/Juniper Networks Driveway* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 2 Alternative the overall intersection delay would be reduced by more than 10 seconds compared to No Build conditions. The percent demand served is anticipated to increase from 83 percent to 96 percent in the AM peak hour and from 73 percent to 81 percent in the PM peak hour.
- *Bordeaux Drive/Innovation Way* – Intersection level of service is anticipated to worsen from LOS A to LOS E during the AM peak hour and from LOS B to LOS F during the PM peak hour. The proposed project design would result in an increase over 330 percent in traffic volume at this location during the PM peak hour. However the demand at this intersection is less than a fourth of the volume along Mathilda Avenue. The percent demand served is anticipated to decrease from 100 percent to 95 percent in the AM peak hour and from 100 percent to 83 percent in the PM peak hour.

The Build 2 Alternative would improve traffic conditions at most of the study locations but also worsen some of the study locations for at least one peak hour. During the AM peak hour the total vehicle hours of delay would be reduced from 1,319 to 773 (42 percent reduction) and from 1,504 to 1,107 (26 percent reduction) during the PM peak hour. The reduction in overall vehicle hours of delay for the AM and PM peak hour indicates the Build 2 Alternative would provide an overall benefit to the traffic operations in the study area compared to No Build conditions.

TABLE 5-2: YEAR 2018 PEAK HOUR INTERSECTION ANALYSIS[1]

	Intersection	Peak Hour[2]	No Build			Build 1 Alternative			Build 2 Alternative		
			Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]
1	Mathilda Avenue / Fifth Avenue[6]	AM	17.4	B	87.8	17.1	B	97.5	15.8	B	95.8
		PM	**227.0**	**F**	**85.7**	**238.1**	**F**	**79.8**	**177.3**	**F**	**87.4**
2	Mathilda Avenue / Innovation Way[6]	AM	42.1	D	83.5	44.1	D	98.7	69.7	E	94.6
		PM	**206.1**	**F**	**79.9**	**218.4**	**F**	**77.0**	**152.2**	**F**	**83.0**
3	Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	AM	**>300**	**F**	**80.5**	53.1	D	98.2	32.5	C	94.8
		PM	**>300**	**F**	**82.9**	**197.8**	**F**	**81.7**	79.0	E	86.8
4	Mathilda Avenue / SR 237 Eastbound Ramps	AM	**116.3**	**F**	**78.1**	28.7	C	97.2	36.6	D	94.3
		PM	19.4	B	84.3	29.0	C	85.9	56.4	E	88.7
5	Mathilda Avenue / Ross Drive	AM	**285.7**	**F**	**74.6**	31.6	C	97.7	**98.6**	**F**	**92.5**
		PM	**141.4**	**F**	**84.3**	46.9	D	88.2	59.5	E	90.1
6	Mathilda Avenue / US 101 Northbound Ramps (Build)	AM	N/A	N/A	N/A	47.2	D	98.2	65.0	E	94.5
		PM				47.8	D	90.3	52.3	D	91.9
7	Mathilda Avenue / US 101 Southbound Ramps (Build)	AM	N/A	N/A	N/A	20.7	C	97.8	33.7	C	94.4
		PM				11.1	B	91.7	12.0	B	93.3
8	Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	AM	**>300**	**F**	**82.3**	**83.1**	**F**	**97.6**	**152.1**	**F**	**95.1**
		PM	**139.9**	**F**	**87.3**	34.9	C	94.3	40.0	D	95.8
9	US 101 Northbound On-Ramp / Moffett Park Drive	AM	3.9	A	86.8	5.7	A	98.8	4.5	A	95.2
		PM	63.0	E	80.0	8.7	A	93.3	35.2	D	93.4
10	Innovation Way / Moffett Park Drive[6]	AM	13.7	B	85.7	19.2	B	99.5	16.5	B	94.8
		PM	**190.5**	**F**	**78.4**	**90.7**	**F**	**87.6**	**105.7**	**F**	**86.4**
11	Innovation Way / Eleventh Avenue	AM	10.5	B	85.0	11.8	B	98.5	12.1	B	96.4
		PM	**144.4**	**F**	**89.8**	**61.7**	**F**	**88.3**	**85.0**	**F**	**86.2**
12	Innovation Way / Juniper Networks Driveway	AM	14.0	B	83.3	14.7	B	100.0	15.6	B	96.5
		PM	**>300**	**F**	**72.8**	**227.0**	**F**	**87.0**	**288.3**	**F**	**81.1**
13	Bordeaux Drive / Innovation Way	AM	3.2	A	100.0	12.7	B	99.1	57.4	E	94.7
		PM	13.5	B	100.0	**>300**	**F**	**61.1**	**>300**	**F**	**83.1**
Total Vehicle Hours of Delay (hours)		AM		1,319			493			773	
		PM		1,504			1,285			1,107	

TABLE 5-2: YEAR 2018 PEAK HOUR INTERSECTION ANALYSIS[1]

Intersection	Peak Hour[2]	No Build			Build 1 Alternative			Build 2 Alternative		
		Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]
Network-wide Percent Demand Served	AM		89.0%			99.3%			94.8%	
	PM		85.8%			89.9%			91.8%	

Notes: Results in **bold** represent unacceptable levels of service, N/A=not applicable.

1. Results based on SimTraffic simulation of five runs.
2. AM – morning peak hour, PM – evening peak hour
3. Average control delay calculated using the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2010) methodology and Synchro/SimTraffic 8.0 analysis software. For signalized and all-way stop-controlled intersections, average control delay is for the intersection, as a whole.
4. For signalized and all-way stop-controlled intersections the LOS for the intersection as a whole is presented.
5. Modeled traffic volume expressed as a ratio of **demand** traffic volume. For example: 100% indicates all demand is served.
6. These intersections are coordinated with a light rail crossing. Under Year 2018, the headway in each direction is assumed to increase from 15 minutes to 12 minutes in each direction based on the VTA light-rail efficiency project currently underway.

Source: Fehr & Peers, 2016.

INTERSECTION 95TH PERCENTILE QUEUES

No Build 95th Percentile Queues

Table 5-3 presents the 2018 No Build peak hour 95th percentile queuing analysis results. Analysis results worksheets are presented in **Appendix L**. The projected traffic demand is anticipated to far exceed the available roadway capacity. As a result, vehicle queues will exceed available storage at most study locations and queues from one intersection will impact operations at adjacent intersections. During the AM peak hour, northbound Mathilda vehicle queues are expected to extend south past San Aleso Avenue. Due to the congestion on northbound Mathilda Avenue, particularly at the Ross Drive intersection, the US 101 northbound off-ramp queues would spill back onto the mainline. Additionally, the SR 237 westbound off-ramp vehicle queue is anticipated to extend back onto the mainline due to congestion at the ramp terminal.

During the PM peak hour, the projected high southbound traffic volumes on Mathilda Avenue and the close spacing between intersections near the SR 237 interchange would cause vehicle queues on southbound Mathilda Avenue to extend from SR 237 north past 5th Avenue. Eastbound Innovation Way and Moffett Park Drive are also expected to experience high delays and extensive queuing. Additionally, the SR 237 westbound off-ramp queues are expected to extend back to the freeway mainline due to congestion at the ramp terminal.

TABLE 5-3: YEAR 2018 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
1: Mathilda Avenue / Fifth Avenue	NB-L	425	100	125
	NB-T	1,125	175	125
	SB-L	250	50	175
	SB-T	1,325	125	**1,925**
	SB-R	250	25	200
	EB-L	625	50	100
	EB-T	625	50	50
	EB-R	625	25	75
	WB-L	925	75	700
	WB-T	75	75	**100**
2: Mathilda Avenue / Innovation Way	NB-L	400	375	75
	NB-T	975	325	150
	NB-TR	975	375	175
	SB-L	75	25	25
	SB-T	975	175	**1,275**
	SB-R	225	125	**350**
	EB-L	200	25	125
	EB-TR	200	50	50
	EB-R	200	50	**325**

TABLE 5-3: YEAR 2018 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
	WB-L	425	25	75
	WB-LTR	225	25	75
3: Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	NB-L (MP)	125	50	50
	NB-L (237)	175	175	150
	NB-T	300	**325**	200
	SB-L (MP)	175	50	125
	SB-T	1,100	500	**1,200**
	EB-L (MP)	350	75	**475**
	EB-T (MP)	1,100	125	**1,325**
	EB-R (MP)	1,100	100	975
	WB-L (MP)	300	250	**1,275**
	WB-T (MP)	650	400	**675**
	WB-L (237)	1,125	**1,300**	**4,675**
	WB-R (237)	325	**400**	**500**
4: Mathilda Avenue / SR 237 Eastbound Ramps	NB-T	275	**325**	100
	NB-R	275	**375**	200
	SB-L	200	100	175
	SB-T	200	**225**	**225**
	EB-L	1,025	**2,900**	125
	EB-LTR	450	**650**	200
5: Mathilda Avenue / Ross Drive	NB-L	150	100	**175**
	NB-T	2,200	1,100	1,100
	SB-L	150	150	**175**
	SB-T	250	**275**	200
	EB-L	650	500	275
	EB-T	75	**125**	**125**
	EB-R	50	**75**	**75**
	WB-L	75	**2,275**	**3,225**
	WB-T	75	**125**	**125**
	WB-R	75	**100**	**100**
6. Mathilda Avenue/US 101 NB Ramps**	N/A	N/A	N/A[3]	N/A[4]
7. Mathilda Avenue/US 101 SB Ramps**	N/A	N/A	N/A	N/A

TABLE 5-3: YEAR 2018 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
8: Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	NB-L	375	350	300
	NB-T	675	**>5,000**	**1,900**
	NB-R	75	75	100
	SB-L	125	**200**	**225**
	SB-T	2,200	725	1,500
	EB-L	1,025	250	350
	EB-T	125	125	**250**
	WB-L	250	225	225
	WB-T	1,025	600	425
	WB-R	75	150	**150**
9: US 101 Northbound On-Ramp / Moffett Park Drive	EB-T	850	50	**1,100**
	EB-R	150	25	**425**
	WB-L	850	50	250
	WB-T	850	100	25
10: Innovation Way / Moffett Park Drive	SB-L	575	50	525
	SB-LTR	575	150	**625**
	EB-L	225	100	**400**
	EB-T	850	75	**1,100**
	WB-T	1,150	250	175
	WB-R	225	125	50
11: Innovation Way / Eleventh Avenue	NB-L	125	50	25
	NB-LT	575	50	150
	SB-T	1,000	50	75
	EB-L	1,000	125	175
	EB-R	125	50	175
12: Innovation Way / Juniper Driveway	NB-L	300	50	1,575
	NB-T	300	75	1,100
	SB-T	125	50	25
	SB-R	900	50	**1,075**
	EB-L	300	250	225
	EB-R	300	300	175
13: Bordeaux Drive / Innovation Way	NB-L	325	50	50
	NB-TR	2,025	75	50
	SB-L	125	25	25
	SB-TR	725	50	**75**
	EB-LT	375	50	50
	EB-R	125	50	50
	WB-LT	125	25	25

TABLE 5-3: YEAR 2018 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
	WB-R	125	25	25

Notes: **Bold** denotes locations where storage length is exceeded.

**Indicates intersection is signalized under Build 1 and Build 2 Alternatives, but operates as a free movement under the No Build Alternative.

1. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left-turn movement, T-through movement, R-right-turn movement, (MP)-turn onto/from Moffett Park Drive, (237)-turn onto/from SR 237 WB Ramps.
2. Available storage lengths are provided on a "per lane" basis. For example, an available storage of 425 means each lane in the associated movement has a storage length of 425 feet.
3. Queuing at the US 101 northbound diagonal off-ramp was observed to extend onto the freeway mainline in the AM peak hour under Existing Conditions. This queuing is anticipated to worsen under Year 2018 No Build conditions.
4. Queuing at the US 101 northbound loop off-ramp was observed to extend onto the freeway mainline in the PM peak hour under Existing Conditions. This queuing is anticipated to worsen under Year 2018 No Build conditions.

Source: Fehr & Peers, 2016.

Build 1 95th Percentile Queues

Table 5-4 presents the Build 1 peak hour 95th percentile queuing analysis results. Analysis results worksheets are presented in **Appendix L**. The capacity enhancements at intersections on Mathilda Avenue and the realignment of the freeway ramps would improve traffic operations and reduce vehicle queue lengths compared to No Build conditions. The US 101 Northbound off-ramp and Southbound off-ramp queues are not anticipated to extend back to the freeway mainline under Build 1. During the AM peak hour, the SR 237 ramp terminal intersections would provide adequate vehicle storage to accommodate the 95th percentile queue lengths. Therefore, off-ramp queues are not expected to spill back to freeway mainline. During the PM peak hour, the realignment of the SR 237 ramps would reduce the SR 237 off-ramp queue lengths, but the westbound off-ramp queue is still anticipated to extend back to near the off-ramp gore point area and potentially onto the freeway mainline. Vehicle queues on southbound Mathilda Avenue and Innovation Way would still exist during the PM peak hour.

TABLE 5-4: YEAR 2018 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
1: Mathilda Avenue / Fifth Avenue	NB-L	425	100	125
	NB-T	1,125	200	125
	SB-L	250	50	175
	SB-T	1,325	125	**2,125**
	SB-R	250	25	175
	EB-L	625	50	100
	EB-T	625	25	50
	EB-R	625	25	75
	WB-L	925	75	225
	WB-T	75	75	**100**

TABLE 5-4: YEAR 2018 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
2: Mathilda Avenue / Innovation Way	NB-L	400	325	25
	NB-T	975	525	225
	NB-R	975	650	150
	SB-L	75	75	**150**
	SB-T	975	150	**1,300**
	SB-R	225	125	**350**
	EB-LT	200	150	**325**
	EB-R	200	25	**350**
	WB-L	425	**500**	**775**
	WB-LTR	225	**275**	**250**
3: Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	NB-L	350	**425**	325
	NB-T	350	**450**	150
	SB-T	975	325	**1,075**
	SB-TR	975	425	**1,125**
	EB-LR	1,125	100	**1,350**
	EB-R	1,125	50	**1,350**
	WB-L	525	375	**650**
	WB-LT	1,225	375	**1,300**
	WB-TR	1,225	375	275
4: Mathilda Avenue / SR 237 Eastbound Ramps	NB-T	275	150	100
	NB-R	275	50	125
	SB-L	325	**275**	**350**
	SB-T	350	**375**	**475**
	EB-L	1,025	550	150
	EB-LT	1,025	475	125
	EB-R	450	125	275
5: Mathilda Avenue / Ross Drive	NB-L	150	**225**	**250**
	NB-T	700	**725**	475
	SB-L	150	125	**150**
	SB-T	250	**275**	**275**
	EB-L	650	125	100
	EB-T	75	**150**	**275**
	EB-R	50	50	**100**
	WB-L	75	**125**	**125**
	WB-T	75	**350**	**900**
	WB-R	75	**125**	**100**

TABLE 5-4: YEAR 2018 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
6: Mathilda Avenue / US 101 NB Ramps	NB-T	575	525	275
	NB-R	575	175	50
	SB-L	375	50	225
	SB-T	700	325	700
	WB-L	1,025	400	150
	WB-R	1,025	175	125
7: Mathilda Avenue / US 101 SB Ramps	NB-T	750	**775**	175
	NB-R	750	700	75
	SB-T	575	250	150
	SB-TR	575	300	325
	EB-L	1,050	225	100
	EB-R	1,050	25	25
8: Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	NB-L	375	**425**	150
	NB-T	750	**1,225**	350
	NB-R	75	**325**	325
	SB-L	125	**350**	**300**
	SB-T	750	525	425
	EB-L	1,025	125	300
	EB-T	125	100	**225**
	WB-L	250	150	100
	WB-T	1,025	175	75
	WB-R	75	125	**100**
9: US 101 Northbound On-Ramp / Moffett Park Drive	EB-T	850	50	300
	EB-R	150	25	125
	WB-L	850	50	175
	WB-T	850	75	25
10: Innovation Way / Moffett Park Drive	SB-L	575	50	525
	SB-LTR	575	175	**600**
	EB-L	225	150	**350**
	EB-T	850	50	625
	WB-T	1,150	275	150
	WB-R	225	350	200

TABLE 5-4: YEAR 2018 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
11: Innovation Way / Eleventh Avenue	NB-L	125	100	75
	NB-T	575	125	200
	SB-L	175	75	75
	SB-T	1,000	50	50
	SB-TR	1,000	225	50
	EB-L	125	50	125
	EB-LT	300	25	**900**
	EB-R	300	75	**1,050**
12: Innovation Way / Juniper Driveway	NB-L	125	150	200
	NB-T	900	100	825
	SB-T	300	125	225
	SB-R	300	150	100
	EB-L	150	100	**2,325**
	EB-R	150	50	**1,000**
13: Bordeaux Drive / Innovation Way	NB-L	325	175	**925**
	NB-TR	2,025	75	800
	SB-L	125	25	25
	SB-TR	725	125	**4,875**
	EB-LT	375	275	75
	EB-R	125	**150**	100
	WB-LT	125	25	25
	WB-R	125	25	25

Notes: **Bold** denotes locations where storage length is exceeded.

1. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left-turn movement, T-through movement, R-right-turn movement, (MP)-turn onto/from Moffett Park Drive, (237)-turn onto/from SR 237 WB Ramps.

2. Available storage lengths are provided on a "per lane" basis. For example, an available storage of 425 means each lane in the associated movement has a storage length of 425.

Source: Fehr & Peers, 2016.

Build 2 95th Percentile Queues

Table 5-5 presents the Build 2 peak hour 95th percentile queuing analysis results. Analysis results worksheets are presented in **Appendix L**. Similar to Build 1, capacity enhancements on Mathilda Avenue and the realignment of freeway ramps would improve traffic operations and reduce queue lengths compared to No Build condition. Both the US 101 eastbound off-ramp and westbound off-ramp queues are not anticipated to extend back to the freeway mainline under Build 2. The SR 237 diverging diamond interchange configuration would substantially reduce the westbound off-ramp queue lengths to fit within the available storage distance on the ramp. However, this configuration would cause the SR 237 eastbound off-ramp queue to spill back to the freeway mainline in the PM peak hour due to the close proximity of Ross Drive and the right-turn-on-red limitations at the off-ramp which limits the number of right-turning

vehicles looking to access southbound Mathilda Avenue. Moreover, the closure of the Moffett Park Drive eastbound access to Mathilda Avenue would shift traffic to Innovation Way. As a result, the queue lengths on eastbound Innovation Way and Juniper Driveway are anticipated to increase compared to Build 1.

TABLE 5-5: YEAR 2018 BUILD 2 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
1: Mathilda Avenue / Fifth Avenue	NB-L	425	100	125
	NB-T	1,150	200	125
	SB-L	225	50	150
	SB-T	1,375	125	**1,450**
	SB-R	225	25	200
	EB-L	625	75	125
	EB-T	625	50	75
	EB-R	625	25	75
	WB-L	925	75	675
	WB-T	75	50	**100**
2: Mathilda Avenue / Innovation Way	NB-L	725	575	125
	NB-T	975	425	175
	NB-R	975	550	150
	SB-L	75	75	**150**
	SB-T	1,150	200	**1,275**
	SB-R	225	150	**375**
	EB-LT	200	200	**350**
	EB-R	200	25	**350**
	WB-L	425	**850**	**800**
	WB-LTR	225	**250**	**250**
3: Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	NB-L	150	150	25
	NB-T	400	**450**	175
	SB-TR	975	375	**1,200**
	WB-L	1,075	250	975
	WB-R	550	500	**650**
4: Mathilda Avenue / SR 237 Eastbound Ramps	NB-T	150	**275**	**200**
	NB-R	150	25	75
	SB-L	175	0	50
	SB-T	400	325	400
	EB-L	1,075	325	**1,975**
	EB-R	450	25	**1,575**

TABLE 5-5: YEAR 2018 BUILD 2 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
5: Mathilda Avenue / Ross Drive	NB-L	250	**275**	250
	NB-T	700	**825**	600
	SB-L	225	125	200
	SB-T	225	175	225
	EB-L	650	150	125
	EB-T	75	**475**	**275**
	EB-R	50	50	**100**
	WB-L	75	**125**	**125**
	WB-T	75	**3,925**	**1,400**
	WB-R	75	**125**	**100**
6: Mathilda Avenue / US 101 NB Ramps	NB-T	575	**750**	325
	NB-R	575	**725**	50
	SB-L	375	50	250
	SB-T	700	325	700
	WB-L	1,025	675	575
	WB-R	1,025	450	425
7: Mathilda Avenue / US 101 SB Ramps	NB-T	750	**875**	200
	NB-R	750	**850**	100
	SB-T	575	125	250
	SB-TR	575	175	400
	EB-L	1,050	200	125
	EB-R	1,050	50	25
8: Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	NB-L	375	**600**	150
	NB-T	675	**3,150**	425
	NB-TR	200	**300**	**350**
	SB-L	275	**325**	**325**
	SB-T	750	550	450
	EB-L	1,025	125	275
	EB-T	125	100	**200**
	WB-L	250	150	100
	WB-T	1,025	150	75
	WB-R	75	**125**	**100**
9: US 101 Northbound On-Ramp / Moffett Park Drive	EB-T	875	50	850
	EB-R	150	25	**300**
	WB-L	900	50	225
	WB-T	900	200	25

TABLE 5-5: YEAR 2018 BUILD 2 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
10: Innovation Way / Moffett Park Drive	SB-R	525	75	50
	EB-L	850	125	**1,000**
	WB-T	975	200	150
	WB-TR	975	250	125
11: Innovation Way / Eleventh Avenue	NB-L	125	75	**150**
	NB-T	575	125	475
	SB-L	175	75	125
	SB-T	1,000	100	75
	SB-TR	1,000	250	150
	EB-L	125	50	**175**
	EB-LT	300	50	**375**
	EB-R	300	50	100
12: Innovation Way / Juniper Driveway	NB-L	125	150	**150**
	NB-T	900	100	**1,225**
	SB-T	300	225	225
	SB-TR	300	175	125
	EB-L	150	100	**3,875**
	EB-R	150	50	**1,800**
13: Bordeaux Drive / Innovation Way	NB-L	325	**525**	**2,300**
	NB-TR	2,025	675	1,150
	SB-L	125	25	25
	SB-TR	725	175	**775**
	EB-LT	375	325	75
	EB-R	125	**150**	100
	WB-LT	125	25	25
	WB-R	125	25	25

Notes: **Bold** denotes locations where storage length is exceeded.

1. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left-turn movement, T-through movement, R-right-turn movement, (MP)-turn onto/from Moffett Park Drive, (237)-turn onto/from SR 237 WB Ramps.

2. Available storage lengths are provided on a "per lane" basis. For example, an available storage of 425 means each lane in the associated movement has a storage length of 425.

Source: Fehr & Peers, 2016.

MATHILDA AVENUE AND INNOVATION WAY TRAVEL TIMES

Table 5-6 presents the average travel times and delays along the Mathilda Avenue corridor under No Build and Build conditions. Both of the build alternatives would reduce the average travel time and delays on Mathilda Avenue when compared to No Build conditions with the exception of the PM peak hour under the Build 1 Alternative.

The Build 1 Alternative would result in a northbound delay reduction of approximately 6 minutes during the AM and PM peak hours. In the southbound direction, the Build 1 Alternative would reduce delays by over 0.5 minutes in the AM peak hour and increase travel times by approximately 1 minute during the PM peak hour. The slight increase in southbound travel time during the PM peak hour is mostly concentrated north of the Innovation Way intersection. The higher westbound left-turn volumes on the Innovation Way extension take up additional queue storage south of the Mathilda Avenue / Innovation Way intersection for vehicles traveling southbound on Mathilda Avenue. This reduces the number of southbound through vehicles that are able to clear the intersection in a given signal cycle. This condition does not occur under the Build 2 Alternative because the diverging diamond reduces the southbound queue spillback from the SR 237 interchange.

Build 2 Alternative would result in a northbound delay reduction of over 3.5 minutes and 5.5 minutes during the AM and PM peak hour, respectively. In the southbound direction, Build 2 Alternative would reduce delays by over 1.5 minutes and 3.5 minutes during the AM and PM peak hour, respectively.

TABLE 5-6: YEAR 2018 MATHILDA AVENUE TRAVEL TIMES

Direction	Peak Hour	Free flow Travel Time (s)[2]	No Build		Build 1 Alternative		Build 2 Alternative	
			Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)
Mathilda Avenue Northbound	AM	116.2	737.8	621.6	346.7	230.5	508.2	392.0
	PM	116.2	736.2	620.0	341.6	225.4	406.1	289.9
Mathilda Avenue Southbound	AM	116.2	432.8	316.6	399.2	283.0	318.4	202.2
	PM	116.2	1056.0	939.8	1124.3	1008.1	836.4	720.2

Notes:

1. Travel time runs begin north of the San Aleso Avenue intersection and end south of the Lockheed Martin Way-Java Drive intersection (approximately 1.44 miles).
2. Free flow speed is calculated assuming a travel speed of 45 miles per hour.

Source: Fehr & Peers, 2016.

Table 5-7 presents the average travel times and delays along the Innovation Way corridor under No Build and Build conditions. The redistribution of traffic to this corridor under the build alternatives warrants a signal at the Innovation Way and Juniper Networks Driveway in order to increase output at the Mathilda Avenue and Innovation Way intersection. Due to the implementation of a signal at Innovation Way and Juniper Networks Driveway, the average travel time and delay along Innovation Way generally decreases when compared to No Build conditions. Build 1 Alternative would result in a slight northbound delay increase of around 10 seconds and a decrease of over 3.5 minutes during the AM and PM peak hour, respectively. In the southbound direction, the Build 1 Alternative would remain unchanged in the AM peak hour and decrease delay by over 1.5 minutes during the PM peak hour.

Build 2 Alternative would result in a northbound delay increase of around 15 seconds and a decrease of over 1 minute during the AM and PM peak hour, respectively. In the southbound direction, the Build 2 Alternative would decrease delay by about 10 seconds in the AM peak hour and by about 4 minutes during PM peak hour.

TABLE 5-7: YEAR 2018 INNOVATION WAY TRAVEL TIMES

Direction	Peak Hour	Free flow Travel Time (s)[2]	No Build		Build 1 Alternative		Build 2 Alternative	
			Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)
Innovation Way Northbound	AM	81.5	86.2	4.7	97.9	16.4	101.7	20.2
	PM	81.5	524.4	442.9	290.5	209.0	443.4	361.9
Innovation Way Southbound	AM	81.5	112.7	31.2	110.5	29.0	103.8	22.3
	PM	81.5	404.9	323.4	389.2	207.7	142.1	60.6

Notes:

1. Travel time runs begin at the Mathilda Avenue intersection and end at the Moffett Park Drive intersection (approximately 0.42 miles).
2. Free flow speed is calculated assuming a travel speed of 25 miles per hour.

Source: Fehr & Peers, 2016.

YEAR 2018 MAINLINE OPERATIONS

This section summarizes the mainline operations analysis for Year 2018 under No Build, Build 1 and Build 2 conditions using the calibrated/validated FREQ models developed under Existing Conditions. There are several projects identified in the Santa Clara Valley Transportation Plan (VTP) 2040 that could influence traffic operations on US 101 and SR 237 under Year 2018 Conditions. Below is a brief summary of the projects and how they were considered in the evaluation of the US 101 and SR 237 operations analysis under Year 2018 Conditions.

- *SR 237 Eastbound Auxiliary Lanes – Mathilda Avenue to Fair Oaks Avenue:* The SR 237 eastbound auxiliary lane between Mathilda Avenue and Fair Oaks Avenue is expected to be constructed by Year 2018.
- *SR 237 Express Lanes – North First Street to Mathilda Avenue:* The existing HOV lanes along SR 237 in both directions are expected to be converted to HOT lanes by the Year 2018. (The extended HOT lanes beyond Mathilda Avenue are not estimated to be completed by Year 2018, but are considered under Year 2040.)
- *US 101 Express Lanes – Whipple Avenue in San Mateo County to Cochrane Road in Morgan Hill (one lane in each direction):* The existing HOV lanes along US 101 in both directions are expected to be converted to HOT lanes by the Year 2018. (The addition of a second HOT lane in both directions is not estimated to be completed by Year 2018, but is considered under Year 2040.)
- *All freeway ramps metered on US 101 and SR 237 (includes widening of SR 237 EB on-ramp at Mathilda Avenue to two lanes):* Ramp metering is assumed to be installed and operating at all US 101 and SR 237 on-ramps by Year 2018. As part of this project, the Mathilda Avenue to SR 237 eastbound on-ramp is assumed to extend the existing two-lane ramp and meter two mixed-flow lanes. The specific design of the SR 237 eastbound on-ramp will be evaluated and finalized during the construction phase of the ramp metering system.

As discussed above, congestion on the local street system would constrain on-ramp demand volumes at the Mathilda Avenue interchanges during the peak hours. **Table 5-8** and **Table 5-9** presents the initial and constrained on-ramp volumes at the Mathilda Avenue/US 101 and Mathilda Avenue/SR 237 interchanges under the various alternatives. The initial demand volumes were replaced by the constrained volumes to determine US 101 and SR 237 traffic operations.

TABLE 5-8: YEAR 2018 AM ON-RAMP CONSTRAINED VOLUMES

Alternative	Location from Mathilda	Initial FREQ Demand Volume		Constrained Volume from SimTraffic (8AM-9AM)	Constrained FREQ Volume	
		7AM-8AM	8AM-9AM		7AM-8AM	8AM-9AM
No Build	SR 237 WB On	210	250	194	160	194
	SR 237 EB On	510	810	575	360	575
	US 101 NB On	350	360	261	250	261
	US 101 SB On (loop)	120	140	126	110	126
	US 101 SB On (diagonal)	380	580	433	280	433
Build 1	SR 237 WB On	210	240	240	210	240
	SR 237 EB On	510	810	798	500	798
	US 101 NB On	350	370	364	340	364
	US 101 SB On (loop)	120	140	133	110	133
	US 101 SB On (diagonal)	380	580	567	370	567
Build 2	SR 237 WB On	210	240	225	200	225
	SR 237 EB On	510	810	744	470	744
	US 101 NB On	350	370	335	320	335
	US 101 SB On (loop)	120	140	124	110	124
	US 101 SB On (diagonal)	380	580	545	360	545

Source: Fehr & Peers, 2016.

TABLE 5-9: YEAR 2018 PM ON-RAMP CONSTRAINED VOLUMES

Alternative	Location from Mathilda	Initial FREQ Demand Volume			Constrained Volume from SimTraffic (5PM-6PM)	Constrained FREQ Volume		
		4PM-5PM	5PM-6PM	6PM-7PM		4PM-5PM	5PM-6PM	6PM-7PM
No Build	SR 237 WB On	720	750	580	573	550	573	440
	SR 237 EB On	970	1030	860	886	830	886	740
	US 101 NB On	300	270	250	211	230	211	200
	US 101 SB On (loop)	1080	1140	910	982	930	982	780
	US 101 SB On (diagonal)	480	530	480	443	400	443	400
Build 1	SR 237 WB On	680	710	550	560	540	560	430
	SR 237 EB On	970	1030	860	963	910	963	800
	US 101 NB On	340	310	280	307	340	307	280
	US 101 SB On (loop)	1080	1140	910	926	880	926	740
	US 101 SB On (diagonal)	480	530	480	530	480	530	480
Build 2	SR 237 WB On	680	710	550	591	570	591	460
	SR 237 EB On	970	1030	860	970	910	970	810
	US 101 NB On	340	310	280	303	330	303	270
	US 101 SB On (loop)	1080	1140	910	956	910	956	760
	US 101 SB On (diagonal)	480	530	480	530	480	530	480

Source: Fehr & Peers, 2016.

PEAK HOUR LEVEL OF SERVICE

Table 5-10 and **Table 5-11** summarize the Year 2018 US 101 AM and PM peak hour density and LOS results, respectively, based on the FREQ model outputs. **Table 5-12** and **Table 5-13** summarize the Year 2018 SR 237 AM and PM peak hour density and LOS results, respectively, based on the FREQ model outputs. Locations in bold indicate LOS F operations. Results for the mixed-flow lanes are presented without parentheses while results for the high-occupancy toll (HOT) lanes are shown in parentheses. Detailed mainline analysis worksheets are presented in **Appendix M**. A more detailed discussion on peak hour level of service is presented after the analysis results tables.

TABLE 5-10: YEAR 2018 US 101 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build Alternative 1		Build Alternative 2	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Northbound[3]								
Fair Oaks Off-Ramp	Diverge	3 Mixed (1 HOT)	**74.0** (29.7)	**F** (D)	**73.7** (29.7)	**F** (D)	**73.6** (29.7)	**F** (D)
Fair Oaks Off-Ramp to Fair Oaks On-Ramp	Basic	3 Mixed (1 HOT)	**67.9** (22.0)	**F** (C)	**67.5** (22.0)	**F** (C)	**67.4** (22.0)	**F** (C)
Fair Oaks On-Ramp	Merge	3 Mixed (1 HOT)	**51.6** (26.4)	**F** (D)	**51.9** (26.4)	**F** (D)	**51.8** (26.4)	**F** (D)
Fair Oaks On-Ramp to Mathilda NB Off Ramp	Basic	3 Mixed (1 HOT)	**54.3** (26.4)	**F** (D)	**54.7** (26.4)	**F** (D)	**54.5** (26.4)	**F** (D)
Mathilda NB Off-Ramp	Diverge	3 Mixed (1 HOT)	**54.9** (26.4)	**F** (D)	**55.8** (26.4)	**F** (D)	**55.6** (26.4)	**F** (D)
Mathilda NB Off-Ramp to Mathilda NB On-Ramp	Basic	3 Mixed (1 HOT)	**59.9** (21.8)	**F** (C)	**65.6** (20.1)	**F** (C)	**65.3** (20.1)	**F** (C)
Mathilda NB On-Ramp	Merge	3 Mixed (1 HOT)	**59.9** (24.1)	**F** (C)	**65.6** (20.9)	**F** (C)	**65.4** (20.9)	**F** (C)
Mathilda NB On-Ramp to Mathilda SB Off-Ramp[5]	Basic	3 Mixed (1 HOT)	**60.7** (24.1)	**F** (C)	**66.8** (20.9)	**F** (C)	**66.5** (20.9)	**F** (C)
Mathilda SB Off-Ramp[6]	Diverge	3 Mixed (1 HOT)	**59.5** (24.1)	**F** (C)	N/A	N/A	N/A	N/A
Mathilda SB Off-Ramp to SR 237 WB Off-Ramp[6]	Basic	3 Mixed (1 HOT)	**65.0** (20.7)	**F** (C)	N/A	N/A	N/A	N/A
SR 237 WB Off-Ramp	Diverge	3 Mixed (1 HOT)	**66.5** (20.7)	**F** (C)	**70.0** (20.9)	**F** (C)	**69.8** (20.9)	**F** (C)
SR 237 WB Off-Ramp to SR 237 WB On-Ramp	Basic	3 Mixed (1 HOT)	**81.1** (18.1)	**F** (C)	**85.1** (18.4)	**F** (C)	**84.9** (18.3)	**F** (C)
SR 237 WB On-Ramp	Merge	3 Mixed (1 HOT)	**68.4** (22.0)	**F** (C)	**70.7** (24.2)	**F** (C)	**70.5** (24.1)	**F** (C)
SR 237 WB On-Ramp to Ellis	Basic	3 Mixed (1 HOT)	**75.8** (22.0)	**F** (C)	**78.4** (24.2)	**F** (C)	**78.2** (24.1)	**F** (C)

TABLE 5-10: YEAR 2018 US 101 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build Alternative 1		Build Alternative 2	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Southbound[4]								
Ellis On-Ramp to SR 237 EB Off-Ramp	Weave	3 Mixed, 1 AUX (1 HOT)	18.8 (15.2)	C (B)	18.8 (15.2)	C (B)	18.8 (15.2)	C (B)
SR 237 EB Off-Ramp	Diverge	3 Mixed, 1 AUX (1 HOT)	18.8 (15.2)	C (B)	18.8 (15.2)	C (B)	18.8 (15.2)	C (B)
SR 237 EB Off-Ramp to SR 237 EB On-Ramp	Basic	3 Mixed (1 HOT)	17.9 (11.0)	B (A)	18.8 (11.5)	C (B)	18.8 (11.5)	C (B)
SR 237 EB On-Ramp	Merge	3 Mixed, 1 AUX (1 HOT)	16.4 (13)	B (B)	17.1 (13.4)	B (B)	17.1 (13.4)	B (B)
SR 237 EB On-Ramp to Mathilda Off-Ramp	Weave	3 Mixed, 1 AUX (1 HOT)	16.4 (13.0)	B (B)	17.1 (13.4)	B (B)	17.1 (13.4)	B (B)
Mathilda Off-Ramp	Diverge	3 Mixed, 1 AUX (1 HOT)	16.4 (13.0)	B (B)	17.1 (13.4)	B (B)	17.1 (13.4)	B (B)
Mathilda Off-Ramp to Mathilda SB On-Ramp	Basic	3 Mixed (1 HOT)	20.5 (12.3)	C (B)	20.5 (12.3)	C (B)	20.4 (12.3)	C (B)
Mathilda SB On-Ramp	Merge	3 Mixed (1 HOT)	20.9 (12.6)	C (B)	20.9 (12.6)	C (B)	20.9 (12.6)	C (B)
Mathilda NB On-Ramp	Merge	3 Mixed (1 HOT)	22.1 (13.3)	C (B)	22.8 (13.5)	C (B)	22.7 (13.5)	C (B)
Mathilda NB On-Ramp to Fair Oaks SB Off-Ramp	Basic	3 Mixed (1 HOT)	22.1 (13.3)	C (B)	22.7 (13.5)	C (B)	22.7 (13.5)	C (B)
Fair Oaks SB Off-Ramp	Diverge	3 Mixed (1 HOT)	22.1 (13.3)	C (B)	22.7 (13.5)	C (B)	22.7 (13.5)	C (B)
Fair Oaks SB Off-Ramp to Fair Oaks SB On-Ramp	Basic	3 Mixed (1 HOT)	20.8 (12.7)	C (B)	21.1 (12.9)	C (B)	21.1 (12.9)	C (B)
Fair Oaks SB On-Ramp	Merge	3 Mixed, 1 AUX (1 HOT)	16.2 (13.2)	B (B)	16.5 (13.4)	B (B)	16.4 (13.4)	B (B)
Fair Oaks NB Off-Ramp	Diverge	3 Mixed, 1 AUX (1 HOT)	16.2 (13.2)	B (B)	16.5 (13.4)	B (B)	16.4 (13.4)	B (B)

TABLE 5-10: YEAR 2018 US 101 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build Alternative 1		Build Alternative 2	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Fair Oaks NB Off-Ramp to Fair Oaks NB On-Ramp	Basic	3 Mixed (1 HOT)	21.2 (13.0)	C (B)	21.6 (13.3)	C (B)	21.5 (13.2)	C (B)
Fair Oaks NB On-Ramp	Merge	3 Mixed (1 HOT)	23.8 (14.4)	C (B)	24.3 (14.6)	C (B)	24.2 (14.6)	C (B)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The AM peak hour for US 101 Northbound occurs between 7:00am and 8:00am.
4. The AM peak hour for US 101 Southbound occurs between 5:00pm and 6:00pm.
5. Due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue, this freeway segment is assumed to extend from the Mathilda Avenue loop on-ramp to SR 237 westbound off-ramp.
6. These segments do not exist under both Build Alternatives due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue.

Source: Fehr & Peers, 2016.

TABLE 5-11: YEAR 2018 US 101 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Northbound[3]								
Fair Oaks Off-Ramp	Diverge	3 Mixed (1 HOT)	26.2 (11.6)	D (B)	26.2 (11.6)	D (B)	26.2 (11.6)	D (B)
Fair Oaks Off-Ramp to Fair Oaks On-Ramp	Basic	3 Mixed (1 HOT)	21.8 (9.8)	C (A)	21.8 (9.8)	C (A)	21.8 (9.8)	C (A)
Fair Oaks On-Ramp	Merge	3 Mixed (1 HOT)	24.2 (10.3)	C (A)	24.2 (10.3)	C (A)	24.2 (10.3)	C (A)
Fair Oaks On-Ramp to Mathilda NB Off Ramp	Basic	3 Mixed (1 HOT)	24.2 (10.3)	C (A)	24.2 (10.3)	C (A)	24.2 (10.3)	C (A)
Mathilda NB Off-Ramp	Diverge	3 Mixed (1 HOT)	17.8 (10.3)	B (A)	17.8 (10.3)	B (A)	17.8 (10.3)	B (A)
Mathilda NB Off-Ramp to Mathilda NB On-Ramp	Basic	3 Mixed (1 HOT)	23.0 (9.9)	C (A)	19.2 (8.4)	C (A)	19.2 (8.4)	C (A)
Mathilda NB On-Ramp	Merge	3 Mixed (1 HOT)	24.2 (10.1)	C (A)	20.4 (8.8)	C (A)	20.4 (8.8)	C (A)
Mathilda NB On-Ramp to Mathilda SB Off-Ramp[5]	Basic	3 Mixed (1 HOT)	24.2 (10.1)	C (A)	20.4 (8.8)	C (A)	20.4 (8.8)	C (A)
Mathilda SB Off-Ramp[6]	Diverge	3 Mixed (1 HOT)	24.3 (10.1)	C (A)	N/A	N/A	N/A	N/A
Mathilda SB Off-Ramp to SR 237 WB Off-Ramp[6]	Basic	3 Mixed (1 HOT)	20.1 (8.7)	C (A)	N/A	N/A	N/A	N/A
SR 237 WB Off-Ramp	Diverge	3 Mixed (1 HOT)	**18.9*** (8.7)	**F** (A)	**37.8*** (8.8)	**F** (A)	**37.1*** (8.8)	**F** (A)
SR 237 WB Off-Ramp to SR 237 WB On-Ramp	Basic	3 Mixed (1 HOT)	**38.1*** (7.0)	**F** (A)	**64.8** (7.2)	**F** (A)	**63.9** (7.2)	**F** (A)
SR 237 WB On-Ramp	Merge	3 Mixed (1 HOT)	**53.8** (10.4)	**F** (A)	**73.1** (10.5)	**F** (A)	**72.4** (10.5)	**F** (A)
SR 237 WB On-Ramp to Ellis	Basic	3 Mixed (1 HOT)	**72.2** (10.4)	**F** (A)	**92.3** (10.5)	**F** (A)	**91.5** (10.5)	**F** (A)

TABLE 5-11: YEAR 2018 US 101 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Southbound[4]								
Ellis On-Ramp to SR 237 EB Off-Ramp	Weave	3 Mixed, 1 AUX (1 HOT)	**84.5** (24.7)	**F** (C)	**88.0** (24.7)	**F** (C)	**89.1** (24.7)	**F** (C)
SR 237 EB Off-Ramp	Diverge	3 Mixed, 1 AUX (1 HOT)	**71.7** (24.7)	**F** (C)	**75.9** (24.7)	**F** (C)	**77.0** (24.7)	**F** (C)
SR 237 EB Off-Ramp to SR 237 EB On-Ramp	Basic	3 Mixed (1 HOT)	**145.2** (18.0)	**F** (B)	**146.6** (18.3)	**F** (C)	**148.1** (18.3)	**F** (C)
SR 237 EB On-Ramp	Merge	3 Mixed, 1 AUX (1 HOT)	**111.5** (19.5)	**F** (C)	**114.4** (19.9)	**F** (C)	**115.5** (19.9)	**F** (C)
SR 237 EB On-Ramp to Mathilda Off-Ramp	Weave	3 Mixed, 1 AUX (1 HOT)	**115.6** (19.5)	**F** (C)	**118.9** (19.9)	**F** (C)	**120.0** (19.9)	**F** (C)
Mathilda Off-Ramp	Diverge	3 Mixed, 1 AUX (1 HOT)	**111.6** (19.5)	**F** (C)	**114.3** (19.9)	**F** (C)	**115.4** (19.9)	**F** (C)
Mathilda Off-Ramp to Mathilda SB On-Ramp	Basic	3 Mixed (1 HOT)	**143.0** (18.0)	**F** (C)	**145.7** (18.2)	**F** (C)	**147.1** (18.2)	**F** (C)
Mathilda SB On-Ramp	Merge	3 Mixed (1 HOT)	**97.9** (20.7)	**F** (C)	**103.2** (20.7)	**F** (C)	**103.2** (20.8)	**F** (C)
Mathilda NB On-Ramp	Merge	3 Mixed (1 HOT)	**87.9** (21.9)	**F** (C)	**88.0** (22.1)	**F** (C)	**88.4** (22.2)	**F** (C)
Mathilda NB On-Ramp to Fair Oaks SB Off-Ramp	Basic	3 Mixed (1 HOT)	**92.2** (21.9)	**F** (C)	**93.3** (22.1)	**F** (C)	**93.7** (22.2)	**F** (C)
Fair Oaks SB Off-Ramp	Diverge	3 Mixed (1 HOT)	**86.5** (21.9)	**F** (C)	**87.6** (22.1)	**F** (C)	**88.1** (22.2)	**F** (C)
Fair Oaks SB Off-Ramp to Fair Oaks SB On-Ramp	Basic	3 Mixed (1 HOT)	**119.0** (20.3)	**F** (C)	**119.8** (20.6)	**F** (C)	**120.1** (20.7)	**F** (C)
Fair Oaks SB On-Ramp	Merge	3 Mixed, 1 AUX (1 HOT)	**88.7** (21.2)	**F** (C)	**89.4** (21.5)	**F** (C)	**89.6** (21.6)	**F** (C)
Fair Oaks NB Off-Ramp	Diverge	3 Mixed, 1 AUX (1 HOT)	**89.8** (21.2)	**F** (C)	**90.5** (21.5)	**F** (C)	**90.7** (21.6)	**F** (C)

TABLE 5-11: YEAR 2018 US 101 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Fair Oaks NB Off-Ramp to Fair Oaks NB On-Ramp	Basic	3 Mixed (1 HOT)	**116.9** (20.7)	**F** (C)	**117.6** (21.0)	**F** (C)	**118.0** (21.1)	**F** (C)
Fair Oaks NB On-Ramp	Merge	3 Mixed (1 HOT)	**107.2** (21.4)	**F** (C)	**107.9** (21.6)	**F** (C)	**108.2** (21.7)	**F** (C)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The AM peak hour for US 101 Northbound occurs between 7:00am and 8:00am.
4. The AM peak hour for US 101 Southbound occurs between 5:00pm and 6:00pm.
5. Due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue, this freeway segment is assumed to extend from the Mathilda Avenue loop on-ramp to SR 237 westbound off-ramp.
6. These segments do not exist under both Build Alternatives due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue.

Source: Fehr & Peers, 2016.

TABLE 5-12: YEAR 2018 SR 237 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
SR 237 Westbound[3]								
Lawrence On-Ramp to Crossman On-Ramp	Basic	2 Mixed (1 HOT)	41.7 (19.3)	D (C)	54.6 (19.3)	D (C)	52.6 (19.3)	D (C)
Crossman On-Ramp	Merge	2 Mixed (1 HOT)	55.2 (19.3)	D (C)	**62.5** (19.3)	**F** (C)	**61.2** (19.3)	**F** (C)
Crossman On-Ramp to Mathilda Off-Ramp	Basic	2 Mixed (1 HOT)	**65.0** (19.3)	**F** (C)	**71.2** (19.3)	**F** (C)	**70.2** (19.3)	**F** (C)
Mathilda Off-Ramp	Diverge	3 Mixed	**57.1**	**F**	**60.8**	**F**	**60.2**	**F**
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed	**69.7**	**F**	**73.4**	**F**	**72.6**	**F**
Mathilda On-Ramp to US 101 NB Off-Ramp	Weave	2 Mixed/1 AUX	**56.0**	**F**	**56.4**	**F**	**56.4**	**F**
US 101 NB Off-Ramp to US 101 NB On-Ramp	Basic	2 Mixed	18.5	C	18.5	C	18.5	C
US 101 NB On-Ramp	Merge	2 Mixed	23.5	C	23.4	C	23.4	C
Maude Off-Ramp	Diverge	2 Mixed	23.5	C	23.4	C	23.4	C
SR 237 Eastbound[4]								
Maude On-Ramp to US 101 SB Off-Ramp	Weave	2 Mixed/1 AUX	22.0	C	22.0	C	22.0	C
US 101 SB Off-Ramp to US 101 SB On-Ramp	Basic	2 Mixed	22.7	C	22.8	C	22.7	C
US 101 SB On-Ramp	Merge	2 Mixed/1 AUX	28.9	D	23.9	C	23.9	C
US 101 SB On-Ramp to Mathilda Off-Ramp	Basic	2 Mixed/1 AUX	28.9	D	23.9	C	23.9	C
Mathilda Off-Ramp	Diverge	2 Mixed/1 AUX	28.9	D	23.9	C	23.9	C
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed	34.5	D	34.5	D	34.5	D

TABLE 5-12: YEAR 2018 SR 237 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Mathilda On-Ramp	Merge	2 Mixed	23.5	C	24.7	C	24.4	C
Mathilda On-Ramp to Persian Off-Ramp	Basic	2 Mixed (1 HOT)	18.4 (15.5)	C (B)	19.3 (16.4)	C (B)	19.0 (16.1)	C (B)
Persian Off-Ramp to Lawrence	Basic	2 Mixed (1 HOT)	25.7 (15.5)	C (B)	27.4 (16.4)	D (B)	27.0 (16.1)	C (B)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

* Results are preliminary and subject to change pending FREQ model evaluation

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The AM peak hour for SR 237* Westbound occurs between 7:00am and 8:00am.
4. The AM peak hour for SR 237 Eastbound occurs between 8:00am and 9:00am.

Source: Fehr & Peers, 2016.

TABLE 5-13: YEAR 2018 SR 237 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
SR 237 Westbound[3]								
Lawrence On-Ramp to Crossman On-Ramp	Basic	2 Mixed (1 HOT)	29.5 (10)	D (A)	30.4 (10)	D (A)	30.6 (10)	D (A)
Crossman On-Ramp	Merge	2 Mixed (1 HOT)	45.5 (10)	E (A)	46.2 (10)	E (A)	46.5 (10)	E (A)
Crossman On-Ramp to Mathilda Off-Ramp	Basic	2 Mixed (1 HOT)	50.9 (10)	E (A)	51.5 (10)	E (A)	51.7 (10)	E (A)
Mathilda Off-Ramp	Diverge	3 Mixed	47.4	D	48.1	D	48.2	D
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed	**72.7**	**F**	**73.2**	**F**	**73.6**	**F**
Mathilda On-Ramp to US 101 NB Off-Ramp	Weave	2 Mixed/1 AUX	**73.0**	**F**	**73.5**	**F**	**72.7**	**F**
US 101 NB Off-Ramp to US 101 NB On-Ramp	Basic	2 Mixed	19.2	C	19.4	C	19.6	C
US 101 NB On-Ramp	Merge	2 Mixed	25.9	C	26.1	D	26.4	D
Maude Off-Ramp	Diverge	2 Mixed	25.9	C	26.1	D	26.4	D
SR 237 Eastbound[4]								
Maude On-Ramp to US 101 SB Off-Ramp	Weave	2 Mixed, 1 AUX	**81.9**	**F**	**36.8***	**F**	**38.3***	**F**
US 101 SB Off-Ramp to US 101 SB On-Ramp	Basic	2 Mixed	**129.6**	**F**	**88.4**	**F**	**89.9**	**F**
US 101 SB On-Ramp	Merge	2 Mixed, 1 AUX	**75.4**	**F**	**61.0**	**F**	**61.4**	**F**
US 101 SB On-Ramp to Mathilda Off-Ramp	Weave	2 Mixed, 1 AUX	**79.3**	**F**	**68.7**	**F**	**69.1**	**F**
Mathilda Off-Ramp	Diverge	2 Mixed, 1 AUX	**83.3**	**F**	**76.5**	**F**	**76.8**	**F**
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed	**129.4**	**F**	**109.0**	**F**	**109.3**	**F**

TABLE 5-13: YEAR 2018 SR 237 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Mathilda On-Ramp	Merge	2 Mixed	**105.4**	**F**	**88.8**	**F**	**89.0**	**F**
Mathilda On-Ramp to Persian Off-Ramp	Diverge	2 Mixed (1 HOT)	**102.2** (13.1)	**F** (B)	**81.5** (11.3)	**F** (B)	**81.7** (11.3)	**F** (B)
Persian Off-Ramp to Lawrence	Basic	2 Mixed (1 HOT)	**147.5** (13.1)	**F** (B)	**116.3** (11.3)	**F** (B)	**116.5** (11.3)	**F** (B)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The PM peak hour for SR 237 Westbound occurs between 5:00pm and 6:00pm.
4. The PM peak hour for SR 237 Eastbound occurs between 5:00pm and 6:00pm.

Source: Fehr & Peers, 2016.

US 101 Northbound

AM Peak Hour

Under No Build conditions, a bottleneck would develop north of the study area at the SR 85 and Shoreline Boulevard ramps. The bottleneck results in upstream queuing that extends beyond the extents of the study segments. The study segments in queue would operate at LOS F. The northbound HOT lane is anticipated to operate at LOS C/D during the AM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS F) under both Build Alternatives. The northbound HOT lane is anticipated to operate at LOS C/D during the AM peak hour under the Build Alternatives.

PM Peak Hour

During the PM peak hour, a bottleneck would develop north of the study area at the SR 85 and Shoreline Boulevard ramps. This bottleneck exists for No Build and Build conditions. The bottleneck results in upstream queuing that extends to the SR 237 WB off-ramp. The general purpose lanes upstream of this bottleneck generally operate at LOS C/D under No Build conditions. The northbound HOT lane is anticipated to operate at LOS A/B during the PM peak hour.

Additional bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes upstream of this bottleneck are anticipated to operate at the same level of service as No Build (LOS C/D) under both Build Alternatives. The northbound HOT lane is anticipated to operate at LOS A/B during the PM peak hour under the Build Alternatives.

US 101 Southbound

AM Peak Hour

During the AM peak hour, there are no bottlenecks estimated to develop within the study area or spill back into the study area on US 101 southbound. The general purpose lanes operate at LOS B/C throughout the network under No Build conditions. The southbound HOT lane is anticipated to operate at LOS A/B during the AM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS C/D) under both Build Alternatives. The southbound HOT lane is anticipated to operate at LOS B during the AM peak hour under the Build Alternatives. The density on the general purpose lanes increases slightly between the SR 237 on-ramp and the Mathilda Avenue off-ramp due to the shift in traffic from SR 237 eastbound that now remains on US 101 southbound and exits at Mathilda Avenue. This shift in traffic does not adversely affect the results of the freeway density and LOS results.

PM Peak Hour

Under No Build conditions, a bottleneck would develop south of the study area at the De La Cruz Boulevard and SR 87 ramps. The bottleneck results in upstream queuing that extends beyond the extents of the study segments. The study segments in queue would operate at LOS F. The southbound HOT lane is anticipated to operate at LOS C during the PM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS F) under both Build Alternatives. The southbound HOT lane is anticipated to operate at LOS C during the PM peak hour under the Build Alternatives. The density on the general purpose lanes increases slightly between the SR 237 on-ramp and the Mathilda Avenue off-ramp due to the shift in traffic from SR 237 eastbound that now remains on US 101 southbound and exits at Mathilda Avenue. This shift in traffic does not adversely affect the results of the freeway density and LOS results.

SR 237 Westbound

AM Peak Hour

Under No Build conditions, a bottleneck would develop at the US 101 northbound off-ramp and spill back to east of the Mathilda Avenue off-ramp. The study segments in queue would operate at LOS F and are anticipated to operate at LOS C downstream of the US 101 Northbound off-ramp. The westbound HOT lane, which begins prior to the start of the study network and ends between the Mathilda Avenue and Fair Oaks Avenue ramps, is anticipated to operate at LOS C.

Additional bottlenecks are not anticipated to develop under the Build Alternatives. However, the No Build bottleneck that extends from US 101 northbound off-ramp to east of the Mathilda Avenue off-ramp is anticipated to extend slightly further to the Fair Oaks Avenue on-ramp under the Build Alternatives. Due to the local street improvements, more vehicles are able to access the on-ramp at Mathilda Avenue, therefore adding additional vehicles to the on-ramp. The general purpose lanes west of the bottleneck are anticipated to operate at the same level of service as No Build (LOS C) under both Build Alternatives. The westbound HOT lane is anticipated to operate at LOS C during the AM peak hour under the Build Alternatives.

PM Peak Hour

Under No Build conditions there are two bottlenecks that occur. The first bottleneck would develop at the US 101 northbound off-ramp with minimum spill back to within the Mathilda Avenue interchange. The congested study segments in queue would operate at LOS F and alleviate to LOS D. The second bottleneck would develop at the Mathilda Avenue off-ramp and spill back to west of the Lawrence Expressway on-ramp. The congested study segments in queue would operate at LOS E/F and improve to LOS D west of the Lawrence Expressway on-ramp. West of the Mathilda Avenue off-ramp the freeway segments operate at LOS C/D. The westbound HOT lane, which begins prior to the start of the study network and ends between the Mathilda Avenue and Fair Oaks Avenue ramps, is anticipated to operate at LOS A during the PM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build under both Build Alternatives. The general purpose lanes west of the US 101 interchange are anticipated to worsen from LOS C to LOS D, however, the change in density is 0.2 vehicles per hour per lane and is not anticipated to adversely affect freeway operations. The westbound HOT lane is anticipated to operate at LOS A during the PM peak hour under the Build Alternatives.

SR 237 Eastbound

AM Peak Hour

During the AM peak hour, there are no bottlenecks estimated to develop within the study area or spill back into the study area on SR 237 eastbound. The general purpose lanes operate at LOS C/D throughout the network under No Build conditions. The eastbound HOT lane, which starts at the Mathilda Avenue on-ramp, is anticipated to operate at LOS B during the AM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS C/D) under both Build Alternatives. The eastbound HOT lane is anticipated to operate at LOS B during the AM peak hour under the Build Alternatives. The density on the general purpose lanes decreases slightly between the US 101 on-ramp and the Mathilda Avenue off-ramp due to the shift in traffic from SR 237 eastbound to US 101 southbound and exits at Mathilda Avenue. There is also a slight increase in density east of the Mathilda Avenue on-ramp. Due to the increase in demand served along Mathilda Avenue, more vehicles are able to access the freeway on-ramp and an additional number of vehicles are estimated to enter the freeway under Build Conditions. This shift in traffic does not adversely affect the results of the freeway density and LOS results.

PM Peak Hour

Under No Build conditions, a bottleneck would develop east of the study area that most likely is due to the queue spillback from the I-880 ramps. The bottleneck results in upstream queuing that extends beyond the extents of the study segments. The study segments in queue would operate at LOS F. The southbound HOT lane is anticipated to operate at LOS B during the PM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS F) but at a lower density under both Build Alternatives. The significantly lower density under both Build Alternatives is due to the full access interchange at Mathilda Avenue and US 101. Vehicles traveling southbound on US 101 are able to remain on US 101 to access northbound Mathilda Avenue under both Build Alternatives instead of getting on SR 237 eastbound in order to access northbound Mathilda Avenue. The eastbound HOT lane is anticipated to operate at LOS B during the PM peak hour under the Build Alternatives.

FREEWAY SYSTEM PERFORMANCE

Year 2018 peak hour system-wide MOEs for the US 101 and SR 237 study corridors are presented in **Table 5-14** and **Table 5-15** for the peak hour and peak period, respectively. These MOEs reflect the overall US 101 operations between the Fair Oaks Avenue and the Ellis Street interchanges and SR 237 operations between the Fair Oaks Avenue and Maude Avenue interchanges. MOEs including average travel time and average speed are the most informative as they relate directly to the traveler experience on US 101 and SR 237 through the corridor. Detailed analysis worksheets are presented in **Appendix M**.

With the implementation of a full-access interchange at US 101 and Mathilda Avenue, there is a shift in some vehicular traffic from SR 237 to US 101. This results in a decrease in travel time, delay, and maximum individual delay along SR 237 eastbound in both the AM and PM peak hours. Consequently, the US 101 southbound segments see a slight increase in travel time, delay, and maximum delay. Due to the nature of the project, local street demand served will increase with the project and will put more traffic on the ramps as a result. The increase in on-ramp volume produces some additional delay along the SR 237 westbound network in the AM peak hour as see in **Table 5-14** and **Table 5-15**.

The US 101 northbound results indicate an increase in travel time and mainline vehicle delay with both Build Alternatives. This increase is due to the increase in demand served at the Mathilda Avenue / US 101 northbound ramp terminal intersection. Under the No Build Alternative, congestion along Mathilda Avenue prevents vehicles from accessing the US 101 northbound on-ramp. However, with both Build Alternatives, more of the demand volume on Mathilda Avenue is able to access the on-ramp, resulting in additional traffic entering US 101 in the northbound direction.

TABLE 5-14: YEAR 2018 PEAK HOUR MEASURES OF EFFECTIVENESS

Scenario	Measure of Effectiveness	Peak Hour	No Build Conditions	Build 1 Alternative		Build 2 Alternative	
				Results	% Change	Results	% Change
US 101 Northbound	Vehicle Miles of Travel (vehicle-miles)	AM	11,740	11,470	-2.4%	11,480	-2.3%
		PM	9,770	9,480	-3.1%	9,480	-3.1%
	Average Travel Time (min:sec)	AM	6:27	7:06	9.2%	7:04	8.7%
		PM	3:50	4:58	22.8%	4:56	22.3%
	Average Travel Speed (mph)	AM	20.1	18.2	-10.4%	18.3	-9.8%
		PM	33.8	26.1	-29.5%	26.3	-28.5%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	292	323	9.6%	323	9.6%
		PM	102	159	35.8%	158	35.4%
US 101 Southbound	Vehicle Miles of Travel (vehicle-miles)	AM	10,740	10,940	1.8%	10,920	1.6%
		PM	13,920	13,890	-0.2%	13,870	-0.4%
	Average Travel Time (min:sec)	AM	1:57	1:57	0.0%	1:57	0.0%
		PM	8:11	8:22	2.2%	8:28	3.3%
	Average Travel Speed (mph)	AM	64.7	64.7	0.0%	64.7	0.0%
		PM	15.4	15.1	-2.0%	14.9	-3.4%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	1	1	0.0%	1	0.0%
		PM	536	548	2.2%	555	3.4%
SR 237 Westbound	Vehicle Miles of Travel (vehicle-miles)	AM	11,470	11,360	-1.0%	11,370	-0.9%
		PM	8,330	8,340	0.1%	8,370	0.5%
	Average Travel Time (min:sec)	AM	3:30	3:51	9.1%	3:48	7.9%
		PM	3:36	3:38	0.9%	3:38	0.9%
	Average Travel Speed (mph)	AM	38.3	34.9	-9.7%	35.3	-8.5%
		PM	37.3	36.9	-1.1%	36.9	-1.1%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	60	70	14.3%	70	14.3%
		PM	50	50	0.0%	50	0.0%
SR 237 Eastbound	Vehicle Miles of Travel (vehicle-miles)	AM	9,210	9,340	1.5%	9,280	0.9%
		PM	7,780	8,890	12.5%	8,880	12.4%
	Average Travel Time (min:sec)	AM	2:16	2:14	-1.5%	2:13	-2.3%
		PM	13:32	9:13	-46.8%	9:14	-46.6%
	Average Travel Speed (mph)	AM	59.1	60.0	1.5%	60.4	2.2%
		PM	9.9	14.5	31.7%	14.5	31.7%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	147	11	-24.8%	11	-30.6%
		PM	513	384	-33.7%	384	-33.7%

Notes:

1. US 101 Northbound AM and PM peak hour is between 7:00AM and 8:00AM and 5:00PM to 6:00PM, respectively.
2. US 101 Southbound AM and PM peak hour is between 7:00AM and 8:00AM and 5:00PM to 6:00PM, respectively.
3. SR 237 Westbound AM and PM peak hour is between 7:00AM and 8:00AM and 5:00PM to 6:00PM, respectively.
4. SR 237 Eastbound AM and PM peak hour is between 8:00AM and 9:00AM and 5:00PM to 6:00PM, respectively.

Source: Fehr & Peers, 2016.

TABLE 5-15: YEAR 2018 PEAK PERIOD MEASURES OF EFFECTIVENESS

Scenario	Measure of Effectiveness	Peak Hour	No Build Conditions	Build 1 Alternative		Build 2 Alternative	
				Results	% Change	Results	% Change
US 101 Northbound	Vehicle Miles of Travel (vehicle-miles)	AM	25,070	24,530	-2.2%	24,570	-2.0%
		PM	30,250	29,860	-1.3%	29,830	-1.4%
	Average Travel Time (min:sec)	AM	6:37	7:20	9.8%	7:18	9.4%
		PM	3:40	4:54	25.2%	4:51	24.4%
	Average Travel Speed (mph)	AM	19.6	17.7	-10.7%	17.7	-10.7%
		PM	35.3	26.4	-33.7%	26.7	-32.2%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	672	763	11.9%	763	11.9%
		PM	314	527	40.4%	517	39.3%
	Maximum Individual Vehicle Delay (min:sec)	AM	4:48	5:36	14.3%	5:32	13.3%
		PM	3:10	5:45	44.9%	5:36	43.5%
US 101 Southbound	Vehicle Miles of Travel (vehicle-miles)	AM	24,090	24,590	2.0%	24,520	1.8%
		PM	36,350	36,330	-0.1%	36,280	-0.2%
	Average Travel Time (min:sec)	AM	2:02	2:03	0.8%	2:03	0.8%
		PM	9:10	9:17	1.3%	9:24	2.5%
	Average Travel Speed (mph)	AM	62.0	61.5	-0.8%	61.5	-0.8%
		PM	13.8	13.6	-1.5%	13.4	-3.0%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	17	21	19.0%	19	10.5%
		PM	1569	1595	1.6%	1611	2.6%
	Maximum Individual Vehicle Delay (min:sec)	AM	0:10	0:13	23.1%	0:12	16.7%
		PM	8:08	8:16	1.6%	8:16	1.6%
SR 237 Westbound	Vehicle Miles of Travel (vehicle-miles)	AM	19,800	19,600	-1.0%	19,640	-0.8%
		PM	25,210	25,240	0.1%	25,330	0.5%
	Average Travel Time (min:sec)	AM	3:46	4:02	6.6%	3:60	5.8%
		PM	2:53	2:54	0.6%	2:54	0.6%
	Average Travel Speed (mph)	AM	35.6	33.3	-6.9%	33.6	-6.0%
		PM	46.5	46.3	-0.4%	46.3	-0.4%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	220	240	8.3%	240	8.3%
		PM	142	152	6.6%	152	6.6%
	Maximum Individual Vehicle Delay (min:sec)	AM	1:58	2:08	7.8%	2:08	7.8%
		PM	1:32	1:34	2.1%	1:35	3.2%
SR 237 Eastbound	Vehicle Miles of Travel (vehicle-miles)	AM	16,200	16,400	1.3%	16,310	0.7%
		PM	19,740	21,020	6.1%	21,020	6.1%
	Average Travel Time (min:sec)	AM	2:13	2:12	-0.8%	2:12	-0.8%
		PM	9:32	8:04	-18.2%	8:04	-18.2%
	Average Travel Speed (mph)	AM	60.4	60.9	0.8%	60.9	0.8%
		PM	14.1	16.6	15.1%	16.6	15.1%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	20	17	-16.3%	16	-20.6%
		PM	1124	751	-49.5%	757	-48.3%
	Maximum Individual Vehicle Delay (min:sec)	AM	0:13	0:10	-20.0%	0:10	-20.0%
		PM	11:28	7:10	-60.0%	7:10	-60.0%

Source: Fehr & Peers, 2016.

MAINLINE WEAVING ANALYSIS

Per Caltrans' requirements, **Table 5-16** summarizes the Year 2018 Leisch Method AM and PM peak hour mainline weaving analysis at the US 101/Mathilda Avenue and SR 237/Mathilda Avenue interchanges. The Leisch Method analysis was applied for the constrained mainline and ramp volumes as determined by the FREQ models. The Leisch Method has a limitation of 3,600 passenger cars per hour for weaving volumes and a weaving length of 6,000 feet. There are no segments that are outside of the provided parameters.

The SR 237 eastbound weaving section improves from an LOS F to LOS E in the AM peak hour under both Build Alternatives. In addition, the SR 237 westbound weaving section improves from an LOS F to an LOS E in the PM peak hour while the US 101 southbound weaving section decreases from an LOS D to LOS E in the PM peak hour with the given shift in traffic due to the full access interchange at US 101/Mathilda Avenue. **Appendix N** provides the Leisch analysis worksheets. These results differ from the FREQ results presented earlier due to the following reasons:

- Leisch Method uses default mainline capacities while the FREQ models use calibrated capacities to reflect observed conditions;
- Leisch Method evaluates mainline segments in isolation where bottlenecks and mainline queuing do not impact downstream or upstream traffic. FREQ models consider the effects of the bottlenecks and mainline queuing on the entire mainline system.

TABLE 5-16: YEAR 2018 PEAK HOUR WEAVING ANALYSIS BASED ON LEISCH METHOD

Freeway	Location	Direction	Number of Lanes	No Build	Build 1	Build 2
AM						
US 101	SR 237 EB on-ramp to Mathilda Avenue off-ramp	SB	1 HOT 3 Mainline 1 Aux Lane	C	D	D
SR 237	Mathilda Avenue on-ramp to US 101 NB off-ramp	WB	2 Mainline 1 Aux Lane	D	D	D
	US 101 SB on-ramp to Mathilda Avenue off-ramp	EB	2 Mainline 1 Aux Lane	**F**	E	E
PM						
US 101	SR 237 EB on-ramp to Mathilda Avenue off-ramp	SB	1 HOT 3 Mainline 1 Aux Lane	D	E	E
SR 237	Mathilda Avenue on-ramp to US 101 NB off-ramp	WB	2 Mainline 1 Aux Lane	**F**	E	E
	US 101 SB on-ramp to Mathilda Avenue off-ramp	EB	2 Mainline 1 Aux Lane	D	D	D

Notes: **Bold** indicates weaving section operates at LOS F under un-congested conditions.
Source: Fehr & Peers, 2016.

6. YEAR 2040 TRAFFIC OPERATIONS ANALYSIS

This chapter presents the results of the traffic operations analysis for year 2040. The operations analysis for year 2040 focuses on intersection and freeway operations for No Build and Build conditions.

YEAR 2040 ROADWAY NETWORK ASSUMPTIONS

The local roadway network assumptions for Year 2040 No Build and Build Alternative scenarios are the same as those made for Year 2018 except for the following:

- *Mary Avenue Extension – extended as a 4-lane street to E Street on the north side of SR 237:* Mary Avenue, currently located west of Mathilda Avenue and south of US 101, is assumed to extend over the SR 237 and US 101 freeways and connect to E Street and 11th Avenue north of SR 237.

CONSTRAINED VOLUME ANALYSIS APPROACH

The same approach used to develop constrained volumes for Year 2018 was used to develop constrained volumes for Year 2040.

YEAR 2040 INTERSECTION OPERATIONS

Year 2040 intersection traffic operations were evaluated using the calibrated/validated SimTraffic models developed for Existing Conditions. The simulation models were executed for the peak hour with a 30-minute seeding period. The following constrained volume factors were applied to the off-ramp demand volumes to account for congestion along US 101 and SR 237 (consistent with the three-step modeling approach described above):

- Westbound SR 237 off-ramp to Mathilda Avenue = 0.79 during the AM peak hour and 0.84 during the PM peak hour;
- Eastbound SR 237 off-ramp to Mathilda Avenue = 0.90 during the AM peak hour and 0.83 during the PM peak hour;
- Northbound US 101 off-ramp to Mathilda Avenue = 0.84 during the AM peak hour and 0.84 during the PM peak hour;
- Southbound US 101 off-ramp to Mathilda Avenue = 0.85 during the AM peak hour and 0.65 during the PM peak hour.

INTERSECTION DELAY, LOS, AND PERCENT DEMAND SERVED

Table 6-1 presents the Year 2040 simulated intersection level of service results and percent demand served for each of the study intersections under No Build and Build Alternatives. Queuing results are included in

the following section. Intersection LOS results in **bold** indicate locations operating at LOS F conditions. Analysis results worksheets are presented in **Appendix O**.[6]

No Build Conditions

As shown in **Table 6-1** the majority of study intersections are anticipated to operate at LOS F during the AM and/or PM peak hour under No Build conditions in Year 2040. The percent demand served is on average 80 percent and 70 percent during the AM and PM peak hours, respectively. The low percent demand served is indicative of the projected traffic demand exceeding the capacity of the roadway system. The total vehicle hours of delay are estimated to be 2,989 in the AM peak hour and 3,830 in the PM peak hour.

Build 1 Alternative

Below is a brief summary of the operations at the study locations under Build 1 Alternative in Year 2040 and how they compare to No Build conditions.

- *Mathilda Avenue/Fifth Avenue* – Intersection level of service is anticipated to remain unchanged (LOS C during the AM peak hour and LOS F during the PM peak hour). The overall intersection delay is estimated to decrease slightly for the AM and PM peak hours. The percent demand served is anticipated to increase from 78 percent to 85 percent in the AM peak hour and increase from about 63 percent to 67 percent in the PM peak hour.
- *Mathilda Avenue/Innovation Way* – Intersection level of service is anticipated to remain unchanged (LOS F during the AM and PM peak hours). The overall intersection delay would also remain relatively unchanged (less than a 5 percent change) for the PM peak hour and decrease by approximately 30 second in the AM peak hour. The percent demand served is anticipated to increase from 67 percent to 79 percent in the AM peak hour and decrease from about 59 percent to 57 percent in the PM peak hour. The slight decrease in PM percent demand served is due to additional traffic that will travel through this intersection due to the closure of Moffett Park Drive between Mathilda Avenue and Bordeaux Drive.
- *Mathilda Avenue/Moffett Park Drive/SR 237 Westbound Ramps* – Intersection level of service is anticipated to remain unchanged (LOS F in the AM and PM peak hours). Although the intersection would continue to operate at LOS F under Build 1 Alternative, the overall intersection delay would be reduced by over 215 seconds in the AM peak hour and over 75 seconds in the PM peak hours compared to No Build conditions. The reduction in peak hour delay is a result of eliminating the westbound Moffett Park Drive approach which reduces the number of signal phases at this location. The percent demand served is anticipated to increase from 64 percent to 80 percent in the AM peak hour and decrease slightly from about 65 percent to 63 percent in the PM peak hour.
- *Mathilda Avenue/ SR 237 Eastbound Ramps* – Intersection level of service is anticipated to remain unchanged at LOS F in the AM peak hour and decrease from LOS C to LOS D in the PM peak hour. The PM peak hour conditions worsen under the Build 1 Alternative due to a higher southbound left-turn/northbound through volume conflict that increases the southbound left-

[6] Please note that Synchro and SimTraffic worksheets are provided for the study intersections in **Appendix O** for informational purposes to present key modeling inputs including lanes, volumes, and signal timings. The results presented in **Table 5-2** are from SimTraffic analysis output.

turn movement delay. The volume arriving on the northbound approach is over 110 vehicles greater under the Build 1 Alternative than No Build conditions. The percent demand served is anticipated to increase from 60 percent to 77 percent in the AM peak hour and remain the same at 68 percent in the PM peak hour.

- *Mathilda Avenue/ Ross Drive* – Intersection level of service is anticipated to improve from LOS F to LOS E in the AM peak hour and remain unchanged at LOS F during the PM peak hour. Although the intersection would continue to operate at LOS F under Build 1 Alternative in the PM peak hour, the overall intersection delay would be reduced by over 50 seconds. The percent demand served is anticipated to increase from 55 percent to 80 percent in the AM peak hour and from 67 percent to 71 percent in the PM peak hour.
- *Mathilda Avenue/ US 101 Northbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS F during the AM and PM peak hour. The percent demand served is estimated at 81 percent during the AM peak hour and 74 percent during the PM peak hour.
- *Mathilda Avenue/ US 101 Southbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS D during the AM peak hour and LOS C during the PM peak hour. The percent demand served is estimated at 80 percent during the AM peak hour and 78 percent during the PM peak hour.
- *Mathilda Avenue/ Almanor Avenue-Ahwanee Avenue* – Intersection level of service is anticipated to remain unchanged (LOS F) during the AM peak hour and improve from LOS F to LOS E in the PM peak hour. Although the intersection would continue to operate at LOS F during the AM peak hour under Build 1 Alternative the percent demand served is anticipated to increase from 62 percent to 79 percent in the AM peak hour and from 68 percent to 84 percent in the PM peak hour.
- *US 101 Northbound On-Ramp/Moffett Park Drive* – Intersection level of service is anticipated to remain unchanged (LOS A) during the AM peak hour and decrease from LOS E to LOS F in the PM peak hour. The delay in the PM peak hour is estimated to increase by 20 seconds under the Build 1 Alternative. The various improvements along Mathilda Avenue as part of this project allow additional northbound and southbound traffic through the Mathilda Avenue corridor, but results in secondary congestion along eastbound Moffett Park Drive limiting the amount of traffic able to be served at Mathilda Avenue. The percent demand served is anticipated to increase from 75 percent to 86 percent in the AM peak hour and remain unchanged at 61 percent in the PM peak hour.
- *Innovation Way/Moffett Park Drive* – Intersection level of service is anticipated to increase from LOS B to LOS C during the AM peak hour and remain unchanged during the PM peak hour (LOS F). The percent demand served is anticipated to increase from 74 percent to 84 percent in the AM peak hour and remain unchanged at 60 percent in the PM peak hour.
- *Innovation Way/Eleventh Avenue* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 40 percent compared to No Build conditions (see **Appendix O**). The percent demand served is anticipated to increase from 76 percent to 85 percent in the AM peak hour and slightly decrease from 59 percent to 58 percent in the PM peak hour.
- *Innovation Way/Juniper Networks Driveway* – Intersection level of service is anticipated to remain unchanged (LOS D) during the AM peak hour and during the PM peak hour (LOS F). Although the

intersection would continue to operate at LOS F during the PM peak hour under Build 1 Alternative the overall intersection delay would be reduced by over 24 percent compared to No Build conditions (see **Appendix O**). The percent demand served is anticipated to increase from 70 percent to 85 percent in the AM peak hour and from 50 percent to 52 percent in the PM peak hour.

- *Bordeaux Drive/Innovation Way* – Intersection level of service is anticipated to worsen from LOS A to LOS F during the AM and PM peak hours. The proposed project design would result in an increase over 260 and 190 percent in traffic volume at this location during the AM and PM peak hour, respectively. The percent demand served is anticipated to decrease from 100 percent to 75 percent in the AM peak hour and from 65 percent to 39 percent in the PM peak hour.

The Build 1 Alternative would improve traffic conditions at most of the study locations but also worsen some of the study locations for at least one peak hour. During the AM peak hour the total vehicle hours of delay would be reduced from 2,989 to 1,948 (35 percent reduction) and from 3,830 to 3,130 (18 percent reduction) during the PM peak hour. The reduction in overall vehicle hours of delay for the AM and PM peak hour indicates the Build 1 Alternative would provide an overall benefit to the traffic operations in the study area compared to No Build conditions.

Build 2 Alternative

Below is a brief summary of the operations at the study locations under Build 2 Alternative in Year 2040 and how they compare to No Build conditions.

- *Mathilda Avenue/Fifth Avenue* – Intersection level of service is anticipated to remain unchanged (LOS C during the AM peak hour and LOS F during the PM peak hour). The overall intersection delay would decrease by roughly 13 seconds in the AM peak hour and improve delay by 80 percent in the PM peak hour. The percent demand served is anticipated to increase from 78 percent to 84 percent in the AM peak hour and increase from about 63 percent to 70 percent in the PM peak hour.
- *Mathilda Avenue/Innovation Way* – Intersection level of service is anticipated to remain unchanged during the AM and PM peak hours (LOS F). The overall intersection delay would decrease 10 to 20 seconds of delay in the peak hours. The PM peak hour delay decreases by approximately 10 seconds due to the additional capacity provided by the DDI traveling southbound on Mathilda Avenue. The percent demand served is anticipated to increase from 67 percent to 77 percent in the AM peak hour and decrease slightly from about 59 percent to 56 percent in the PM peak hour. Queuing analysis results for this intersection are discussed in the following section.
- *Mathilda Avenue/Moffett Park Drive/SR 237 Westbound Ramps* – Intersection level of service is anticipated to remain unchanged at LOS F in the AM and PM peak hours. The overall intersection delay would decrease by approximately 80 percent in the AM and PM peak hours. The improvements in the peak hours is a result of the efficient signal timing as a results of the DDI and the closure of Moffett Park Drive to Mathilda Avenue. The percent demand served is anticipated to increase from 63 percent to 74 percent in the AM peak hour and increase from about 65 percent to 74 percent in the PM peak hour.

- *Mathilda Avenue/ SR 237 Eastbound Ramps* – Intersection level of service is anticipated to remain unchanged at LOS F during the AM peak hour and LOS C during the PM peak hour. The delay in the AM peak hour decreases by approximately 45 percent and the PM peak hour delay remains approximately the same. The percent demand served is anticipated to increase from 60 percent to 74 percent in the AM peak hour and from 68 percent to 72 percent in the PM peak hour.
- *Mathilda Avenue/ Ross Drive* – Intersection level of service is anticipated to remain at LOS F in the AM and PM peak hours. The delay in the AM peak hour is expected to decrease by over 60 percent. The percent demand served is anticipated to increase from 55 percent to 72 percent in the AM peak hour and from 67 percent to 72 percent in the PM peak hour.
- *Mathilda Avenue/ US 101 Northbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS F during the AM and PM peak hours. The percent demand served is estimated at 75 percent during the AM peak hour and 74 percent during the PM peak hour.
- *Mathilda Avenue/ US 101 Southbound Ramps (Build Conditions)* – This intersection is anticipated to operate at LOS E during the AM and PM peak hours. The percent demand served is estimated at 73 percent during the AM peak hour and 76 percent during the PM peak hour.
- *Mathilda Avenue/ Almanor Avenue-Ahwanee Avenue* – Intersection level of service is anticipated to remain unchanged (LOS F) during the AM and PM peak hours. Although the intersection would continue to operate at LOS F during the AM peak hour under Build 2 Alternative the overall intersection delay would be reduced by approximately 4 percent of delay compared to No Build conditions in the AM peak hour and over 50 percent in the PM peak hour (see **Appendix O**). The percent demand served is anticipated to increase from 62 percent to 72 percent in the AM peak hour and from 68 percent to 79 percent in the PM peak hour.
- *US 101 Northbound On-Ramp/Moffett Park Drive* – Intersection level of service is anticipated to remain unchanged at LOS B during the AM peak hour and LOS F in the PM peak hour as a result of congestion along Innovation Way. The percent demand served is anticipated to increase from 75 percent to 81 percent in the AM peak hour and decrease from 61 percent to 53 percent in the PM peak hour.
- *Innovation Way/Moffett Park Drive* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). The percent demand served is anticipated to increase from 74 percent to 79 percent in the AM peak hour and decrease from 61 percent to 53 percent in the PM peak hour.
- *Innovation Way/Eleventh Avenue* – Intersection level of service is anticipated to remain unchanged (LOS B) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 2 Alternative the overall intersection delay would be reduced by over 45 percent compared to No Build conditions. The percent demand served is anticipated to increase from 76 percent to 82 percent in the AM peak hour and decrease from 59 percent to 54 percent in the PM peak hour.
- *Innovation Way/Juniper Networks Driveway* – Intersection level of service is anticipated to remain unchanged (LOS D) during the AM peak hour and during the PM peak hour (LOS F). Although the intersection would continue to operate at LOS F during the PM peak hour under Build 2 Alternative the overall intersection delay would be reduced by roughly 50 percent compared to No Build conditions (see **Appendix O**). The Build 2 Alternative would result in an increase of over 160 percent in traffic volume at this location during the PM peak hour. The percent demand served is anticipated to increase from 70 percent to 79 percent in the AM peak hour and decrease from 50 percent to 42 percent in the PM peak hour.

- *Bordeaux Drive/Innovation Way* – Intersection level of service is anticipated to worsen from LOS A to LOS F during the AM and PM peak hours. The proposed project design would result in an increase of over 260 and 190 percent in traffic volume at this location during the AM and PM peak hour, respectively. However the demand at this intersection is less than a fourth of the volume along Mathilda Avenue. The percent demand served is anticipated to decrease from 100 percent to 73 percent in the AM peak hour and from 65 percent to 42 percent in the PM peak hour.

The Build 2 Alternative would improve traffic conditions at most of the study locations but also worsen some of the study locations for at least one peak hour. During the AM peak hour the total vehicle hours of delay would be reduced from 2,989 to 2,582 (14 percent reduction) and from 3,830 to 3,262 (15 percent reduction) during the PM peak hour. The reduction in overall vehicle hours of delay for the AM and PM peak hour indicates the Build 2 Alternative would provide an overall benefit to the traffic operations in the study area compared to No Build conditions.

TABLE 6-1: YEAR 2040 PEAK HOUR INTERSECTION ANALYSIS[1]

	Intersection	Peak Hour[2]	No Build			Build 1 Alternative			Build 2 Alternative		
			Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]
1	Mathilda Avenue / Fifth Avenue[6]	AM	33.5	C	77.7	25.3	C	84.9	20.7	C	84.0
		PM	**>300**	**F**	**63.3**	**>300**	**F**	**66.9**	**117.9**	**F**	**69.5**
2	Mathilda Avenue / Innovation Way[6]	AM	**116.9**	**F**	**67.2**	**88.9**	**F**	**79.2**	**90.0**	**F**	**76.6**
		PM	**222.0**	**F**	**59.0**	**220.9**	**F**	**56.8**	**209.0**	**F**	**55.9**
3	Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	AM	**>300**	**F**	**63.3**	**81.4**	**F**	**79.7**	**188.4**	**F**	**74.3**
		PM	**>300**	**F**	**65.0**	**221.4**	**F**	**62.5**	**94.4**	**F**	**73.8**
4	Mathilda Avenue / SR 237 Eastbound Ramps	AM	**257.7**	**F**	**59.7**	**142.3**	**F**	**76.9**	**133.0**	**F**	**73.8**
		PM	25.0	C	67.6	46.5	D	68.4	28.6	C	71.6
5	Mathilda Avenue / Ross Drive	AM	**>300**	**F**	**55.3**	76.0	E	80.6	**149.8**	**F**	**72.4**
		PM	**200.0**	**F**	**67.1**	**148.3**	**F**	**71.2**	**149.0**	**F**	**71.8**
6	Mathilda Avenue / US 101 Northbound Ramps (Build)	AM	N/A	N/A	N/A	**87.9**	**F**	**81.1**	**95.6**	**F**	**75.3**
		PM				**112.6**	**F**	**74.1**	**127.7**	**F**	**74.1**
7	Mathilda Avenue / US 101 Southbound Ramps (Build)	AM	N/A	N/A	N/A	42.0	D	79.6	61.1	E	73.2
		PM				29.0	C	78.3	66.5	E	75.5
8	Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	AM	**>300**	**F**	**62.3**	**>300**	**F**	**78.6**	**>300**	**F**	**72.1**
		PM	**>300**	**F**	**67.9**	71.5	E	83.9	**219.4**	**F**	**79.0**
9	US 101 Northbound On-Ramp / Moffett Park Drive	AM	3.4	A	75.2	4.9	A	85.5	3.7	A	81.1
		PM	64.3	E	61.4	**85.4**	**F**	**61.1**	**122.3**	**F**	**53.4**
10	Innovation Way / Moffett Park Drive[6]	AM	14.2	B	73.6	24.8	C	83.6	19.8	B	79.0
		PM	**245.4**	**F**	**60.8**	**273.7**	**F**	**59.2**	**262.4**	**F**	**53.4**
11	Innovation Way / Eleventh Avenue	AM	10.4	B	75.6	10.9	B	85.1	10.8	B	82.4
		PM	**>300**	**F**	**59.2**	**>300**	**F**	**57.7**	**294.5**	**F**	**54.4**
12	Innovation Way / Juniper Networks Driveway	AM	34.2	D	69.7	31.4	D	84.5	53.4	D	78.8
		PM	**>300**	**F**	**50.3**	**>300**	**F**	**52.0**	**>300**	**F**	**41.8**
13	Bordeaux Drive / Innovation Way (future)	AM	4.7	A	100.0	**130.2**	**F**	**75.5**	**>300**	**F**	**72.9**
		PM	7.1	A	**65.0**	**>300**	**F**	**39.3**	**>300**	**F**	**41.7**
Total Vehicle Hours of Delay (hours)		AM		2,989			1,948			2,582	
		PM		3,830			3,130			3,262	

TABLE 6-1: YEAR 2040 PEAK HOUR INTERSECTION ANALYSIS[1]

Intersection	Peak Hour[2]	No Build			Build 1 Alternative			Build 2 Alternative		
		Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]	Delay[3]	LOS[4]	% Demand Served[5]
Network-wide Percent Demand Served	AM		79.9%			88.3%			83.5%	
	PM		70.6%			77.8%			76.2%	

Notes: Results in **bold** represent unacceptable levels of service, N/A=not applicable.

1. Results based on SimTraffic simulation of five runs.
2. AM – morning peak hour, PM – evening peak hour
3. Average control delay calculated using the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2010) methodology and Synchro/SimTraffic 8.0 analysis software. For signalized and all-way stop-controlled intersections, average control delay is for the intersection, as a whole.
4. For signalized and all-way stop-controlled intersections the LOS for the intersection as a whole is presented.
5. Modeled traffic volume expressed as a ratio of **demand** traffic volume. For example: 100% indicates all demand is served.
6. These intersections are coordinated with a light rail crossing. Under Year 2040, the headway in each direction is assumed to increase from 15 minutes to 12 minutes in each direction based on the light-rail efficiency project currently underway. In addition, the route from Mountain View to East San Jose is assumed complete and operates with 15 minute headways.

Source: Fehr & Peers, 2016.

INTERSECTION 95TH PERCENTILE QUEUES

No Build 95th Percentile Queues

Table 6-2 presents the 2040 No Build peak hour 95th percentile queuing analysis results. Analysis results worksheets are presented in **Appendix O**. The projected traffic demand in 2040 is anticipated to far exceed the available roadway capacity. As a result, vehicle queues will exceed available storage at most study locations and queues from one intersection will impact operations at adjacent intersections. During the AM peak hour, northbound Mathilda vehicle queues are expected to extend south past San Aleso Avenue. Due to morning congestion on northbound Mathilda Avenue, particularly at the Ross Drive intersection, the US 101 northbound diagonal off-ramp queues would spill back onto the mainline under No Build Conditions. The morning SR 237 eastbound and westbound off-ramp vehicle queue is also anticipated to extend back onto the mainline due to congestion at the ramp terminal. In addition, there are excessive queues observed traveling westbound on Moffett Park Drive during the AM peak hour.

During the PM peak hour, the projected high southbound traffic volumes on Mathilda Avenue and the close spacing between intersections near the SR 237 interchange would cause vehicle queues on southbound Mathilda Avenue to extend from SR 237 north past Lockheed Martin/Java Avenue. Queues are also anticipated in the northbound direction on Mathilda Avenue in the PM peak hour for vehicles attempted to turn onto the SR 237 Eastbound on-ramp and US 101 Northbound and Southbound on-ramps. Eastbound Innovation Way and Moffett Park Drive are also expected to experience high delays and extensive queuing that spills onto other local roadways. The SR 237 westbound off-ramp and US 101 northbound loop off-ramp queues are expected to extend back to the freeway mainline due to congestion at the ramp terminal.

TABLE 6-2: YEAR 2040 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
1. Mathilda Avenue / Fifth Avenue	NB-L	425	125	125
	NB-T	1,125	175	150
	SB-L	250	100	250
	SB-T	1,325	375	**4,225**
	SB-R	250	100	**275**
	EB-L	625	50	225
	EB-T	625	50	75
	EB-R	625	100	275
	WB-L	925	125	**>5,000**
	WB-T	75	100	**100**

TABLE 6-2: YEAR 2040 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
2. Mathilda Avenue / Innovation Way	NB-L	400	**425**	150
	NB-T	975	425	175
	NB-TR	975	375	275
	SB-L	75	**125**	**100**
	SB-T	975	875	**1,200**
	SB-R	225	350	**350**
	EB-L	200	100	175
	EB-TR	200	50	50
	EB-R	200	250	**325**
	WB-L	425	425	**450**
	WB-LTR	225	**250**	225
3. Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	NB-L (MP)	125	50	50
	NB-L (237)	175	175	150
	NB-T	300	**325**	275
	SB-L (MP)	175	75	100
	SB-T	1,100	**1,200**	**1,250**
	EB-L (MP)	350	75	**400**
	EB-T (MP)	1,100	150	**1,175**
	EB-R (MP)	1,100	100	**1,150**
	WB-L (MP)	300	**1,500**	**>5,000**
	WB-T (MP)	650	700	650
	WB-L (237)	1,125	1,200	**>5,000**
	WB-R (237)	325	**>5,000**	**475**
4. Mathilda Avenue / SR 237 Eastbound Ramps	NB-T	275	**325**	100
	NB-R	275	250	200
	SB-L	200	150	175
	SB-T	200	175	**225**
	EB-L	1,025	**>5,000**	375
	EB-LTR	450	**575**	400
5. Mathilda Avenue / Ross Drive	NB-L	150	100	**200**
	NB-T	2,200	1,100	1,100
	SB-L	150	100	**175**
	SB-T	250	225	250
	EB-L	650	**1,000**	400
	EB-T	75	**125**	**125**
	EB-R	50	**75**	**75**
	WB-L	75	**3,600**	**>5,000**
	WB-T	75	**125**	**150**

TABLE 6-2: YEAR 2040 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
	WB-R	75	**100**	**100**
6. Mathilda Avenue/US 101 NB Ramps**	N/A	N/A	N/A[3]	N/A[4]
7. Mathilda Avenue/US 101 SB Ramps**	N/A	N/A	N/A	N/A
8. Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	NB-L	375	325	275
	NB-T	675	**>5,000**	**>5,000**
	NB-R	75	**100**	**100**
	SB-L	125	**200**	**200**
	SB-T	2,200	550	1,775
	EB-L	1,025	475	350
	EB-TR	125	**225**	**300**
	WB-L	250	**375**	**400**
	WB-T	1,025	**1,175**	1,025
	WB-R	75	**150**	**125**
9. US 101 Northbound On-Ramp / Moffett Park Drive	EB-T	850	75	**1,125**
	EB-R	150	25	**475**
	WB-L	850	50	250
	WB-T	850	25	25
10. Innovation Way / Moffett Park Drive	SB-L	575	50	575
	SB-LTR	575	175	**575**
	EB-L	225	100	**425**
	EB-T	850	75	**1,050**
	WB-T	1,150	200	400
	WB-R	225	200	125
11. Innovation Way / Eleventh Avenue	NB-L	125	50	25
	NB-LT	575	75	300
	SB-LT	1,000	50	250
	SB-TR	1,000	125	350
	EB-L	125	75	**200**
	EB-TR	300	50	**>5,000**
	EB-R	300	75	**>5,000**
	WB-L	325	25	225
	WB-TR	325	25	50

TABLE 6-2: YEAR 2040 NO BUILD QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
12. Innovation Way / Juniper Driveway	NB-L	125	75	**175**
	NB-T	900	175	**1,100**
	SB-TR	300	275	225
	SB-R	300	300	250
	EB-L	150	**375**	**>5,000**
	EB-R	150	75	**4,550**
13. Bordeaux Drive / Innovation Way	NB-L	325	75	50
	NB-TR	2,025	75	50
	SB-L	125	25	25
	SB-TR	725	75	75
	EB-LT	375	75	75
	EB-R	125	75	75
	WB-LT	125	25	25
	WB-R	125	25	25

Notes: **Bold** denotes locations where storage length is exceeded.

**Indicates intersection is signalized under Build 1 and Build 2 Alternatives, but operates as a free movement under the No Build Alternative.

1. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left-turn movement, T-through movement, R-right-turn movement, (MP)-turn onto/from Moffett Park Drive, (237)-turn onto/from SR 237 WB Ramps.
2. Available storage lengths are provided on a "per lane" basis. For example, an available storage of 425 means each lane in the associated movement has a storage length of 425 feet.
3. Queuing at the US 101 northbound diagonal off-ramp was observed to extend onto the freeway mainline in the AM peak hour under Existing Conditions. This queuing is anticipated to worsen under Year 2040 No Build conditions.
4. Queuing at the US 101 northbound loop off-ramp was observed to extend onto the freeway mainline in the PM peak hour under Existing Conditions. This queuing is anticipated to worsen under Year 2040 No Build conditions.

Source: Fehr & Peers, 2016.

Build 1 95th Percentile Queues

Table 6-3 presents the Year 2040 Build 1 peak hour 95th percentile queuing analysis results. Analysis results worksheets are presented in **Appendix O**. The capacity enhancements at intersections on Mathilda Avenue and the realignment of the freeway ramps would improve traffic operations and reduce vehicle queue lengths compared to No Build conditions. During the AM peak hour, the SR 237 westbound ramp terminal intersection would provide nearly adequate vehicle storage to accommodate the 95th percentile queue lengths along the off-ramp. However, the SR 237 eastbound off-ramp is anticipated to occasionally queue back onto the mainline during the morning peak hour. The US 101 southbound off-ramp queues are not anticipated to extend back to the freeway mainline under Build 1 compared to No Build. The US 101 northbound off-ramp is anticipated to occasionally queue back slightly onto the freeway (though only by approximately 300 feet). On the local streets, overall queuing is reduced along northbound and southbound Mathilda Avenue. The closure of westbound Moffett Park Drive shifts the queuing from Moffett Park Drive to Innovation Way and Bordeaux Drive on the east side of Mathilda Avenue.

During the PM peak hour, the realignment of the SR 237 ramps would reduce the SR 237 off-ramp queue lengths, but the 95th percentile westbound off-ramp queue is anticipated to extend onto the freeway mainline. The US 101 northbound off-ramp queue would also be reduced under the Build 1 Alternative but continue to occasionally back onto the freeway mainline. Vehicle queues on the local streets are expected mostly in the southbound direction along Mathilda Avenue. However, there is a northbound queue anticipated due to the increase in northbound volume by Year 2040 in the PM peak hour that results in congestion along northbound Mathilda Avenue. Eastbound Moffett Park Drive is still anticipated to have excessive queuing as stated under No Build Conditions, and queuing along Innovation Way east of Mathilda Avenue is anticipated to remain with the closure of westbound Moffett Park Drive. Vehicle queues on southbound Mathilda Avenue and Innovation Way would still exist during the PM peak hour.

TABLE 6-3: YEAR 2040 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
1. Mathilda Avenue / Fifth Avenue	NB-L	425	125	125
	NB-T	1,125	200	150
	SB-L	250	75	**275**
	SB-T	1,325	175	**3,075**
	SB-R	250	50	**300**
	EB-L	625	50	250
	EB-T	625	50	100
	EB-R	625	75	350
	WB-L	925	125	225
	WB-T	75	**100**	**100**
2. Mathilda Avenue / Innovation Way	NB-L	400	**700**	75
	NB-T	975	**1,350**	300
	NB-TR	975	**1,200**	300
	SB-L	75	**125**	**175**
	SB-T	975	250	**1,250**
	SB-R	225	**250**	**350**
	EB-LT	200	**225**	**350**
	EB-R	200	50	**325**
	WB-L	425	**800**	**775**
	WB-LTR	225	**250**	**250**
3. Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	NB-L	350	**475**	350
	NB-T	350	**500**	175
	SB-T	975	700	**1,100**
	SB-TR	975	750	**1,150**
	EB-LR	1,125	125	**1,200**
	EB-R	1,125	75	**1,200**
	WB-L	525	**550**	**625**
	WB-LT	1,225	750	**1,250**

TABLE 6-3: YEAR 2040 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
	WB-TR	1,225	775	325
4. Mathilda Avenue / SR 237 Eastbound Ramps	NB-T	275	275	**300**
	NB-R	275	50	**300**
	SB-L	325	325	**375**
	SB-T	350	**400**	**475**
	EB-L	1,025	**>5,000**	275
	EB-LT	1,025	**1,175**	325
	EB-R	450	**675**	400
5. Mathilda Avenue / Ross Drive	NB-L	150	**350**	**350**
	NB-T	700	**825**	**850**
	SB-L	150	**275**	**200**
	SB-T	250	125	**300**
	EB-L	650	125	125
	EB-T	75	**225**	**400**
	EB-R	50	**100**	**125**
	WB-L	75	**125**	**4,500**
	WB-T	75	**1,575**	**>5,000**
	WB-R	75	**125**	**550**
6. Mathilda Avenue / US 101 NB Ramps	NB-T	575	**725**	**750**
	NB-R	575	**750**	400
	SB-L	375	75	150
	SB-T	700	400	**775**
	WB-L	1,025	**1,375**	**3,650**
	WB-R	1,025	175	175
7. Mathilda Avenue / US 101 SB Ramps	NB-T	750	**925**	**775**
	NB-R	750	**1,025**	750
	SB-T	575	300	275
	SB-TR	575	325	450
	EB-L	1,050	325	150
	EB-R	1,050	25	125

TABLE 6-3: YEAR 2040 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
8. Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	NB-L	375	**500**	300
	NB-T	750	**>5,000**	700
	NB-R	75	**325**	**375**
	SB-L	125	**350**	**325**
	SB-T	750	550	375
	EB-L	1,025	150	425
	EB-T	125	125	**275**
	WB-L	250	200	150
	WB-T	1,025	350	225
	WB-R	75	**150**	**125**
9. US 101 Northbound On-Ramp / Moffett Park Drive	EB-T	850	75	**1,075**
	EB-R	150	25	**500**
	WB-L	850	75	225
	WB-T	850	25	25
10. Innovation Way / Moffett Park Drive	SB-L	575	75	575
	SB-LTR	575	200	575
	EB-L	225	175	**450**
	EB-T	850	75	**975**
	WB-T	1,150	350	250
	WB-R	225	475	**325**
11. Innovation Way / Eleventh Avenue	NB-L	125	100	100
	NB-T	575	200	300
	SB-L	175	100	175
	SB-T	1,000	75	125
	SB-TR	1,000	175	175
	EB-L	125	75	**150**
	EB-LT	300	50	**>5,000**
	EB-R	300	75	**4,925**
	WB-L	325	50	175
	WB-TR	325	50	50
12. Innovation Way / Juniper Driveway	NB-L	125	**175**	150
	NB-T	900	375	750
	SB-T	300	250	225
	SB-R	300	225	150
	EB-L	150	**200**	**>5,000**
	EB-R	150	75	**>5,000**

TABLE 6-3: YEAR 2040 BUILD 1 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
13. Bordeaux Drive / Innovation Way	NB-L	325	**350**	**900**
	NB-TR	2,025	825	775
	SB-L	125	25	25
	SB-TR	725	400	**4,800**
	EB-LT	375	**450**	125
	EB-R	125	**150**	125
	WB-LT	125	75	125
	WB-R	125	25	25

Notes: **Bold** denotes locations where storage length is exceeded.

1. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left-turn movement, T-through movement, R-right-turn movement, (MP)-turn onto/from Moffett Park Drive, (237)-turn onto/from SR 237 WB Ramps.

2. Available storage lengths are provided on a "per lane" basis. For example, an available storage of 425 means each lane in the associated movement has a storage length of 425 feet.

Source: Fehr & Peers, 2016.

Build 2 95th Percentile Queues

Table 6-4 presents the Year 2040 Build 2 peak hour 95th percentile queuing analysis results. Analysis results worksheets are presented in **Appendix O**. Similar to Build 1, capacity enhancements on Mathilda Avenue and the realignment of freeway ramps would improve traffic operations and reduce queue lengths compared to No Build condition. During the AM peak hour, 95th percentile queue spillback onto the freeway mainline is expected at the US 101 northbound off-ramp and both SR 237 off-ramps. For a diverging diamond, it is recommended that the right-turns off of the freeway ramps be phased as no right-turn on red. For the SR 237 eastbound off-ramp queue spillback is caused by this right-turn-on-red limitation and the close proximity of the Ross Drive intersection which limits the storage capacity traveling southbound on Mathilda Avenue. The right-turn-on-red limitation also causes some queue spillback at the SR 237 westbound off-ramp. The high volume of northbound traffic along Mathilda Avenue causes the queue spillback onto the freeway mainline for the left-turn movement at the SR 237 eastbound off-ramp while the right-turn movement at the SR 237 westbound off-ramp experiences queuing due to the right-turn-on-red limitations. On the local streets, overall queuing is reduced along northbound and southbound Mathilda Avenue. The closure of westbound Moffett Park Drive shifts the queuing from Moffett Park Drive to Innovation Way and Bordeaux Drive on the east side of Mathilda Avenue.

During the PM peak hour, the realignment of the SR 237 off-ramps would eliminate queue spillback onto the freeway mainline. The US 101 northbound off-ramp queue would also be reduced under the Build 2 Alternative but continue to occasionally queue back onto the freeway mainline. Vehicle queues on the local streets are expected mostly in the southbound direction along Mathilda Avenue. However, there is a northbound queuing anticipated due to the ramp metering at the SR 237 eastbound on-ramp that spills back along Mathilda Avenue. The closure of eastbound Moffett Park Drive will shift the queuing from Moffett Park Drive to Innovation Way resulting in queuing on Innovation Way west of Mathilda Avenue. Queuing along Innovation Way east of Mathilda Avenue is anticipated to remain with the closure of the

westbound Moffett Park Drive. Vehicle queues on southbound Mathilda Avenue and Innovation Way would still exist during the PM peak hour.

TABLE 6-4: YEAR 2040 BUILD 2 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
1: Mathilda Avenue / Fifth Avenue	NB-L	425	125	100
	NB-T	1,150	175	150
	SB-L	225	100	250
	SB-T	1,375	175	1,175
	SB-R	225	50	225
	EB-L	625	75	300
	EB-T	625	75	250
	EB-R	625	100	300
	WB-L	925	100	250
	WB-T	75	75	**100**
2: Mathilda Avenue / Innovation Way	NB-L	725	**900**	300
	NB-T	975	**1,025**	175
	NB-R	975	**1,200**	275
	SB-L	75	**150**	**175**
	SB-T	1,150	300	**1,300**
	SB-R	225	**275**	**375**
	EB-LT	200	**300**	**350**
	EB-R	200	50	**300**
	WB-L	425	**800**	**800**
	WB-LTR	225	**250**	**250**
3: Mathilda Avenue / Moffett Park Drive / SR 237 Westbound Ramps	NB-L	150	150	50
	NB-T	400	**500**	200
	SB-T	975	900	**1,175**
	WB-L	1,075	**1,125**	450
	WB-R	550	**675**	225
4: Mathilda Avenue / SR 237 Eastbound Ramps	NB-T	150	**275**	**200**
	NB-R	150	25	50
	SB-L	175	25	50
	SB-T	400	300	375
	EB-L	1,075	**>5,000**	175
	EB-R	450	**600**	300

TABLE 6-4: YEAR 2040 BUILD 2 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
5: Mathilda Avenue / Ross Drive	NB-L	250	**300**	250
	NB-T	700	**800**	**800**
	SB-L	225	100	200
	SB-T	225	200	175
	EB-L	650	125	125
	EB-T	75	**1,775**	**350**
	EB-R	50	**75**	**125**
	WB-L	75	**125**	**125**
	WB-T	75	**5,000**	**>5,000**
	WB-R	75	**125**	**100**
6: Mathilda Avenue / US 101 NB Ramps	NB-T	575	**700**	**700**
	NB-R	575	**800**	350
	SB-L	375	50	150
	SB-T	700	250	525
	WB-L	1,025	**1,475**	**2,475**
	WB-R	1,025	425	500
7: Mathilda Avenue / US 101 SB Ramps	NB-T	750	**875**	**925**
	NB-R	750	**975**	**1,050**
	SB-T	575	225	**700**
	SB-TR	575	275	**700**
	EB-L	1,050	400	950
	EB-R	1,050	25	50
8: Mathilda Avenue / Almanor Avenue-Ahwanee Avenue	NB-L	375	**575**	**550**
	NB-T	675	**>5,000**	**>5,000**
	NB-TR	200	**300**	**325**
	SB-L	275	**375**	**375**
	SB-T	750	525	550
	EB-L	1,025	150	450
	EB-T	125	125	**1,000**
	WB-L	250	200	225
	WB-T	1,025	275	450
	WB-R	75	**150**	**150**
9: US 101 Northbound On-Ramp / Moffett Park Drive	EB-T	875	75	**900**
	EB-R	150	25	**525**
	WB-L	900	50	375
	WB-T	900	150	125

TABLE 6-4: YEAR 2040 BUILD 2 QUEUING ANALYSIS RESULTS

Intersection	Movement[1]	Available Storage[2]	AM Peak Hour 95th Percentile Queue (ft)	PM Peak Hour 95th Percentile Queue (ft)
10: Innovation Way / Moffett Park Drive	SB-R	525	100	100
	EB-L	850	175	**925**
	WB-T	975	200	650
	WB-TR	975	275	300
11: Innovation Way / Eleventh Avenue	NB-L	125	75	**250**
	NB-T	575	175	475
	SB-L	175	75	125
	SB-T	1,000	100	75
	SB-TR	1,000	200	175
	EB-L	125	75	**150**
	EB-LT	300	50	**3,500**
	EB-R	300	50	**1,325**
	WB-L	325	50	75
	WB-TR	325	50	75
12: Innovation Way / Juniper Driveway	NB-L	125	200	**175**
	NB-T	900	700	**1,150**
	SB-T	300	150	225
	SB-TR	300	300	250
	EB-L	150	500	**>5,000**
	EB-R	150	75	**>5,000**
13: Bordeaux Drive / Innovation Way	NB-L	325	**2,875**	**>5,000**
	NB-TR	2,025	1,050	1,000
	SB-L	125	25	**25**
	SB-TR	725	425	725
	EB-LT	375	**450**	125
	EB-R	125	**150**	125
	WB-LT	125	75	**150**
	WB-R	125	25	25

Notes: **Bold** denotes locations where storage length is exceeded.

1. NB-northbound, SB-southbound, EB-eastbound, WB-westbound, L-left-turn movement, T-through movement, R-right-turn movement, (MP)-turn onto/from Moffett Park Drive, (237)-turn onto/from SR 237 WB Ramps.

2. Available storage lengths are provided on a "per lane" basis. For example, an available storage of 425 means each lane in the associated movement has a storage length of 425 feet.

Source: Fehr & Peers, 2016.

MATHILDA AVENUE AND INNOVATION WAY TRAVEL TIMES

Table 6-5 presents the average travel times and delays along the Mathilda Avenue corridor under No Build and Build conditions. Both of the build alternatives would reduce the average travel time and delays on Mathilda Avenue when compared to No Build conditions. Build 1 Alternative would result in a northbound

delay reduction of just shy of 7 minutes and 6 minutes during the AM and PM peak hours, respectively. In the southbound direction, the Build 1 Alternative would reduce delays by over 8 minutes in the AM peak hour and 2 minutes during the PM peak hour.

Build 2 Alternative would result in a northbound delay reduction of over 5 minutes in the AM peak hour and roughly 30 seconds during the PM peak hour. In the southbound direction, Build 2 Alternative would reduce delays by about 10 minutes during the AM and PM peak hours.

TABLE 6-5: YEAR 2040 MATHILDA AVENUE TRAVEL TIMES

Direction	Peak Hour	Free flow Travel Time (s)[2]	No Build		Build 1 Alternative		Build 2 Alternative	
			Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)
Mathilda Avenue Northbound	AM	116.2	983.3	867.1	577.3	461.1	645.8	529.6
	PM	116.2	952.6	836.4	605.3	489.1	915.5	799.3
Mathilda Avenue Southbound	AM	116.2	954.3	838.1	437.7	321.5	362.9	246.7
	PM	116.2	1458.5	1342.3	1304.9	1188.7	834.4	718.2

Notes:

1. Travel time runs begin north of the San Aleso Avenue intersection and end south of the Lockheed Martin Way-Java Drive intersection (approximately 1.44 miles).
2. Free flow speed is calculated assuming a travel speed of 45 miles per hour.

Source: Fehr & Peers, 2016.

Table 6-6 presents the average travel times and delays along the Innovation Way corridor under No Build and Build conditions. The redistribution of traffic to this corridor under the build alternatives warrants a signal at the Innovation Way and Juniper Networks Driveway in order to increase output at that intersection as well as the Mathilda Avenue and Innovation Way intersection. Due to the implementation of a signal at Innovation Way and Juniper Networks Driveway, the average travel time and delay along Innovation Way decreases compared to No Build conditions.

The Build 1 Alternative would result in a northbound delay decrease on Innovation Way of over 4 minutes and 8 minutes during the AM and PM peak hours, respectively. In the southbound direction, Build 1 Alternative travel times would remain relatively unchanged in the AM peak hour and increase by approximately 30 seconds in the PM peak hour due to the slight increase in volume as a result of the closure of Moffett Park Drive on the east side of Mathilda Avenue under the Build 1 Alternative. Vehicles will need to use Innovation Way to travel east and west across Mathilda Avenue from Moffett Park Drive.

Build 2 Alternative would result in a northbound delay decrease of about 3 minutes and 1 minute the AM and PM peak hour, respectively. In the southbound direction, the Build 2 Alternative would decrease delay by around 15 seconds in the AM peak hour and by over 7 minutes during PM peak hour. The large decrease in delay in the southbound direction is due to the closure of eastbound Moffett Park Drive traffic under the Build 2 Alternative.

TABLE 6-6: YEAR 2040 INNOVATION WAY TRAVEL TIMES

Direction	Peak Hour	Free flow Travel Time (s)[2]	No Build		Build 1 Alternative		Build 2 Alternative	
			Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)	Congested Travel Time (s)	Delay (s)
Innovation Way Northbound	AM	81.5	395.3	313.8	143.7	62.2	218.3	136.8
	PM	81.5	787.9	706.4	264.3	182.8	704.8	623.3
Innovation Way Southbound	AM	81.5	129.4	47.9	124.1	42.6	114.3	32.8
	PM	81.5	634.7	553.2	664.1	582.6	192.9	111.4

Notes:

1. Travel time runs begin at the Mathilda Avenue intersection and end at the Moffett Park Drive intersection (approximately 0.42 miles).
2. Free flow speed is calculated assuming a travel speed of 25 miles per hour.

Source: Fehr & Peers, 2016.

YEAR 2040 MAINLINE OPERATIONS

This section summarizes the mainline operations analysis for Year 2040 under No Build, Build 1 and Build 2 conditions using the calibrated/validated FREQ models developed under Existing Conditions. There are several projects identified in the Santa Clara Valley Transportation Plan (VTP) 2040 that could influence traffic operations on US 101 and SR 237 under Year 2040 Conditions. Below is a brief summary of the projects and how they were considered in the evaluation of the US 101 and SR 237 operations analysis under Year 2040 Conditions. (Projects assumed completed by Year 2018 are also listed and identified as such.)

- *SR 237 Express Lanes – Mathilda Avenue to SR 85:* SR 237 is expected to be widened to accommodate a HOT lane that continues from the current HOV terminus between Fair Oaks Avenue and Mathilda Avenue to the SR 85 interchange. (A conversion of the existing HOV lane to an HOT lane was assumed under Year 2018.)
- *US 101 Express Lanes – Whipple Avenue in San Mateo County to Cochrane Road in Morgan Hill (two lanes in each direction):* The addition of a second HOT lane in both directions is estimated to be completed by Year 2040. (A conversion of the existing HOV lane to one HOT lane was assumed under Year 2018.)
- *US 101 Southbound Auxiliary Lane – Ellis Street and SR 237:* An auxiliary lane is assumed to be constructed on US 101 southbound between Ellis Street on-ramp and SR 237 EB off-ramp.
- *SR 85 Express Lanes – US 101 to US 101:* The conversion of the existing HOV lanes along SR 85 to HOT lanes is anticipated to be completed by Year 2040.
- *Lawrence Expressway Ramp Improvements at SR 237:* The construction of an auxiliary lane on southbound Lawrence Expressway between the SR 237 loop ramps is anticipated to be completed by Year 2040.
- *Completed by Year 2018 – SR 237 Eastbound Auxiliary Lanes – Mathilda Avenue to Fair Oaks Avenue:* The SR 237 eastbound auxiliary lane between Mathilda Avenue and Fair Oaks Avenue is expected to be constructed by Year 2018.

- *Completed by Year 2018 – All freeway ramps metered on US 101 and SR 237 (includes widening of SR 237 EB on-ramp at Mathilda Avenue to two lanes):* Ramp metering is assumed to be installed and operating at all US 101 and SR 237 on-ramps by Year 2018. As part of this project, the Mathilda Avenue to SR 237 eastbound on-ramp is assumed to extend the existing two-lane ramp and meter two mixed-flow lanes. The specific design of the SR 237 eastbound on-ramp will be determined during the design and construction phase of the ramp metering system.

As discussed above, congestion on the local street system would constrain on-ramp demand volumes at the Mathilda Avenue interchanges during the peak hours. **Table 6-7** and **Table 6-8** present the initial and constrained on-ramp volumes at the Mathilda Avenue/US 101 and Mathilda Avenue/SR 237 interchanges under the various alternatives. The initial demand volumes were replaced by the constrained volumes to determine US 101 and SR 237 traffic operations.

TABLE 6-7: YEAR 2040 AM ON-RAMP CONSTRAINED VOLUMES

Alternative	Location from Mathilda	Initial FREQ Demand Volume		Constrained Volume from SimTraffic (8AM-9AM)	Constrained FREQ Volume	
		7AM-8AM	8AM-9AM		7AM-8AM	8AM-9AM
No Build	SR 237 WB On	290	390	268	200	268
	SR 237 EB On	730	1000	532	390	532
	US 101 NB On	420	570	254	190	254
	US 101 SB On (loop)	140	190	155	110	155
	US 101 SB On (diagonal)	510	700	328	240	328
Build 1	SR 237 WB On	270	370	315	230	315
	SR 237 EB On	730	1000	795	580	795
	US 101 NB On	430	590	407	300	407
	US 101 SB On (loop)	140	190	169	120	169
	US 101 SB On (diagonal)	510	700	485	350	485
Build 2	SR 237 WB On	270	370	295	220	295
	SR 237 EB On	730	1000	725	530	725
	US 101 NB On	430	590	364	270	364
	US 101 SB On (loop)	140	190	145	110	145
	US 101 SB On (diagonal)	510	700	421	310	421

Source: Fehr & Peers, 2016.

TABLE 6-8: YEAR 2040 PM ON-RAMP CONSTRAINED VOLUMES

Alternative	Location from Mathilda	Initial FREQ Demand Volume			Constrained Volume from SimTraffic (5PM-6PM)	Constrained FREQ Volume		
		4PM-5PM	5PM-6PM	6PM-7PM		4PM-5PM	5PM-6PM	6PM-7PM
No Build	SR 237 WB On	850	900	720	499	470	499	400
	SR 237 EB On	1240	1320	1050	862	810	862	690
	US 101 NB On	320	340	270	202	190	202	160
	US 101 SB On (loop)	1380	1460	1160	1045	990	1045	830
	US 101 SB On (diagonal)	640	680	540	391	370	391	310
Build 1	SR 237 WB On	810	860	690	495	470	495	400
	SR 237 EB On	1240	1320	1050	986	930	986	780
	US 101 NB On	360	380	300	332	310	332	260
	US 101 SB On (loop)	1380	1460	1160	920	870	920	730
	US 101 SB On (diagonal)	640	680	540	640	600	640	510
Build 2	SR 237 WB On	810	860	690	587	550	587	470
	SR 237 EB On	1240	1320	1050	879	830	879	700
	US 101 NB On	360	380	300	266	250	266	210
	US 101 SB On (loop)	1380	1460	1160	948	900	948	750
	US 101 SB On (diagonal)	640	680	540	529	500	529	420

Source: Fehr & Peers, 2016.

PEAK HOUR LEVEL OF SERVICE

Table 6-9 and **Table 6-10** summarize the Year 2040 US 101 AM and PM peak hour density and LOS results, respectively, based on the FREQ model outputs. **Table 6-11** and **Table 6-12** summarize the Year 2040 SR 237 AM and PM peak hour density and LOS results, respectively, based on the FREQ model outputs. Locations in bold indicate LOS F operations. Results for the mixed-flow lanes are presented without parentheses while results for the high-occupancy toll (HOT) lanes are shown in parentheses. Detailed mainline analysis worksheets are presented in **Appendix P**. A more detailed discussion on peak hour level of service is presented after the analysis results tables.

TABLE 6-9: YEAR 2040 US 101 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Northbound[3]								
Fair Oaks Off-Ramp	Diverge	3 Mixed (2 HOT)	**80.3** (14.2)	**F** (B)	**78.7** (14.2)	**F** (B)	**78.6** (14.2)	**F** (B)
Fair Oaks Off-Ramp to Fair Oaks On-Ramp	Basic	3 Mixed (2 HOT)	**72.5** (12.8)	**F** (B)	**70.9** (12.8)	**F** (B)	**70.8** (12.8)	**F** (B)
Fair Oaks On-Ramp	Merge	3 Mixed (2 HOT)	**50.8** (13.7)	**F** (B)	**49.6** (13.7)	**F** (B)	**49.4** (13.7)	**F** (B)
Fair Oaks On-Ramp to Mathilda NB Off Ramp	Basic	3 Mixed (2 HOT)	**53.7** (13.7)	**F** (B)	**52.4** (13.7)	**F** (B)	**52.3** (13.7)	**F** (B)
Mathilda NB Off-Ramp	Diverge	3 Mixed (2 HOT)	**54.6** (13.7)	**F** (B)	**57.0** (13.7)	**F** (B)	**56.7** (13.7)	**F** (B)
Mathilda NB Off-Ramp to Mathilda NB On-Ramp	Basic	3 Mixed (2 HOT)	**59.4** (12.8)	**F** (B)	**62.7** (12.0)	**F** (B)	**62.4** (12.0)	**F** (B)
Mathilda NB On-Ramp	Merge	3 Mixed (2 HOT)	**59.9** (13.0)	**F** (B)	**62.9** (12.3)	**F** (B)	**62.8** (12.3)	**F** (B)
Mathilda NB On-Ramp to Mathilda SB Off-Ramp[5]	Basic	3 Mixed (2 HOT)	**60.5** (13.0)	**F** (B)	**63.9** (12.3)	**F** (B)	**63.7** (12.3)	**F** (B)
Mathilda SB Off-Ramp[6]	Diverge	3 Mixed (2 HOT)	**59.3** (13.0)	**F** (B)	N/A	N/A	N/A	N/A
Mathilda SB Off-Ramp to SR 237 WB Off-Ramp[6]	Basic	3 Mixed (2 HOT)	**64.4** (12.2)	**F** (B)	N/A	N/A	N/A	N/A
SR 237 WB Off-Ramp	Diverge	3 Mixed (2 HOT)	**65.0** (12.2)	**F** (B)	**66.0** (12.3)	**F** (B)	**66.0** (12.3)	**F** (B)
SR 237 WB Off-Ramp to SR 237 WB On-Ramp	Basic	3 Mixed (2 HOT)	**80.3** (10.5)	**F** (A)	**81.7** (10.6)	**F** (A)	**81.5** (10.6)	**F** (A)
SR 237 WB On-Ramp	Merge	3 Mixed (2 HOT)	**68.3** (12.5)	**F** (B)	**69.3** (12.6)	**F** (B)	**69.2** (12.5)	**F** (B)
SR 237 WB On-Ramp to Ellis	Basic	3 Mixed (2 HOT)	**75.7** (12.5)	**F** (B)	**76.7** (12.6)	**F** (B)	**76.5** (12.5)	**F** (B)

TABLE 6-9: YEAR 2040 US 101 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Southbound[4]								
Ellis On-Ramp to SR 237 EB Off-Ramp	Weave	3 Mixed, 1 AUX (2 HOT)	21.3 (8.5)	C (A)	21.3 (8.5)	C (A)	21.3 (8.5)	C (A)
SR 237 EB Off-Ramp	Diverge	3 Mixed, 1 AUX (2 HOT)	21.3 (8.5)	C (A)	21.3 (8.5)	C (A)	21.3 (8.5)	C (A)
SR 237 EB Off-Ramp to SR 237 EB On-Ramp	Basic	3 Mixed (2 HOT)	18.6 (5.7)	C (A)	19.8 (6.0)	C (A)	19.8 (6.0)	C (A)
SR 237 EB On-Ramp	Merge	3 Mixed, 1 AUX (2 HOT)	17.4 (6.9)	B (A)	18.3 (7.2)	C (A)	18.3 (7.2)	C (A)
SR 237 EB On-Ramp to Mathilda Off-Ramp	Weave	3 Mixed, 1 AUX (2 HOT)	17.4 (6.9)	B (A)	18.3 (7.2)	C (A)	18.3 (7.2)	C (A)
Mathilda Off-Ramp	Diverge	3 Mixed, 1 AUX (2 HOT)	17.4 (6.9)	B (A)	18.3 (7.2)	C (A)	18.3 (7.2)	C (A)
Mathilda Off-Ramp to Mathilda SB On-Ramp	Basic	3 Mixed (2 HOT)	21.2 (6.5)	C (A)	21.2 (6.5)	C (A)	21.2 (6.5)	C (A)
Mathilda SB On-Ramp	Merge	3 Mixed (2 HOT)	21.7 (6.6)	C (A)	21.7 (6.6)	C (A)	21.7 (6.6)	C (A)
Mathilda NB On-Ramp	Merge	3 Mixed (2 HOT)	23.0 (6.9)	C (A)	23.6 (7.0)	C (A)	23.3 (7.0)	C (A)
Mathilda NB On-Ramp to Fair Oaks SB Off-Ramp	Basic	3 Mixed (2 HOT)	23.0 (6.9)	C (A)	23.5 (7.0)	C (A)	23.3 (7.0)	C (A)
Fair Oaks SB Off-Ramp	Diverge	3 Mixed (2 HOT)	23.0 (6.9)	C (A)	23.6 (7.0)	C (A)	23.3 (7.0)	C (A)
Fair Oaks SB Off-Ramp to Fair Oaks SB On-Ramp	Basic	3 Mixed (2 HOT)	21.4 (6.6)	C (A)	21.8 (6.8)	C (A)	21.6 (6.7)	C (A)
Fair Oaks SB On-Ramp	Merge	3 Mixed, 1 AUX (2 HOT)	16.8 (6.9)	B (A)	17.2 (7.1)	B (A)	17.0 (7.0)	B (A)
Fair Oaks NB Off-Ramp	Diverge	3 Mixed, 1 AUX (2 HOT)	16.8 (6.9)	B (A)	17.2 (7.1)	B (A)	17.0 (7.0)	B (A)

TABLE 6-9: YEAR 2040 US 101 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Fair Oaks NB Off-Ramp to Fair Oaks NB On-Ramp	Basic	3 Mixed (2 HOT)	22.0 (6.8)	C (A)	22.7 (7.0)	C (A)	22.3 (6.9)	C (A)
Fair Oaks NB On-Ramp	Merge	3 Mixed (2 HOT)	25.5 (7.6)	C (A)	26.2 (7.8)	D (A)	25.9 (7.7)	C (A)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The AM peak hour for US 101 Northbound occurs between 7:00am and 8:00am.
4. The AM peak hour for US 101 Southbound occurs between 7:00am and 8:00am.
5. Due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue, this freeway segment is assumed to extend from the Mathilda Avenue loop on-ramp to SR 237 westbound off-ramp.
6. These segments do not exist under both Build Alternatives due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue.

Source: Fehr & Peers, 2016.

TABLE 6-10: YEAR 2040 US 101 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Northbound[3]								
Fair Oaks Off-Ramp	Diverge	3 Mixed (2 HOT)	**38.6*** (6.7)	**F** (A)	**45.0** (6.7)	**F** (A)	**40.5** (6.7)	**F** (A)
Fair Oaks Off-Ramp to Fair Oaks On-Ramp	Basic	3 Mixed (2 HOT)	**49.3** (5.7)	**F** (A)	**54.8** (5.7)	**F** (A)	**50.7** (5.7)	**F** (A)
Fair Oaks On-Ramp	Merge	3 Mixed (2 HOT)	**58.1** (6.1)	**F** (A)	**62.4** (6.1)	**F** (A)	**59.0** (6.0)	**F** (A)
Fair Oaks On-Ramp to Mathilda NB Off Ramp	Basic	3 Mixed (2 HOT)	**66.7** (6.1)	**F** (A)	**71.0** (6.1)	**F** (A)	**67.5** (6.0)	**F** (A)
Mathilda NB Off-Ramp	Diverge	3 Mixed (2 HOT)	**74.1** (6.1)	**F** (A)	**85.3** (6.1)	**F** (A)	**81.0** (6.0)	**F** (A)
Mathilda NB Off-Ramp to Mathilda NB On-Ramp	Basic	3 Mixed (2 HOT)	**87.9** (5.8)	**F** (A)	**119.8** (4.8)	**F** (A)	**114.5** (4.8)	**F** (A)
Mathilda NB On-Ramp	Merge	3 Mixed (2 HOT)	**89.3** (5.9)	**F** (A)	**123.1** (5.1)	**F** (A)	**118.3** (5.0)	**F** (A)
Mathilda NB On-Ramp to Mathilda SB Off-Ramp[5]	Basic	3 Mixed (2 HOT)	**90.7** (5.9)	**F** (A)	**126.0** (5.1)	**F** (A)	**121.0** (5.0)	**F** (A)
Mathilda SB Off-Ramp[6]	Diverge	3 Mixed (2 HOT)	**88.0** (5.9)	**F** (A)	N/A	N/A	N/A	N/A
Mathilda SB Off-Ramp to SR 237 WB Off-Ramp[6]	Basic	3 Mixed (2 HOT)	**116.4** (5.0)	**F** (A)	N/A	N/A	N/A	N/A
SR 237 WB Off-Ramp	Diverge	3 Mixed (2 HOT)	**131.1** (5.0)	**F** (A)	**149.0** (5.1)	**F** (A)	**143.9** (5.0)	**F** (A)
SR 237 WB Off-Ramp to SR 237 WB On-Ramp	Basic	3 Mixed (2 HOT)	**198.9** (4.0)	**F** (A)	**220.9** (4.1)	**F** (A)	**216.1** (4.0)	**F** (A)
SR 237 WB On-Ramp	Merge	3 Mixed (2 HOT)	**154.9** (5.8)	**F** (A)	**156.8** (5.9)	**F** (A)	**156.4** (5.8)	**F** (A)
SR 237 WB On-Ramp to Ellis	Basic	3 Mixed (2 HOT)	**169.8** (5.8)	**F** (A)	**170.1** (5.9)	**F** (A)	**169.7** (5.8)	**F** (A)

TABLE 6-10: YEAR 2040 US 101 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
US 101 Southbound[4]								
Ellis On-Ramp to SR 237 EB Off-Ramp	Weave	3 Mixed, 1 AUX (2 HOT)	**112.7** (13.9)	**F** (B)	**117.4** (13.9)	**F** (B)	**114.6** (13.9)	**F** (B)
SR 237 EB Off-Ramp	Diverge	3 Mixed, 1 AUX (2 HOT)	**95.6** (13.9)	**F** (B)	**101.4** (13.9)	**F** (B)	**98.7** (13.9)	**F** (B)
SR 237 EB Off-Ramp to SR 237 EB On-Ramp	Basic	3 Mixed (2 HOT)	**172.6** (10.8)	**F** (A)	**174.6** (11.0)	**F** (B)	**170.9** (11.0)	**F** (B)
SR 237 EB On-Ramp	Merge	3 Mixed, 1 AUX (2 HOT)	**139.3** (11.8)	**F** (B)	**146.9** (12.0)	**F** (B)	**144.1** (12.0)	**F** (B)
SR 237 EB On-Ramp to Mathilda Off-Ramp	Weave	3 Mixed, 1 AUX (2 HOT)	**144.8** (11.8)	**F** (B)	**152.2** (12.0)	**F** (B)	**149.4** (12.0)	**F** (B)
Mathilda Off-Ramp	Diverge	3 Mixed, 1 AUX (2 HOT)	**138.7** (11.8)	**F** (B)	**145.0** (12.0)	**F** (B)	**142.3** (12.0)	**F** (B)
Mathilda Off-Ramp to Mathilda SB On-Ramp	Basic	3 Mixed (2 HOT)	**170.2** (10.7)	**F** (A)	**177.3** (10.7)	**F** (A)	**173.6** (10.7)	**F** (A)
Mathilda SB On-Ramp	Merge	3 Mixed (2 HOT)	**122.2** (12.1)	**F** (B)	**135.0** (11.9)	**F** (B)	**130.0** (12.0)	**F** (B)
Mathilda NB On-Ramp	Merge	3 Mixed (2 HOT)	**116.4** (12.7)	**F** (B)	**114.9** (12.8)	**F** (B)	**115.3** (12.7)	**F** (B)
Mathilda NB On-Ramp to Fair Oaks SB Off-Ramp	Basic	3 Mixed (2 HOT)	**120.4** (12.7)	**F** (B)	**121.4** (12.8)	**F** (B)	**120.7** (12.7)	**F** (B)
Fair Oaks SB Off-Ramp	Diverge	3 Mixed (2 HOT)	**115.0** (12.7)	**F** (B)	**115.9** (12.8)	**F** (B)	**115.2** (12.7)	**F** (B)
Fair Oaks SB Off-Ramp to Fair Oaks SB On-Ramp	Basic	3 Mixed (2 HOT)	**143.1** (11.9)	**F** (B)	**144.0** (12.1)	**F** (B)	**143.3** (12.0)	**F** (B)
Fair Oaks SB On-Ramp	Merge	3 Mixed, 1 AUX (2 HOT)	**107.3** (12.4)	**F** (B)	**108.0** (12.6)	**F** (B)	**107.5** (12.5)	**F** (B)
Fair Oaks NB Off-Ramp	Diverge	3 Mixed, 1 AUX (2 HOT)	**108.8** (12.4)	**F** (B)	**109.4** (12.6)	**F** (B)	**108.9** (12.5)	**F** (B)

TABLE 6-10: YEAR 2040 US 101 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternative		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Fair Oaks NB Off-Ramp to Fair Oaks NB On-Ramp	Basic	3 Mixed (2 HOT)	**139.8** (12.2)	**F** (B)	**140.7** (12.3)	**F** (B)	**140.0** (12.2)	**F** (B)
Fair Oaks NB On-Ramp	Merge	3 Mixed (2 HOT)	**128.3** (12.6)	**F** (B)	**129.1** (12.7)	**F** (B)	**128.5** (12.6)	**F** (B)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The PM peak hour for US 101 Northbound occurs between 5:00pm and 6:00pm.
4. The PM peak hour for US 101 Southbound occurs between 5:00pm and 6:00pm.
5. Due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue, this freeway segment is assumed to extend from the Mathilda Avenue loop on-ramp to SR 237 westbound off-ramp.
6. These segments do not exist under both Build Alternatives due to the closure of the US 101 northbound loop off-ramp to southbound Mathilda Avenue.

Source: Fehr & Peers, 2016.

TABLE 6-11: YEAR 2040 SR 237 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternatives		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
SR 237 Westbound[3]								
Lawrence On-Ramp to Crossman On-Ramp	Basic	2 Mixed (1 HOT)	**94.6** (22.7)	**F** (C)	**94.6** (22.7)	**F** (C)	**94.6** (22.7)	**F** (C)
Crossman On-Ramp	Merge	2 Mixed (1 HOT)	38.2 (23.6)	E (C)	38.2 (23.6)	E (C)	38.2 (23.6)	E (C)
Crossman On-Ramp to Mathilda Off-Ramp	Basic	2 Mixed (1 HOT)	37.3 (23.6)	E (C)	37.3 (23.6)	E (C)	37.3 (23.6)	E (C)
Mathilda Off-Ramp	Diverge	2 Mixed (1 HOT)	21.2 (23.6)	C (C)	21.2 (23.6)	C (C)	21.2 (23.6)	C (C)
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed (1 HOT)	25.6 (19.1)	C (C)	25.6 (19.1)	C (C)	25.6 (19.1)	C (C)
Mathilda On-Ramp to US 101 NB Off-Ramp	Weave	2 Mixed/1 AUX (1 HOT)	17.8 (19.6)	B (C)	17.9 (19.6)	B (C)	17.9 (19.6)	B (C)
US 101 NB Off-Ramp to US 101 NB On-Ramp	Basic	2 Mixed (1 HOT)	17.8 (13.7)	B (B)	18.0 (13.8)	B (B)	17.9 (13.8)	B (B)
US 101 NB On-Ramp	Merge	2 Mixed (1 HOT)	22.1 (15.9)	C (B)	22.3 (16.1)	C (B)	22.3 (16.0)	C (B)
Maude Off-Ramp	Diverge	2 Mixed (1 HOT)	22.1 (15.9)	C (B)	22.3 (16.1)	C (B)	22.3 (16.0)	C (B)
SR 237 Eastbound[4]								
Maude On-Ramp to US 101 SB Off-Ramp	Weave	2 Mixed, 1 AUX (1 HOT)	20.9 (19.4)	C (C)	20.6 (19.5)	C (C)	20.9 (19.5)	C (C)
US 101 SB Off-Ramp to US 101 SB On-Ramp	Basic	2 Mixed (1 HOT)	21.6 (13.8)	C (B)	21.0 (13.7)	C (B)	21.5 (13.9)	C (B)
US 101 SB On-Ramp	Merge	2 Mixed, 1 AUX (1 HOT)	22.9 (20.6)	C (C)	22.5 (20.5)	C (C)	23.0 (20.0)	C (C)
US 101 SB On-Ramp to Mathilda Off-Ramp	Weave	2 Mixed, 1 AUX (1 HOT)	22.9 (20.6)	C (C)	22.5 (20.5)	C (C)	23.0 (20.0)	C (C)
Mathilda Off-Ramp	Diverge	2 Mixed, 1 AUX (1 HOT)	22.9 (20.6)	C (C)	22.5 (20.5)	C (C)	23.0 (20.0)	C (C)

TABLE 6-11: YEAR 2040 SR 237 AM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternatives		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed (1 HOT)	26.9 (17.9)	D (B)	28.9 (18.5)	D (C)	30.0 (18.0)	D (B)
Mathilda On-Ramp	Merge	2 Mixed (1 HOT)	19.8 (19.7)	C (C)	21.7 (21.2)	C (C)	22.0 (20.5)	C (C)
Mathilda On-Ramp to Persian Off-Ramp	Basic	2 Mixed (1 HOT)	19.8 (19.7)	C (C)	21.7 (21.2)	C (C)	22.0 (20.5)	C (C)
Persian Off-Ramp to Lawrence	Diverge	2 Mixed (1 HOT)	27.8 (18.9)	D (C)	32.0 (20.3)	D (C)	32.7 (19.6)	D (C)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

* Results are preliminary and subject to change pending FREQ model evaluation

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The AM peak hour for SR 237 Westbound occurs between 7:00am and 8:00am.
4. The AM peak hour for SR 237 Eastbound occurs between 8:00am and 9:00am.

Source: Fehr & Peers, 2016.

TABLE 6-12: YEAR 2040 SR 237 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternatives		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
SR 237 Westbound[3]								
Lawrence On-Ramp to Crossman On-Ramp	Basic	2 Mixed (1 HOT)	**110.8** (12.0)	**F** (B)	**110.8** (12.0)	**F** (B)	**110.8** (12.0)	**F** (B)
Crossman On-Ramp	Merge	2 Mixed (1 HOT)	38.3 (12.8)	E (B)	38.3 (12.8)	E (B)	38.3 (12.8)	E (B)
Crossman On-Ramp to Mathilda Off-Ramp	Basic	2 Mixed (1 HOT)	37.6 (12.8)	E (B)	37.7 (12.8)	E (B)	37.7 (12.8)	E (B)
Mathilda Off-Ramp	Diverge	2 Mixed (1 HOT)	21.2 (12.8)	C (B)	21.3 (12.8)	C (B)	21.3 (12.8)	C (B)
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed (1 HOT)	24.4 (10.0)	C (A)	24.4 (10.0)	C (A)	24.4 (10.0)	C (A)
Mathilda On-Ramp to US 101 NB Off-Ramp	Weave	2 Mixed, 1 AUX (1 HOT)	18.8 (10.7)	C (A)	18.8 (10.6)	C (A)	19.2 (10.7)	C (A)
US 101 NB Off-Ramp to US 101 NB On-Ramp	Basic	2 Mixed (1 HOT)	17.7 (7.3)	B (A)	17.5 (7.2)	B (A)	18.0 (7.4)	C (A)
US 101 NB On-Ramp	Merge	2 Mixed (1 HOT)	24.4 (9.3)	C (A)	24.2 (9.1)	C (A)	24.7 (9.3)	C (A)
Maude Off-Ramp	Diverge	2 Mixed (1 HOT)	24.4 (9.3)	C (A)	24.2 (9.1)	C (A)	24.7 (9.3)	C (A)
SR 237 Eastbound[4]								
Maude On-Ramp to US 101 SB Off-Ramp	Weave	2 Mixed, 1 AUX (1 HOT)	**127.7** (16)	**F** (B)	**115.3** (16.0)	**F** (B)	**99.6** (16.0)	**F** (B)
US 101 SB Off-Ramp to US 101 SB On-Ramp	Basic	2 Mixed (1 HOT)	**183.3** (13.0)	**F** (B)	**164.3** (13.0)	**F** (B)	**142.1** (13.0)	**F** (B)
US 101 SB On-Ramp	Merge	2 Mixed, 1 AUX (1 HOT)	**145.4** (17.1)	**F** (B)	**136.6** (16.8)	**F** (B)	**121.1** (16.8)	**F** (B)
US 101 SB On-Ramp to Mathilda Off-Ramp	Weave	2 Mixed, 1 AUX (1 HOT)	**161.1** (17.1)	**F** (B)	**158.2** (16.8)	**F** (B)	**141.6** (16.8)	**F** (B)
Mathilda Off-Ramp	Diverge	2 Mixed, 1 AUX (1 HOT)	**157.8** (17.1)	**F** (B)	**159.6** (16.8)	**F** (B)	**151.3** (16.8)	**F** (B)

TABLE 6-12: YEAR 2040 SR 237 PM PEAK HOUR LEVEL OF SERVICE BASED ON FREQ MODEL RESULTS

Segment	Type[1]	# of Lanes	No Build		Build 1 Alternatives		Build 2 Alternative	
			Density[2]	LOS	Density[2]	LOS	Density[2]	LOS
Mathilda Off-Ramp to Mathilda On-Ramp	Basic	2 Mixed (1 HOT)	**171.8** (16.0)	**F** (B)	**169.3** (15.9)	**F** (B)	**164.1** (15.9)	**F** (B)
Mathilda On-Ramp	Merge	2 Mixed (1 HOT)	**144.0** (18.5)	**F** (C)	**137.7** (18.7)	**F** (C)	**138.4** (18.4)	**F** (C)
Mathilda On-Ramp to Persian Off-Ramp	Basic	2 Mixed (1 HOT)	**107.9** (18.5)	**F** (C)	**102.4** (18.7)	**F** (C)	**102.0** (18.4)	**F** (C)
Persian Off-Ramp to Lawrence	Diverge	2 Mixed (1 HOT)	**148.6** (18.0)	**F** (B)	**142.8** (18.0)	**F** (C)	**142.1** (17.7)	**F** (B)

Note: **Bold** font indicates LOS F conditions.

*Locations marked with an asterisk (*) designate the end of bottleneck congestion. A segment may be designated LOS F even if the density is below the LOS F threshold if any portion of the segment is in queue.

1. Merge, diverge, and weave segments were not calculated differently from basic segments. All results are based on the density produced from FREQ. Weaving segments are further evaluated in the Mainline Weaving Analysis section of this report.
2. Density and LOS results shown as: mixed-flow lanes (HOT lane).
3. The PM peak hour for SR 237 Westbound occurs between 5:00pm and 6:00pm.
4. The PM peak hour for SR 237 Eastbound occurs between 5:00pm and 6:00pm.

Source: Fehr & Peers, 2016.

US 101 Northbound

AM Peak Hour

Under No Build conditions, the existing bottleneck north of the study area at the SR 85 and Shoreline Boulevard ramps would continue to worsen. The bottleneck results in upstream queuing that extends beyond the extents of the study segments. The study segments in queue would operate at LOS F. The northbound HOT lane is anticipated to operate at LOS A/B during the AM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS F) under both Build Alternatives. The northbound HOT lane is anticipated to operate at LOS A/B during the AM peak hour under the Build Alternatives.

PM Peak Hour

During the PM peak hour, a bottleneck would develop north of the study area at the SR 85 and Shoreline Boulevard ramps. This bottleneck exists for No Build and Build conditions. The bottleneck results in upstream queuing that extends throughout the study segments. The northbound HOT lane is anticipated to operate at LOS A during the PM peak hour.

Additional bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS F) under both Build Alternatives. The US 101 northbound results indicate an increase in travel time and mainline vehicle delay with both Build Alternatives. This increase is due to the increase in demand served at the ramp terminal intersection. Under the No Build Alternative, congestion along Mathilda Avenue prevents vehicles from accessing the US 101 northbound on-ramp. However, with both Build Alternatives, more of the demand volume is able to access the ramp, resulting in additional traffic entering US 101 northbound. The northbound HOT lane is anticipated to operate at LOS A during the PM peak hour under the Build Alternatives.

US 101 Southbound

AM Peak Hour

During the AM peak hour, there are no bottlenecks estimated to develop within the study area or spill back into the study area on US 101 southbound. The general purpose lanes operate at LOS B/C throughout the network under No Build conditions. The southbound HOT lane is anticipated to operate at LOS A during the AM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. Most of the general purpose lanes are anticipated to operate at the same level of service as No Build (LOS B/C) under both Build Alternatives. There are slight increases in level of service from LOS B to LOS C under both Build Alternatives between the SR 237 on-ramp and the Mathilda Avenue off-ramp, however, the change in density associated

with these LOS changes is less than one passenger car per hour per lane. The southbound HOT lane is anticipated to operate at LOS A during the AM peak hour under the Build Alternatives.

PM Peak Hour

Under No Build conditions, the existing bottleneck south of the study area at the De La Cruz Boulevard and SR 87 ramps would continue to worsen. The bottleneck results in upstream queuing that extends beyond the extents of the study segments. The study segments in queue would operate at LOS F. The southbound HOT lane is anticipated to operate at LOS A/B during the PM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build (LOS F) under both Build Alternatives. There are increases in density of southbound general purpose lanes south of the Mathilda Avenue interchange due to the shift in demand from SR 237 to US 101 and due to the increase in demand served at the ramp terminal intersection. The southbound HOT lane is anticipated to operate at LOS A/B during the PM peak hour under the Build Alternatives.

SR 237 Westbound

AM Peak Hour

Under No Build conditions, a bottleneck would develop at the Mathilda Avenue off-ramp operating at LOS E and would continue to worsen to LOS F at the Fair Oaks Avenue / Crossman Avenue on-ramp (this bottleneck occurs upstream of the current bottleneck at the US 101 northbound off-ramp) that would spill back beyond the study segments. The study segments in queue would operate at LOS E/F and are anticipated to operate at LOS B/C downstream of the Mathilda Avenue off-ramp. The westbound HOT lane is anticipated to operate at LOS B/C.

Additional bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes west of the bottleneck are anticipated to operate at the same level of service as No Build (LOS B/C) under both Build Alternatives. The westbound HOT lane is anticipated to operate at LOS B/C during the AM peak hour under the Build Alternatives.

PM Peak Hour

Under No Build conditions, a bottleneck would develop at the Mathilda Avenue off-ramp operating at LOS E and would continue to worsen to LOS F at the Fair Oaks Avenue / Crossman Avenue on-ramp (this bottleneck occurs upstream of the current bottleneck at the Mathilda Avenue off-ramp) and spills back beyond the study segments. The study segments in queue would operate at LOS E/F and are anticipated to operate at LOS B/C downstream of the Fair Oaks Avenue on-ramp. The westbound HOT lane is anticipated to operate at LOS A/B during the PM peak hour.

Additional bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at the same level of service as No Build under both Build Alternatives. The

westbound HOT lane is anticipated to operate at LOS A/B during the PM peak hour under the Build Alternatives.

SR 237 Eastbound

AM Peak Hour

During the AM peak hour, there are no bottlenecks estimated to develop within the study area or spill back into the study area on SR 237 eastbound. The general purpose lanes operate at LOS C/D throughout the network under No Build conditions. The eastbound HOT lane is anticipated to operate at LOS B/C during the AM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at approximately the same level of service as No Build (LOS C/D) under both Build Alternatives. The eastbound HOT lane is anticipated to operate at LOS B/C during the AM peak hour under the Build Alternatives. There is a slight increase in density east of the Mathilda Avenue on-ramp. Due to the increase in demand served along Mathilda Avenue, more vehicles are able to access the freeway on-ramp and an additional number of vehicles are estimated to enter the freeway under Build Conditions. This shift in traffic does not adversely affect the results of the freeway LOS results.

PM Peak Hour

Under No Build conditions, a bottleneck would develop east of the study area that most likely is due to the queue spillback from the I-880 ramps. The bottleneck results in upstream queuing that extends beyond the extents of the study network (LOS F). The study segments in queue would operate at LOS F. The eastbound HOT lane is anticipated to operate at LOS B/C during the PM peak hour.

New bottlenecks are not anticipated to develop under the Build Alternatives. The general purpose lanes are anticipated to operate at approximately the same level of service as No Build (LOS F) under both Build Alternatives. The general purpose lane density is anticipated to be slightly less for both Build Alternatives compared to the No Build Alternative due to the shift in traffic access northbound Mathilda Avenue from SR 237 to US 101. The eastbound HOT lane is anticipated to operate at LOS B/C during the PM peak hour under the Build Alternatives.

FREEWAY SYSTEM PERFORMANCE

Year 2040 peak hour system-wide MOEs for the US 101 and SR 237 study corridors are presented in **Table 6-13** and **Table 6-14** for the peak hour and peak period, respectively. These MOEs reflect the overall US 101 operations between the Fair Oaks Avenue and the Ellis Street interchanges and SR 237 operations between the Fair Oaks Avenue and Maude Avenue interchanges. MOEs including average travel time and average speed are the most informative as they relate directly to the traveler experience on US 101 and SR 237 through the corridor. Detailed analysis worksheets are presented in **Appendix P**.

Due to the nature of the project, local street demand served will increase with the project and will put more traffic on the ramps as a result. The increase in on-ramp volume produces some additional delay along the SR 237 eastbound network as see in **Table 6-13** and **Table 6-14**. With the implementation of a full-access interchange at US 101 and Mathilda Avenue, there is a shift in vehicular traffic from SR 237 to US 101. This results in slight increases and decreases in travel time, delay, and maximum individual delay along US 101 southbound and SR 237 eastbound.

As described above, the US 101 northbound results show an increase in travel time and mainline vehicle delay with both Build Alternatives. This increase is due to the increase in demand served at the ramp terminal intersection, which in turn results in additional Mathilda Avenue traffic entering northbound US 101 during peak hours.

TABLE 6-13: YEAR 2040 PEAK HOUR MEASURES OF EFFECTIVENESS

Scenario	Measure of Effectiveness	Peak Hour	No Build Conditions	Build 1 Alternative		Build 2 Alternative	
				Results	% Change	Results	% Change
US 101 Northbound	Vehicle Miles of Travel (vehicle-miles)	AM	12,070	11,930	-1.2%	11,930	-1.2%
		PM	10,400	10,110	-2.9%	10,120	-2.8%
	Average Travel Time (min:sec)	AM	6:32	6:49	4.2%	6:48	3.9%
		PM	11:42	13:03	10.3%	12:44	8.1%
	Average Travel Speed (mph)	AM	19.8	19.0	-4.2%	19.1	-3.7%
		PM	11.1	9.9	-12.1%	10.2	-8.8%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	290	300	3.3%	300	3.3%
		PM	602	678	11.2%	658	8.5%
US 101 Southbound	Vehicle Miles of Travel (vehicle-miles)	AM	11,190	11,450	2.3%	11,380	1.7%
		PM	13,230	13,150	-0.6%	13,210	-0.2%
	Average Travel Time (min:sec)	AM	1:58	1:58	0.0%	1:58	0.0%
		PM	11:16	11:49	4.7%	11:19	0.4%
	Average Travel Speed (mph)	AM	64.1	64.1	0.0%	64.1	0.0%
		PM	11.2	10.7	-4.7%	11.1	-0.9%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	2	2	0.0%	2	0.0%
		PM	715	747	4.3%	717	.3%
SR 237 Westbound	Vehicle Miles of Travel (vehicle-miles)	AM	12,660	12,690	0.2%	12,680	0.2%
		PM	8,750	8,730	-0.2%	8,800	0.6%
	Average Travel Time (min:sec)	AM	2:36	2:36	0.0%	2:36	0.0%
		PM	3:09	3:09	0.0%	3:09	0.0%
	Average Travel Speed (mph)	AM	51.6	51.6	0.0%	51.6	0.0%
		PM	42.6	42.6	0.0%	42.6	0.0%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	50	50	0.0%	50	0.0%
		PM	61	61	0.0%	61	0.0%
SR 237 Eastbound	Vehicle Miles of Travel (vehicle-miles)	AM	10,540	11,040	4.5%	11,120	5.2%
		PM	8,520	8,690	2.0%	8,780	3.0%
	Average Travel Time (min:sec)	AM	2:11	2:14	2.2%	2:14	2.2%
		PM	20:45	19:52	-4.4%	17:41	-17.3%
	Average Travel Speed (mph)	AM	61.4	60.0	-2.3%	60.0	-2.3%
		PM	6.5	6.7	3.0%	7.6	14.5%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	8	11	27.7%	12	30.8%
		PM	717	694	-3.3%	635	-12.9%

Notes:

1. US 101 Northbound AM and PM peak hour is between 7:00AM and 8:00AM and 5:00PM to 6:00PM, respectively.
2. US 101 Southbound AM and PM peak hour is between 7:00AM and 8:00AM and 5:00PM to 6:00PM, respectively.
3. SR 237 Westbound AM and PM peak hour is between 7:00AM and 8:00AM and 5:00PM to 6:00PM, respectively.
4. SR 237 Eastbound AM and PM peak hour is between 8:00AM and 9:00AM and 5:00PM to 6:00PM, respectively.

Source: Fehr & Peers, 2016.

TABLE 6-14: YEAR 2040 PEAK PERIOD MEASURES OF EFFECTIVENESS

Scenario	Measure of Effectiveness	Peak Hour	No Build Conditions	Build 1 Alternative		Build 2 Alternative	
				Results	% Change	Results	% Change
US 101 Northbound	Vehicle Miles of Travel (vehicle-miles)	AM	25,810	25,530	-1.1%	25,540	-1.1%
		PM	32,500	31,660	-2.7%	31,700	-2.5%
	Average Travel Time (min:sec)	AM	6:36	7:04	6.6%	7:02	6.2%
		PM	10:11	11:05	8.1%	10:58	7.1%
	Average Travel Speed (mph)	AM	19.6	18.3	-7.1%	18.4	-6.5%
		PM	12.7	11.7	-8.5%	11.8	-7.6%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	660	730	9.6%	720	8.3%
		PM	1,562	1,703	8.3%	1,683	7.2%
	Maximum Individual Vehicle Delay (min:sec)	AM	4:40	5:19	12.2%	5:16	11.4%
		PM	14:32	15:43	7.5%	15:43	7.5%
US 101 Southbound	Vehicle Miles of Travel (vehicle-miles)	AM	23,650	24,380	3.0%	24,180	2.2%
		PM	35,910	35,760	-0.4%	35,910	0.0%
	Average Travel Time (min:sec)	AM	1:59	2:01	1.7%	2:00	0.8%
		PM	11:16	11:33	2.5%	11:15	-0.1%
	Average Travel Speed (mph)	AM	63.6	62.5	-1.8%	63.1	-0.8%
		PM	11.2	10.9	-2.8%	11.2	0.0%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	8	12	33.3%	10	20.0%
		PM	1,906	1,946	2.1%	1903	-0.2%
	Maximum Individual Vehicle Delay (min:sec)	AM	0:05	0:06	16.7%	0:06	16.7%
		PM	9:55	10:05	1.7%	9:51	-0.7%
SR 237 Westbound	Vehicle Miles of Travel (vehicle-miles)	AM	20,030	20,090	0.3%	20,070	0.2%
		PM	27,300	27,230	-0.3%	27,410	0.4%
	Average Travel Time (min:sec)	AM	2:33	2:33	0.0%	2:33	0.0%
		PM	3:01	3:01	0.0%	3:01	0.0%
	Average Travel Speed (mph)	AM	52.6	52.6	0.0%	52.6	0.0%
		PM	44.5	44.5	0.0%	44.5	0.0%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	110	110	0.0%	110	0.0%
		PM	163	163	0.0%	163	0.0%
	Maximum Individual Vehicle Delay (min:sec)	AM	0:32	0:32	0.0%	0:32	0.0%
		PM	1:05	1:05	0.0%	1:05	0.0%
SR 237 Eastbound	Vehicle Miles of Travel (vehicle-miles)	AM	19,060	20,050	4.9%	20,080	5.1%
		PM	22,020	22,820	3.5%	23,240	5.2%
	Average Travel Time (min:sec)	AM	2:10	2:12	1.5%	2:12	1.5%
		PM	14:31	13:22	-8.6%	11:50	-22.7%
	Average Travel Speed (mph)	AM	61.8	60.9	-1.5%	60.9	-1.5%
		PM	9.2	10.0	8.0%	11.3	18.6%
	Mainline Vehicle Delay (vehicle-hours) [1]	AM	14	17	20.0%	18	22.3%
		PM	1,497	1,441	-3.9%	1,345	-11.3%
	Maximum Individual Vehicle Delay (min:sec)	AM	0:07	0:10	30.0%	0:10	30.0%
		PM	18:41	17:49	-4.9%	15:38	-19.5%

Source: Fehr & Peers, 2016.

MAINLINE WEAVING ANALYSIS

Per Caltrans' requirements, **Table 6-15** summarizes the Year 2040 Leisch Method AM and PM peak hour mainline weaving analysis at the US 101/Mathilda Avenue and SR 237/Mathilda Avenue interchanges. The Leisch Method analysis was applied for the constrained mainline and ramp volumes as determined by the FREQ models. The Leisch Method has a limitation of 3,600 passenger cars per hour for weaving volumes and a weaving length of 6,000 feet. There are no segments that are outside of the provided parameters.

The SR 237 eastbound weaving section improves from an LOS E to LOS D in the PM peak hour under both Build Alternatives while the US 101 southbound weaving section decreases from an LOS C to LOS E in the PM peak hour with the given shift in traffic due to the full access interchange at US 101/Mathilda Avenue. **Appendix Q** provides the Leisch analysis worksheets. These results differ from the FREQ results presented earlier due to the following reasons:

- Leisch Method uses default mainline capacities while the FREQ models use calibrated capacities to reflect observed conditions;
- Leisch Method evaluates mainline segments in isolation where bottlenecks and mainline queuing do not impact downstream or upstream traffic. FREQ models consider the effects of the bottlenecks and mainline queuing on the entire mainline system.

TABLE 6-15: YEAR 2040 PEAK HOUR WEAVING ANALYSIS BASED ON LEISCH METHOD

Freeway	Location	Direction	Number of Lanes	No Build	Build 1	Build 2
AM						
US 101	SR 237 EB on-ramp to Mathilda Avenue off-ramp	SB	2 HOT 3 Mainline 1 Aux Lane	D	E	E
SR 237	Mathilda Avenue on-ramp to US 101 NB off-ramp	WB	1 HOT 2 Mainline 1 Aux Lane	D	D	D
	US 101 SB on-ramp to Mathilda Avenue off-ramp	EB	1 HOT 2 Mainline 1 Aux Lane	**F**	**F**	**F**
PM						
US 101	SR 237 EB on-ramp to Mathilda Avenue off-ramp	SB	2 HOT 3 Mainline 1 Aux Lane	C	E	E
SR 237	Mathilda Avenue on-ramp to US 101 NB off-ramp	WB	1 HOT 2 Mainline 1 Aux Lane	**F**	E	E
	US 101 SB on-ramp to Mathilda Avenue off-ramp	EB	1 HOT 2 Mainline 1 Aux Lane	E	D	D

Notes: **Bold** indicates weaving section operates at LOS F under un-congested conditions.
Source: Fehr & Peers, 2016.

7. TRAFFIC ANALYSIS SUMMARY

This section summarizes the results of the Opening Year 2018 and Design Year 2040 AM and PM peak hour traffic analysis results for the Mathilda Avenue Improvements between SR 237 and US 101 in Sunnyvale, California. The Build Alternatives are compared against the No Build Alternative in the following areas:

- **Intersection operations**: overall peak hour intersection delay, percent of demand served, and average travel times.
- **Freeway operations**: freeway mainline and ramp operations, and weaving section operations.
- **Bicycle and pedestrian conditions**: conditions for bicycle and pedestrians travelling in the corridor.

INTERSECTION OPERATIONS

Intersection operations are summarized in terms of the (1) peak hour delay, (2) percent of vehicle traffic demand served, and (3) average vehicle travel times.

PEAK HOUR DELAY

Under No Build conditions most study intersections along Mathilda Avenue are anticipated to operate at LOS F in both peak hours by Year 2018, a trend that is expected to continue to worsen to conditions resembling system gridlock in Year 2040. Compared to the No Build Alternative, there is an overall reduction in peak hour delay on local streets, as listed below, for both Build Alternatives.

- Build 1 Alternative Peak Hour Delay Reduction
  - Year 2018 AM Peak Hour – 63%
  - Year 2018 PM Peak Hour – 15%
  - Year 2040 AM Peak Hour – 35%
  - Year 2040 PM Peak Hour – 18%
- Build 2 Alternative Peak Hour Delay Reduction
  - Year 2018 AM Peak Hour – 42%
  - Year 2018 PM Peak Hour – 26%
  - Year 2040 AM Peak Hour – 14%
  - Year 2040 PM Peak Hour – 15%

While conditions are improved compared to No Build conditions, in the PM peak hour for the Build 1 Alternative the SR 237 ramp terminal intersections continue to act as a bottleneck for southbound traffic along Mathilda Avenue and eastbound traffic on Moffett Park Drive. By comparison, the key constraint point is moved upstream to the Mathilda Avenue/Innovation Way intersection in the PM peak hour under the Build 2 Alternative due to the large increase in traffic demand at this intersection, which lessens the benefit of the Build 2 Alternative compared to the Build 1 Alternative.

VEHICLE TRAFFIC DEMAND SERVED

Compared to the No Build Alternative, both Build Alternatives would increase the percent of peak hour traffic demand served through local intersections along the Mathilda Avenue corridor and at nearby study

intersections. The Build 1 Alternative provides a slightly larger increase in percent demand served on local streets when compared to the Build 2 Alternative.

Under Year 2018 conditions, the overall percent demand served increases by approximately 10 percent and 4 percent in the AM and PM peak hours, respectively, under the Build 1 Alternative and 6 percent in the AM and PM peak hours under the Build 2 Alternative. In Year 2040, the overall percent demand served increases by approximately 7 to 9 percent in the AM and PM peak hours under the Build 1 Alternative and by approximately 4 to 6 percent in the AM and PM peak hours, respectively, under the Build 2 Alternative.

TRAVEL TIMES

Both Build Alternatives would reduce the average travel time along Mathilda Avenue and increase the average travel speed on Mathilda Avenue in both the northbound and southbound directions when compared to No Build conditions, with the exception of Build 1 Alternative southbound Year 2018 PM peak hour travel times on Mathilda Avenue. Travel times under this scenario would slightly increase by approximately six percent, or 68 seconds, compared to No Build conditions due to slight increases in queue backups on southbound Mathilda Avenue north of SR 237; however, overall system-wide delay would still decrease compared to No Build conditions. Under all scenarios, the "combined" northbound and southbound travel time along Mathilda Avenue is expected to be reduced by at least 18 percent under the Build 1 Alternative and 27 percent under the Build 2 Alternative as indicated below.

- Build 1 Alternative "Combined" Mathilda Avenue Travel Time Reduction*
  - Year 2018 AM Peak Hour – 36%
  - Year 2018 PM Peak Hour – 18%
  - Year 2040 AM Peak Hour – 47%
  - Year 2040 PM Peak Hour – 21%
- Build 2 Alternative "Combined" Mathilda Avenue Travel Time Reduction*
  - Year 2018 AM Peak Hour – 29%
  - Year 2018 PM Peak Hour – 31%
  - Year 2040 AM Peak Hour – 48%
  - Year 2040 PM Peak Hour – 27%

*Indicates combined northbound and southbound travel time percent reduction for each peak hour showing overall Mathilda Avenue reductions in travel time.

FREEWAY OPERATIONS

Congestion at the US 101/Mathilda Avenue and SR 237/Mathilda Avenue interchanges under No Build conditions is anticipated to result in vehicle queue spillback onto the freeway mainlines during the AM and PM peak hours. In Year 2018, both Build Alternatives would improve ramp operations and result in little to no vehicle queue spillback onto the freeway mainlines. In Year 2040, some queue spillback is anticipated to return at some off-ramps, though queues will be substantially less than No Build conditions.

Freeway operations under No Build conditions result in mostly LOS F operations throughout the study area in the peak commute directions during both peak hours. Under Year 2018, there is a slight decrease in density in the PM peak hour on SR 237 eastbound between US 101 southbound on-ramp and the Mathilda Avenue off-ramp due to the shift in traffic induced with the project. This shift in traffic results in a slight increase in congestion on US 101 southbound between SR 237 eastbound on-ramp and the Mathilda

Avenue off-ramp. However, both Build Alternatives are not anticipated to change the freeway LOS and will have negligible effects on peak hour freeway congestion levels. Under Year 2040 No Build Conditions, the SR 237 westbound bottleneck moves upstream to the Fair Oaks Avenue on-ramp, and congestion on the mixed-flow lanes worsens compared to Year 2018. Both Build Alternatives are not anticipated to add additional bottlenecks. However, both Build Alternatives will slightly increase the length of the queuing along SR 237 eastbound in the PM peak hour due to increased on-ramp throughput.

Both Build Alternatives would eliminate the short, non-standard weaving segment on northbound US 101 between the on-ramp from northbound Mathilda Avenue and the off-ramp to southbound Mathilda Avenue. Similarly, both Build Alternatives will also eliminate the short weaving segment on southbound Mathilda Avenue between the northbound US 101 loop off-ramp and the southbound US 101 loop on-ramp. Removing weaving sections and lane drops will eliminate speed differentials along US 101 and southbound Mathilda Avenue may reduce the potential for rear-end and lane-change collisions in these areas.

In Year 2040, the SR 237 eastbound weaving section between US 101 and Mathilda Avenue off-ramp improves from an LOS E to LOS D in the PM peak hour under both Build Alternatives. In addition, the SR 237 westbound weaving section between the Mathilda Avenue on-ramp and US 101 is anticipated to improve from an LOS F to LOS E in the PM peak hour under both Build Alternatives, while the US 101 southbound weaving section between SR 237 and the Mathilda Avenue off-ramp decreases from an LOS C to LOS E in the PM peak hour with the given shift in traffic due to the full access interchange at US 101 and Mathilda Avenue.

BICYCLE AND PEDESTRIAN CONDITIONS

The Build Alternatives would also enhance pedestrian and bicycle facilities in the corridor, including along Mathilda Avenue and Moffett Park Drive. The following improvements to bicycle and pedestrian and conditions would be made:

- New pedestrian and bicycle facilities
    - New east-west Class I trails on Moffett Park Drive
    - Class II bicycle lanes on Mathilda Avenue
    - Continuous sidewalks on east side of Mathilda Avenue
- Controlled and more convenient pedestrian crossings
    - Eliminate uncontrolled ramp movements and construct tee-intersections for US 101 off-ramps to Mathilda Avenue
    - Crosswalks with optimum crossing distance and pedestrian refuges where applicable
    - Enhanced pavement delineation and signing treatments
- Improved bike circulation and connectivity
    - Improved bicycle connections between Mathilda Avenue and Moffett Park Drive
- Improvements to increase ADA access
    - New accessible curb ramps confirming to ADA guidelines
    - Pedestrian countdown signals at new or modified intersections

- Pushbutton-integrated Accessible Pedestrian Signals (APS)

CONCLUSIONS

There are several key conclusions based on the results of the freeway mainline and intersection level of service operations analysis. Conclusions for the traffic and transportation section of the PA/ED can be described as follows:

1) Based on the results in the TOAR, the existing Mathilda Avenue interchanges with US 101 and SR 237 currently do not provide sufficient capacity for Existing (2013) traffic volumes and will not provide sufficient capacity to serve the projected Year 2018 and Year 2040 traffic volumes.
2) Based on the results shown in the TOAR, Build 1 Alternative provides a larger increase in percent demand served on local streets when compared to the Build 2 Alternative.
3) Peak hour travel times along Mathilda Avenue during Year 2040 are anticipated to decrease with both Build Alternatives.
4) For both Build Alternatives, overall peak hour and peak period freeway operations are expected to be generally similar to No Build conditions. Construction of the full access interchange at US 101 and Mathilda Avenue would result in a slightly higher freeway mainline density along some sections of US 101 and a slightly lower density along SR 237. Differences in operations results for specific freeway sections are generally minor and are not expected to result in substantial changes to overall freeway performance.
5) Improved bicycle and pedestrian connectivity and new facilities to provide a broader range of pedestrian and bicycle access options.

APPENDIX A – RAW TRAFFIC COUNTS

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File Name : 1AM FINAL
Site Code : 00000001
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					5TH AVE Westbound					N MATHILDA AVE Northbound					5TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	5	19	0	0	24	1	0	1	0	2	7	176	11	1	195	3	1	2	0	6	227
07:15 AM	5	25	1	1	32	1	2	1	0	4	10	170	8	0	188	0	0	4	1	5	229
07:30 AM	7	30	3	0	40	1	0	0	2	3	11	149	10	3	173	3	1	1	0	5	221
07:45 AM	10	40	3	0	53	3	3	2	5	13	10	184	14	7	215	4	1	1	0	6	287
Total	27	114	7	1	149	6	5	4	7	22	38	679	43	11	771	10	3	8	1	22	964
08:00 AM	12	54	0	0	66	0	2	5	0	7	6	196	14	1	217	5	1	3	0	9	299
08:15 AM	15	51	3	1	70	1	1	3	2	7	9	200	12	5	226	1	2	3	2	8	311
08:30 AM	15	57	2	3	77	0	2	2	2	6	12	186	10	10	218	3	0	5	3	11	312
08:45 AM	17	61	2	0	80	1	3	5	2	11	22	204	6	7	239	5	3	3	0	11	341
Total	59	223	7	4	293	2	8	15	6	31	49	786	42	23	900	14	6	14	5	39	1263
Grand Total	86	337	14	5	442	8	13	19	13	53	87	1465	85	34	1671	24	9	22	6	61	2227
Apprch %	19.5	76.2	3.2	1.1		15.1	24.5	35.8	24.5		5.2	87.7	5.1	2		39.3	14.8	36.1	9.8		
Total %	3.9	15.1	0.6	0.2	19.8	0.4	0.6	0.9	0.6	2.4	3.9	65.8	3.8	1.5	75	1.1	0.4	1	0.3	2.7	

	N MATHILDA AVE Southbound				5TH AVE Westbound				N MATHILDA AVE Northbound				5TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	12	54	0	66	0	2	**5**	7	6	196	**14**	216	**5**	1	3	9	298
08:15 AM	15	51	**3**	69	**1**	1	3	5	9	200	12	221	1	2	3	6	301
08:30 AM	15	57	2	74	0	2	2	4	12	186	10	208	3	0	**5**	8	294
08:45 AM	**17**	**61**	2	**80**	1	**3**	5	**9**	**22**	**204**	6	**232**	5	**3**	3	**11**	**332**
Total Volume	59	223	7	289	2	8	15	25	49	786	42	877	14	6	14	34	1225
% App. Total	20.4	77.2	2.4		8	32	60		5.6	89.6	4.8		41.2	17.6	41.2		
PHF	.868	.914	.583	.903	.500	.667	.750	.694	.557	.963	.750	.945	.700	.500	.700	.773	.922

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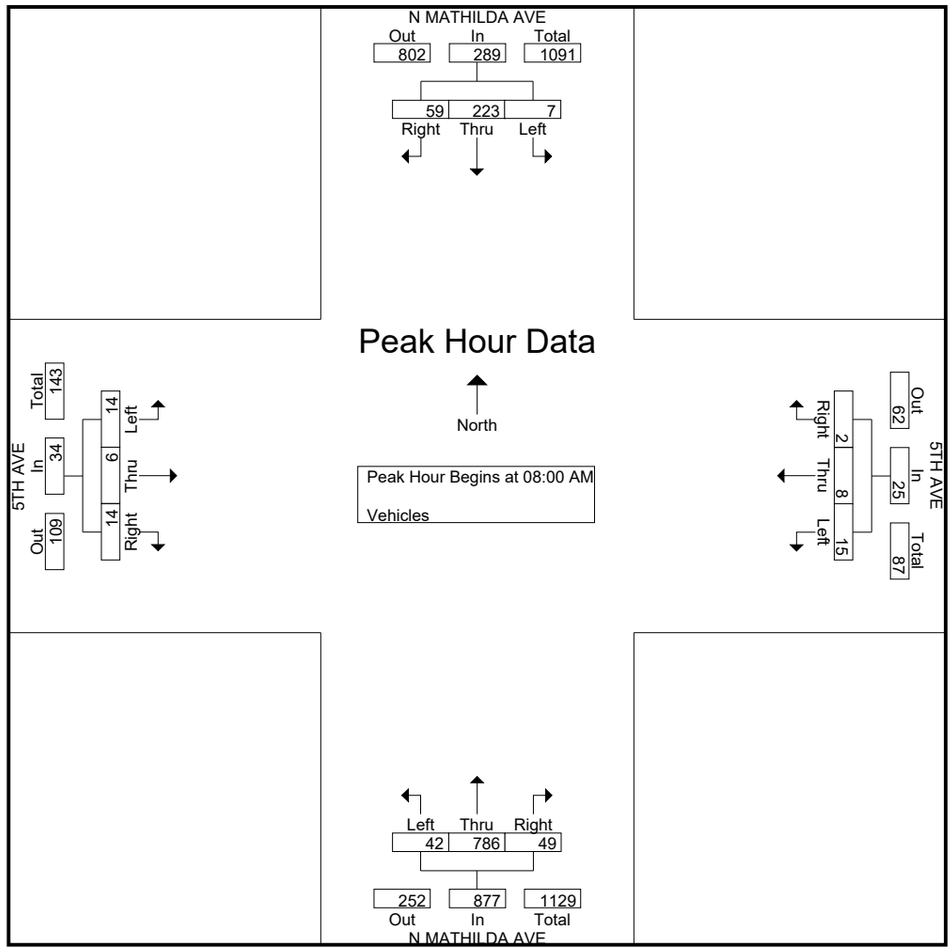

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File Name : 1AM FINAL
Site Code : 00000001
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Page No : 1

Groups Printed- Bikes

	N MATHILDA AVE Southbound					5TH AVE Westbound					N MATHILDA AVE Northbound					5TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
Grand Total	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	4
Apprch %	50	50	0	0		0	0	0	0		0	100	0	0		0	100	0	0		
Total %	25	25	0	0	50	0	0	0	0	0	0	25	0	0	25	0	25	0	0	25	

	N MATHILDA AVE Southbound				5TH AVE Westbound				N MATHILDA AVE Northbound				5TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	**1**	0	1	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**2**
Total Volume	1	1	0	2	0	0	0	0	0	0	0	0	0	1	0	1	3
% App. Total	50	50	0		0	0	0		0	0	0		0	100	0		
PHF	.250	.250	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.375

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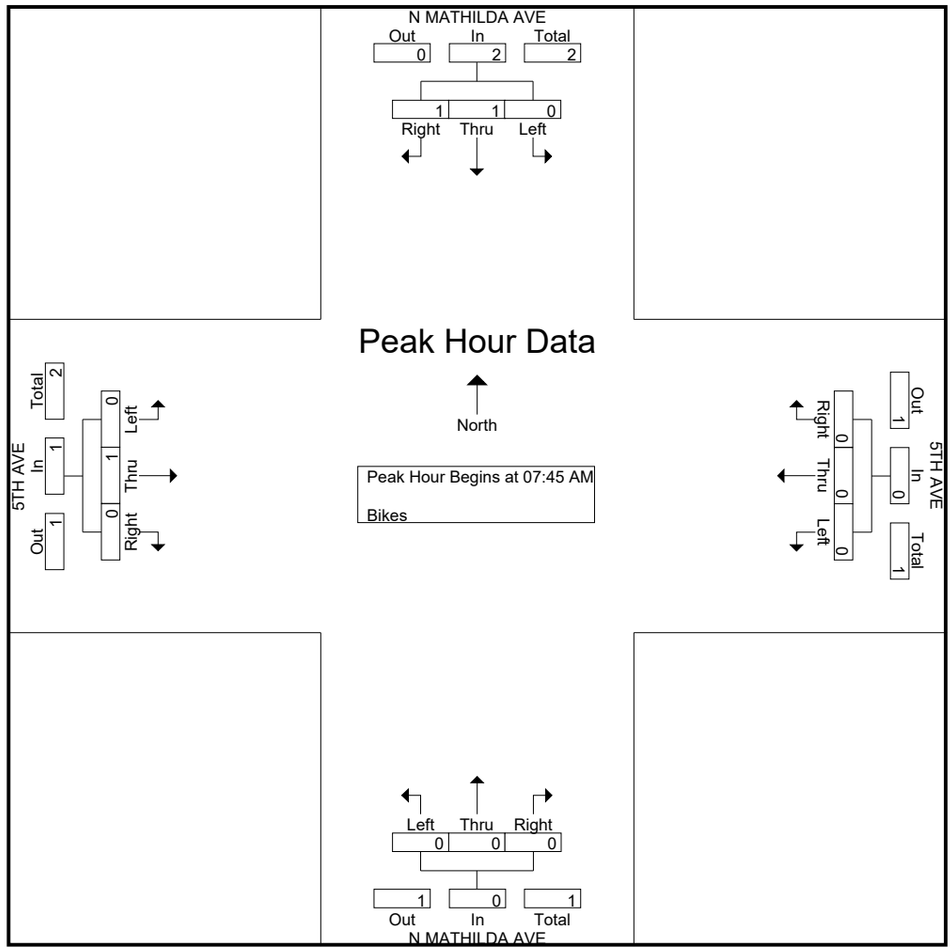

Traffic Data Service

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File Name : 1PM FINAL
Site Code : 00000001
Start Date : 11/13/2013
Page No : 1

Groups Printed- Vehicles

	N MATHILDA AVE Southbound					5TH AVE Westbound					N MATHILDA AVE Northbound					5TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	8	235	1	0	244	1	1	24	2	28	2	37	13	8	60	9	2	6	2	19	351
04:15 PM	1	159	3	0	163	0	1	40	3	44	6	33	11	12	62	7	6	3	3	19	288
04:30 PM	5	260	2	0	267	1	1	34	0	36	5	48	9	12	74	8	1	3	0	12	389
04:45 PM	7	176	0	0	183	1	1	26	2	30	4	42	17	14	77	10	3	6	0	19	309
Total	21	830	6	0	857	3	4	124	7	138	17	160	50	46	273	34	12	18	5	69	1337
05:00 PM	4	257	0	0	261	0	0	60	4	64	7	47	14	9	77	10	4	13	0	27	429
05:15 PM	2	258	1	1	262	3	2	51	0	56	5	58	21	10	94	9	3	7	0	19	431
05:30 PM	3	237	2	2	244	3	1	42	0	46	10	40	24	8	82	11	3	12	0	26	398
05:45 PM	0	230	0	0	230	2	1	48	0	51	10	46	27	8	91	15	7	6	0	28	400
Total	9	982	3	3	997	8	4	201	4	217	32	191	86	35	344	45	17	38	0	100	1658
06:00 PM	4	213	0	3	220	1	1	38	0	40	5	36	4	11	56	14	9	14	4	41	357
06:15 PM	0	215	0	0	215	1	2	41	0	44	6	42	9	4	61	3	2	4	2	11	331
06:30 PM	3	220	0	1	224	2	1	27	0	30	2	31	5	2	40	7	2	4	1	14	308
06:45 PM	0	131	0	2	133	4	0	38	0	42	0	26	10	1	37	5	1	2	1	9	221
Total	7	779	0	6	792	8	4	144	0	156	13	135	28	18	194	29	14	24	8	75	1217
Grand Total	37	2591	9	9	2646	19	12	469	11	511	62	486	164	99	811	108	43	80	13	244	4212
Apprch %	1.4	97.9	0.3	0.3		3.7	2.3	91.8	2.2		7.6	59.9	20.2	12.2		44.3	17.6	32.8	5.3		
Total %	0.9	61.5	0.2	0.2	62.8	0.5	0.3	11.1	0.3	12.1	1.5	11.5	3.9	2.4	19.3	2.6	1	1.9	0.3	5.8	

	N MATHILDA AVE Southbound				5TH AVE Westbound				N MATHILDA AVE Northbound				5TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**4**	257	0	**261**	0	0	**60**	**60**	7	47	14	68	10	4	**13**	27	416
05:15 PM	2	**258**	1	261	**3**	**2**	51	56	5	**58**	21	**84**	9	3	7	19	**420**
05:30 PM	3	237	**2**	242	3	1	42	46	**10**	40	24	74	11	3	12	26	388
05:45 PM	0	230	0	230	2	1	48	51	10	46	**27**	83	**15**	**7**	6	**28**	392
Total Volume	9	982	3	994	8	4	201	213	32	191	86	309	45	17	38	100	1616
% App. Total	0.9	98.8	0.3		3.8	1.9	94.4		10.4	61.8	27.8		45	17	38		
PHF	.563	.952	.375	.952	.667	.500	.838	.888	.800	.823	.796	.920	.750	.607	.731	.893	.962

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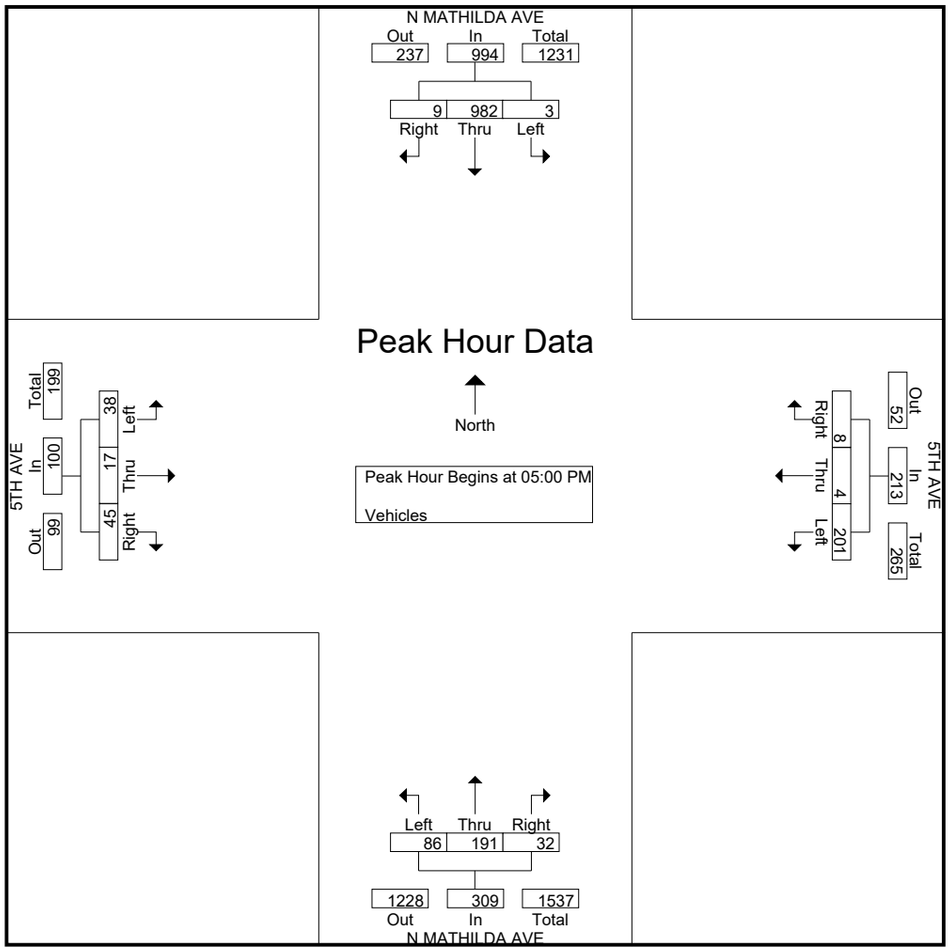

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File Name : 1PM FINAL
Site Code : 00000001
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					5TH AVE Westbound					N MATHILDA AVE Northbound					5TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	1	4	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
06:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3
06:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
06:45 PM	1	2	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	1	5	0	0	6	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	8
Grand Total	2	10	0	0	12	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	15
Apprch %	16.7	83.3	0	0		0	0	0	0		0	0	0	0		33.3	66.7	0	0		
Total %	13.3	66.7	0	0	80	0	0	0	0	0	0	0	0	0	0	6.7	13.3	0	0	20	

	N MATHILDA AVE Southbound				5TH AVE Westbound				N MATHILDA AVE Northbound				5TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:00 PM																	
06:00 PM	0	**2**	0	2	0	0	0	0	0	0	0	0	0	**1**	0	**1**	**3**
06:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
06:45 PM	**1**	2	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	1	5	0	6	0	0	0	0	0	0	0	0	0	2	0	2	8
% App. Total	16.7	83.3	0		0	0	0		0	0	0		0	100	0		
PHF	.250	.625	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.667

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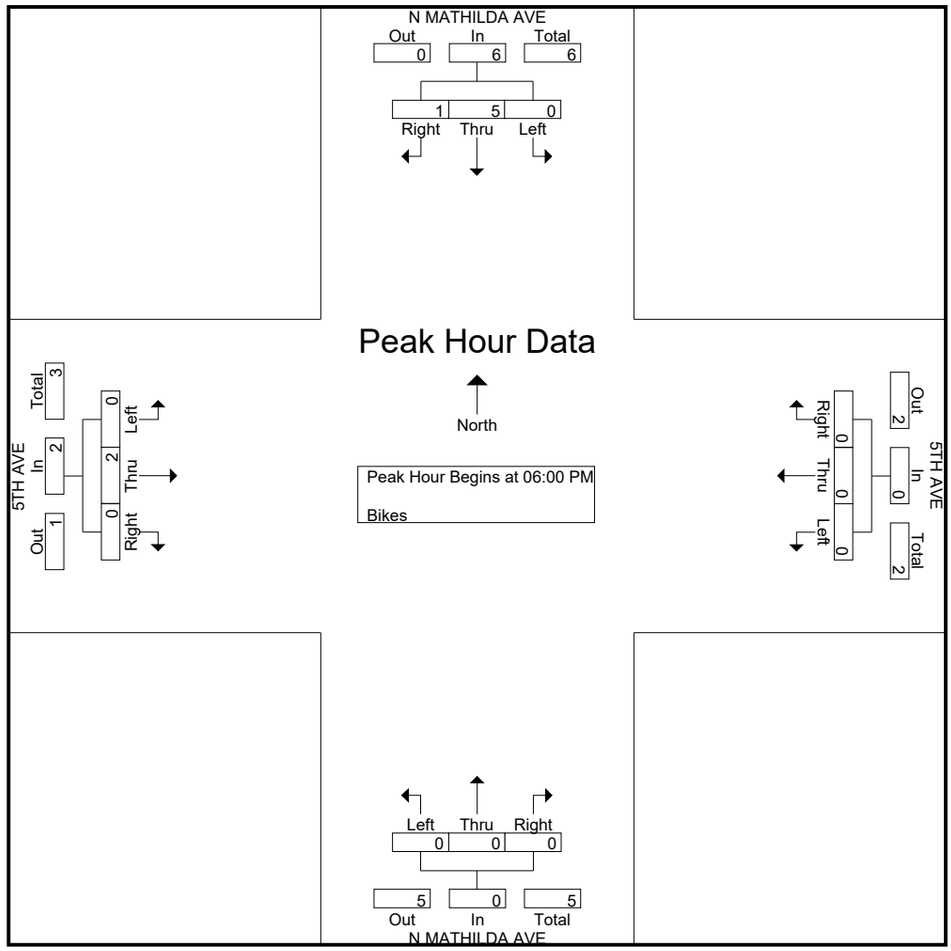

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File Name : 8AM FINAL
Site Code : 00000008
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					INNOVATION WAY Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	8	18	0	1	27	0	0	0	2	2	0	196	47	0	243	1	0	1	0	2	274
07:15 AM	6	25	0	0	31	0	0	0	1	1	0	200	41	0	241	3	0	0	1	4	277
07:30 AM	4	32	0	0	36	0	0	0	1	1	0	173	83	0	256	2	0	2	0	4	297
07:45 AM	11	36	1	4	52	0	0	0	5	5	0	202	78	0	280	5	0	2	1	8	345
Total	29	111	1	5	146	0	0	0	9	9	0	771	249	0	1020	11	0	5	2	18	1193
08:00 AM	19	47	0	0	66	0	0	0	0	0	0	220	90	2	312	9	0	4	0	13	391
08:15 AM	14	47	0	1	62	0	0	0	0	0	0	241	89	3	333	11	0	1	0	12	407
08:30 AM	8	58	0	1	67	0	0	0	0	0	0	244	88	0	332	8	0	5	0	13	412
08:45 AM	21	56	1	0	78	0	0	0	0	0	0	284	118	0	402	9	0	4	1	14	494
Total	62	208	1	2	273	0	0	0	0	0	0	989	385	5	1379	37	0	14	1	52	1704
Grand Total	91	319	2	7	419	0	0	0	9	9	0	1760	634	5	2399	48	0	19	3	70	2897
Apprch %	21.7	76.1	0.5	1.7		0	0	0	100		0	73.4	26.4	0.2		68.6	0	27.1	4.3		
Total %	3.1	11	0.1	0.2	14.5	0	0	0	0.3	0.3	0	60.8	21.9	0.2	82.8	1.7	0	0.7	0.1	2.4	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				INNOVATION WAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	19	47	0	66	0	0	0	0	0	220	90	310	9	0	4	**13**	389
08:15 AM	14	47	0	61	0	0	0	0	0	241	89	330	**11**	0	1	12	403
08:30 AM	8	**58**	0	66	0	0	0	0	0	244	88	332	8	0	**5**	13	411
08:45 AM	**21**	56	**1**	**78**	0	0	0	0	0	**284**	**118**	**402**	9	0	4	13	**493**
Total Volume	62	208	1	271	0	0	0	0	0	989	385	1374	37	0	14	51	1696
% App. Total	22.9	76.8	0.4		0	0	0		0	72	28		72.5	0	27.5		
PHF	.738	.897	.250	.869	.000	.000	.000	.000	.000	.871	.816	.854	.841	.000	.700	.981	.860

Traffic Data Service

Campbell, CA

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File Name : 8AM FINAL
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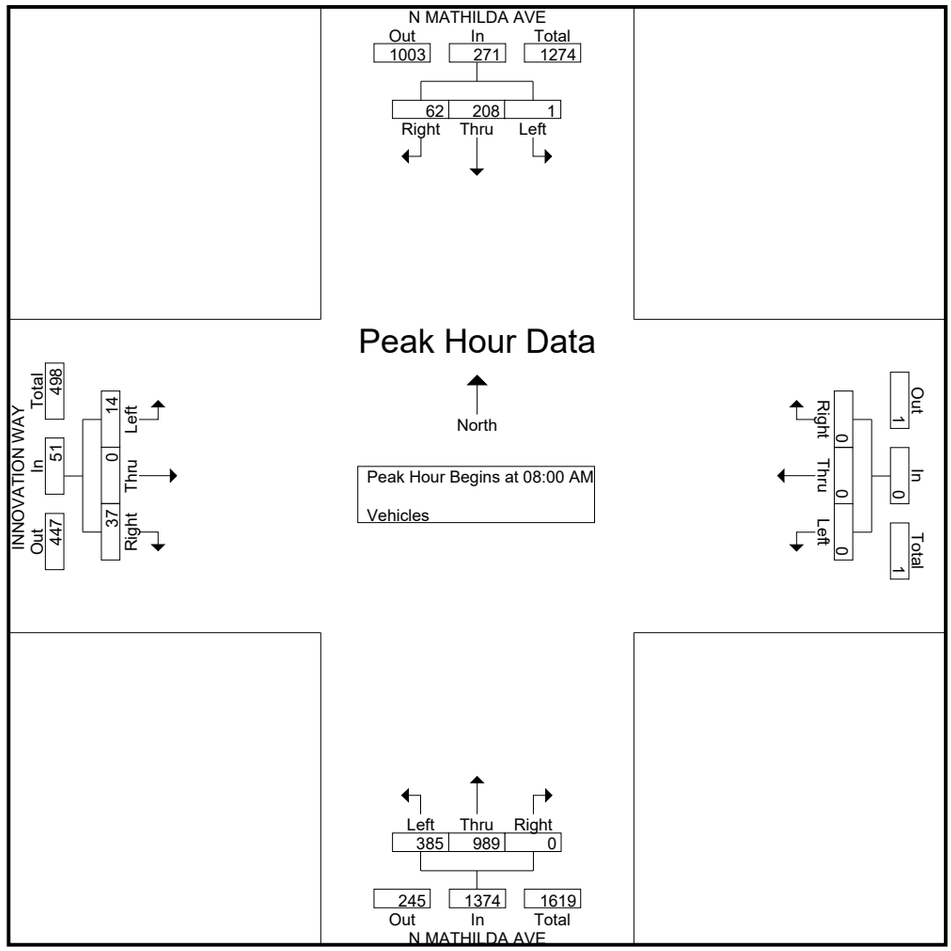

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File Name : 8AM FINAL
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					INNOVATION WAY Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
Apprch %	0	0	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				INNOVATION WAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**1**
08:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	2
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.500

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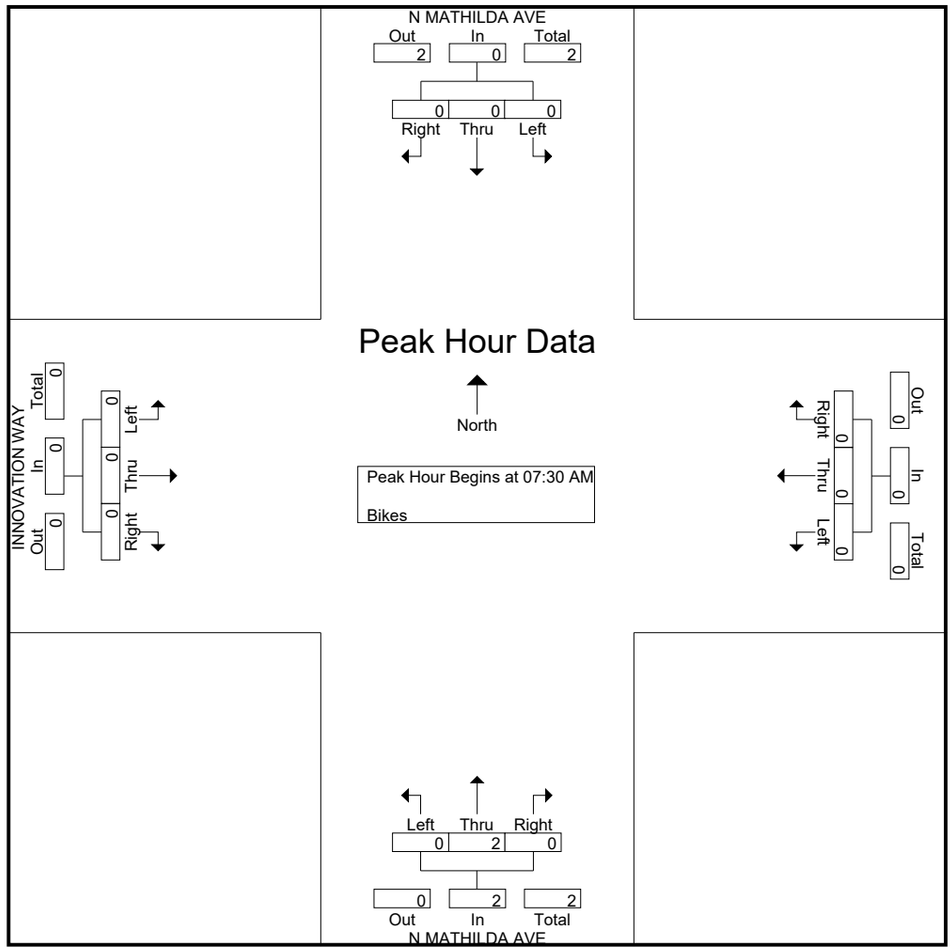

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File Name : 8PM FINAL
Site Code : 00000008
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					INNOVATION WAY Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	258	0	1	259	0	0	0	0	0	0	48	10	1	59	62	0	7	0	69	387
04:15 PM	4	232	0	5	241	0	0	0	3	3	0	40	8	0	48	63	0	7	0	70	362
04:30 PM	2	279	0	4	285	0	0	0	0	0	0	37	7	0	44	71	0	10	1	82	411
04:45 PM	4	237	0	1	242	0	0	0	2	2	0	49	14	0	63	95	0	6	0	101	408
Total	10	1006	0	11	1027	0	0	0	5	5	0	174	39	1	214	291	0	30	1	322	1568
05:00 PM	10	343	0	1	354	0	0	0	0	0	0	40	12	0	52	122	0	16	0	138	544
05:15 PM	11	326	0	0	337	0	0	0	2	2	0	58	11	0	69	117	0	15	1	133	541
05:30 PM	7	314	0	1	322	0	0	0	1	1	0	44	18	0	62	106	0	15	0	121	506
05:45 PM	8	291	0	0	299	0	0	0	1	1	0	49	20	0	69	114	0	18	0	132	501
Total	36	1274	0	2	1312	0	0	0	4	4	0	191	61	0	252	459	0	64	1	524	2092
06:00 PM	2	287	1	0	290	0	0	0	1	1	0	34	15	0	49	84	0	8	1	93	433
06:15 PM	1	264	0	0	265	0	0	0	0	0	0	45	10	0	55	76	0	11	0	87	407
06:30 PM	3	232	0	2	237	0	0	0	2	2	0	30	8	0	38	54	0	9	0	63	340
06:45 PM	3	189	0	0	192	0	0	0	1	1	0	29	12	0	41	58	0	4	0	62	296
Total	9	972	1	2	984	0	0	0	4	4	0	138	45	0	183	272	0	32	1	305	1476
Grand Total	55	3252	1	15	3323	0	0	0	13	13	0	503	145	1	649	1022	0	126	3	1151	5136
Apprch %	1.7	97.9	0	0.5		0	0	0	100		0	77.5	22.3	0.2		88.8	0	10.9	0.3		
Total %	1.1	63.3	0	0.3	64.7	0	0	0	0.3	0.3	0	9.8	2.8	0	12.6	19.9	0	2.5	0.1	22.4	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				INNOVATION WAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	10	**343**	0	**353**	0	0	0	0	0	40	12	52	**122**	0	16	**138**	**543**
05:15 PM	**11**	326	0	337	0	0	0	0	0	**58**	11	**69**	117	0	15	132	538
05:30 PM	7	314	0	321	0	0	0	0	0	44	18	62	106	0	15	121	504
05:45 PM	8	291	0	299	0	0	0	0	0	49	**20**	69	114	0	**18**	132	500
Total Volume	36	1274	0	1310	0	0	0	0	0	191	61	252	459	0	64	523	2085
% App. Total	2.7	97.3	0		0	0	0		0	75.8	24.2		87.8	0	12.2		
PHF	.818	.929	.000	.928	.000	.000	.000	.000	.000	.823	.763	.913	.941	.000	.889	.947	.960

Traffic Data Service

Campbell, CA

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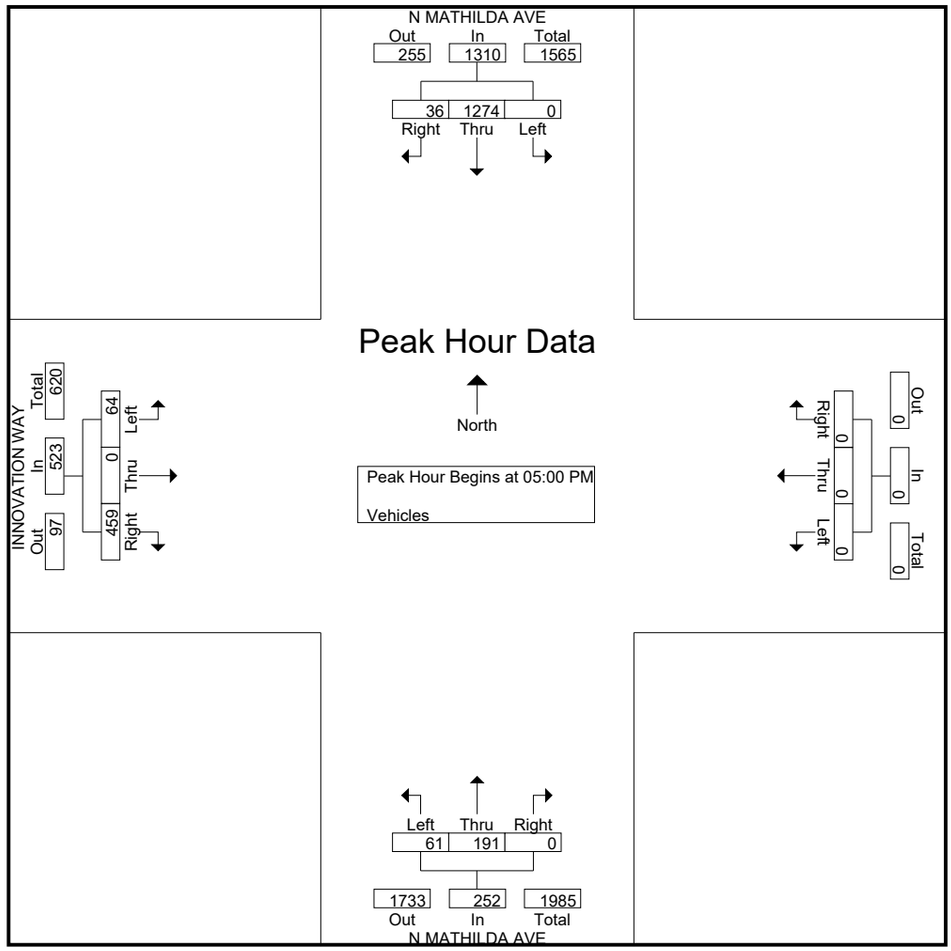

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File Name : 8PM FINAL
Site Code : 00000008
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					INNOVATION WAY Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
06:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
Grand Total	0	3	0	0	3	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	5
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		100	0	0	0		
Total %	0	60	0	0	60	0	0	0	0	0	0	20	0	0	20	20	0	0	0	20	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				INNOVATION WAY Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:45 PM																	
05:45 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	1
06:30 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	2	0	2	0	0	0	0	0	0	0	0	1	0	0	1	3
% App. Total	0	100	0		0	0	0		0	0	0		100	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.750

Traffic Data Service

Campbell, CA

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File Name : 8PM FINAL
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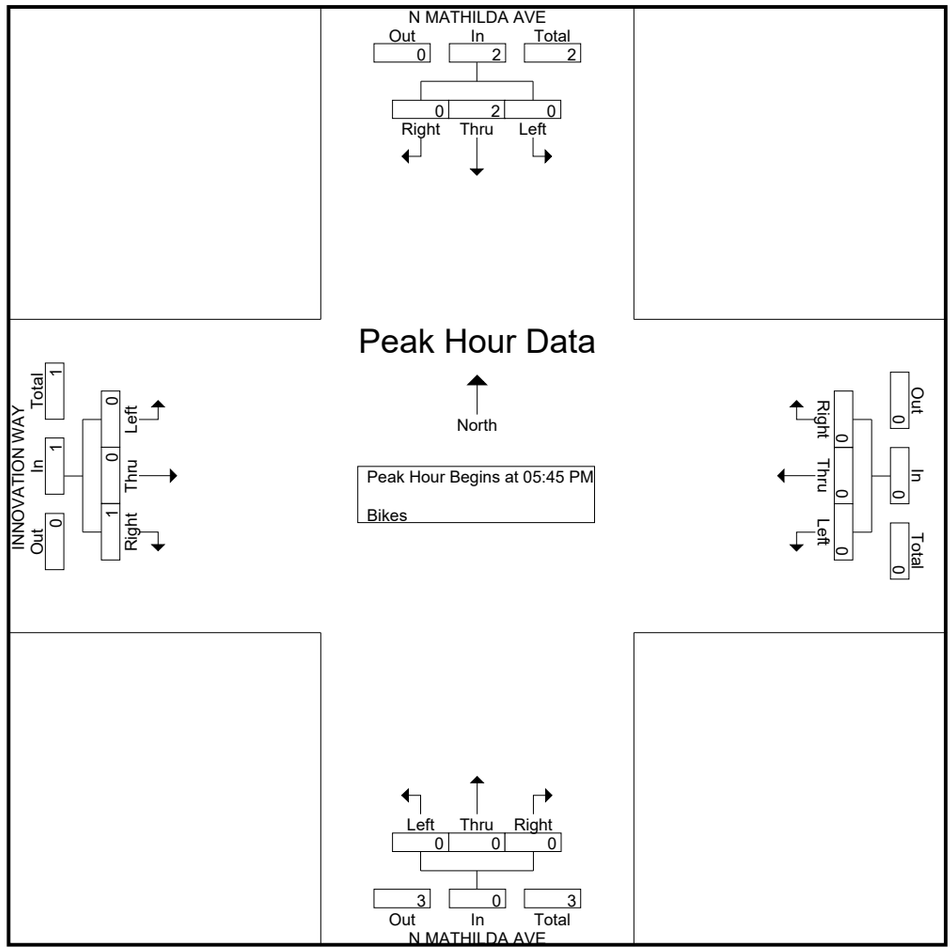

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File Name : 5AM FINAL
Site Code : 00000005
Start Date : 2/12/2013
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Groups Printed- Vehicles

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	3	13	0	0	16	1	7	13	1	22	96	225	84	0	405	11	1	2	0	14	457
07:15 AM	4	28	0	0	32	3	15	10	1	29	113	246	67	0	426	3	6	3	0	12	499
07:30 AM	18	26	0	0	44	3	41	16	0	60	142	272	101	0	515	10	2	0	0	12	631
07:45 AM	23	35	2	0	60	4	40	18	1	63	165	315	123	6	609	14	7	3	0	24	756
Total	48	102	2	0	152	11	103	57	3	174	516	1058	375	6	1955	38	16	8	0	62	2343
08:00 AM	18	49	4	1	72	5	38	14	1	58	188	307	125	0	620	13	10	4	0	27	777
08:15 AM	20	46	3	0	69	4	39	15	1	59	182	334	131	0	647	4	11	4	0	19	794
08:30 AM	26	44	1	0	71	5	36	17	1	59	171	325	109	0	605	15	14	6	0	35	770
08:45 AM	18	57	0	0	75	7	47	26	1	81	182	396	146	0	724	6	12	7	0	25	905
Total	82	196	8	1	287	21	160	72	4	257	723	1362	511	0	2596	38	47	21	0	106	3246
Grand Total	130	298	10	1	439	32	263	129	7	431	1239	2420	886	6	4551	76	63	29	0	168	5589
Apprch %	29.6	67.9	2.3	0.2		7.4	61	29.9	1.6		27.2	53.2	19.5	0.1		45.2	37.5	17.3	0		
Total %	2.3	5.3	0.2	0	7.9	0.6	4.7	2.3	0.1	7.7	22.2	43.3	15.9	0.1	81.4	1.4	1.1	0.5	0	3	

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	18	49	**4**	**1**	72	5	38	14	**1**	58	**188**	307	125	0	620	13	10	4	0	27	777
08:15 AM	20	46	3	0	69	4	39	15	1	59	182	334	131	0	647	4	11	4	0	19	794
08:30 AM	**26**	44	1	0	71	5	36	17	1	59	171	325	109	0	605	**15**	**14**	6	0	**35**	770
08:45 AM	18	**57**	0	0	**75**	**7**	**47**	**26**	1	**81**	182	**396**	**146**	0	**724**	6	12	**7**	0	25	**905**
Total Volume	82	196	8	1	287	21	160	72	4	257	723	1362	511	0	2596	38	47	21	0	106	3246
% App. Total																					
PHF	.788	.860	.500	.250	.957	.750	.851	.692	1.00	.793	.961	.860	.875	.000	.896	.633	.839	.750	.000	.757	.897

Traffic Data Service

Campbell, CA

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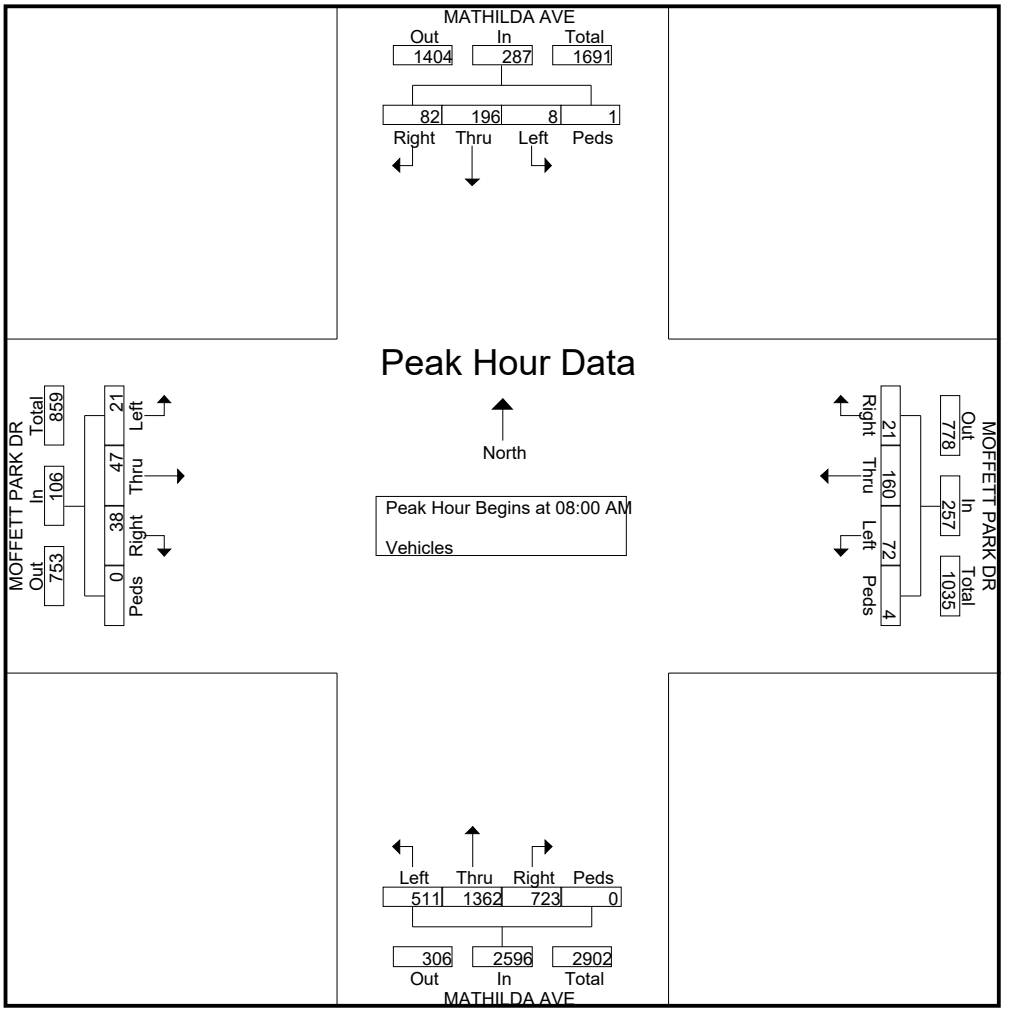

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File Name : 5AM FINAL
Site Code : 00000005
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Groups Printed- Bikes

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	2	3
07:15 AM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	3
07:30 AM	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
07:45 AM	0	0	0	0	0	1	4	0	0	5	0	1	0	0	1	0	2	0	0	2	8
Total	0	1	1	0	2	1	5	0	0	6	1	3	0	0	4	0	4	1	0	5	17
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
08:15 AM	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	4	0	0	4	7
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	7
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	3	0	0	3	5
Total	0	0	0	0	0	1	4	0	0	5	0	2	0	0	2	0	15	0	0	15	22
Grand Total	0	1	1	0	2	2	9	0	0	11	1	5	0	0	6	0	19	1	0	20	39
Apprch %	0	50	50	0		18.2	81.8	0	0		16.7	83.3	0	0		0	95	5	0		
Total %	0	2.6	2.6	0	5.1	5.1	23.1	0	0	28.2	2.6	12.8	0	0	15.4	0	48.7	2.6	0	51.3	

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	**1**	**4**	0	0	**5**	0	**1**	0	0	**1**	0	2	0	0	2	**8**
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3
08:15 AM	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	4	0	0	4	7
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	**5**	0	0	**5**	7
Total Volume	0	0	0	0	0	2	7	0	0	9	0	2	0	0	2	0	14	0	0	14	25
% App. Total	0	0	0	0		22.2	77.8	0	0		0	100	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.500	.438	.000	.000	.450	.000	.500	.000	.000	.500	.000	.700	.000	.000	.700	.781

Traffic Data Service

Campbell, CA

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File Name : 5AM FINAL
Site Code : 00000005
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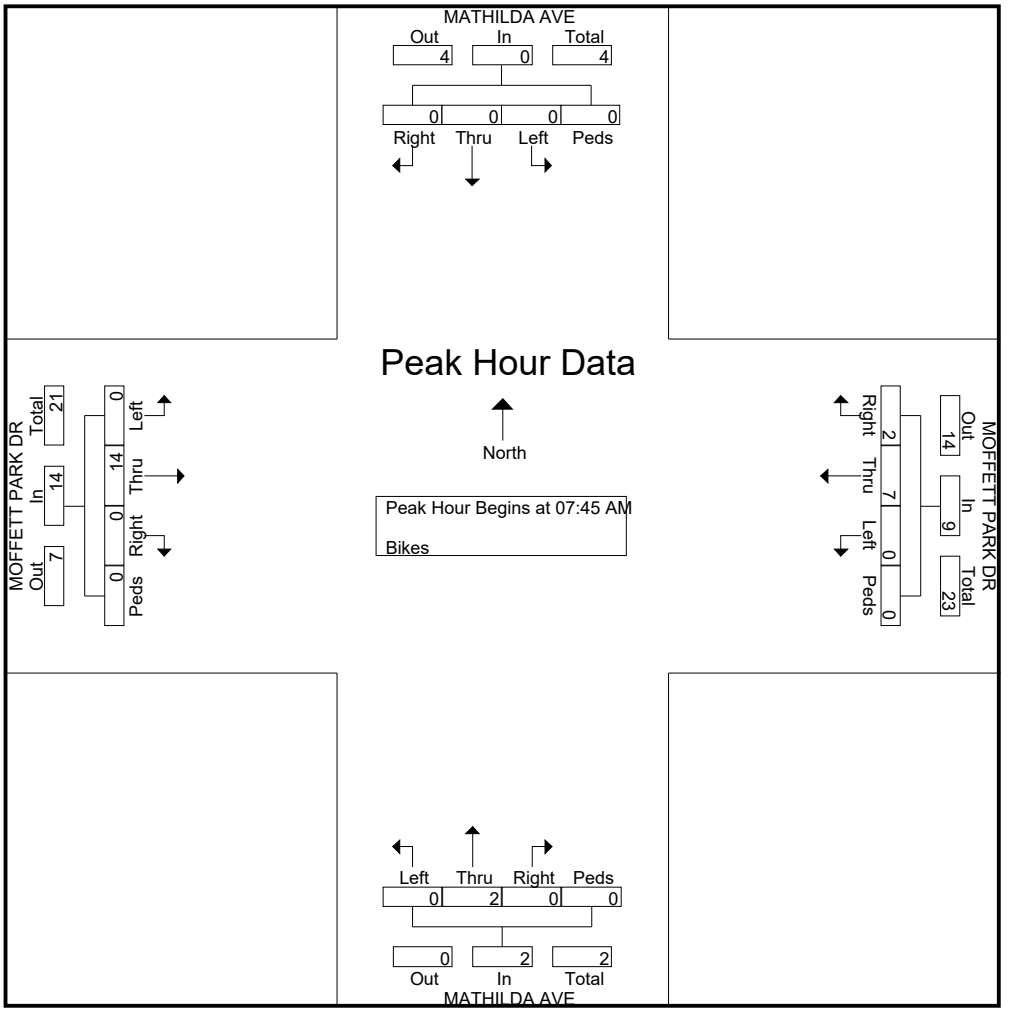

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File Name : 5PM FINAL
Site Code : 00000005
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Groups Printed- Vehicles

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	14	334	4	0	352	3	36	73	1	113	50	41	18	0	109	73	4	3	0	80	654
04:45 PM	12	357	2	0	371	3	38	86	1	128	27	46	13	0	86	56	12	7	0	75	660
Total	26	691	6	0	723	6	74	159	2	241	77	87	31	0	195	129	16	10	0	155	1314
05:00 PM	12	408	3	0	423	2	50	79	3	134	23	54	25	0	102	57	16	5	0	78	737
05:15 PM	17	403	17	1	438	6	70	61	3	140	31	66	20	0	117	55	12	6	0	73	768
05:30 PM	21	439	9	0	469	6	65	52	7	130	44	77	19	0	140	55	16	7	0	78	817
05:45 PM	21	387	5	1	414	6	52	93	4	155	31	60	20	0	111	68	12	5	0	85	765
Total	71	1637	34	2	1744	20	237	285	17	559	129	257	84	0	470	235	56	23	0	314	3087
06:00 PM	20	362	8	0	390	3	72	90	0	165	20	36	12	0	68	53	7	7	0	67	690
06:15 PM	20	341	9	0	370	3	49	100	1	153	28	52	7	0	87	49	8	2	0	59	669
Grand Total	137	3031	57	2	3227	32	432	634	20	1118	254	432	134	0	820	466	87	42	0	595	5760
Apprch %	4.2	93.9	1.8	0.1		2.9	38.6	56.7	1.8		31	52.7	16.3	0		78.3	14.6	7.1	0		
Total %	2.4	52.6	1	0	56	0.6	7.5	11	0.3	19.4	4.4	7.5	2.3	0	14.2	8.1	1.5	0.7	0	10.3	

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	12	408	3	0	423	2	50	79	3	134	23	54	**25**	0	102	57	**16**	5	0	78	737
05:15 PM	17	403	**17**	**1**	438	**6**	**70**	61	3	140	31	66	20	0	117	55	12	6	0	73	768
05:30 PM	**21**	**439**	9	0	**469**	6	65	52	**7**	130	**44**	**77**	19	0	**140**	55	16	**7**	0	78	**817**
05:45 PM	21	387	5	1	414	6	52	**93**	4	**155**	31	60	20	0	111	**68**	12	5	0	**85**	765
Total Volume	71	1637	34	2	1744	20	237	285	17	559	129	257	84	0	470	235	56	23	0	314	3087
% App. Total																					
PHF	.845	.932	.500	.500	.930	.833	.846	.766	.607	.902	.733	.834	.840	.000	.839	.864	.875	.821	.000	.924	.945

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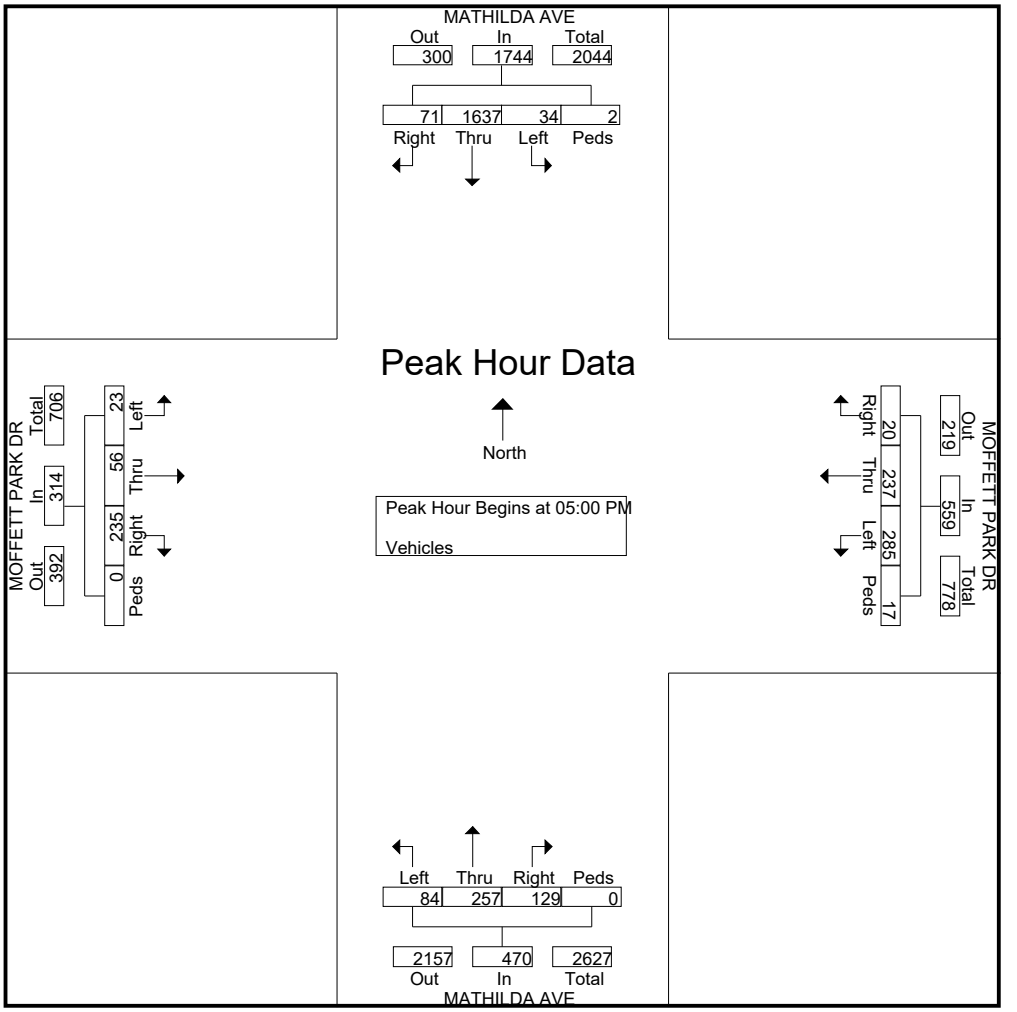

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File Name : 5PM FINAL
Site Code : 00000005
Start Date : 2/12/2013
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Groups Printed- Bikes

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
05:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
05:30 PM	0	1	0	0	1	0	6	0	0	6	0	1	0	0	1	0	3	0	0	3	11
05:45 PM	0	1	0	0	1	1	3	0	0	4	0	0	0	0	0	0	5	1	0	6	11
Total	0	2	0	0	2	1	16	0	0	17	0	1	0	0	1	0	14	1	0	15	35
06:00 PM	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	0	2	0	0	2	8
06:15 PM	0	0	0	0	0	1	6	0	0	7	0	0	0	0	0	0	0	0	0	0	7
Grand Total	0	2	0	0	2	2	28	1	0	31	0	2	0	0	2	0	16	1	0	17	52
Apprch %	0	100	0	0		6.5	90.3	3.2	0		0	100	0	0		0	94.1	5.9	0		
Total %	0	3.8	0	0	3.8	3.8	53.8	1.9	0	59.6	0	3.8	0	0	3.8	0	30.8	1.9	0	32.7	

	MATHILDA AVE Southbound					MOFFETT PARK DR Westbound					MATHILDA AVE Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:15 PM																					
05:15 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
05:30 PM	0	**1**	0	0	**1**	0	**6**	0	0	**6**	0	**1**	0	0	**1**	0	3	0	0	3	**11**
05:45 PM	0	1	0	0	1	**1**	3	0	0	4	0	0	0	0	0	0	**5**	**1**	0	**6**	11
06:00 PM	0	0	0	0	0	0	5	**1**	0	6	0	0	0	0	0	0	2	0	0	2	8
Total Volume	0	2	0	0	2	1	19	1	0	21	0	1	0	0	1	0	13	1	0	14	38
% App. Total	0	100	0	0		4.8	90.5	4.8	0		0	100	0	0		0	92.9	7.1	0		
PHF	.000	.500	.000	.000	.500	.250	.792	.250	.000	.875	.000	.250	.000	.000	.250	.000	.650	.250	.000	.583	.864

Traffic Data Service

Campbell, CA

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File Name : 5PM FINAL
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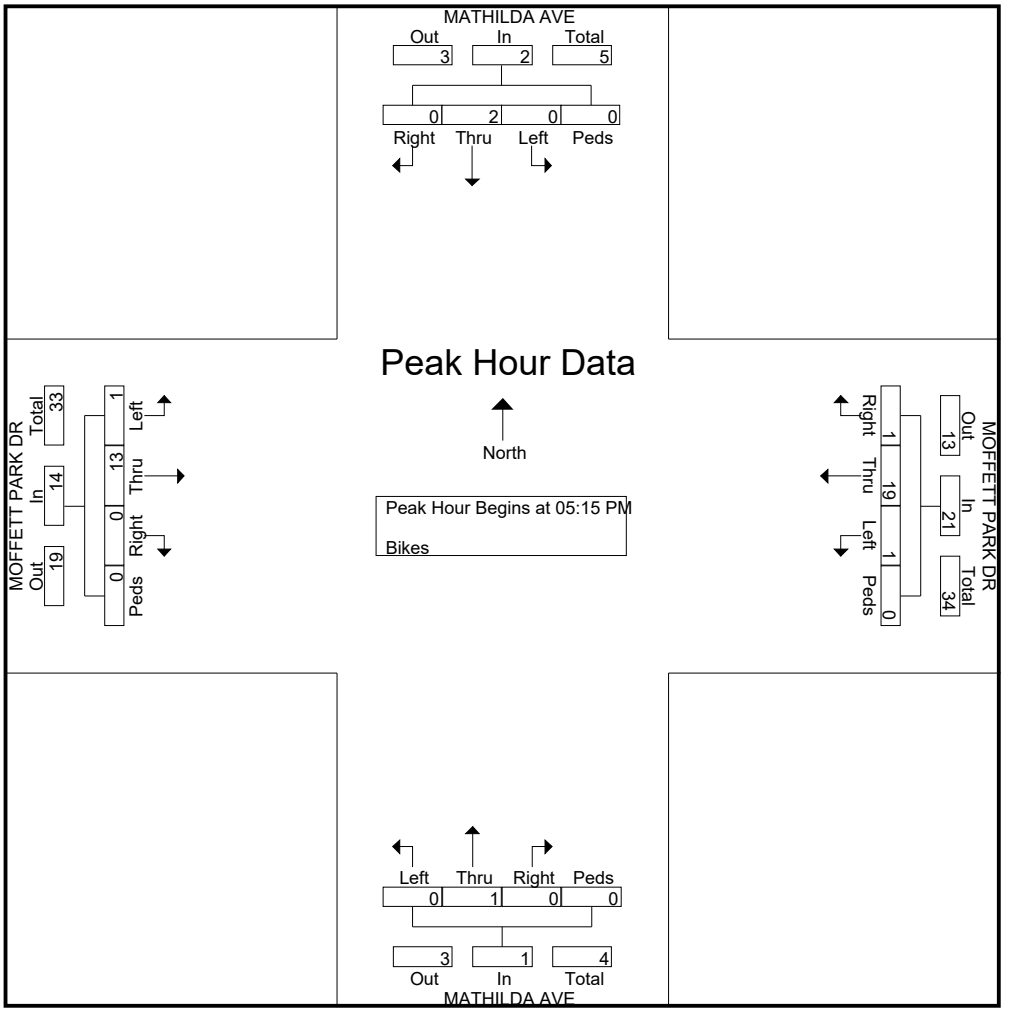

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File Name : 6AM FINAL
Site Code : 00000006
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					WB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					WB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	10	22	0	0	32	46	0	118	0	164	0	358	32	0	390	0	0	0	0	0	586
07:15 AM	9	27	0	0	36	58	0	124	0	182	0	413	23	0	436	0	0	0	0	0	654
07:30 AM	13	34	0	0	47	83	0	126	0	209	0	411	37	0	448	0	0	0	0	0	704
07:45 AM	19	50	0	1	70	62	0	170	0	232	0	534	38	0	572	0	0	0	0	0	874
Total	51	133	0	1	185	249	0	538	0	787	0	1716	130	0	1846	0	0	0	0	0	2818
08:00 AM	9	59	0	0	68	73	12	137	3	225	0	520	37	0	557	0	0	0	0	0	850
08:15 AM	25	61	0	0	86	62	7	148	5	222	0	567	45	0	612	0	0	0	0	0	920
08:30 AM	16	59	0	0	75	83	3	145	1	232	0	534	29	0	563	0	0	0	0	0	870
08:45 AM	18	67	0	0	85	81	1	211	3	296	0	627	24	0	651	0	0	0	0	0	1032
Total	68	246	0	0	314	299	23	641	12	975	0	2248	135	0	2383	0	0	0	0	0	3672
Grand Total	119	379	0	1	499	548	23	1179	12	1762	0	3964	265	0	4229	0	0	0	0	0	6490
Apprch %	23.8	76	0	0.2		31.1	1.3	66.9	0.7		0	93.7	6.3	0		0	0	0	0		
Total %	1.8	5.8	0	0	7.7	8.4	0.4	18.2	0.2	27.1	0	61.1	4.1	0	65.2	0	0	0	0	0	

	N MATHILDA AVE Southbound				WB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				WB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	9	59	0	68	73	**12**	137	222	0	520	37	557	0	0	0	0	847
08:15 AM	**25**	61	0	**86**	62	7	148	217	0	567	**45**	612	0	0	0	0	915
08:30 AM	16	59	0	75	**83**	3	145	231	0	534	29	563	0	0	0	0	869
08:45 AM	18	**67**	0	85	81	1	**211**	**293**	0	**627**	24	**651**	0	0	0	0	**1029**
Total Volume	68	246	0	314	299	23	641	963	0	2248	135	2383	0	0	0	0	3660
% App. Total	21.7	78.3	0		31	2.4	66.6		0	94.3	5.7		0	0	0		
PHF	.680	.918	.000	.913	.901	.479	.759	.822	.000	.896	.750	.915	.000	.000	.000	.000	.889

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File Name : 6AM FINAL
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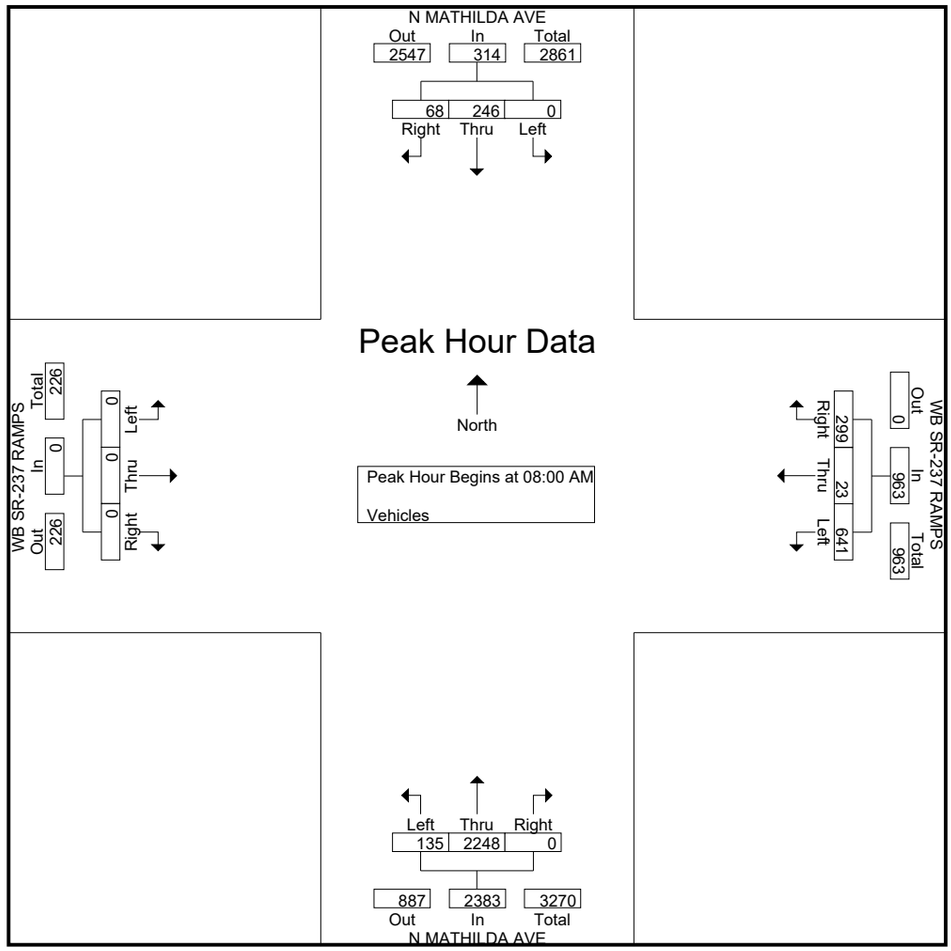

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File Name : 6AM FINAL
Site Code : 00000006
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					WB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					WB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	5
Apprch %	0	0	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	

	N MATHILDA AVE Southbound				WB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				WB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
07:15 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	4	0	4	0	0	0	0	4
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.500

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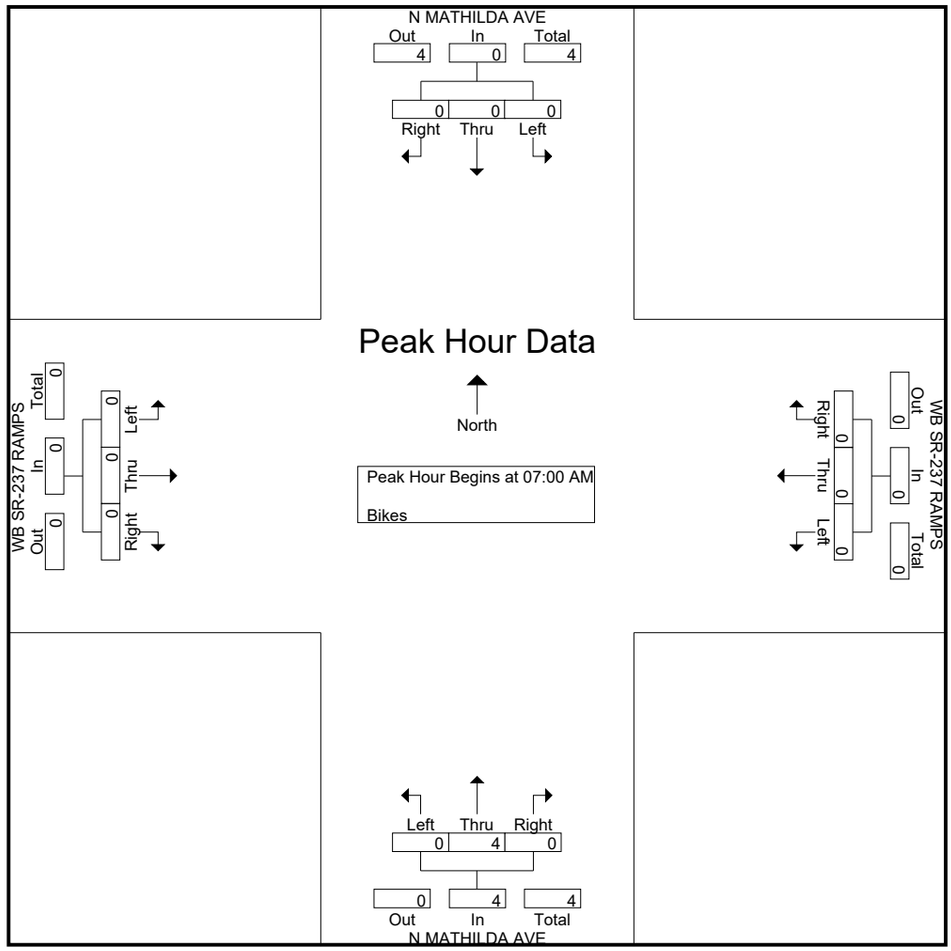

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File Name : 6PM FINAL
Site Code : 00000006
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					WB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					WB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	80	328	0	0	408	10	2	109	2	123	0	113	23	0	136	0	0	0	0	0	667
04:15 PM	70	283	0	0	353	15	8	125	1	149	0	88	14	0	102	0	0	0	0	0	604
04:30 PM	76	340	0	0	416	6	4	121	2	133	0	83	26	0	109	0	0	0	0	0	658
04:45 PM	78	440	0	0	518	12	2	149	1	164	0	102	20	0	122	0	0	0	0	0	804
Total	304	1391	0	0	1695	43	16	504	6	569	0	386	83	0	469	0	0	0	0	0	2733
05:00 PM	120	403	0	0	523	11	4	169	3	187	0	99	24	0	123	0	0	0	0	0	833
05:15 PM	119	499	0	0	618	8	4	178	2	192	0	111	27	0	138	0	0	0	0	0	948
05:30 PM	88	410	0	0	498	12	1	175	3	191	0	107	17	0	124	0	0	0	0	0	813
05:45 PM	76	373	0	0	449	20	8	187	1	216	0	120	14	0	134	0	0	0	0	0	799
Total	403	1685	0	0	2088	51	17	709	9	786	0	437	82	0	519	0	0	0	0	0	3393
06:00 PM	107	407	0	0	514	19	16	160	4	199	0	111	20	0	131	0	0	0	0	0	844
06:15 PM	100	402	0	0	502	16	6	179	0	201	0	91	15	0	106	0	0	0	0	0	809
06:30 PM	98	333	0	0	431	8	10	181	5	204	0	73	22	0	95	0	0	0	0	0	730
06:45 PM	99	300	0	0	399	11	4	179	0	194	0	59	19	0	78	0	0	0	0	0	671
Total	404	1442	0	0	1846	54	36	699	9	798	0	334	76	0	410	0	0	0	0	0	3054
Grand Total	1111	4518	0	0	5629	148	69	1912	24	2153	0	1157	241	0	1398	0	0	0	0	0	9180
Apprch %	19.7	80.3	0	0		6.9	3.2	88.8	1.1		0	82.8	17.2	0		0	0	0	0		
Total %	12.1	49.2	0	0	61.3	1.6	0.8	20.8	0.3	23.5	0	12.6	2.6	0	15.2	0	0	0	0	0	

	N MATHILDA AVE Southbound				WB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				WB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	**119**	**499**	0	**618**	8	4	178	190	0	111	**27**	**138**	0	0	0	0	**946**
05:30 PM	88	410	0	498	12	1	175	188	0	107	17	124	0	0	0	0	810
05:45 PM	76	373	0	449	**20**	8	**187**	**215**	0	**120**	14	134	0	0	0	0	798
06:00 PM	107	407	0	514	19	**16**	160	195	0	111	20	131	0	0	0	0	840
Total Volume	390	1689	0	2079	59	29	700	788	0	449	78	527	0	0	0	0	3394
% App. Total	18.8	81.2	0		7.5	3.7	88.8		0	85.2	14.8		0	0	0		
PHF	.819	.846	.000	.841	.738	.453	.936	.916	.000	.935	.722	.955	.000	.000	.000	.000	.897

Traffic Data Service

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File Name : 6PM FINAL
Site Code : 00000006
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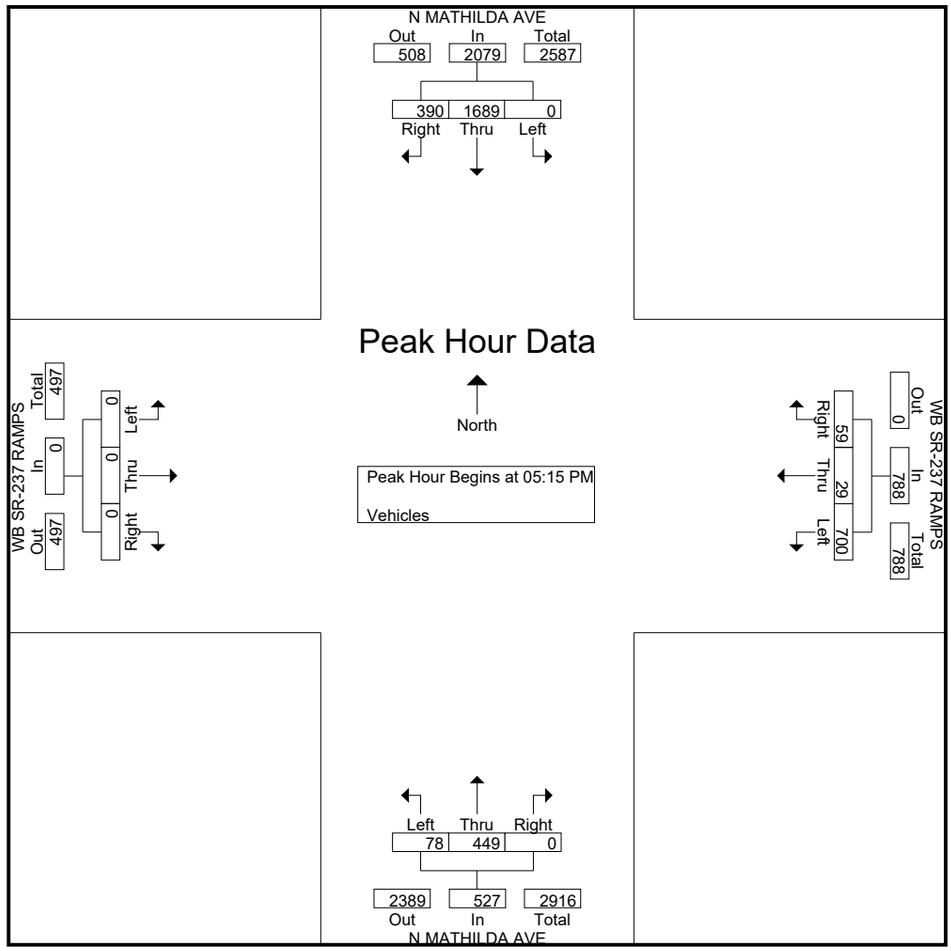

Traffic Data Service

Campbell, CA
(408) 377- 2988
tdsbay@cs.com

File Name : 6PM FINAL
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					WB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					WB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
06:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	71.4	0	0	71.4	0	0	0	0	0	0	28.6	0	0	28.6	0	0	0	0	0	

	N MATHILDA AVE Southbound				WB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				WB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	**2**	0	**2**	0	0	0	0	0	0	0	0	0	0	0	0	**2**
Total Volume	0	3	0	3	0	0	0	0	0	1	0	1	0	0	0	0	4
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.375	.000	.375	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.500

Traffic Data Service

Campbell, CA

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File Name : 6PM FINAL
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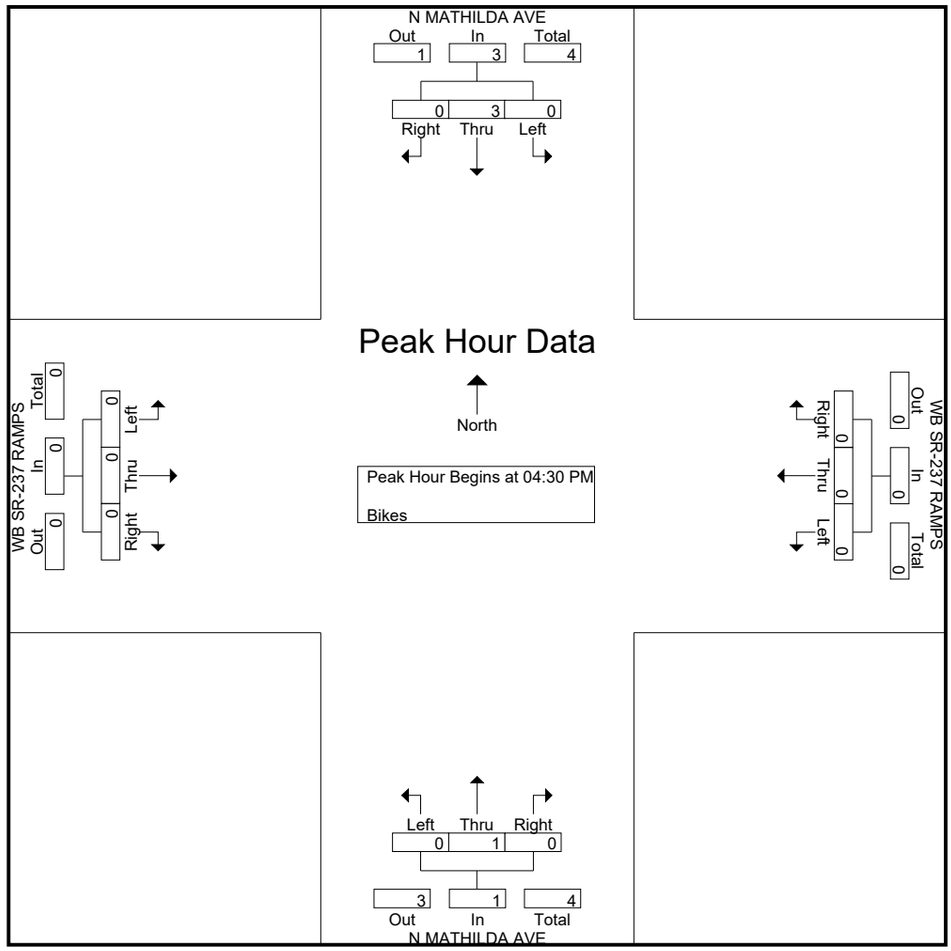

Traffic Data Service

Campbell, CA

(408) 377- 2988

tdsbay@cs.com

File Name : 7AM FINAL
Site Code : 00000007
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					EB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					EB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	136	4	0	140	0	0	0	2	2	101	252	0	0	353	14	1	139	0	154	649
07:15 AM	0	138	9	0	147	0	0	0	2	2	97	286	0	0	383	10	0	135	0	145	677
07:30 AM	0	163	9	0	172	0	0	0	2	2	124	309	0	0	433	11	0	132	0	143	750
07:45 AM	0	197	15	0	212	0	0	0	2	2	142	387	0	0	529	18	0	163	0	181	924
Total	0	634	37	0	671	0	0	0	8	8	464	1234	0	0	1698	53	1	569	0	623	3000
08:00 AM	0	182	16	0	198	0	0	0	0	0	174	372	0	0	546	26	0	183	0	209	953
08:15 AM	0	218	3	0	221	0	0	0	0	0	171	436	0	0	607	15	0	180	0	195	1023
08:30 AM	0	214	8	0	222	0	0	0	0	0	183	369	0	0	552	10	0	181	0	191	965
08:45 AM	0	251	17	0	268	0	0	0	0	0	191	412	0	0	603	18	0	226	0	244	1115
Total	0	865	44	0	909	0	0	0	0	0	719	1589	0	0	2308	69	0	770	0	839	4056
Grand Total	0	1499	81	0	1580	0	0	0	8	8	1183	2823	0	0	4006	122	1	1339	0	1462	7056
Apprch %	0	94.9	5.1	0		0	0	0	100		29.5	70.5	0	0		8.3	0.1	91.6	0		
Total %	0	21.2	1.1	0	22.4	0	0	0	0.1	0.1	16.8	40	0	0	56.8	1.7	0	19	0	20.7	

	N MATHILDA AVE Southbound				EB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				EB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	182	16	198	0	0	0	0	174	372	0	546	**26**	0	183	209	953
08:15 AM	0	218	3	221	0	0	0	0	171	**436**	0	**607**	15	0	180	195	1023
08:30 AM	0	214	8	222	0	0	0	0	183	369	0	552	10	0	181	191	965
08:45 AM	0	**251**	**17**	**268**	0	0	0	0	**191**	412	0	603	18	0	**226**	**244**	**1115**
Total Volume	0	865	44	909	0	0	0	0	719	1589	0	2308	69	0	770	839	4056
% App. Total	0	95.2	4.8		0	0	0		31.2	68.8	0		8.2	0	91.8		
PHF	.000	.862	.647	.848	.000	.000	.000	.000	.941	.911	.000	.951	.663	.000	.852	.860	.909

Traffic Data Service

Campbell, CA

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File Name : 7AM FINAL
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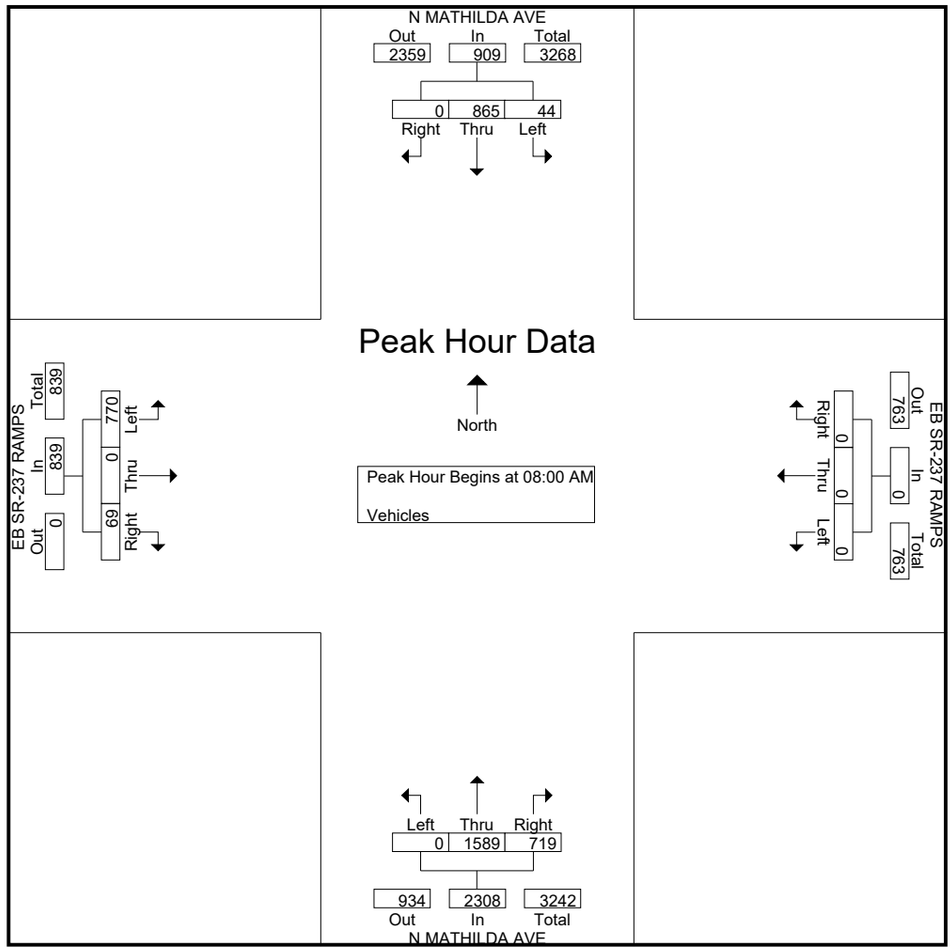

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tdsbay@cs.com

File Name : 7AM FINAL
Site Code : 00000007
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					EB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					EB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	4
Apprch %	0	0	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	

	N MATHILDA AVE Southbound				EB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				EB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.000	.375	.000	.000	.000	.000	.375

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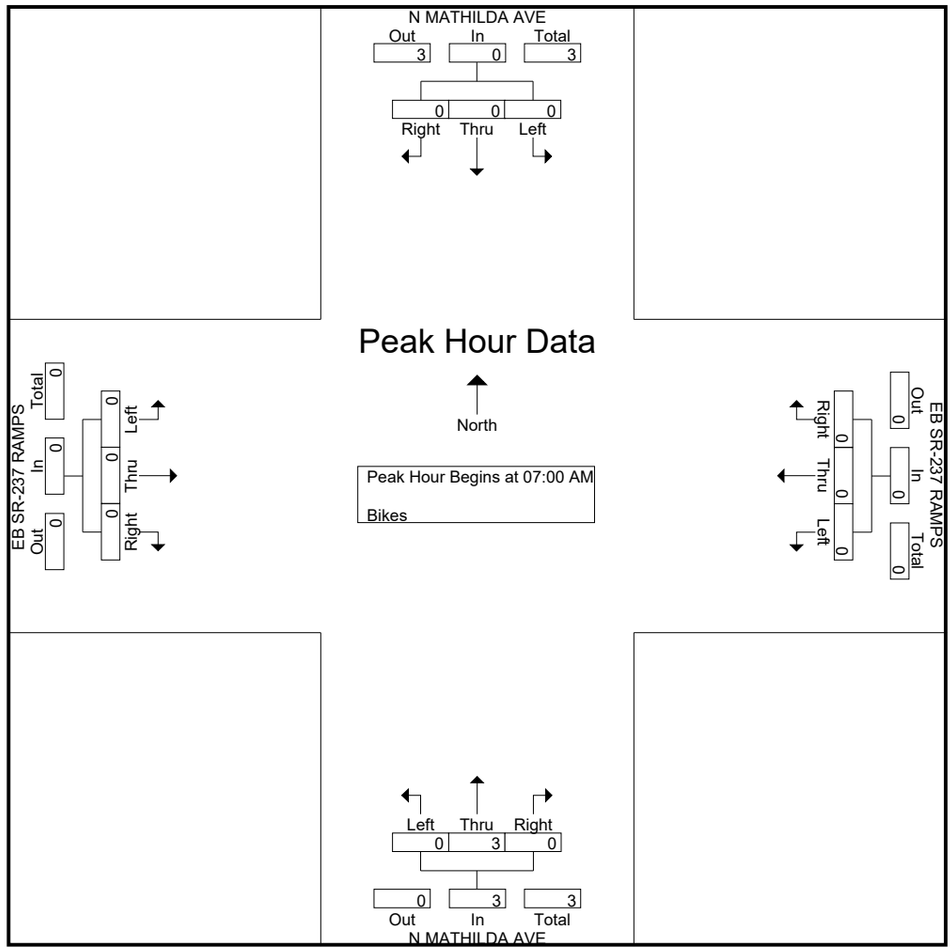

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File Name : 7PM FINAL
Site Code : 00000007
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					EB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					EB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	342	102	0	444	0	0	0	0	0	154	94	0	0	248	22	0	32	0	54	746
04:15 PM	0	332	87	0	419	0	0	0	0	0	91	78	0	0	169	41	5	33	0	79	667
04:30 PM	0	427	85	0	512	0	0	0	0	0	155	80	0	0	235	32	5	37	0	74	821
04:45 PM	0	472	89	0	561	0	0	0	0	0	140	90	0	0	230	39	1	29	0	69	860
Total	0	1573	363	0	1936	0	0	0	0	0	540	342	0	0	882	134	11	131	0	276	3094
05:00 PM	0	532	74	0	606	0	0	0	3	3	170	79	0	0	249	45	6	35	0	86	944
05:15 PM	0	591	88	0	679	0	0	0	2	2	149	91	0	0	240	48	7	49	0	104	1025
05:30 PM	0	566	80	0	646	0	0	0	3	3	150	93	0	0	243	51	11	36	0	98	990
05:45 PM	0	502	89	0	591	0	0	0	2	2	155	91	0	0	246	52	5	47	0	104	943
Total	0	2191	331	0	2522	0	0	0	10	10	624	354	0	0	978	196	29	167	0	392	3902
06:00 PM	0	517	71	0	588	0	0	0	0	0	121	78	0	0	199	60	8	43	0	111	898
06:15 PM	0	512	72	0	584	0	0	0	0	0	125	78	0	0	203	37	3	31	0	71	858
06:30 PM	0	480	62	0	542	0	0	0	4	4	113	70	0	0	183	31	1	15	0	47	776
06:45 PM	0	395	73	0	468	0	0	0	0	0	109	71	0	0	180	29	1	19	0	49	697
Total	0	1904	278	0	2182	0	0	0	4	4	468	297	0	0	765	157	13	108	0	278	3229
Grand Total	0	5668	972	0	6640	0	0	0	14	14	1632	993	0	0	2625	487	53	406	0	946	10225
Apprch %	0	85.4	14.6	0		0	0	0	100		62.2	37.8	0	0		51.5	5.6	42.9	0		
Total %	0	55.4	9.5	0	64.9	0	0	0	0.1	0.1	16	9.7	0	0	25.7	4.8	0.5	4	0	9.3	

	N MATHILDA AVE Southbound				EB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				EB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	532	74	606	0	0	0	0	**170**	79	0	**249**	45	6	35	86	941
05:15 PM	0	**591**	88	**679**	0	0	0	0	149	91	0	240	48	7	**49**	**104**	**1023**
05:30 PM	0	566	80	646	0	0	0	0	150	**93**	0	243	51	**11**	36	98	987
05:45 PM	0	502	**89**	591	0	0	0	0	155	91	0	246	**52**	5	47	104	941
Total Volume	0	2191	331	2522	0	0	0	0	624	354	0	978	196	29	167	392	3892
% App. Total	0	86.9	13.1		0	0	0		63.8	36.2	0		50	7.4	42.6		
PHF	.000	.927	.930	.929	.000	.000	.000	.000	.918	.952	.000	.982	.942	.659	.852	.942	.951

Traffic Data Service

Campbell, CA

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File Name : 7PM FINAL
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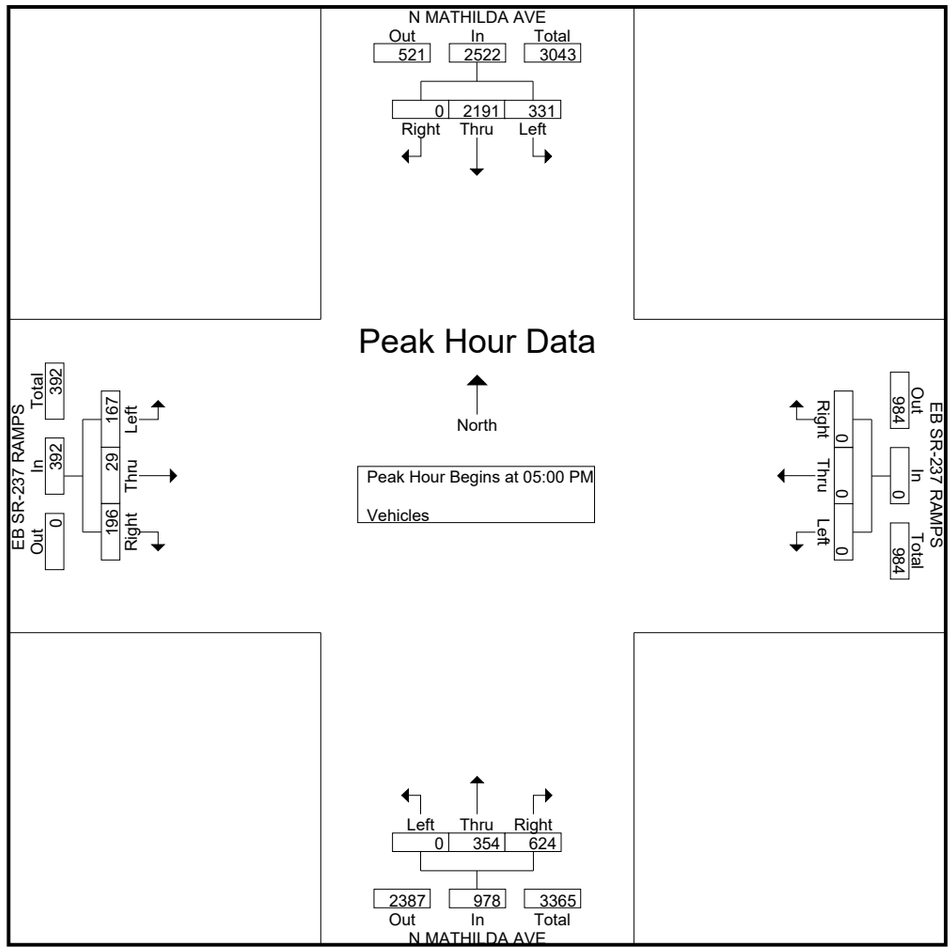

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(408) 377- 2988
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File Name : 7PM FINAL
Site Code : 00000007
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					EB SR-237 RAMPS Westbound					N MATHILDA AVE Northbound					EB SR-237 RAMPS Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	0	0	3	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	6
Apprch %	0	100	0	0		0	0	0	0		33.3	66.7	0	0		0	0	0	0		
Total %	0	50	0	0	50	0	0	0	0	0	16.7	33.3	0	0	50	0	0	0	0	0	

	N MATHILDA AVE Southbound				EB SR-237 RAMPS Westbound				N MATHILDA AVE Northbound				EB SR-237 RAMPS Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	1	0	0	0	0	**1**	0	0	1	0	0	0	0	**2**
Total Volume	0	2	0	2	0	0	0	0	1	1	0	2	0	0	0	0	4
% App. Total	0	100	0		0	0	0		50	50	0		0	0	0		
PHF	.000	.500	.000	.500	.000	.000	.000	.000	.250	.250	.000	.500	.000	.000	.000	.000	.500

Traffic Data Service

Campbell, CA

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File Name : 7PM FINAL
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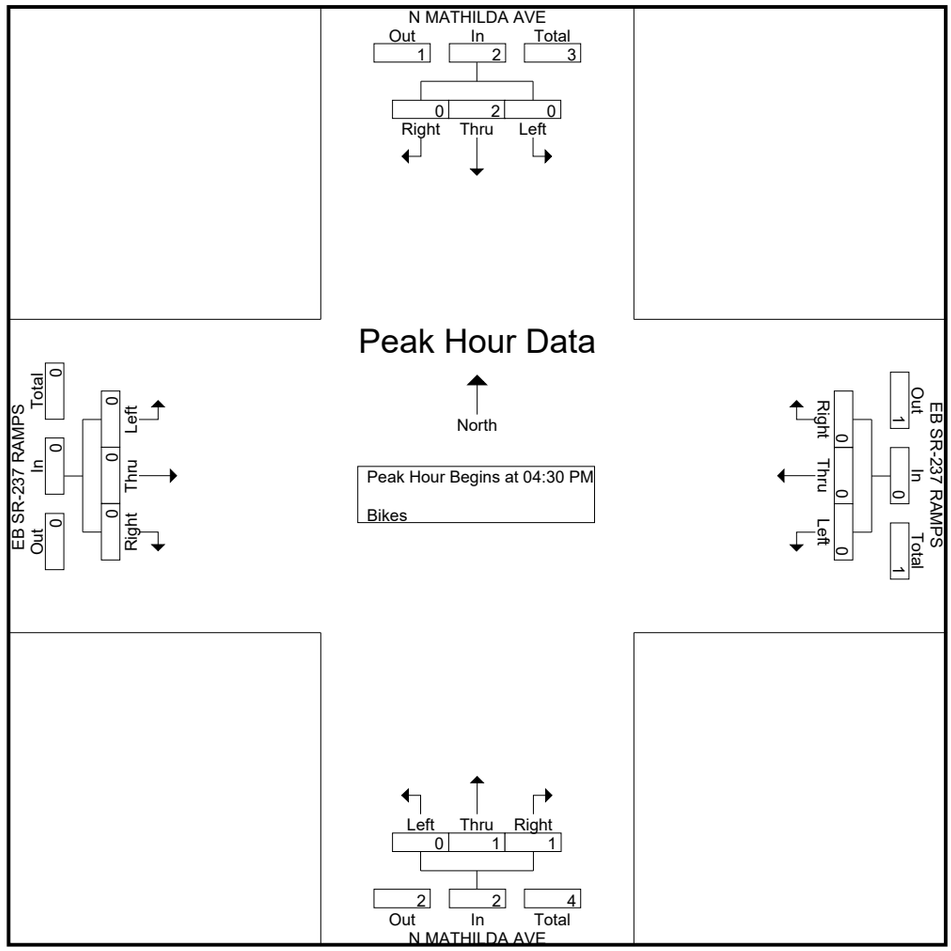

Traffic Data Service

Campbell, CA
(408) 377-2988
tdsbay@cs.com

File Name : 8AM FINAL
Site Code : 00000008
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Groups Printed- Vehicles

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	12	121	11	0	144	28	1	21	0	50	19	289	7	0	315	3	11	9	0	23	532
07:15 AM	6	132	15	0	153	38	3	18	0	59	21	325	5	0	351	4	10	15	0	29	592
07:30 AM	14	173	18	0	205	26	8	14	0	48	16	414	6	0	436	7	15	8	0	30	719
07:45 AM	9	181	16	0	206	46	10	24	0	80	28	455	9	0	492	8	12	14	0	34	812
Total	41	607	60	0	708	138	22	77	0	237	84	1483	27	0	1594	22	48	46	0	116	2655
08:00 AM	10	189	25	0	224	24	7	12	0	43	23	524	8	0	555	1	5	10	0	16	838
08:15 AM	11	195	11	0	217	22	2	14	0	38	27	483	11	0	521	3	11	11	0	25	801
08:30 AM	8	203	9	0	220	86	3	26	0	115	25	503	12	0	540	3	17	18	0	38	913
08:45 AM	7	201	5	0	213	81	10	31	0	122	15	551	16	0	582	7	20	27	0	54	971
Total	36	788	50	0	874	213	22	83	0	318	90	2061	47	0	2198	14	53	66	0	133	3523
Grand Total	77	1395	110	0	1582	351	44	160	0	555	174	3544	74	0	3792	36	101	112	0	249	6178
Apprch %	4.9	88.2	7	0		63.2	7.9	28.8	0		4.6	93.5	2	0		14.5	40.6	45	0		
Total %	1.2	22.6	1.8	0	25.6	5.7	0.7	2.6	0	9	2.8	57.4	1.2	0	61.4	0.6	1.6	1.8	0	4	

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	10	189	**25**	0	**224**	24	7	12	0	43	23	524	8	0	555	1	5	10	0	16	838
08:15 AM	**11**	195	11	0	217	22	2	14	0	38	**27**	483	11	0	521	3	11	11	0	25	801
08:30 AM	8	**203**	9	0	220	**86**	3	26	0	115	25	503	12	0	540	3	17	18	0	38	913
08:45 AM	7	201	5	0	213	81	**10**	**31**	0	**122**	15	**551**	**16**	0	**582**	**7**	**20**	**27**	0	**54**	**971**
Total Volume	36	788	50	0	874	213	22	83	0	318	90	2061	47	0	2198	14	53	66	0	133	3523
% App. Total	4.1	90.2	5.7	0		67	6.9	26.1	0		4.1	93.8	2.1	0		10.5	39.8	49.6	0		
PHF	.818	.970	.500	.000	.975	.619	.550	.669	.000	.652	.833	.935	.734	.000	.944	.500	.663	.611	.000	.616	.907

Traffic Data Service

Campbell, CA
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File Name : 8AM FINAL
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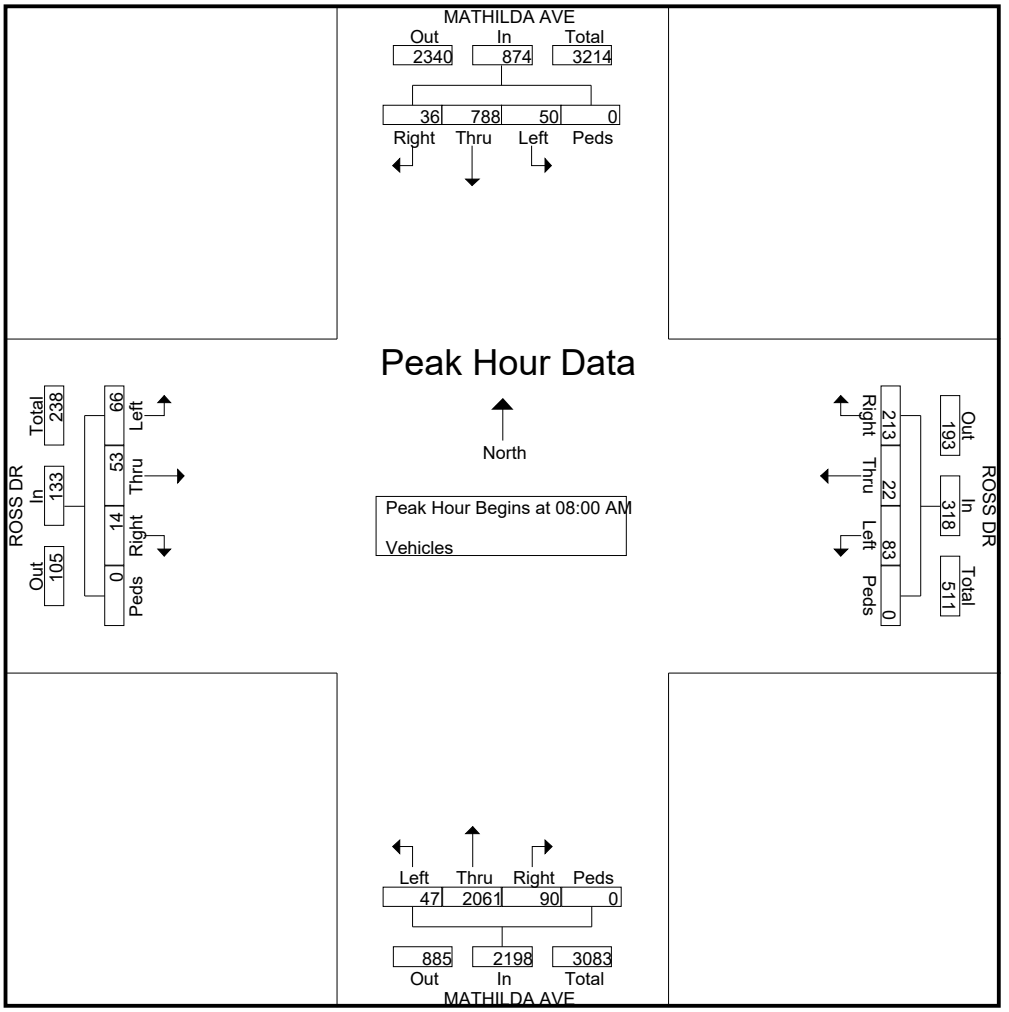

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File Name : 8AM FINAL
Site Code : 00000008
Start Date : 2/12/2013
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Groups Printed- Bikes

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	3
Apprch %	0	0	0	0		100	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	0	0	0	0	33.3	0	0	0	33.3	0	66.7	0	0	66.7	0	0	0	0	0	

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	**1**	0	0	0	**1**	0	0	0	0	0	0	0	0	0	0	**1**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	3
% App. Total	0	0	0	0		100	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.000	.000	.000	.250	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.750

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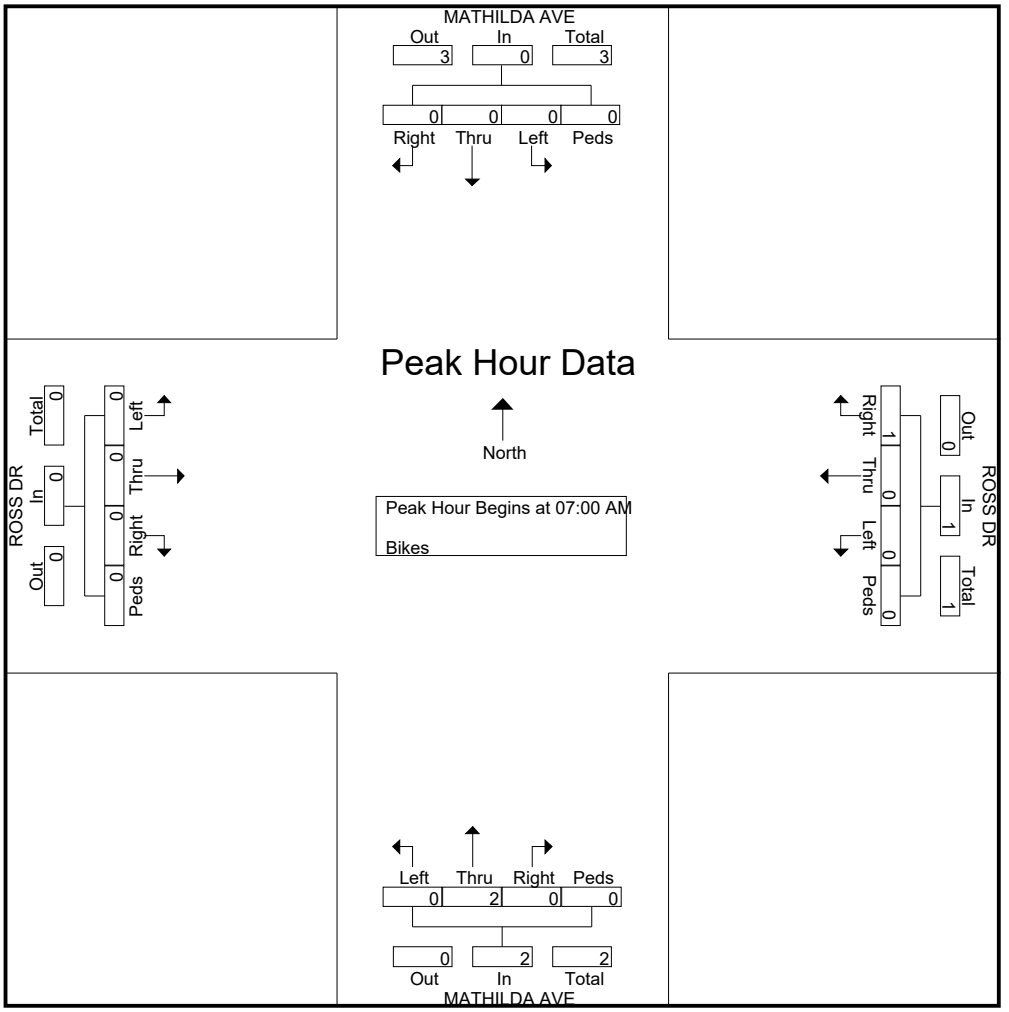

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File Name : 8PM FINAL
Site Code : 00000008
Start Date : 2/12/2013
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Groups Printed- Vehicles

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	11	399	26	0	436	20	2	36	0	58	25	199	26	0	250	3	18	11	0	32	776
04:45 PM	15	475	28	0	518	29	4	28	0	61	63	169	28	0	260	8	19	9	0	36	875
Total	26	874	54	0	954	49	6	64	0	119	88	368	54	0	510	11	37	20	0	68	1651
05:00 PM	16	527	26	0	569	22	13	46	0	81	58	196	25	0	279	7	44	11	0	62	991
05:15 PM	21	545	32	0	598	25	10	50	0	85	57	215	14	0	286	6	35	3	0	44	1013
05:30 PM	25	526	28	0	579	24	15	34	0	73	66	216	26	0	308	4	37	10	0	51	1011
05:45 PM	23	509	41	0	573	23	10	39	0	72	71	191	22	0	284	11	27	14	0	52	981
Total	85	2107	127	0	2319	94	48	169	0	311	252	818	87	0	1157	28	143	38	0	209	3996
06:00 PM	22	452	35	0	509	22	15	35	0	72	65	170	25	0	260	7	29	13	0	49	890
06:15 PM	19	475	24	0	518	19	12	29	0	60	52	177	17	0	246	9	28	12	0	49	873
Grand Total	152	3908	240	0	4300	184	81	297	0	562	457	1533	183	0	2173	55	237	83	0	375	7410
Apprch %	3.5	90.9	5.6	0		32.7	14.4	52.8	0		21	70.5	8.4	0		14.7	63.2	22.1	0		
Total %	2.1	52.7	3.2	0	58	2.5	1.1	4	0	7.6	6.2	20.7	2.5	0	29.3	0.7	3.2	1.1	0	5.1	

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	16	527	26	0	569	22	13	46	0	81	58	196	25	0	279	7	**44**	11	0	**62**	991
05:15 PM	21	**545**	32	0	**598**	**25**	10	**50**	0	**85**	57	215	14	0	286	6	35	3	0	44	**1013**
05:30 PM	**25**	526	28	0	579	24	**15**	34	0	73	66	**216**	**26**	0	**308**	4	37	10	0	51	1011
05:45 PM	23	509	**41**	0	573	23	10	39	0	72	**71**	191	22	0	284	**11**	27	**14**	0	52	981
Total Volume	85	2107	127	0	2319	94	48	169	0	311	252	818	87	0	1157	28	143	38	0	209	3996
% App. Total	3.7	90.9	5.5	0		30.2	15.4	54.3	0		21.8	70.7	7.5	0		13.4	68.4	18.2	0		
PHF	.850	.967	.774	.000	.969	.940	.800	.845	.000	.915	.887	.947	.837	.000	.939	.636	.813	.679	.000	.843	.986

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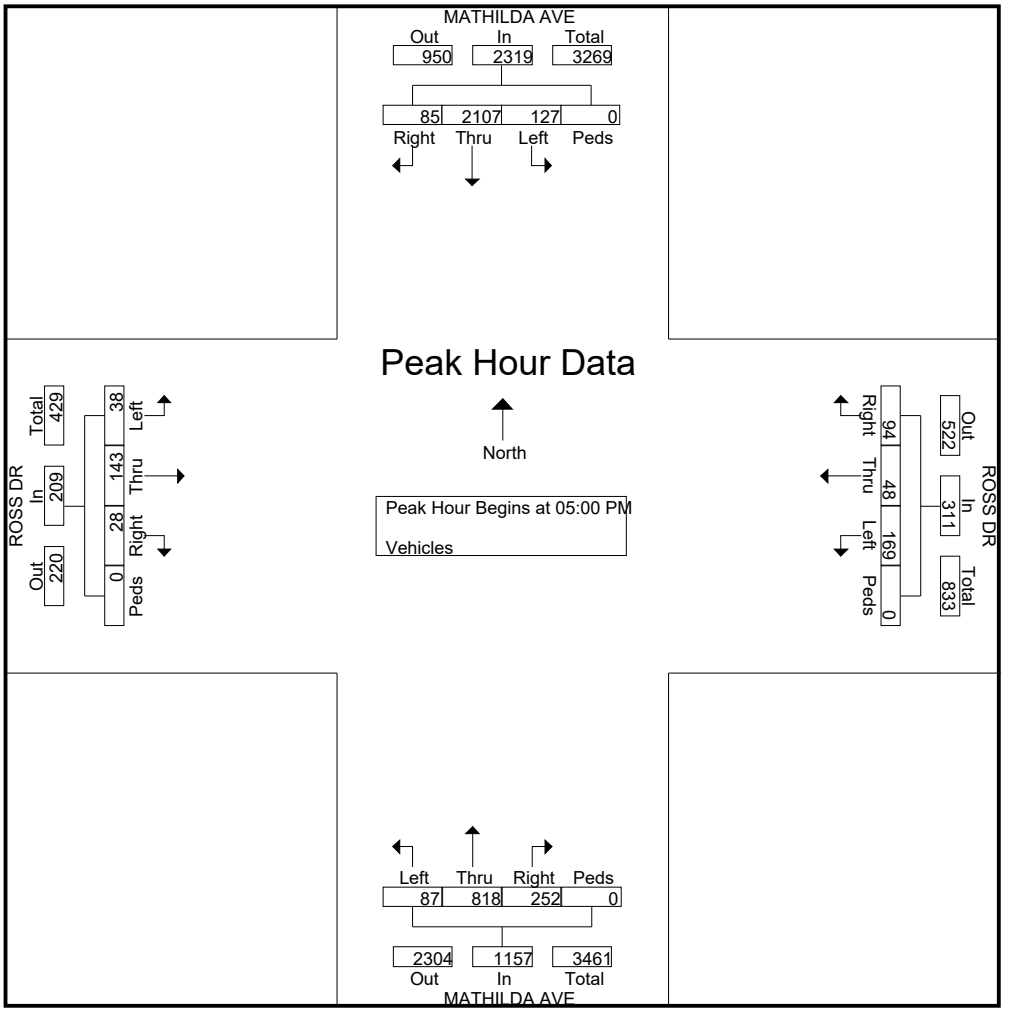

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File Name : 8PM FINAL
Site Code : 00000008
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Groups Printed- Bikes

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					

	MATHILDA AVE Southbound					ROSS DR Westbound					MATHILDA AVE Northbound					ROSS DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

Traffic Data Service

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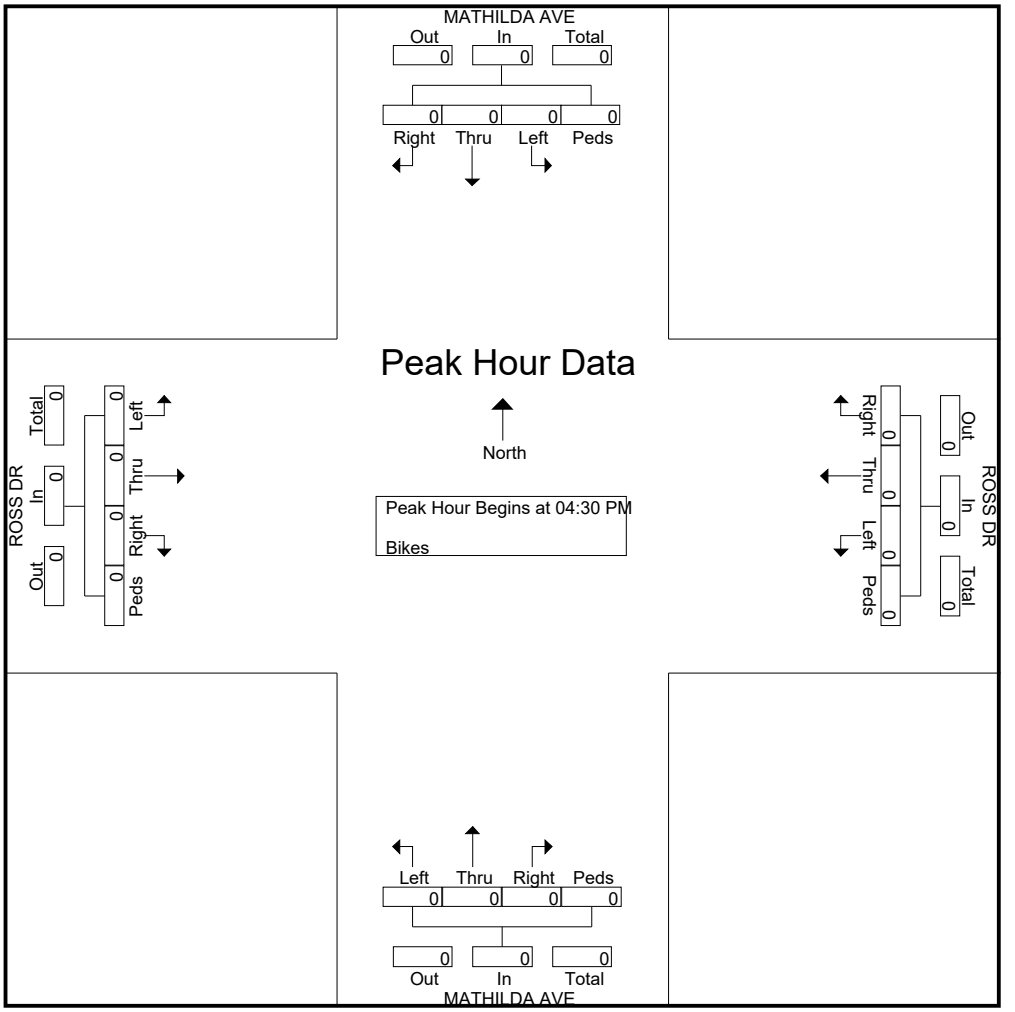

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File Name : 2AM FINAL
Site Code : 00000002
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					NB US-101 DIAGONAL OFF-RAMP Westbound					N MATHILDA AVE Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	176	0	0	176	129	0	0	1	130	0	202	0	0	202	0	0	0	0	0	508
07:15 AM	0	169	0	0	169	128	0	0	1	129	0	245	0	0	245	0	0	0	0	0	543
07:30 AM	0	187	0	0	187	136	0	0	4	140	0	264	0	0	264	0	0	0	0	0	591
07:45 AM	0	249	0	0	249	140	0	0	0	140	0	367	0	0	367	0	0	0	0	0	756
Total	0	781	0	0	781	533	0	0	6	539	0	1078	0	0	1078	0	0	0	0	0	2398
08:00 AM	0	225	0	0	225	158	0	0	3	161	0	395	0	0	395	0	0	0	0	0	781
08:15 AM	0	238	0	0	238	147	0	0	1	148	0	423	0	0	423	0	0	0	0	0	809
08:30 AM	0	233	0	0	233	167	0	0	0	167	0	442	0	0	442	0	0	0	0	0	842
08:45 AM	0	276	0	0	276	162	0	0	3	165	0	401	0	0	401	0	0	0	0	0	842
Total	0	972	0	0	972	634	0	0	7	641	0	1661	0	0	1661	0	0	0	0	0	3274
Grand Total	0	1753	0	0	1753	1167	0	0	13	1180	0	2739	0	0	2739	0	0	0	0	0	5672
Apprch %	0	100	0	0		98.9	0	0	1.1		0	100	0	0		0	0	0	0		
Total %	0	30.9	0	0	30.9	20.6	0	0	0.2	20.8	0	48.3	0	0	48.3	0	0	0	0	0	

	N MATHILDA AVE Southbound				NB US-101 DIAGONAL OFF-RAMP Westbound				N MATHILDA AVE Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	225	0	225	158	0	0	158	0	395	0	395	0	0	0	0	778
08:15 AM	0	238	0	238	147	0	0	147	0	423	0	423	0	0	0	0	808
08:30 AM	0	233	0	233	**167**	0	0	**167**	0	**442**	0	**442**	0	0	0	0	**842**
08:45 AM	0	**276**	0	**276**	162	0	0	162	0	401	0	401	0	0	0	0	839
Total Volume	0	972	0	972	634	0	0	634	0	1661	0	1661	0	0	0	0	3267
% App. Total	0	100	0		100	0	0		0	100	0		0	0	0		
PHF	.000	.880	.000	.880	.949	.000	.000	.949	.000	.939	.000	.939	.000	.000	.000	.000	.970

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File Name : 2AM FINAL
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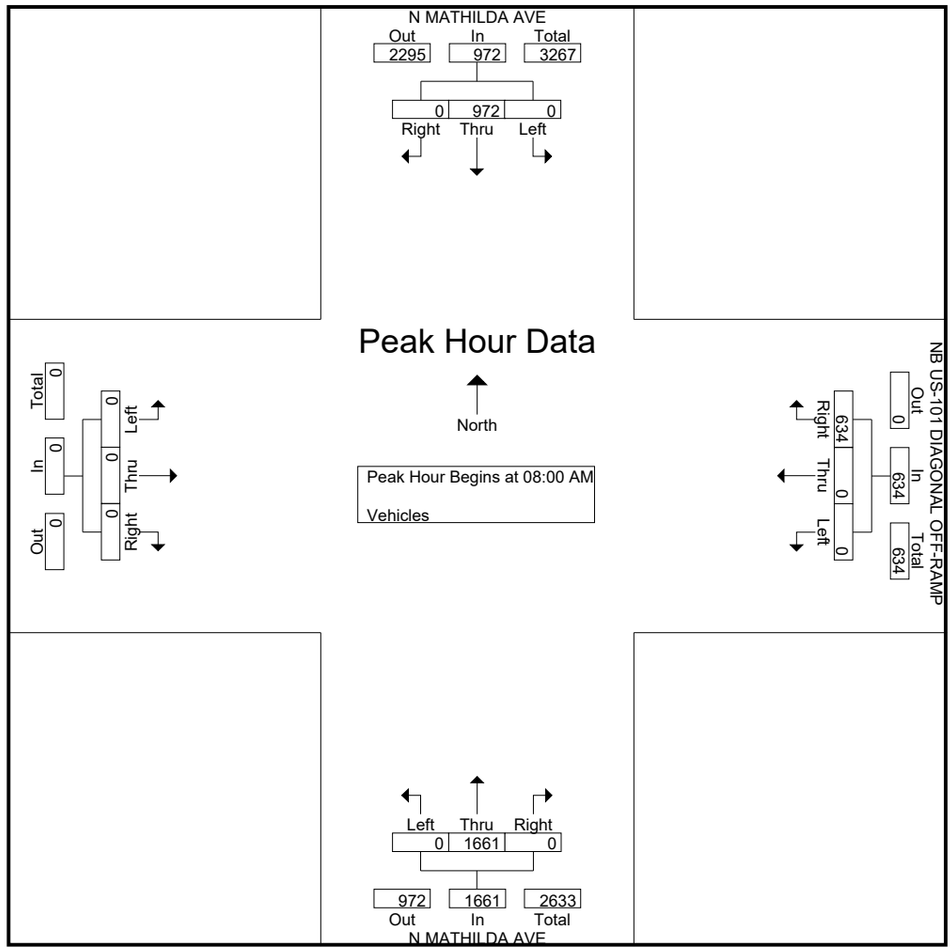

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File Name : 2AM FINAL
Site Code : 00000002
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					NB US-101 DIAGONAL OFF-RAMP Westbound					N MATHILDA AVE Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	25	0	0	25	0	0	0	0	0	0	75	0	0	75	0	0	0	0	0	

	N MATHILDA AVE Southbound				NB US-101 DIAGONAL OFF-RAMP Westbound				N MATHILDA AVE Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
07:15 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.375

Traffic Data Service

Campbell, CA

(408) 377- 2988

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File Name : 2AM FINAL
Site Code : 00000002
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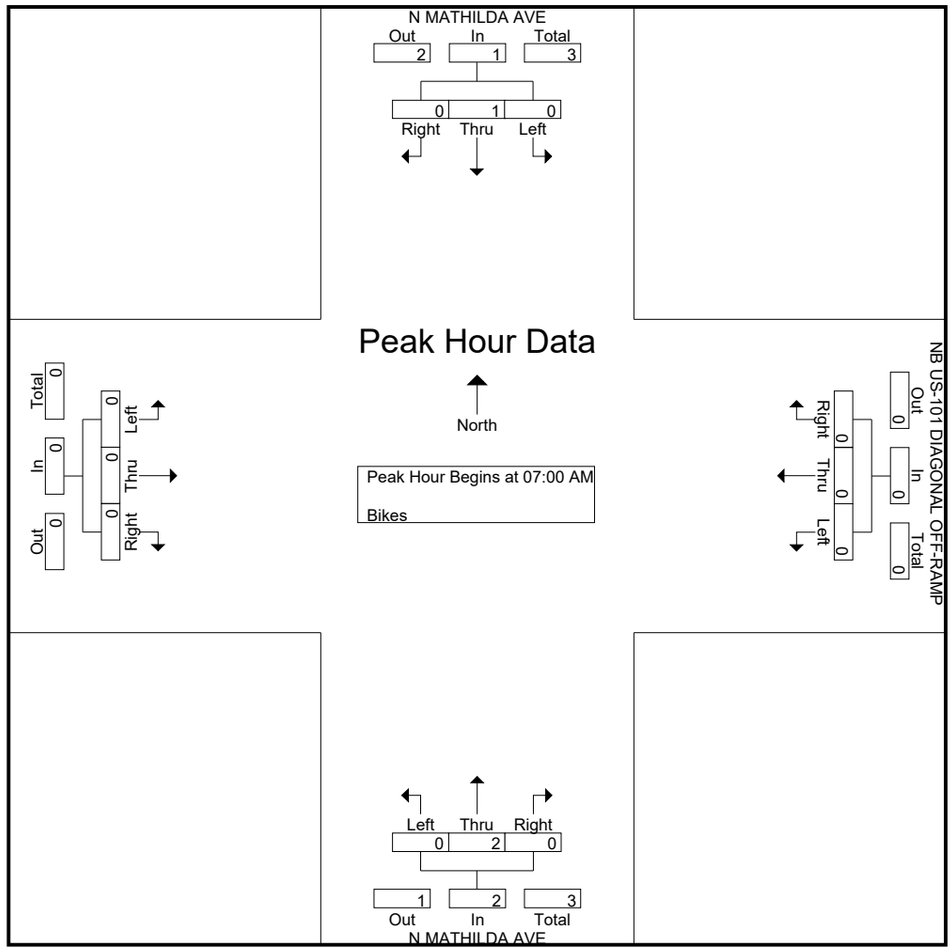

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File Name : 2PM FINAL
Site Code : 00000002
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					NB US-101 DIAGONAL OFF-RAMP Westbound					N MATHILDA AVE Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	407	0	0	407	32	0	0	0	32	0	215	0	0	215	0	0	0	0	0	654
04:15 PM	0	397	0	0	397	34	0	0	2	36	0	163	0	0	163	0	0	0	0	0	596
04:30 PM	0	516	0	0	516	44	0	0	0	44	0	207	0	0	207	0	0	0	0	0	767
04:45 PM	0	542	0	0	542	42	0	0	2	44	0	222	0	0	222	0	0	0	0	0	808
Total	0	1862	0	0	1862	152	0	0	4	156	0	807	0	0	807	0	0	0	0	0	2825
05:00 PM	0	592	0	0	592	29	0	0	1	30	0	261	0	0	261	0	0	0	0	0	883
05:15 PM	0	637	0	0	637	39	0	0	2	41	0	218	0	0	218	0	0	0	0	0	896
05:30 PM	0	590	0	0	590	61	0	0	1	62	0	245	0	0	245	0	0	0	0	0	897
05:45 PM	0	563	0	0	563	49	0	0	2	51	0	246	0	0	246	0	0	0	0	0	860
Total	0	2382	0	0	2382	178	0	0	6	184	0	970	0	0	970	0	0	0	0	0	3536
06:00 PM	0	617	0	0	617	34	0	0	1	35	0	208	0	0	208	0	0	0	0	0	860
06:15 PM	0	602	0	0	602	38	0	0	0	38	0	190	0	0	190	0	0	0	0	0	830
06:30 PM	0	514	0	0	514	38	0	0	0	38	0	195	0	0	195	0	0	0	0	0	747
06:45 PM	0	466	0	0	466	40	0	0	0	40	0	182	0	0	182	0	0	0	0	0	688
Total	0	2199	0	0	2199	150	0	0	1	151	0	775	0	0	775	0	0	0	0	0	3125
Grand Total	0	6443	0	0	6443	480	0	0	11	491	0	2552	0	0	2552	0	0	0	0	0	9486
Apprch %	0	100	0	0		97.8	0	0	2.2		0	100	0	0		0	0	0	0		
Total %	0	67.9	0	0	67.9	5.1	0	0	0.1	5.2	0	26.9	0	0	26.9	0	0	0	0	0	

	N MATHILDA AVE Southbound				NB US-101 DIAGONAL OFF-RAMP Westbound				N MATHILDA AVE Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	592	0	592	29	0	0	29	0	**261**	0	**261**	0	0	0	0	882
05:15 PM	0	**637**	0	**637**	39	0	0	39	0	218	0	218	0	0	0	0	894
05:30 PM	0	590	0	590	**61**	0	0	**61**	0	245	0	245	0	0	0	0	**896**
05:45 PM	0	563	0	563	49	0	0	49	0	246	0	246	0	0	0	0	858
Total Volume	0	2382	0	2382	178	0	0	178	0	970	0	970	0	0	0	0	3530
% App. Total	0	100	0		100	0	0		0	100	0		0	0	0		
PHF	.000	.935	.000	.935	.730	.000	.000	.730	.000	.929	.000	.929	.000	.000	.000	.000	.985

Traffic Data Service

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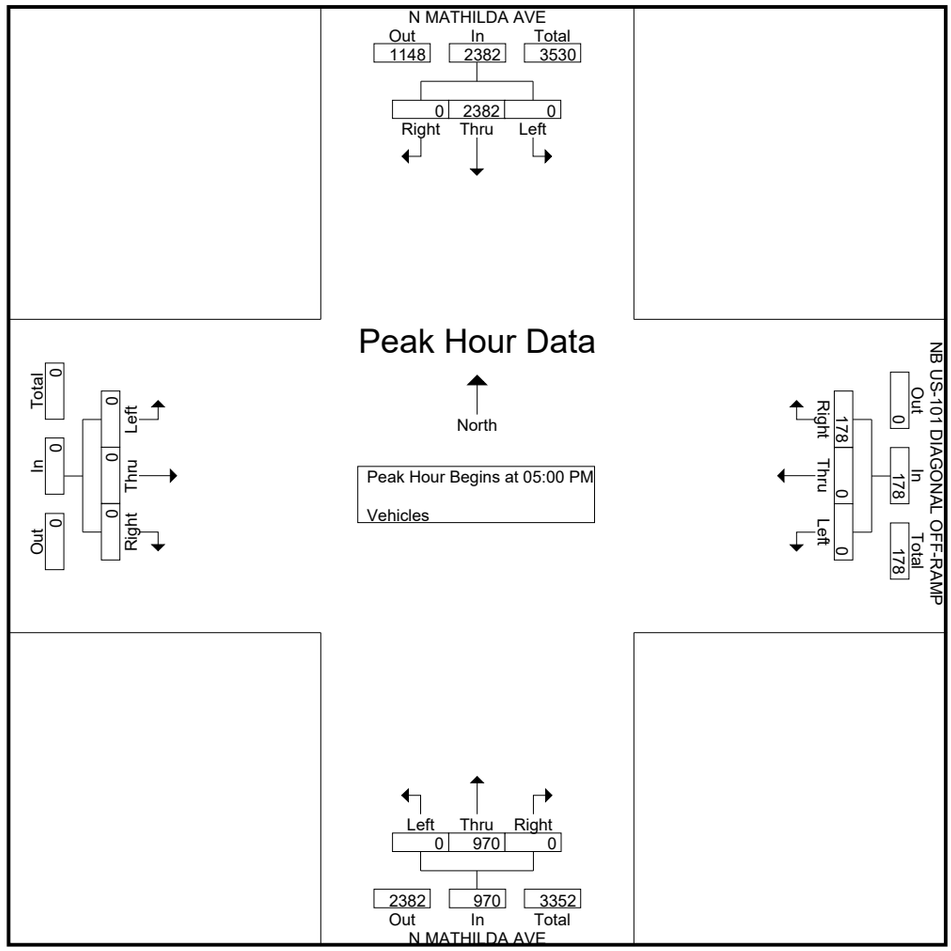

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File Name : 2PM FINAL
Site Code : 00000002
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					NB US-101 DIAGONAL OFF-RAMP Westbound					N MATHILDA AVE Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	66.7	0	0	66.7	0	0	0	0	0	0	33.3	0	0	33.3	0	0	0	0	0	

	N MATHILDA AVE Southbound				NB US-101 DIAGONAL OFF-RAMP Westbound				N MATHILDA AVE Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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Campbell, CA

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File Name : 2PM FINAL
Site Code : 00000002
Start Date : 11/13/2013
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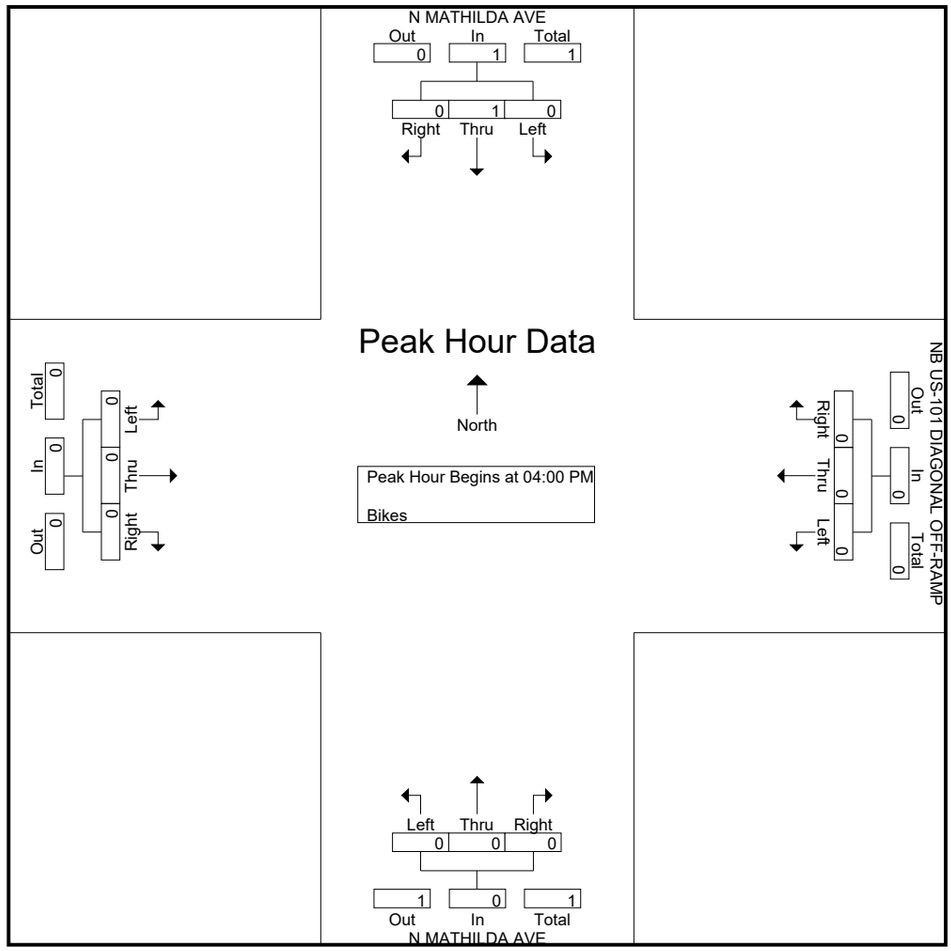

Traffic Data Service

Campbell, CA
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File Name : 3AM FINAL
Site Code : 00000003
Start Date : 11/13/2013
Page No : 1

Groups Printed- Vehicles

	N MATHILDA AVE Southbound					NB US-101 LOOP ON-RAMP Westbound					N MATHILDA AVE Northbound					NB US-101 LOOP OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	176	0	0	176	0	0	0	0	0	73	202	0	0	275	129	0	0	1	130	581
07:15 AM	0	169	0	1	170	0	0	0	0	0	82	245	0	0	327	111	0	0	2	113	610
07:30 AM	0	187	0	0	187	0	0	0	0	0	77	264	0	0	341	132	0	0	4	136	664
07:45 AM	0	249	0	0	249	0	0	0	0	0	77	367	0	0	444	195	0	0	1	196	889
Total	0	781	0	1	782	0	0	0	0	0	309	1078	0	0	1387	567	0	0	8	575	2744
08:00 AM	0	225	0	0	225	0	0	0	0	0	72	395	0	0	467	171	0	0	1	172	864
08:15 AM	0	238	0	0	238	0	0	0	0	0	84	423	0	0	507	177	0	0	2	179	924
08:30 AM	0	233	0	0	233	0	0	0	0	0	73	442	0	0	515	161	0	0	0	161	909
08:45 AM	0	276	0	0	276	0	0	0	0	0	63	401	0	0	464	215	0	0	3	218	958
Total	0	972	0	0	972	0	0	0	0	0	292	1661	0	0	1953	724	0	0	6	730	3655
Grand Total	0	1753	0	1	1754	0	0	0	0	0	601	2739	0	0	3340	1291	0	0	14	1305	6399
Apprch %	0	99.9	0	0.1		0	0	0	0		18	82	0	0		98.9	0	0	1.1		
Total %	0	27.4	0	0	27.4	0	0	0	0	0	9.4	42.8	0	0	52.2	20.2	0	0	0.2	20.4	

	N MATHILDA AVE Southbound				NB US-101 LOOP ON-RAMP Westbound				N MATHILDA AVE Northbound				NB US-101 LOOP OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	225	0	225	0	0	0	0	72	395	0	467	171	0	0	171	863
08:15 AM	0	238	0	238	0	0	0	0	**84**	423	0	507	177	0	0	177	922
08:30 AM	0	233	0	233	0	0	0	0	73	**442**	0	**515**	161	0	0	161	909
08:45 AM	0	**276**	0	**276**	0	0	0	0	63	401	0	464	**215**	0	0	**215**	**955**
Total Volume	0	972	0	972	0	0	0	0	292	1661	0	1953	724	0	0	724	3649
% App. Total	0	100	0		0	0	0		15	85	0		100	0	0		
PHF	.000	.880	.000	.880	.000	.000	.000	.000	.869	.939	.000	.948	.842	.000	.000	.842	.955

Traffic Data Service

Campbell, CA

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File Name : 3AM FINAL
Site Code : 00000003
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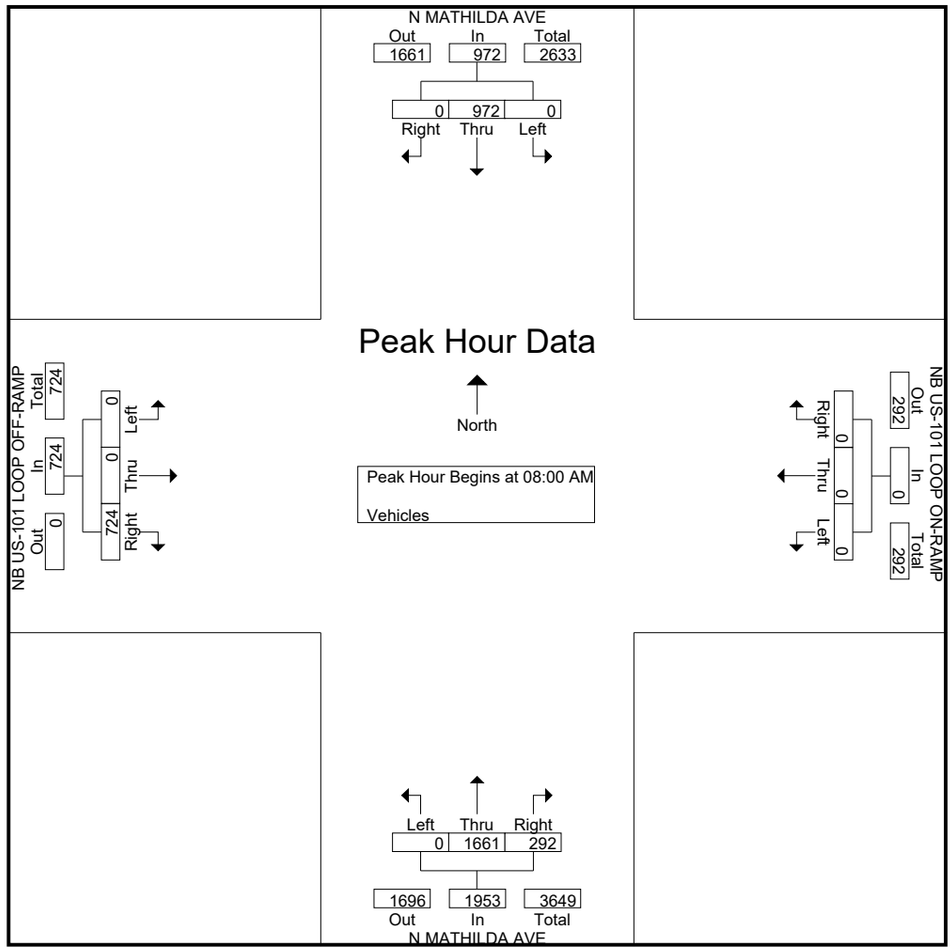

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File Name : 3AM FINAL
Site Code : 00000003
Start Date : 11/13/2013
Page No : 1

Groups Printed- Bikes

	N MATHILDA AVE Southbound					NB US-101 LOOP ON-RAMP Westbound					N MATHILDA AVE Northbound					NB US-101 LOOP OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	25	0	0	25	0	0	0	0	0	0	75	0	0	75	0	0	0	0	0	

	N MATHILDA AVE Southbound				NB US-101 LOOP ON-RAMP Westbound				N MATHILDA AVE Northbound				NB US-101 LOOP OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
07:15 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.375

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File Name : 3AM FINAL
Site Code : 00000003
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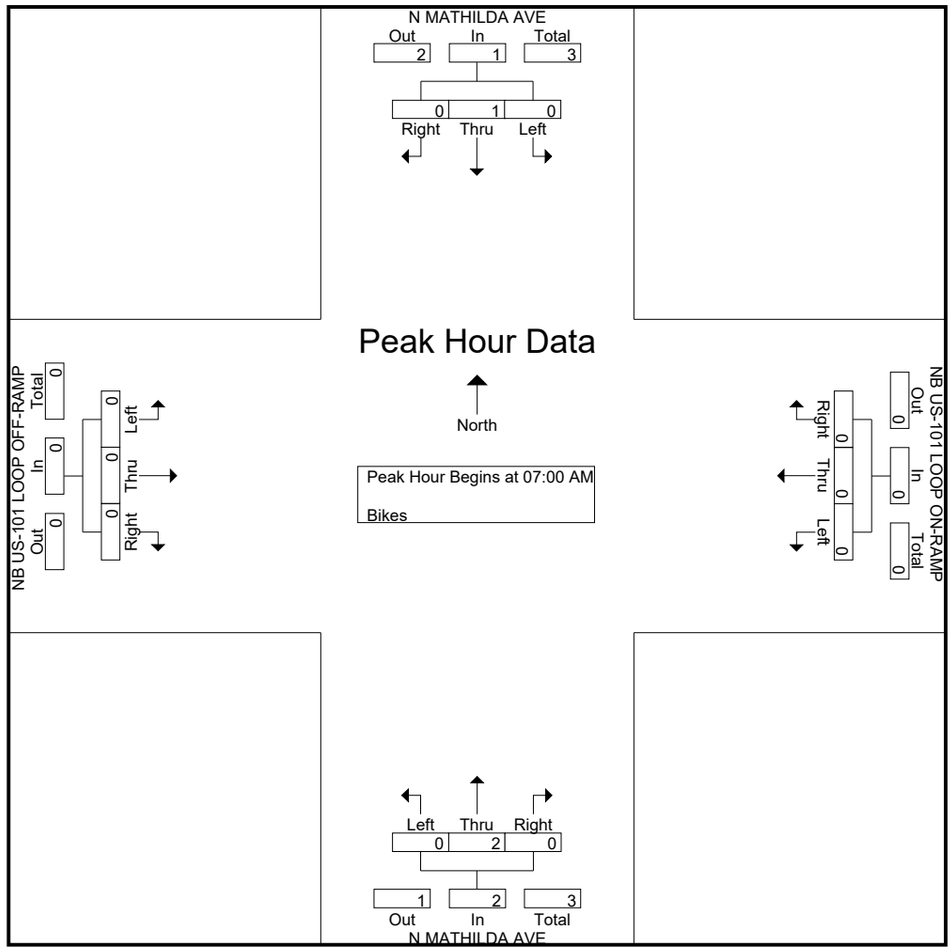

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File Name : 3PM FINAL
Site Code : 00000003
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					NB US-101 LOOP ON-RAMP Westbound					N MATHILDA AVE Northbound					NB US-101 LOOP OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	407	0	0	407	0	0	0	0	0	84	215	0	0	299	82	0	0	0	82	788
04:15 PM	0	397	0	0	397	0	0	0	0	0	69	163	0	1	233	92	0	0	2	94	724
04:30 PM	0	516	0	0	516	0	0	0	0	0	73	207	0	0	280	125	0	0	0	125	921
04:45 PM	0	542	0	0	542	0	0	0	0	0	70	222	0	0	292	167	0	0	2	169	1003
Total	0	1862	0	0	1862	0	0	0	0	0	296	807	0	1	1104	466	0	0	4	470	3436
05:00 PM	0	592	0	0	592	0	0	0	0	0	72	261	0	0	333	152	0	0	1	153	1078
05:15 PM	0	637	0	0	637	0	0	0	0	0	63	218	0	0	281	204	0	0	2	206	1124
05:30 PM	0	590	0	0	590	0	0	0	0	0	55	245	0	0	300	182	0	0	1	183	1073
05:45 PM	0	563	0	0	563	0	0	0	0	0	53	246	0	0	299	179	0	0	2	181	1043
Total	0	2382	0	0	2382	0	0	0	0	0	243	970	0	0	1213	717	0	0	6	723	4318
06:00 PM	0	617	0	0	617	0	0	0	0	0	55	208	0	0	263	181	0	0	2	183	1063
06:15 PM	0	602	0	0	602	0	0	0	0	0	62	190	0	0	252	175	0	0	0	175	1029
06:30 PM	0	514	0	0	514	0	0	0	0	0	67	195	0	0	262	148	0	0	0	148	924
06:45 PM	0	466	0	0	466	0	0	0	0	0	66	182	0	0	248	150	0	0	0	150	864
Total	0	2199	0	0	2199	0	0	0	0	0	250	775	0	0	1025	654	0	0	2	656	3880
Grand Total	0	6443	0	0	6443	0	0	0	0	0	789	2552	0	1	3342	1837	0	0	12	1849	11634
Apprch %	0	100	0	0		0	0	0	0		23.6	76.4	0	0		99.4	0	0	0.6		
Total %	0	55.4	0	0	55.4	0	0	0	0	0	6.8	21.9	0	0	28.7	15.8	0	0	0.1	15.9	

	N MATHILDA AVE Southbound				NB US-101 LOOP ON-RAMP Westbound				N MATHILDA AVE Northbound				NB US-101 LOOP OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	592	0	592	0	0	0	0	**72**	**261**	0	**333**	152	0	0	152	1077
05:15 PM	0	**637**	0	**637**	0	0	0	0	63	218	0	281	**204**	0	0	**204**	**1122**
05:30 PM	0	590	0	590	0	0	0	0	55	245	0	300	182	0	0	182	1072
05:45 PM	0	563	0	563	0	0	0	0	53	246	0	299	179	0	0	179	1041
Total Volume	0	2382	0	2382	0	0	0	0	243	970	0	1213	717	0	0	717	4312
% App. Total	0	100	0		0	0	0		20	80	0		100	0	0		
PHF	.000	.935	.000	.935	.000	.000	.000	.000	.844	.929	.000	.911	.879	.000	.000	.879	.961

Traffic Data Service

Campbell, CA

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File Name : 3PM FINAL
Site Code : 00000003
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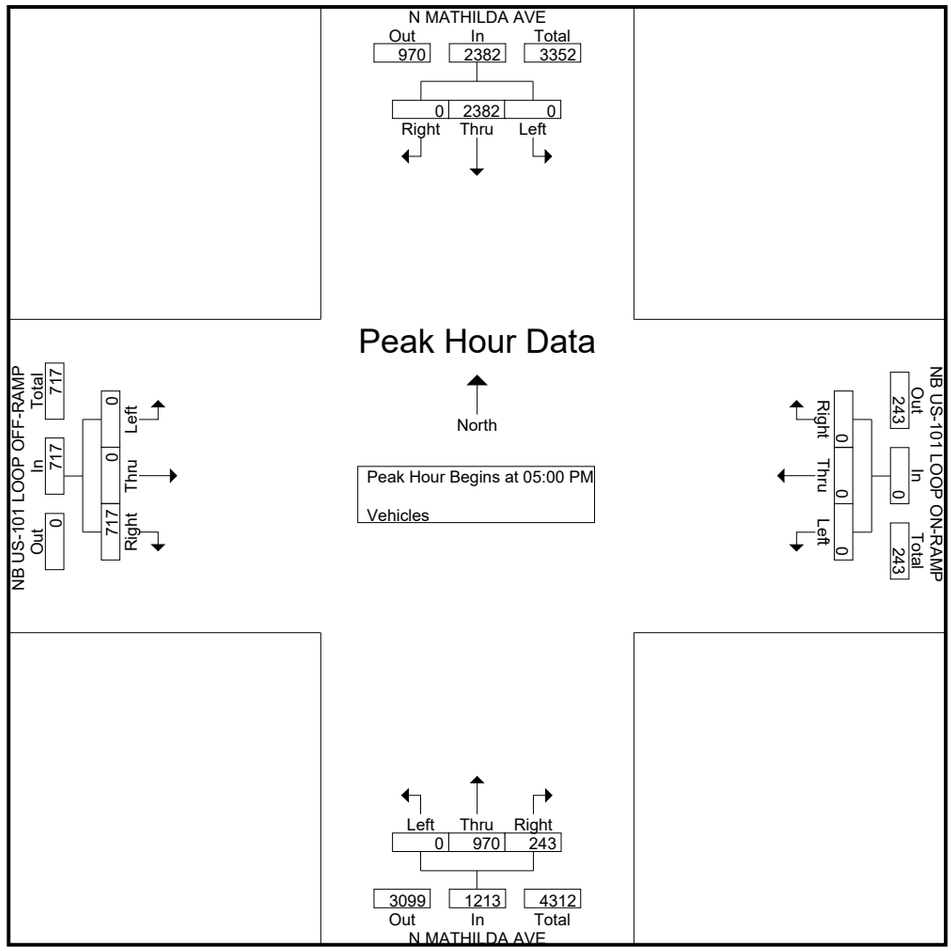

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tdsbay@cs.com

File Name : 3PM FINAL
Site Code : 00000003
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					NB US-101 LOOP ON-RAMP Westbound					N MATHILDA AVE Northbound					NB US-101 LOOP OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	66.7	0	0	66.7	0	0	0	0	0	0	33.3	0	0	33.3	0	0	0	0	0	

	N MATHILDA AVE Southbound				NB US-101 LOOP ON-RAMP Westbound				N MATHILDA AVE Northbound				NB US-101 LOOP OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Traffic Data Service

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File Name : 3PM FINAL
Site Code : 00000003
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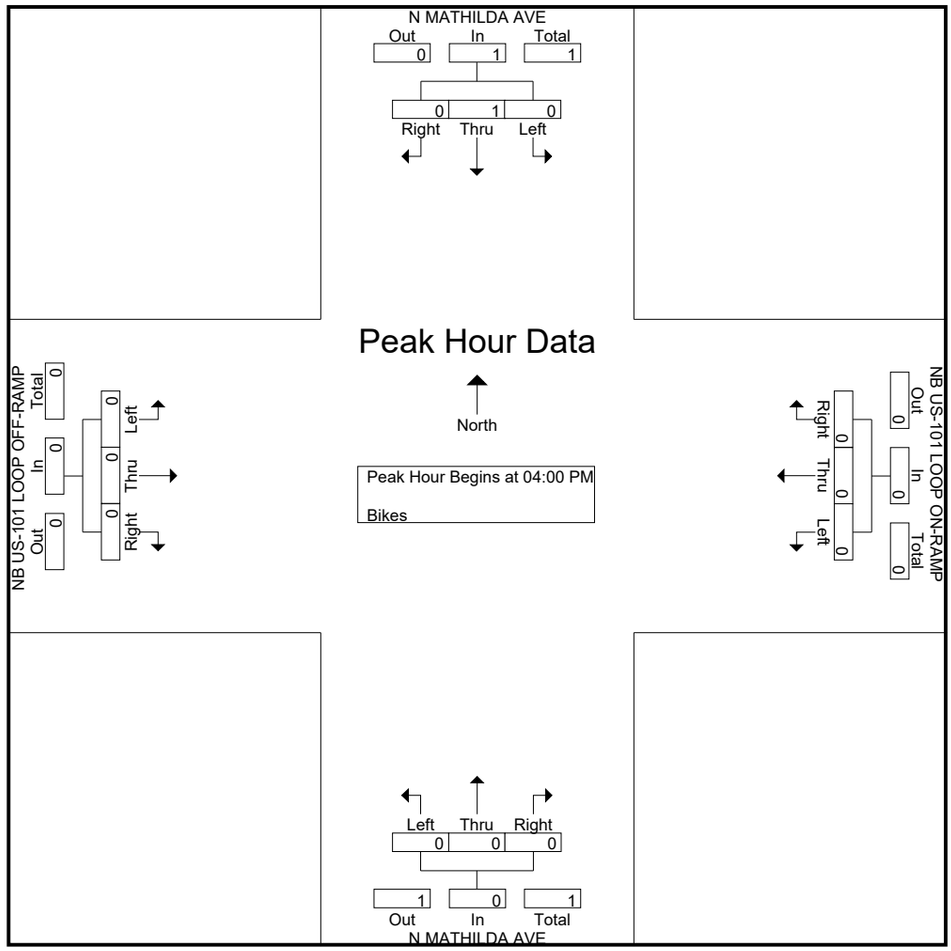

Traffic Data Service

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File Name : 4AM FINAL
Site Code : 00000004
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 LOOP ON-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	20	285	0	0	305	0	0	0	0	0	0	275	0	0	275	0	0	0	0	0	580
07:15 AM	16	264	0	0	280	0	0	0	0	0	0	327	0	0	327	0	0	0	0	0	607
07:30 AM	21	298	0	0	319	0	0	0	0	0	0	341	0	0	341	0	0	0	0	0	660
07:45 AM	27	417	0	0	444	0	0	0	0	0	0	444	0	0	444	0	0	0	0	0	888
Total	84	1264	0	0	1348	0	0	0	0	0	0	1387	0	0	1387	0	0	0	0	0	2735
08:00 AM	22	374	0	0	396	0	0	0	0	0	0	467	0	0	467	0	0	0	0	0	863
08:15 AM	29	386	0	0	415	0	0	0	0	0	0	507	0	0	507	0	0	0	0	0	922
08:30 AM	34	360	0	0	394	0	0	0	0	0	0	515	0	0	515	0	0	0	0	0	909
08:45 AM	41	450	0	0	491	0	0	0	0	0	0	464	0	0	464	0	0	0	0	0	955
Total	126	1570	0	0	1696	0	0	0	0	0	0	1953	0	0	1953	0	0	0	0	0	3649
Grand Total	210	2834	0	0	3044	0	0	0	0	0	0	3340	0	0	3340	0	0	0	0	0	6384
Apprch %	6.9	93.1	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	3.3	44.4	0	0	47.7	0	0	0	0	0	0	52.3	0	0	52.3	0	0	0	0	0	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 LOOP ON-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	22	374	0	396	0	0	0	0	0	467	0	467	0	0	0	0	863
08:15 AM	29	386	0	415	0	0	0	0	0	507	0	507	0	0	0	0	922
08:30 AM	34	360	0	394	0	0	0	0	0	**515**	0	**515**	0	0	0	0	909
08:45 AM	**41**	**450**	0	**491**	0	0	0	0	0	464	0	464	0	0	0	0	**955**
Total Volume	126	1570	0	1696	0	0	0	0	0	1953	0	1953	0	0	0	0	3649
% App. Total	7.4	92.6	0		0	0	0		0	100	0		0	0	0		
PHF	.768	.872	.000	.864	.000	.000	.000	.000	.000	.948	.000	.948	.000	.000	.000	.000	.955

Traffic Data Service

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File Name : 4AM FINAL
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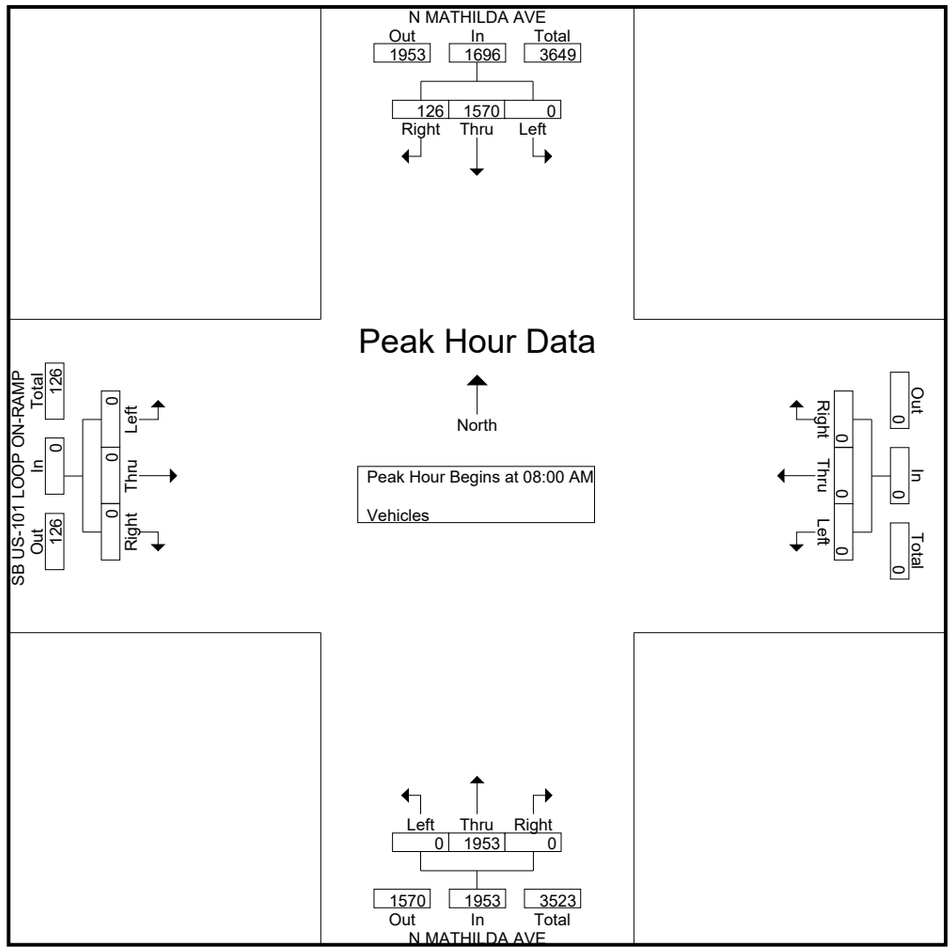

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File Name : 4AM FINAL
Site Code : 00000004
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 LOOP ON-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	25	0	0	25	0	0	0	0	0	0	75	0	0	75	0	0	0	0	0	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 LOOP ON-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
07:15 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.375

Traffic Data Service

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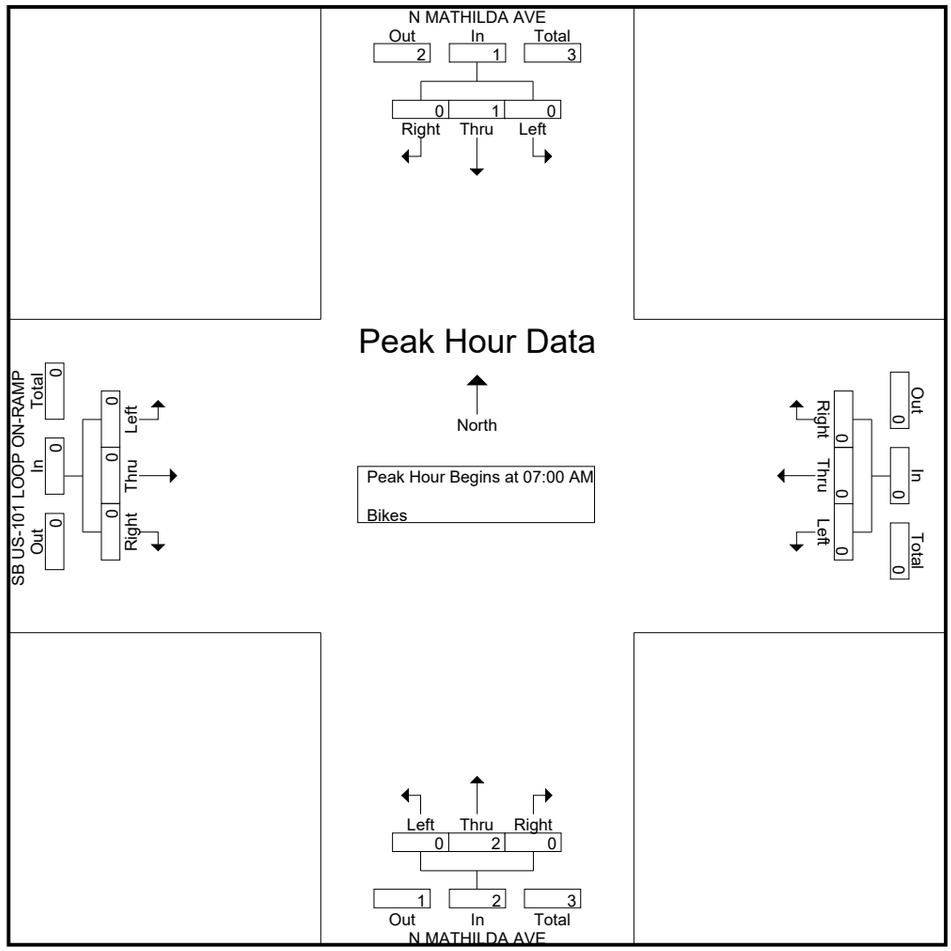

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File Name : 4PM FINAL
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 LOOP ON-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	122	367	0	0	489	0	0	0	0	0	0	299	0	0	299	0	0	0	0	0	788
04:15 PM	99	390	0	0	489	0	0	0	0	0	0	232	0	0	232	0	0	0	0	0	721
04:30 PM	103	538	0	0	641	0	0	0	0	0	0	280	0	0	280	0	0	0	0	0	921
04:45 PM	131	578	0	0	709	0	0	0	0	0	0	292	0	0	292	0	0	0	0	0	1001
Total	455	1873	0	0	2328	0	0	0	0	0	0	1103	0	0	1103	0	0	0	0	0	3431
05:00 PM	167	577	0	0	744	0	0	0	0	0	0	333	0	0	333	0	0	0	0	0	1077
05:15 PM	141	700	0	0	841	0	0	0	0	0	0	281	0	0	281	0	0	0	0	0	1122
05:30 PM	128	644	0	0	772	0	0	0	0	0	0	300	0	0	300	0	0	0	0	0	1072
05:45 PM	126	616	0	0	742	0	0	0	0	0	0	299	0	0	299	0	0	0	0	0	1041
Total	562	2537	0	0	3099	0	0	0	0	0	0	1213	0	0	1213	0	0	0	0	0	4312
06:00 PM	155	643	0	0	798	0	0	0	0	0	0	263	0	0	263	0	0	0	0	0	1061
06:15 PM	150	627	0	0	777	0	0	0	0	0	0	252	0	0	252	0	0	0	0	0	1029
06:30 PM	127	535	0	0	662	0	0	0	0	0	0	262	0	0	262	0	0	0	0	0	924
06:45 PM	99	517	0	0	616	0	0	0	0	0	0	248	0	0	248	0	0	0	0	0	864
Total	531	2322	0	0	2853	0	0	0	0	0	0	1025	0	0	1025	0	0	0	0	0	3878
Grand Total	1548	6732	0	0	8280	0	0	0	0	0	0	3341	0	0	3341	0	0	0	0	0	11621
Apprch %	18.7	81.3	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	13.3	57.9	0	0	71.3	0	0	0	0	0	0	28.7	0	0	28.7	0	0	0	0	0	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 LOOP ON-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	**167**	577	0	744	0	0	0	0	0	**333**	0	**333**	0	0	0	0	1077
05:15 PM	141	**700**	0	**841**	0	0	0	0	0	281	0	281	0	0	0	0	**1122**
05:30 PM	128	644	0	772	0	0	0	0	0	300	0	300	0	0	0	0	1072
05:45 PM	126	616	0	742	0	0	0	0	0	299	0	299	0	0	0	0	1041
Total Volume	562	2537	0	3099	0	0	0	0	0	1213	0	1213	0	0	0	0	4312
% App. Total	18.1	81.9	0		0	0	0		0	100	0		0	0	0		
PHF	.841	.906	.000	.921	.000	.000	.000	.000	.000	.911	.000	.911	.000	.000	.000	.000	.961

Traffic Data Service

Campbell, CA

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File Name : 4PM FINAL
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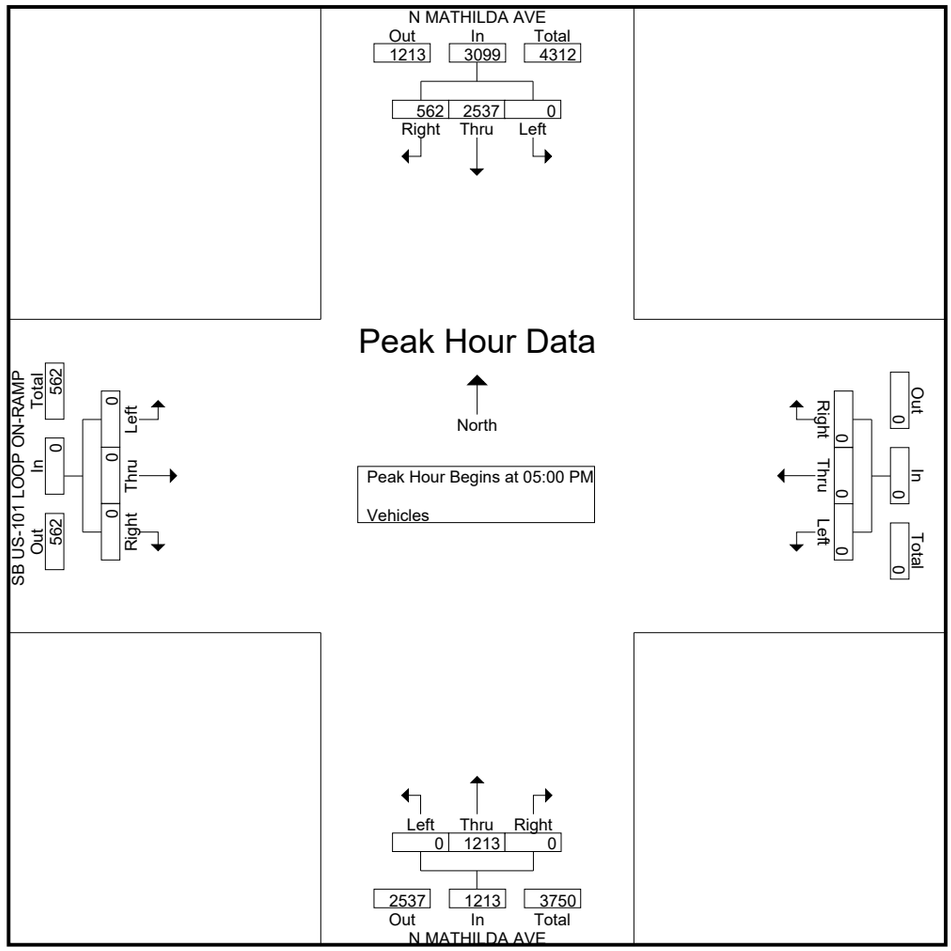

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File Name : 4PM FINAL
Site Code : 00000004
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 LOOP ON-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	66.7	0	0	66.7	0	0	0	0	0	0	33.3	0	0	33.3	0	0	0	0	0	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 LOOP ON-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Traffic Data Service

Campbell, CA

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File Name : 4PM FINAL
Site Code : 00000004
Start Date : 11/13/2013
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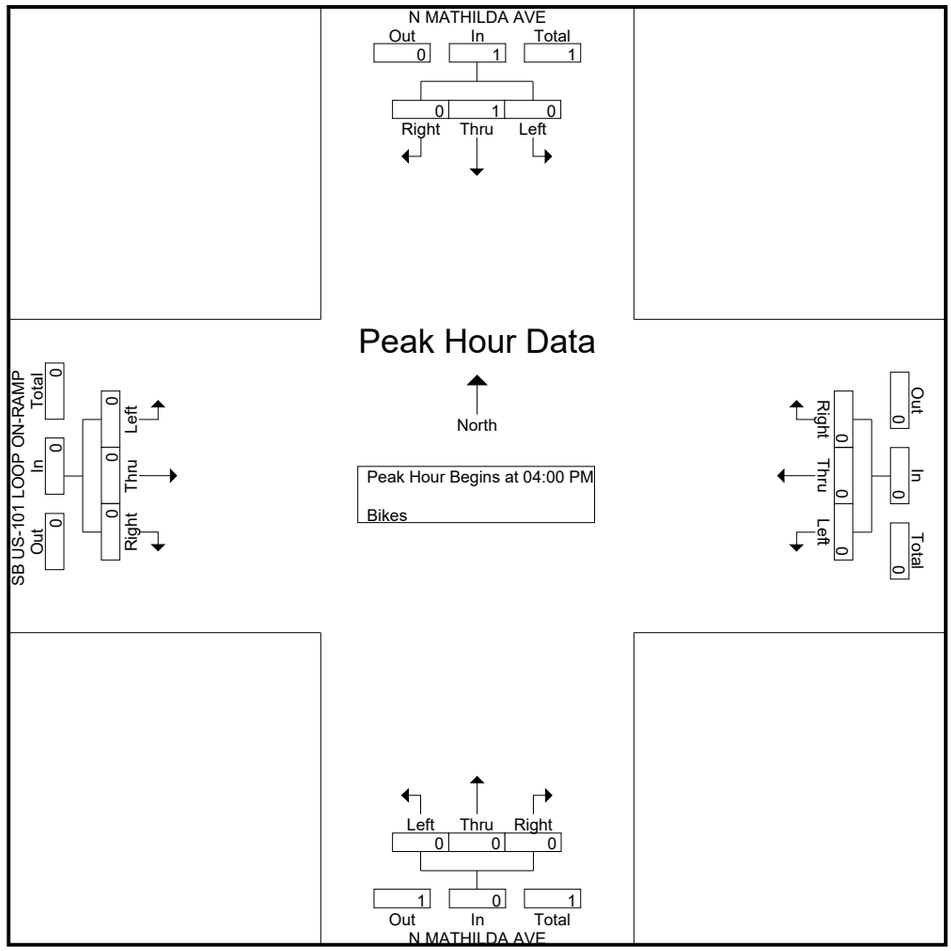

Traffic Data Service

Campbell, CA

(408) 377- 2988

tdsbay@cs.com

File Name : 5AM FINAL
Site Code : 00000005
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 DIAGONAL OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	285	0	0	285	0	0	0	0	0	0	275	0	0	275	62	0	0	0	62	622
07:15 AM	0	264	0	0	264	0	0	0	0	0	0	327	0	0	327	81	0	0	0	81	672
07:30 AM	0	298	0	0	298	0	0	0	0	0	0	341	0	0	341	73	0	0	0	73	712
07:45 AM	0	417	0	0	417	0	0	0	0	0	0	444	0	0	444	70	0	0	0	70	931
Total	0	1264	0	0	1264	0	0	0	0	0	0	1387	0	0	1387	286	0	0	0	286	2937
08:00 AM	0	374	0	0	374	0	0	0	0	0	0	467	0	0	467	87	0	0	0	87	928
08:15 AM	0	386	0	0	386	0	0	0	0	0	0	507	0	0	507	80	0	0	0	80	973
08:30 AM	0	360	0	0	360	0	0	0	0	0	0	515	0	0	515	76	0	0	0	76	951
08:45 AM	0	450	0	0	450	0	0	0	0	0	0	464	0	0	464	112	0	0	0	112	1026
Total	0	1570	0	0	1570	0	0	0	0	0	0	1953	0	0	1953	355	0	0	0	355	3878
Grand Total	0	2834	0	0	2834	0	0	0	0	0	0	3340	0	0	3340	641	0	0	0	641	6815
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		100	0	0	0		
Total %	0	41.6	0	0	41.6	0	0	0	0	0	0	49	0	0	49	9.4	0	0	0	9.4	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 DIAGONAL OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	374	0	374	0	0	0	0	0	467	0	467	87	0	0	87	928
08:15 AM	0	386	0	386	0	0	0	0	0	507	0	507	80	0	0	80	973
08:30 AM	0	360	0	360	0	0	0	0	0	**515**	0	**515**	76	0	0	76	951
08:45 AM	0	**450**	0	**450**	0	0	0	0	0	464	0	464	**112**	0	0	**112**	**1026**
Total Volume	0	1570	0	1570	0	0	0	0	0	1953	0	1953	355	0	0	355	3878
% App. Total	0	100	0		0	0	0		0	100	0		100	0	0		
PHF	.000	.872	.000	.872	.000	.000	.000	.000	.000	.948	.000	.948	.792	.000	.000	.792	.945

Traffic Data Service

Campbell, CA

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File Name : 5AM FINAL
Site Code : 00000005
Start Date : 11/13/2013
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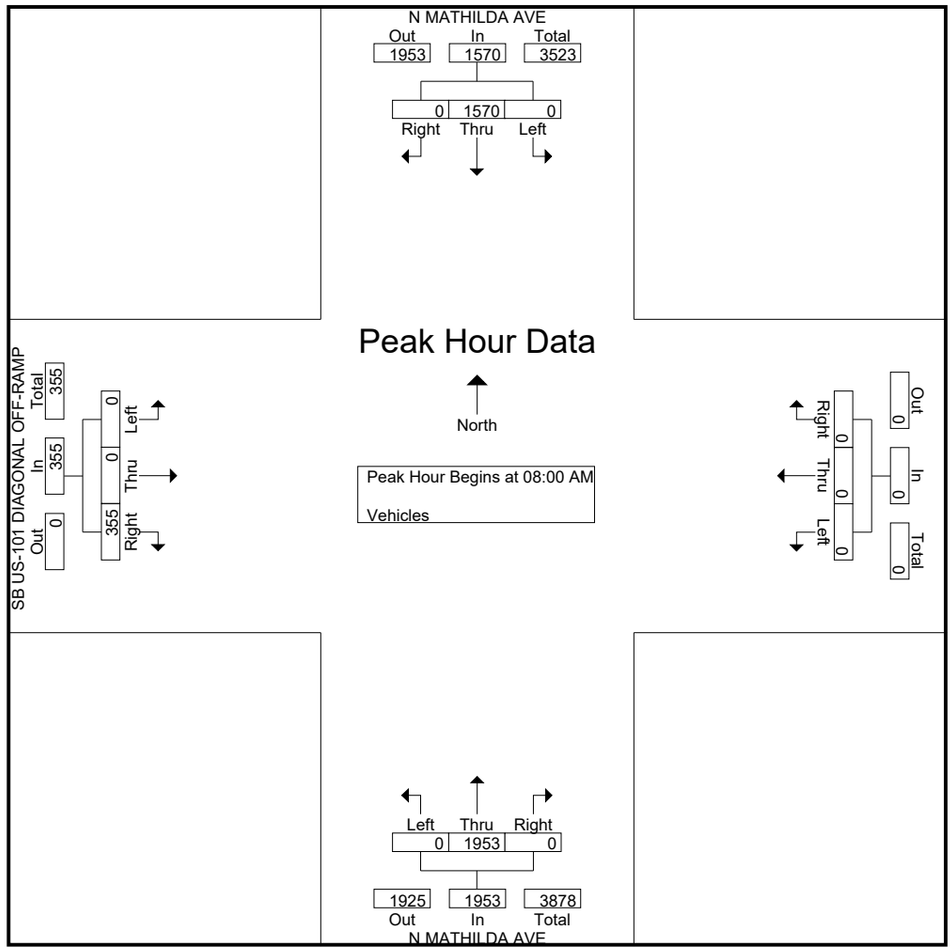

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File Name : 5AM FINAL
Site Code : 00000005
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 DIAGONAL OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
07:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	4
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	25	0	0	25	0	0	0	0	0	0	75	0	0	75	0	0	0	0	0	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 DIAGONAL OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	**2**	0	**2**	0	0	0	0	**2**
07:15 AM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	2	0	2	0	0	0	0	3
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.375

Traffic Data Service

Campbell, CA

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File Name : 5AM FINAL
Site Code : 00000005
Start Date : 11/13/2013
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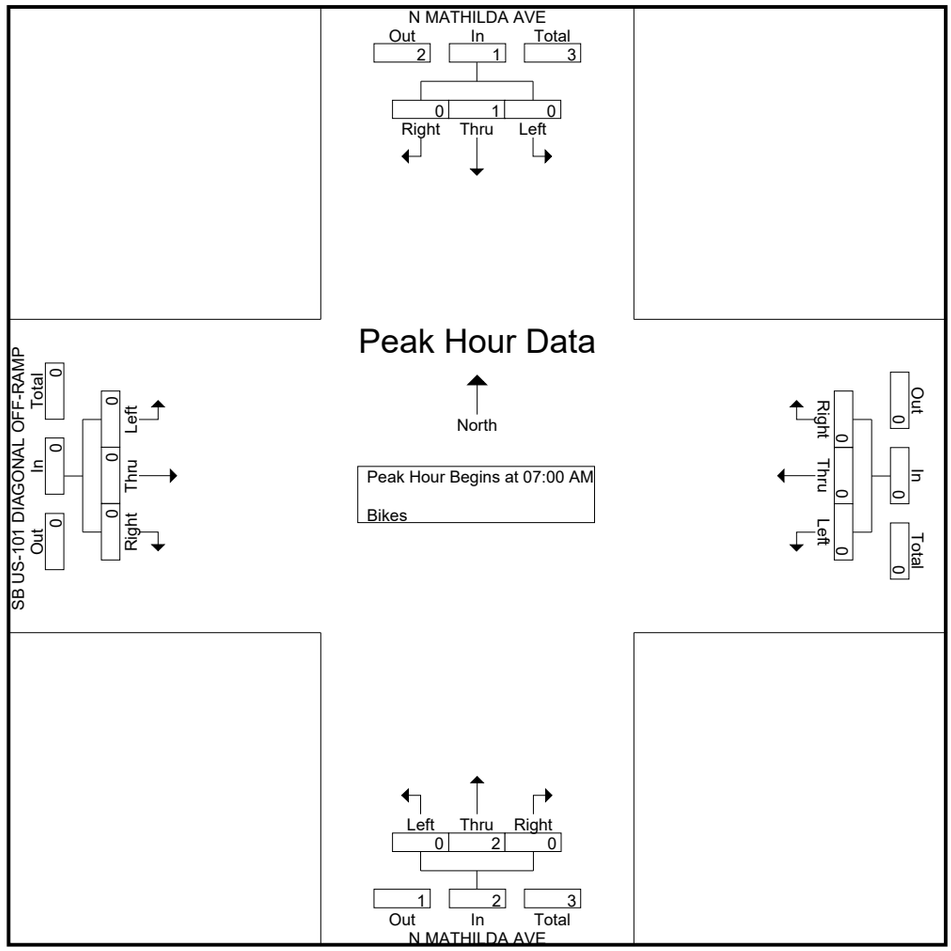

Traffic Data Service

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File Name : 5PM FINAL
Site Code : 00000005
Start Date : 11/13/2013
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Groups Printed- Vehicles

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 DIAGONAL OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	367	0	0	367	0	0	0	0	0	0	299	0	0	299	95	0	0	0	95	761
04:15 PM	0	390	0	0	390	0	0	0	0	0	0	232	0	0	232	77	0	0	0	77	699
04:30 PM	0	538	0	0	538	0	0	0	0	0	0	280	0	0	280	139	0	0	0	139	957
04:45 PM	0	578	0	0	578	0	0	0	0	0	0	292	0	0	292	123	0	0	0	123	993
Total	0	1873	0	0	1873	0	0	0	0	0	0	1103	0	0	1103	434	0	0	0	434	3410
05:00 PM	0	577	0	0	577	0	0	0	0	0	0	333	0	0	333	127	0	0	0	127	1037
05:15 PM	0	700	0	0	700	0	0	0	0	0	0	281	0	0	281	96	0	0	0	96	1077
05:30 PM	0	644	0	0	644	0	0	0	0	0	0	300	0	0	300	117	0	0	0	117	1061
05:45 PM	0	616	0	0	616	0	0	0	0	0	0	299	0	0	299	130	0	0	0	130	1045
Total	0	2537	0	0	2537	0	0	0	0	0	0	1213	0	0	1213	470	0	0	0	470	4220
06:00 PM	0	643	0	0	643	0	0	0	0	0	0	263	0	0	263	104	0	0	0	104	1010
06:15 PM	0	627	0	0	627	0	0	0	0	0	0	252	0	0	252	97	0	0	0	97	976
06:30 PM	0	535	0	0	535	0	0	0	0	0	0	262	0	0	262	111	0	0	0	111	908
06:45 PM	0	517	0	0	517	0	0	0	0	0	0	248	0	0	248	112	0	0	0	112	877
Total	0	2322	0	0	2322	0	0	0	0	0	0	1025	0	0	1025	424	0	0	0	424	3771
Grand Total	0	6732	0	0	6732	0	0	0	0	0	0	3341	0	0	3341	1328	0	0	0	1328	11401
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		100	0	0	0		
Total %	0	59	0	0	59	0	0	0	0	0	0	29.3	0	0	29.3	11.6	0	0	0	11.6	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 DIAGONAL OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	577	0	577	0	0	0	0	0	**333**	0	**333**	127	0	0	127	1037
05:15 PM	0	**700**	0	**700**	0	0	0	0	0	281	0	281	96	0	0	96	**1077**
05:30 PM	0	644	0	644	0	0	0	0	0	300	0	300	117	0	0	117	1061
05:45 PM	0	616	0	616	0	0	0	0	0	299	0	299	**130**	0	0	**130**	1045
Total Volume	0	2537	0	2537	0	0	0	0	0	1213	0	1213	470	0	0	470	4220
% App. Total	0	100	0		0	0	0		0	100	0		100	0	0		
PHF	.000	.906	.000	.906	.000	.000	.000	.000	.000	.911	.000	.911	.904	.000	.000	.904	.980

Traffic Data Service

Campbell, CA

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File Name : 5PM FINAL
Site Code : 00000005
Start Date : 11/13/2013
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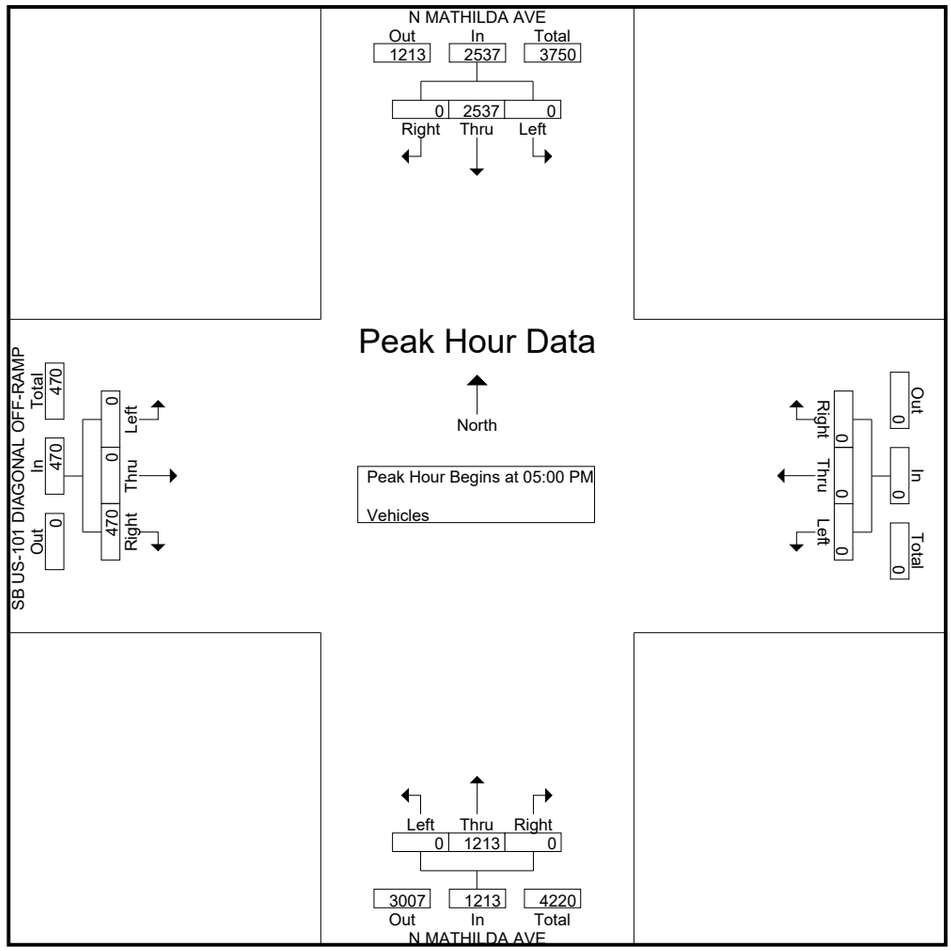

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File Name : 5PM FINAL
Site Code : 00000005
Start Date : 11/13/2013
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Groups Printed- Bikes

	N MATHILDA AVE Southbound					Westbound					N MATHILDA AVE Northbound					SB US-101 DIAGONAL OFF-RAMP Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	66.7	0	0	66.7	0	0	0	0	0	0	33.3	0	0	33.3	0	0	0	0	0	

	N MATHILDA AVE Southbound				Westbound				N MATHILDA AVE Northbound				SB US-101 DIAGONAL OFF-RAMP Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	**1**	0	**1**	0	0	0	0	0	0	0	0	0	0	0	0	**1**
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Traffic Data Service

Campbell, CA

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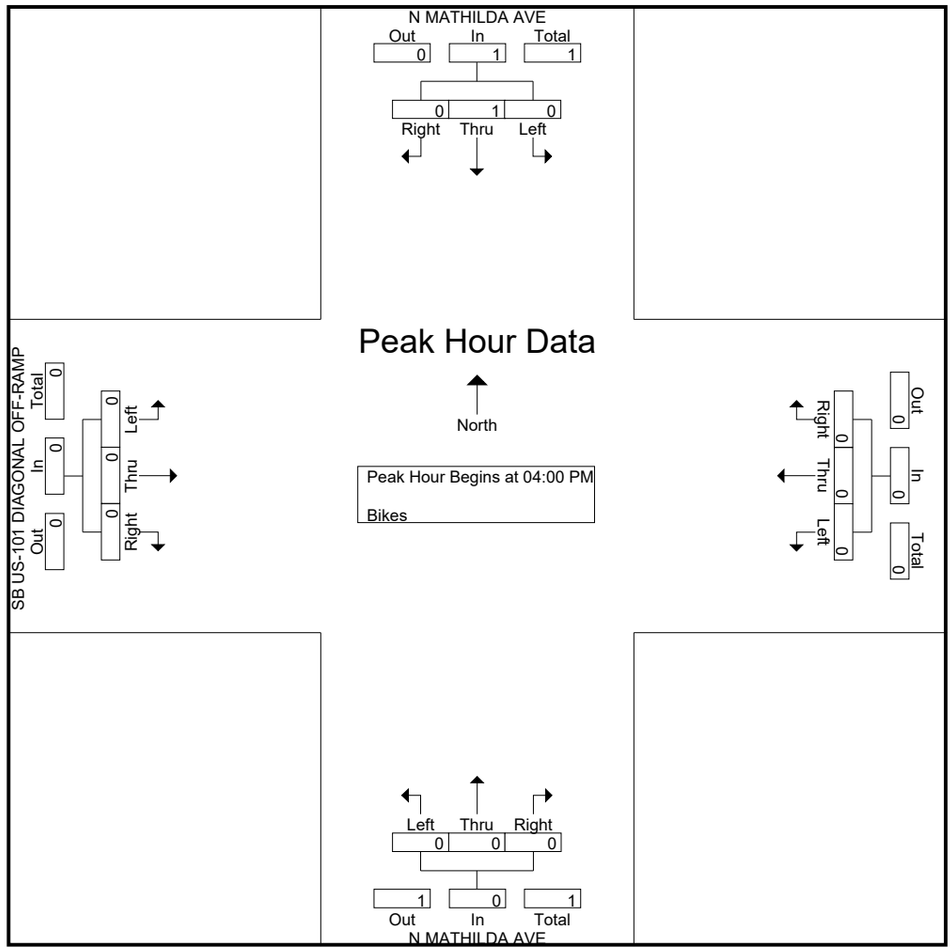
File Name : 5PM FINAL
Site Code : 00000005
Start Date : 11/13/2013
Page No : 2



Traffic Data Service

Campbell, CA
(408) 377-2988
tdsbay@cs.com

File Name : 9AM FINAL
Site Code : 00000009
Start Date : 2/13/2013
Page No : 1

Groups Printed- Vehicles

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	26	203	33	0	262	34	4	12	0	50	10	221	12	4	247	5	2	11	0	18	577
07:15 AM	26	263	30	0	319	18	3	16	1	38	11	325	6	0	342	3	2	10	0	15	714
07:30 AM	31	265	37	0	333	44	4	14	1	63	13	371	10	2	396	4	0	13	0	17	809
07:45 AM	53	331	40	0	424	49	3	19	1	72	12	346	13	2	373	4	2	19	0	25	894
Total	136	1062	140	0	1338	145	14	61	3	223	46	1263	41	8	1358	16	6	53	0	75	2994
08:00 AM	43	305	17	0	365	30	6	17	2	55	14	468	25	5	512	5	3	20	0	28	960
08:15 AM	45	264	29	0	338	24	9	18	1	52	8	518	22	4	552	5	5	18	0	28	970
08:30 AM	74	276	33	0	383	45	8	18	3	74	13	579	31	5	628	7	2	12	1	22	1107
08:45 AM	64	377	38	0	479	39	4	17	0	60	11	503	29	18	561	4	1	11	1	17	1117
Total	226	1222	117	0	1565	138	27	70	6	241	46	2068	107	32	2253	21	11	61	2	95	4154
Grand Total	362	2284	257	0	2903	283	41	131	9	464	92	3331	148	40	3611	37	17	114	2	170	7148
Apprch %	12.5	78.7	8.9	0		61	8.8	28.2	1.9		2.5	92.2	4.1	1.1		21.8	10	67.1	1.2		
Total %	5.1	32	3.6	0	40.6	4	0.6	1.8	0.1	6.5	1.3	46.6	2.1	0.6	50.5	0.5	0.2	1.6	0	2.4	

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	43	305	17	0	365	30	6	17	2	55	**14**	468	25	5	512	5	3	**20**	0	**28**	960
08:15 AM	45	264	29	0	338	24	**9**	**18**	1	52	8	518	22	4	552	5	**5**	18	0	28	970
08:30 AM	**74**	276	33	0	383	**45**	8	18	**3**	**74**	13	**579**	**31**	5	**628**	**7**	2	12	**1**	22	1107
08:45 AM	64	**377**	**38**	0	**479**	39	4	17	0	60	11	503	29	**18**	561	4	1	11	1	17	**1117**
Total Volume	226	1222	117	0	1565	138	27	70	6	241	46	2068	107	32	2253	21	11	61	2	95	4154
% App. Total	14.4	78.1	7.5	0		57.3	11.2	29	2.5		2	91.8	4.7	1.4		22.1	11.6	64.2	2.1		
PHF	.764	.810	.770	.000	.817	.767	.750	.972	.500	.814	.821	.893	.863	.444	.897	.750	.550	.763	.500	.848	.930

Traffic Data Service

Campbell, CA

(408) 377-2988

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File Name : 9AM FINAL
Site Code : 00000009
Start Date : 2/13/2013
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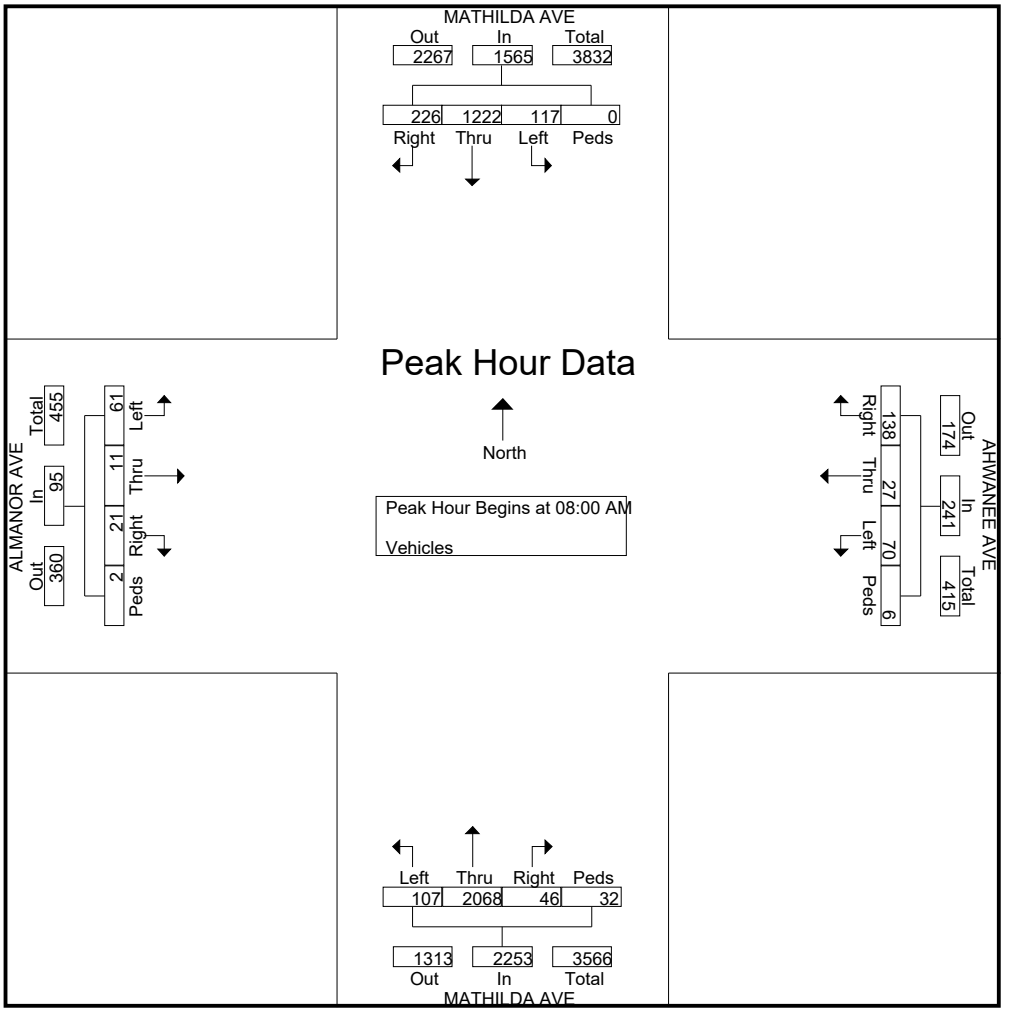

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File Name : 9AM FINAL
Site Code : 00000009
Start Date : 2/13/2013
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Groups Printed- Bikes

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
07:30 AM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	1	0	0	1	4
Total	0	1	0	0	1	0	3	0	0	3	0	4	0	0	4	0	1	0	0	1	9
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	3
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	4
Grand Total	0	1	0	0	1	0	4	0	0	4	0	7	0	0	7	0	1	0	0	1	13
Apprch %	0	100	0	0		0	100	0	0		0	100	0	0		0	100	0	0		
Total %	0	7.7	0	0	7.7	0	30.8	0	0	30.8	0	53.8	0	0	53.8	0	7.7	0	0	7.7	

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	**2**	0	0	**2**	0	0	0	0	0	2
07:30 AM	0	**1**	0	0	**1**	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	**2**	0	0	**2**	0	1	0	0	1	0	**1**	0	0	**1**	**4**
Total Volume	0	1	0	0	1	0	3	0	0	3	0	4	0	0	4	0	1	0	0	1	9
% App. Total	0	100	0	0		0	100	0	0		0	100	0	0		0	100	0	0		
PHF	.000	.250	.000	.000	.250	.000	.375	.000	.000	.375	.000	.500	.000	.000	.500	.000	.250	.000	.000	.250	.563

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Campbell, CA

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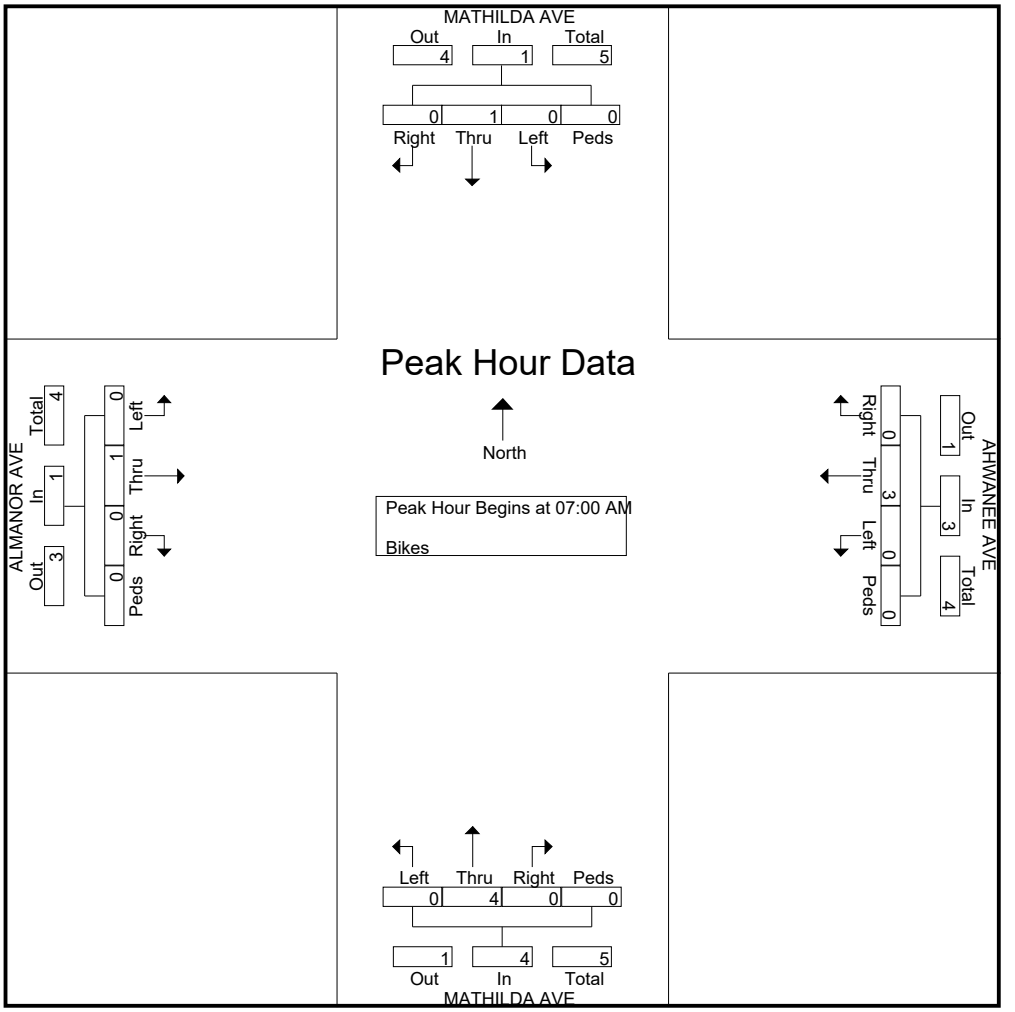

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File Name : 9PM FINAL
Site Code : 00000009
Start Date : 2/13/2013
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Groups Printed- Vehicles

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	11	455	19	0	485	21	1	8	0	30	3	273	9	0	285	12	10	44	0	66	866
04:45 PM	10	461	46	0	517	34	2	12	0	48	8	221	11	4	244	15	5	57	0	77	886
Total	21	916	65	0	1002	55	3	20	0	78	11	494	20	4	529	27	15	101	0	143	1752
05:00 PM	14	541	25	0	580	48	1	11	0	60	11	278	11	2	302	15	7	64	0	86	1028
05:15 PM	16	633	53	0	702	43	2	11	0	56	8	282	14	3	307	16	2	58	0	76	1141
05:30 PM	15	786	37	0	838	32	0	4	1	37	7	264	17	1	289	12	7	53	0	72	1236
05:45 PM	12	805	36	0	853	31	2	15	0	48	10	308	14	4	336	21	7	79	0	107	1344
Total	57	2765	151	0	2973	154	5	41	1	201	36	1132	56	10	1234	64	23	254	0	341	4749
06:00 PM	31	745	35	0	811	26	2	9	0	37	13	336	1	0	350	14	16	77	0	107	1305
06:15 PM	27	658	47	0	732	22	2	8	1	33	6	297	7	0	310	31	19	94	0	144	1219
Grand Total	136	5084	298	0	5518	257	12	78	2	349	66	2259	84	14	2423	136	73	526	0	735	9025
Apprch %	2.5	92.1	5.4	0		73.6	3.4	22.3	0.6		2.7	93.2	3.5	0.6		18.5	9.9	71.6	0		
Total %	1.5	56.3	3.3	0	61.1	2.8	0.1	0.9	0	3.9	0.7	25	0.9	0.2	26.8	1.5	0.8	5.8	0	8.1	

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:30 PM																					
05:30 PM	15	786	37	0	838	**32**	0	4	**1**	37	7	264	**17**	1	289	12	7	53	0	72	1236
05:45 PM	12	**805**	36	0	**853**	31	**2**	**15**	0	**48**	10	308	14	**4**	336	21	7	79	0	107	**1344**
06:00 PM	**31**	745	35	0	811	26	2	9	0	37	**13**	**336**	1	0	**350**	14	16	77	0	107	1305
06:15 PM	27	658	**47**	0	732	22	2	8	1	33	6	297	7	0	310	**31**	**19**	**94**	0	**144**	1219
Total Volume	85	2994	155	0	3234	111	6	36	2	155	36	1205	39	5	1285	78	49	303	0	430	5104
% App. Total	2.6	92.6	4.8	0		71.6	3.9	23.2	1.3		2.8	93.8	3	0.4		18.1	11.4	70.5	0		
PHF	.685	.930	.824	.000	.948	.867	.750	.600	.500	.807	.692	.897	.574	.313	.918	.629	.645	.806	.000	.747	.949

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Campbell, CA

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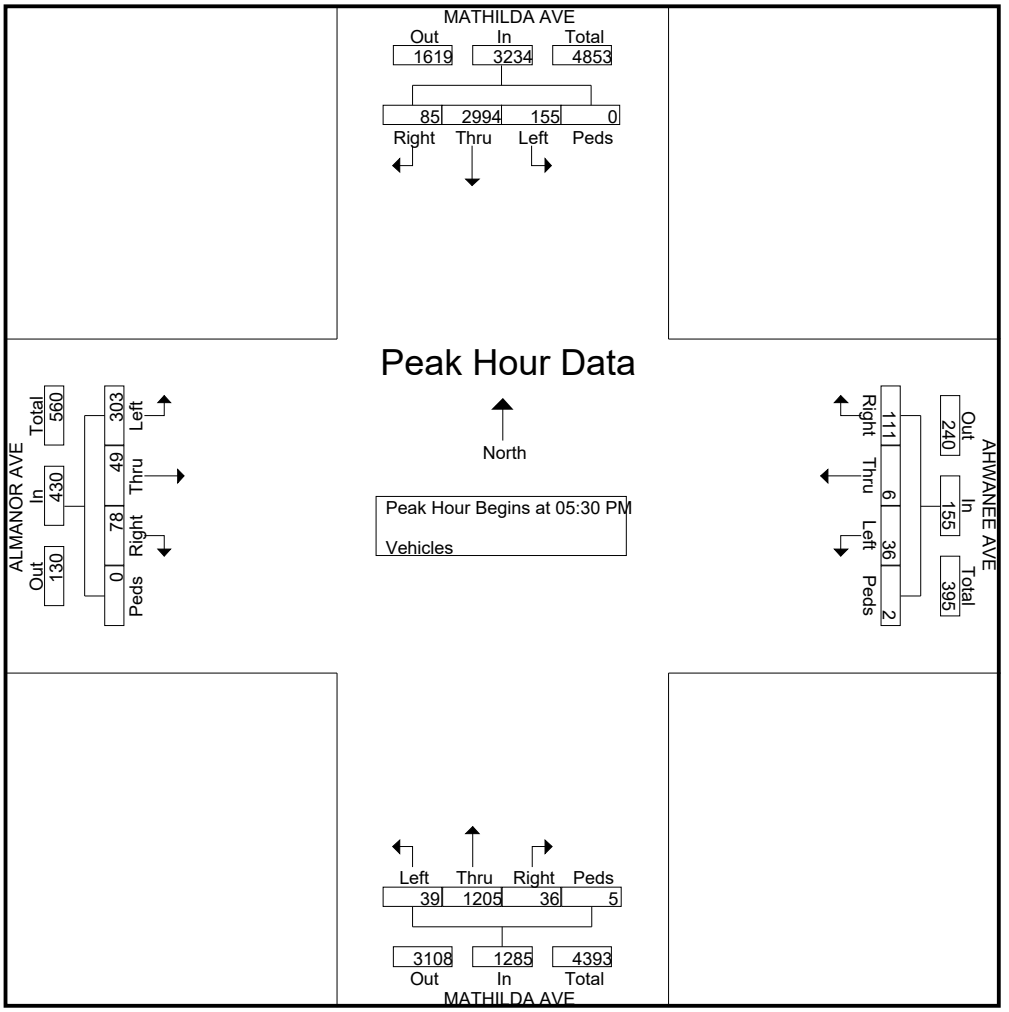

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File Name : 9PM FINAL
Site Code : 00000009
Start Date : 2/13/2013
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Groups Printed- Bikes

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	3
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	5
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	8
Apprch %	0	100	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	37.5	0	0	37.5	0	25	0	0	25	0	0	0	0	0	0	37.5	0	0	37.5	

	MATHILDA AVE Southbound					AHWANEE AVE Westbound					MATHILDA AVE Northbound					ALMANOR AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	**1**	0	0	**1**	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	2
05:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	**1**	0	0	**1**	**3**
Total Volume	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	6
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.750	.000	.000	.750	.000	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.500

Traffic Data Service

Campbell, CA

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File Name : 9PM FINAL
Site Code : 00000009
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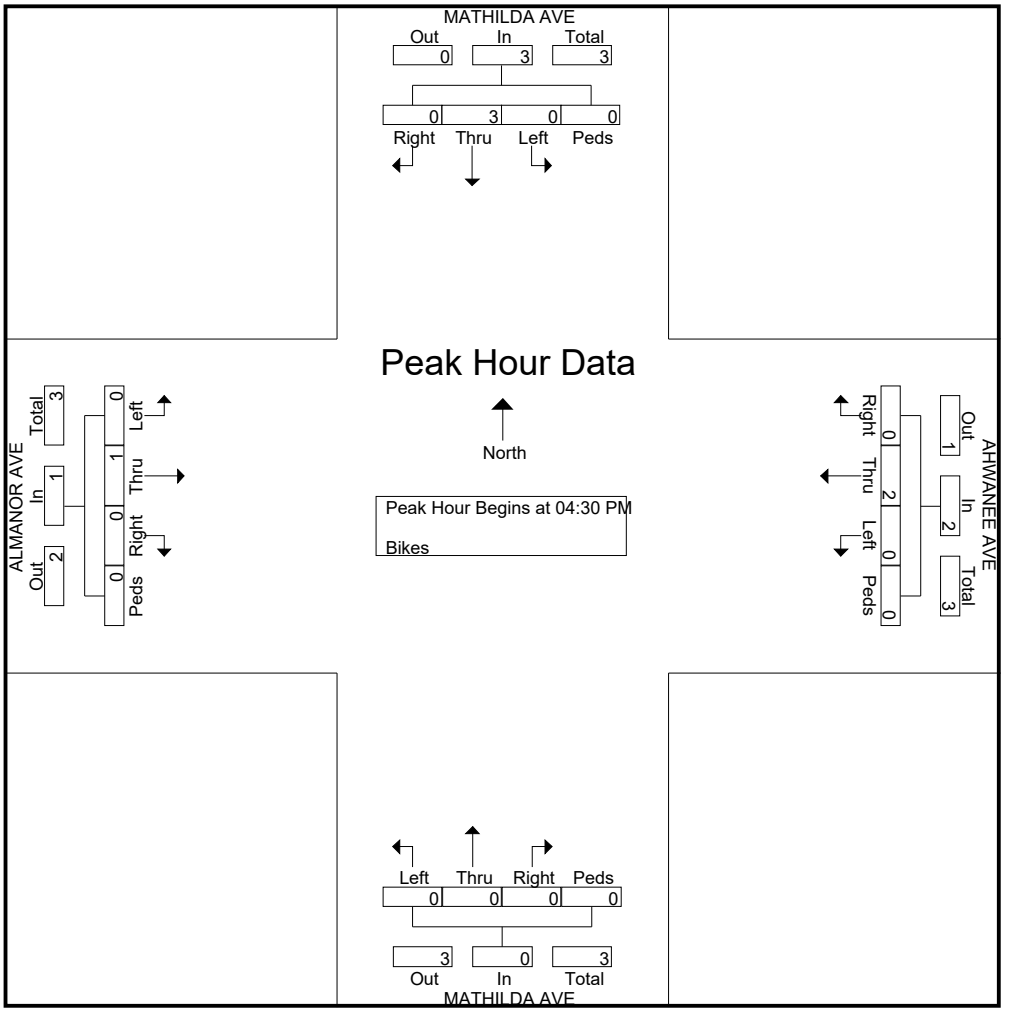

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File Name : 1AM FINAL
Site Code : 00000001
Start Date : 2/12/2013
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Groups Printed- Vehicles

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	83	0	0	83	0	0	0	0	0	1	18	0	0	19	102
07:15 AM	0	0	0	0	0	0	88	1	0	89	0	0	0	0	0	3	12	0	0	15	104
07:30 AM	0	0	0	0	0	0	157	2	0	159	0	0	0	0	0	1	19	0	0	20	179
07:45 AM	0	0	0	0	0	0	172	0	0	172	0	0	0	0	0	0	32	0	0	32	204
Total	0	0	0	0	0	0	500	3	0	503	0	0	0	0	0	5	81	0	0	86	589
08:00 AM	0	0	0	0	0	0	158	4	0	162	0	0	0	0	0	1	29	0	0	30	192
08:15 AM	0	0	0	0	0	0	167	4	0	171	0	0	0	0	0	0	18	0	0	18	189
08:30 AM	0	0	0	0	0	0	147	5	0	152	0	0	0	0	0	0	44	0	0	44	196
08:45 AM	0	0	0	0	0	0	194	3	0	197	0	0	0	0	0	0	34	0	0	34	231
Total	0	0	0	0	0	0	666	16	0	682	0	0	0	0	0	1	125	0	0	126	808
Grand Total	0	0	0	0	0	0	1166	19	0	1185	0	0	0	0	0	6	206	0	0	212	1397
Apprch %	0	0	0	0		0	98.4	1.6	0		0	0	0	0		2.8	97.2	0	0		
Total %	0	0	0	0	0	0	83.5	1.4	0	84.8	0	0	0	0	0	0.4	14.7	0	0	15.2	

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	158	4	0	162	0	0	0	0	0	**1**	29	0	0	30	192
08:15 AM	0	0	0	0	0	0	167	4	0	171	0	0	0	0	0	0	18	0	0	18	189
08:30 AM	0	0	0	0	0	0	147	**5**	0	152	0	0	0	0	0	0	**44**	0	0	**44**	196
08:45 AM	0	0	0	0	0	0	**194**	3	0	**197**	0	0	0	0	0	0	34	0	0	34	**231**
Total Volume	0	0	0	0	0	0	666	16	0	682	0	0	0	0	0	1	125	0	0	126	808
% App. Total	0	0	0	0		0	97.7	2.3	0		0	0	0	0		0.8	99.2	0	0		
PHF	.000	.000	.000	.000	.000	.000	.858	.800	.000	.865	.000	.000	.000	.000	.000	.250	.710	.000	.000	.716	.874

Traffic Data Service

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File Name : 1AM FINAL
Site Code : 00000001
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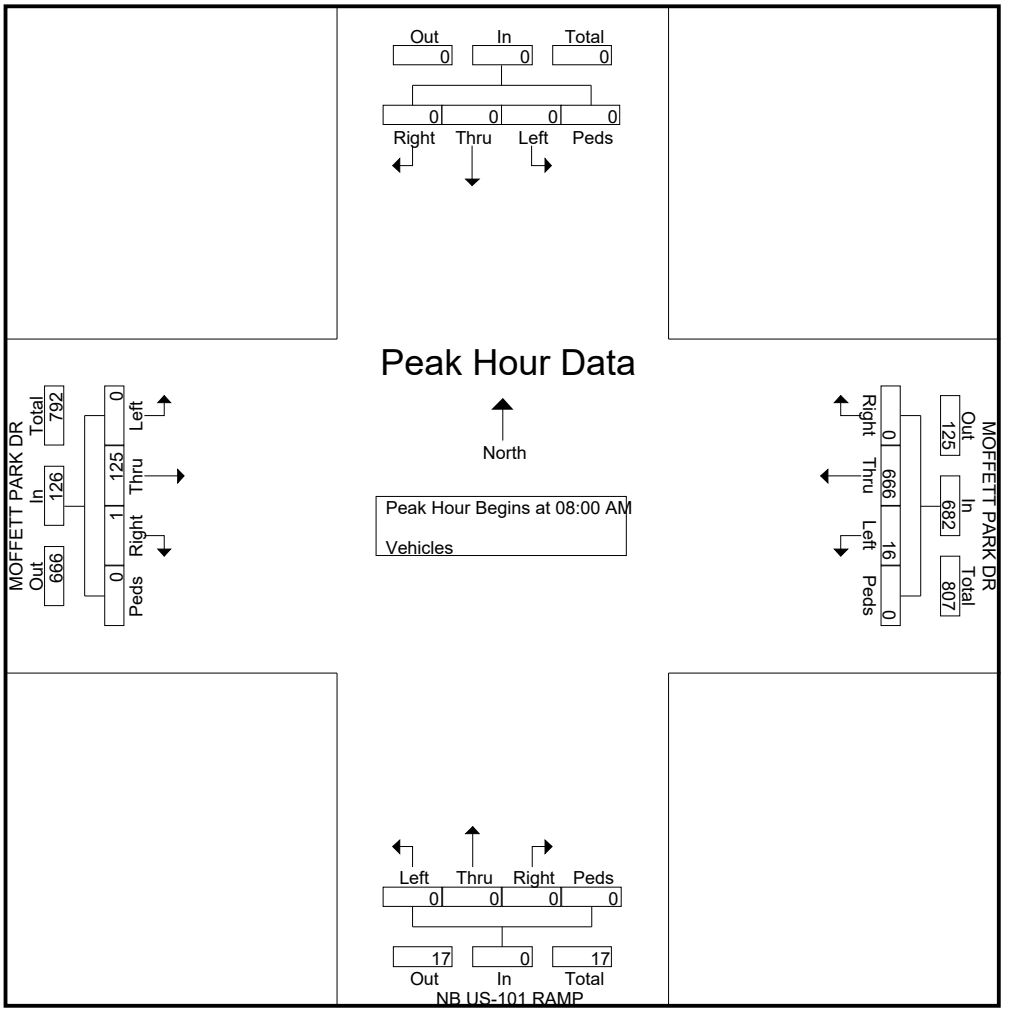

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File Name : 1AM FINAL
Site Code : 00000001
Start Date : 2/12/2013
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Groups Printed- Bikes

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
07:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
Total	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	5	0	0	5	10
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	5
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	8	0	0	8	10
08:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	17	0	0	17	21
Grand Total	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	22	0	0	22	31
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	0	71	0	0	71	

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	0	**4**	0	0	**4**	0	0	0	0	0	0	2	0	0	2	6
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	5
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
08:30 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	**8**	0	0	**8**	**10**
Total Volume	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	17	0	0	17	24
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.438	.000	.000	.438	.000	.000	.000	.000	.000	.000	.531	.000	.000	.531	.600

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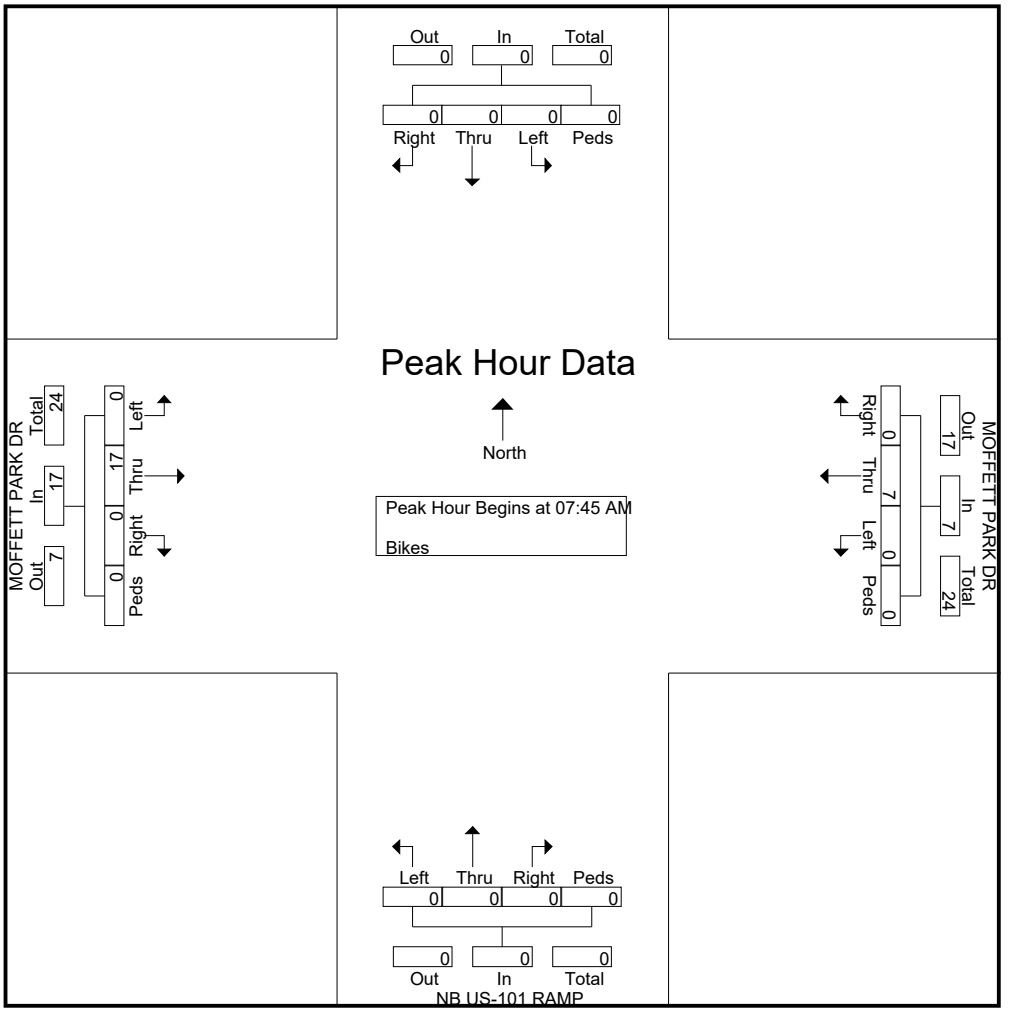

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Site Code : 00000001
Start Date : 2/12/2013
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Groups Printed- Vehicles

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	0	0	0	0	0	0	34	35	0	69	0	0	0	0	0	21	116	0	0	137	206
04:45 PM	0	0	0	0	0	0	29	44	0	73	0	0	0	0	0	27	124	0	0	151	224
Total	0	0	0	0	0	0	63	79	0	142	0	0	0	0	0	48	240	0	0	288	430
05:00 PM	0	0	0	0	0	0	53	42	0	95	0	0	0	0	0	24	146	0	0	170	265
05:15 PM	0	0	0	0	0	0	51	66	0	117	0	0	0	0	0	21	122	0	0	143	260
05:30 PM	0	0	0	0	0	0	56	57	0	113	0	0	0	0	0	15	115	0	0	130	243
05:45 PM	0	0	0	0	0	0	66	40	0	106	0	0	0	0	0	17	85	0	0	102	208
Total	0	0	0	0	0	0	226	205	0	431	0	0	0	0	0	77	468	0	0	545	976
06:00 PM	0	0	0	0	0	0	56	49	0	105	0	0	0	0	0	17	101	0	0	118	223
06:15 PM	0	0	0	0	0	0	61	37	0	98	0	0	0	0	0	5	89	0	0	94	192
Grand Total	0	0	0	0	0	0	406	370	0	776	0	0	0	0	0	147	898	0	0	1045	1821
Apprch %	0	0	0	0		0	52.3	47.7	0		0	0	0	0		14.1	85.9	0	0		
Total %	0	0	0	0	0	0	22.3	20.3	0	42.6	0	0	0	0	0	8.1	49.3	0	0	57.4	

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	0	0	0	0	0	29	44	0	73	0	0	0	0	0	**27**	124	0	0	151	224
05:00 PM	0	0	0	0	0	0	53	42	0	95	0	0	0	0	0	24	**146**	0	0	**170**	**265**
05:15 PM	0	0	0	0	0	0	51	**66**	0	**117**	0	0	0	0	0	21	122	0	0	143	260
05:30 PM	0	0	0	0	0	0	**56**	57	0	113	0	0	0	0	0	15	115	0	0	130	243
Total Volume	0	0	0	0	0	0	189	209	0	398	0	0	0	0	0	87	507	0	0	594	992
% App. Total	0	0	0	0		0	47.5	52.5	0		0	0	0	0		14.6	85.4	0	0		
PHF	.000	.000	.000	.000	.000	.000	.844	.792	.000	.850	.000	.000	.000	.000	.000	.806	.868	.000	.000	.874	.936

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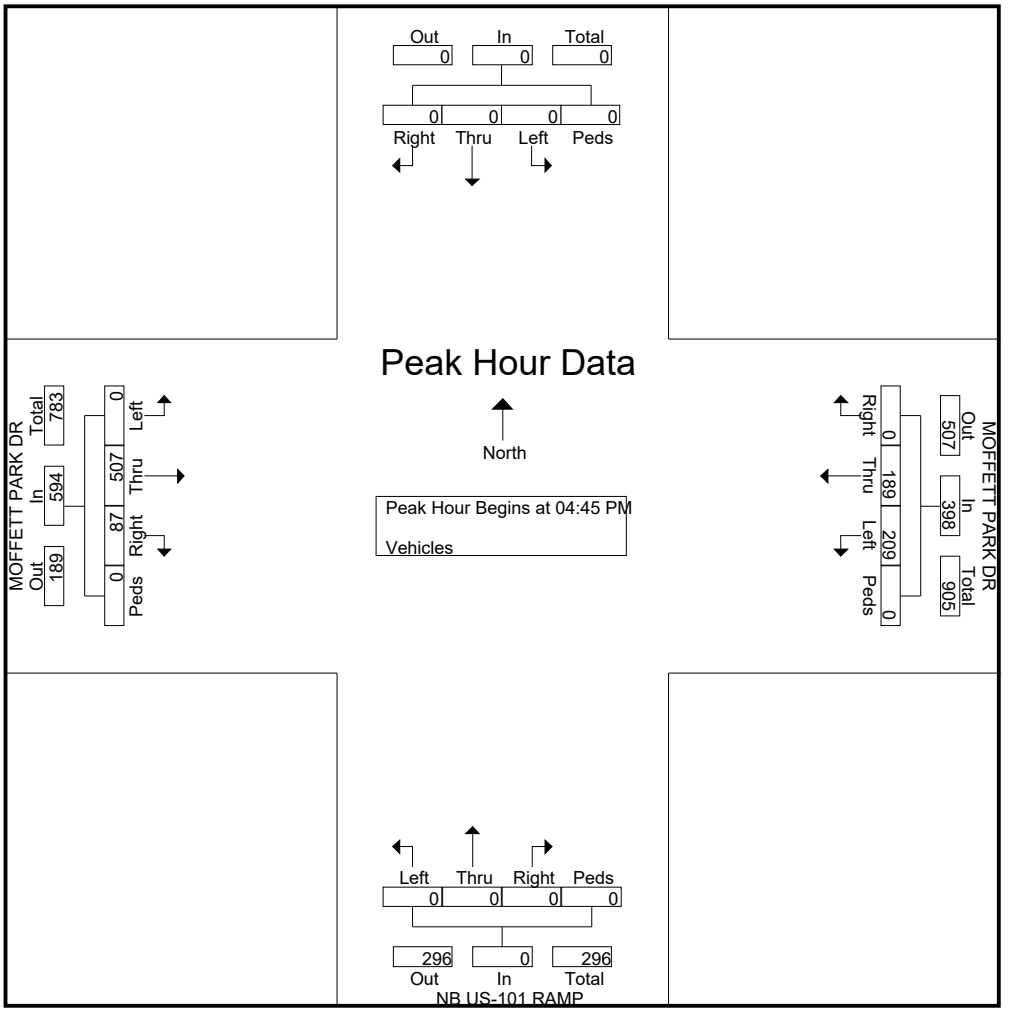

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File Name : 1PM FINAL
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Groups Printed- Bikes

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
05:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
05:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	2	0	0	2	9
05:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	5	0	0	5	8
Total	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	13	0	0	13	29
06:00 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	6
06:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	6
Grand Total	0	0	0	0	0	0	30	0	0	30	0	0	0	0	0	0	14	0	0	14	44
Apprch %	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	0	68.2	0	0	68.2	0	0	0	0	0	0	31.8	0	0	31.8	

	Southbound					MOFFETT PARK DR Westbound					NB US-101 RAMP Northbound					MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	0	0	4	6
05:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
05:30 PM	0	0	0	0	0	0	**7**	0	0	**7**	0	0	0	0	0	0	2	0	0	2	**9**
05:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	**5**	0	0	**5**	8
Total Volume	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	0	13	0	0	13	29
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.571	.000	.000	.571	.000	.000	.000	.000	.000	.000	.650	.000	.000	.650	.806

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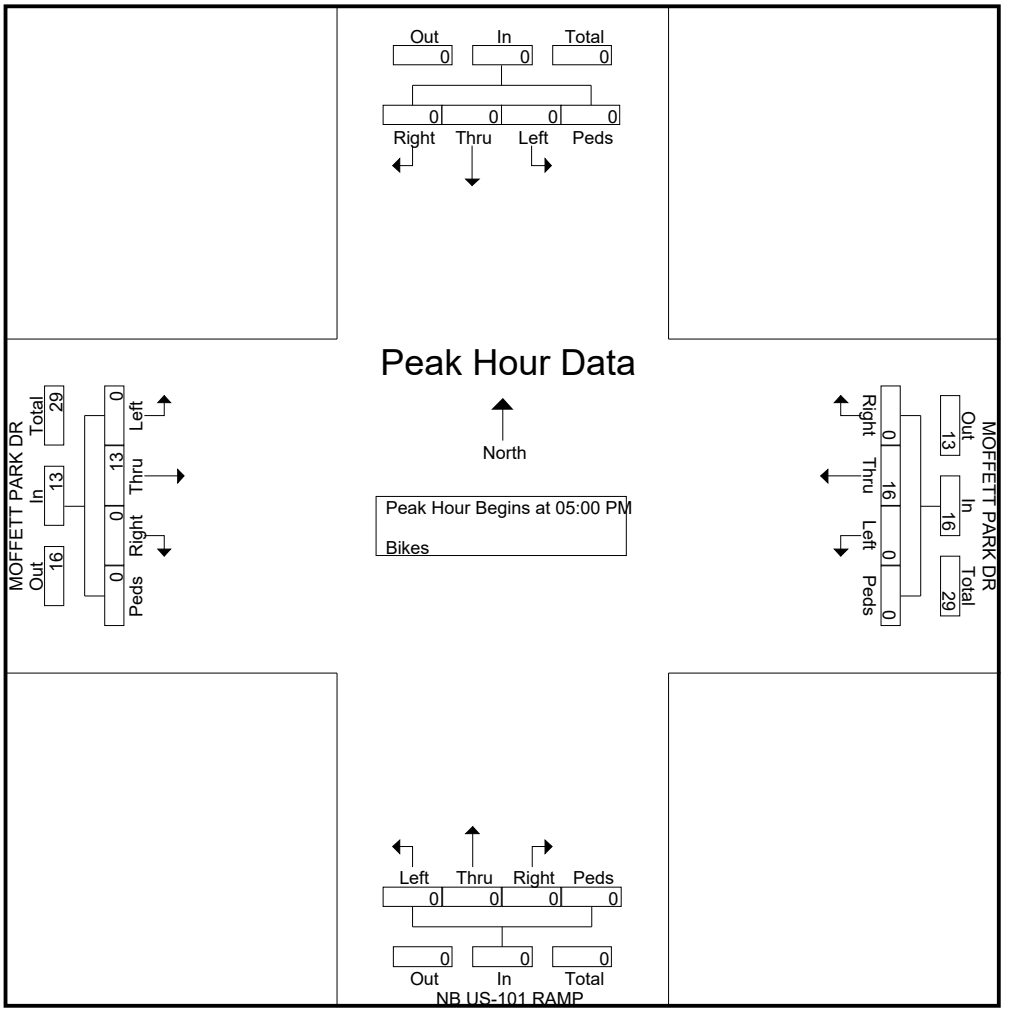

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File Name : 1AM FINAL
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Groups Printed- Vehicles

	INNOVATION WAY Southbound					W MOFFETT PARK DR Westbound					Northbound					W MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	3	0	0	0	3	18	93	0	0	111	0	0	0	0	0	0	18	6	0	24	138
07:15 AM	6	0	0	0	6	13	120	0	0	133	0	0	0	0	0	0	16	4	0	20	159
07:30 AM	4	0	3	0	7	29	152	0	0	181	0	0	0	0	0	0	10	10	0	20	208
07:45 AM	11	0	9	0	20	17	193	0	0	210	0	0	0	0	0	0	19	14	0	33	263
Total	24	0	12	0	36	77	558	0	0	635	0	0	0	0	0	0	63	34	0	97	768
08:00 AM	14	0	1	0	15	32	200	0	0	232	0	0	0	0	0	0	15	7	0	22	269
08:15 AM	14	0	2	0	16	28	184	0	0	212	0	0	0	0	0	0	25	13	0	38	266
08:30 AM	9	0	4	0	13	36	205	0	0	241	0	0	0	0	0	0	23	14	0	37	291
08:45 AM	23	0	13	0	36	38	200	0	0	238	0	0	0	0	0	0	39	15	0	54	328
Total	60	0	20	0	80	134	789	0	0	923	0	0	0	0	0	0	102	49	0	151	1154
Grand Total	84	0	32	0	116	211	1347	0	0	1558	0	0	0	0	0	0	165	83	0	248	1922
Apprch %	72.4	0	27.6	0		13.5	86.5	0	0		0	0	0	0		0	66.5	33.5	0		
Total %	4.4	0	1.7	0	6	11	70.1	0	0	81.1	0	0	0	0	0	0	8.6	4.3	0	12.9	

	INNOVATION WAY Southbound				W MOFFETT PARK DR Westbound				Northbound				W MOFFETT PARK DR Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	14	0	1	15	32	200	0	232	0	0	0	0	0	15	7	22	269
08:15 AM	14	0	2	16	28	184	0	212	0	0	0	0	0	25	13	38	266
08:30 AM	9	0	4	13	36	**205**	0	**241**	0	0	0	0	0	23	14	37	291
08:45 AM	**23**	0	**13**	**36**	**38**	200	0	238	0	0	0	0	0	**39**	**15**	**54**	**328**
Total Volume	60	0	20	80	134	789	0	923	0	0	0	0	0	102	49	151	1154
% App. Total	75	0	25		14.5	85.5	0		0	0	0		0	67.5	32.5		
PHF	.652	.000	.385	.556	.882	.962	.000	.957	.000	.000	.000	.000	.000	.654	.817	.699	.880

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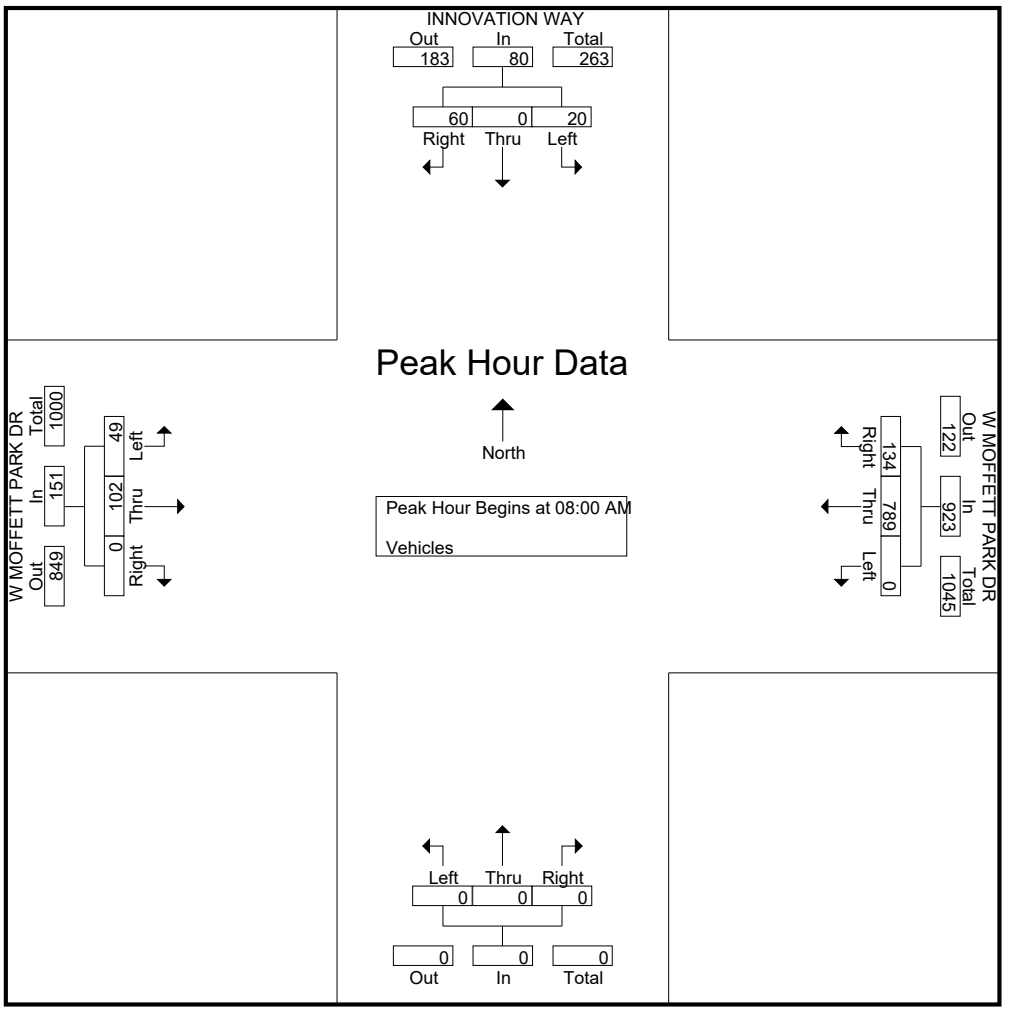

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File Name : 1AM FINAL
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Groups Printed- Bikes

	INNOVATION WAY Southbound					W MOFFETT PARK DR Westbound					Northbound					W MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
07:15 AM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	2	0	0	2	6
07:30 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	3	0	0	3	9
07:45 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	7
Total	0	0	0	0	0	1	16	0	0	17	0	0	0	0	0	0	8	0	0	8	25
08:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	7	0	0	7	9
08:15 AM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
08:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
08:45 AM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	6	0	0	6	10
Total	0	0	0	0	0	1	11	0	0	12	0	0	0	0	0	0	17	0	0	17	29
Grand Total	0	0	0	0	0	2	27	0	0	29	0	0	0	0	0	0	25	0	0	25	54
Apprch %	0	0	0	0		6.9	93.1	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	0	0	0	3.7	50	0	0	53.7	0	0	0	0	0	0	46.3	0	0	46.3	

	INNOVATION WAY Southbound				W MOFFETT PARK DR Westbound				Northbound				W MOFFETT PARK DR Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	0	0	0	**6**	0	**6**	0	0	0	0	0	3	0	3	**9**
07:45 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	2	0	2	7
08:00 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	**7**	0	**7**	9
08:15 AM	0	0	0	0	0	5	0	5	0	0	0	0	0	3	0	3	8
Total Volume	0	0	0	0	0	18	0	18	0	0	0	0	0	15	0	15	33
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.750	.000	.750	.000	.000	.000	.000	.000	.536	.000	.536	.917

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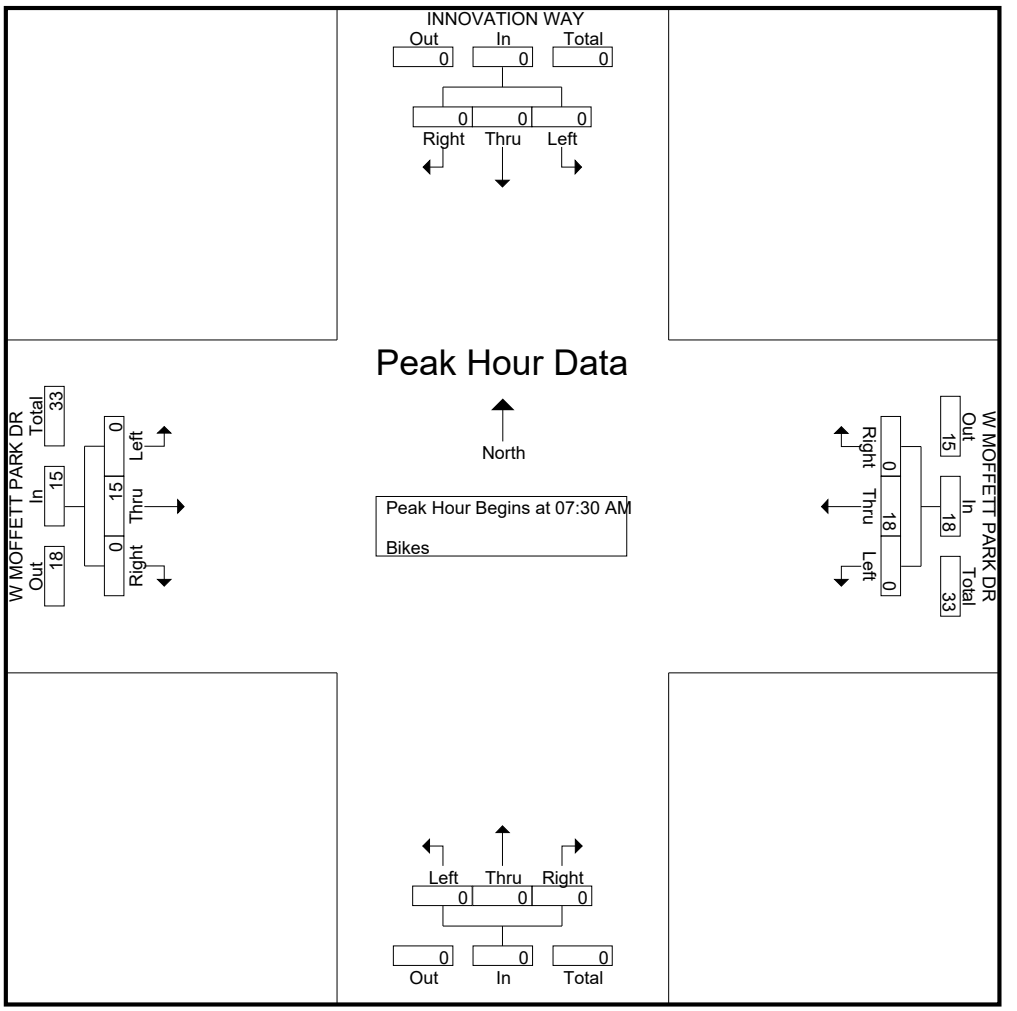

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Groups Printed- Vehicles

	INNOVATION WAY Southbound					W MOFFETT PARK DR Westbound					Northbound					W MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	25	0	33	0	58	2	41	0	0	43	0	0	0	0	0	0	161	5	0	166	267
04:45 PM	17	0	49	0	66	4	56	0	0	60	0	0	0	0	0	0	166	2	0	168	294
Total	42	0	82	0	124	6	97	0	0	103	0	0	0	0	0	0	327	7	0	334	561
05:00 PM	31	0	47	0	78	3	68	0	0	71	0	0	0	0	0	0	192	1	0	193	342
05:15 PM	27	0	35	0	62	4	81	0	0	85	0	0	0	0	0	0	224	8	0	232	379
05:30 PM	32	0	22	0	54	6	81	0	0	87	0	0	0	0	0	0	123	5	0	128	269
05:45 PM	25	0	35	0	60	3	98	0	0	101	0	0	0	0	0	0	148	5	0	153	314
Total	115	0	139	0	254	16	328	0	0	344	0	0	0	0	0	0	687	19	0	706	1304
06:00 PM	31	0	34	0	65	3	82	0	0	85	0	0	0	0	0	0	120	3	0	123	273
06:15 PM	18	0	20	0	38	3	70	0	0	73	0	0	0	0	0	0	136	2	0	138	249
Grand Total	206	0	275	0	481	28	577	0	0	605	0	0	0	0	0	0	1270	31	0	1301	2387
Apprch %	42.8	0	57.2	0		4.6	95.4	0	0		0	0	0	0		0	97.6	2.4	0		
Total %	8.6	0	11.5	0	20.2	1.2	24.2	0	0	25.3	0	0	0	0	0	0	53.2	1.3	0	54.5	

	INNOVATION WAY Southbound				W MOFFETT PARK DR Westbound				Northbound				W MOFFETT PARK DR Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	31	0	**47**	**78**	3	68	0	71	0	0	0	0	0	192	1	193	342
05:15 PM	27	0	35	62	4	81	0	85	0	0	0	0	0	**224**	**8**	**232**	**379**
05:30 PM	**32**	0	22	54	**6**	81	0	87	0	0	0	0	0	123	5	128	269
05:45 PM	25	0	35	60	3	**98**	0	**101**	0	0	0	0	0	148	5	153	314
Total Volume	115	0	139	254	16	328	0	344	0	0	0	0	0	687	19	706	1304
% App. Total	45.3	0	54.7		4.7	95.3	0		0	0	0		0	97.3	2.7		
PHF	.898	.000	.739	.814	.667	.837	.000	.851	.000	.000	.000	.000	.000	.767	.594	.761	.860

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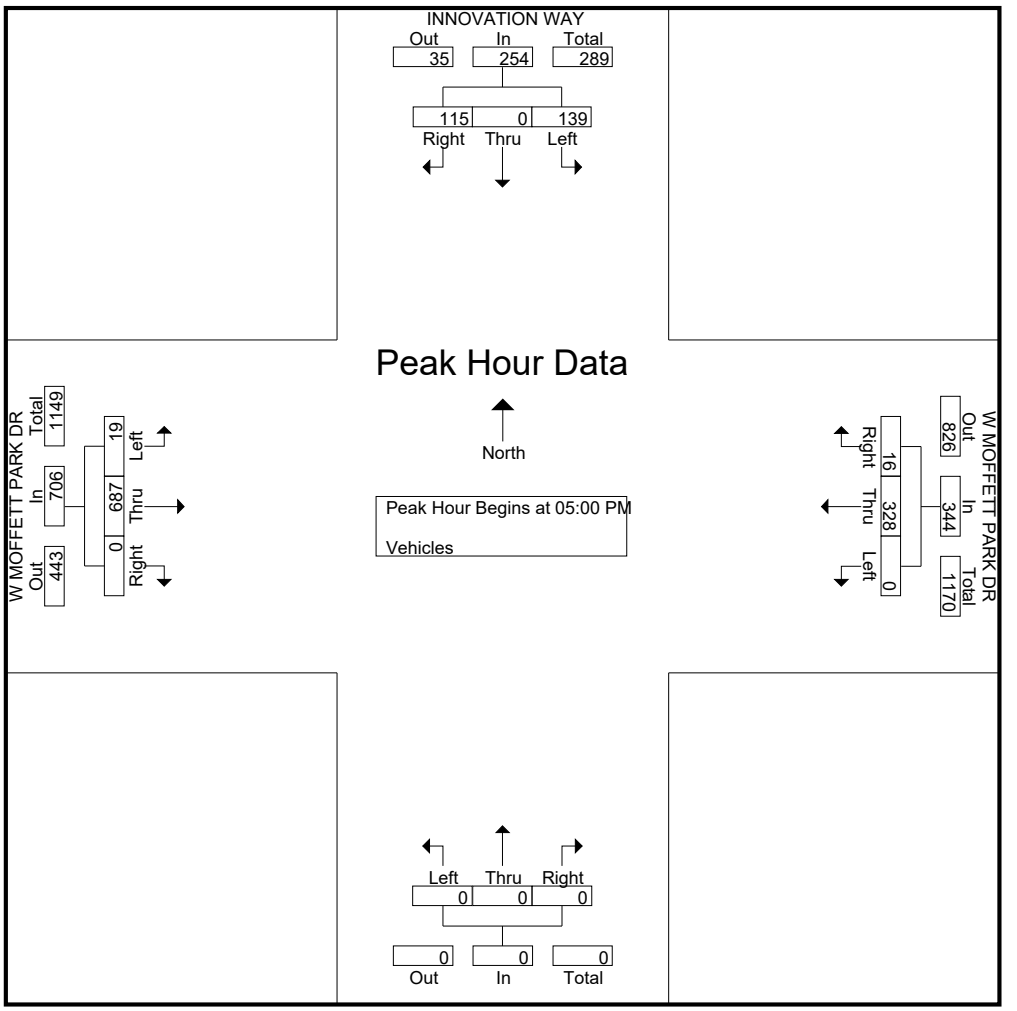

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Groups Printed- Bikes

	INNOVATION WAY Southbound					W MOFFETT PARK DR Westbound					Northbound					W MOFFETT PARK DR Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	6
05:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
05:15 PM	0	0	2	0	2	0	4	0	0	4	0	0	0	0	0	0	4	0	0	4	10
05:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	3	0	3	0	9	0	0	9	0	0	0	0	0	0	5	0	0	5	17
06:00 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
06:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Grand Total	0	0	3	0	3	0	20	0	0	20	0	0	0	0	0	0	7	0	0	7	30
Apprch %	0	0	100	0		0	100	0	0		0	0	0	0		0	100	0	0		
Total %	0	0	10	0	10	0	66.7	0	0	66.7	0	0	0	0	0	0	23.3	0	0	23.3	

	INNOVATION WAY Southbound				W MOFFETT PARK DR Westbound				Northbound				W MOFFETT PARK DR Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	**2**	**2**	0	**4**	0	**4**	0	0	0	0	0	**4**	0	**4**	**10**
05:30 PM	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	2
06:00 PM	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	4
Total Volume	0	0	2	2	0	13	0	13	0	0	0	0	0	4	0	4	19
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.813	.000	.813	.000	.000	.000	.000	.000	.250	.000	.250	.475

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File Name : 1PM FINAL
Site Code : 00000001
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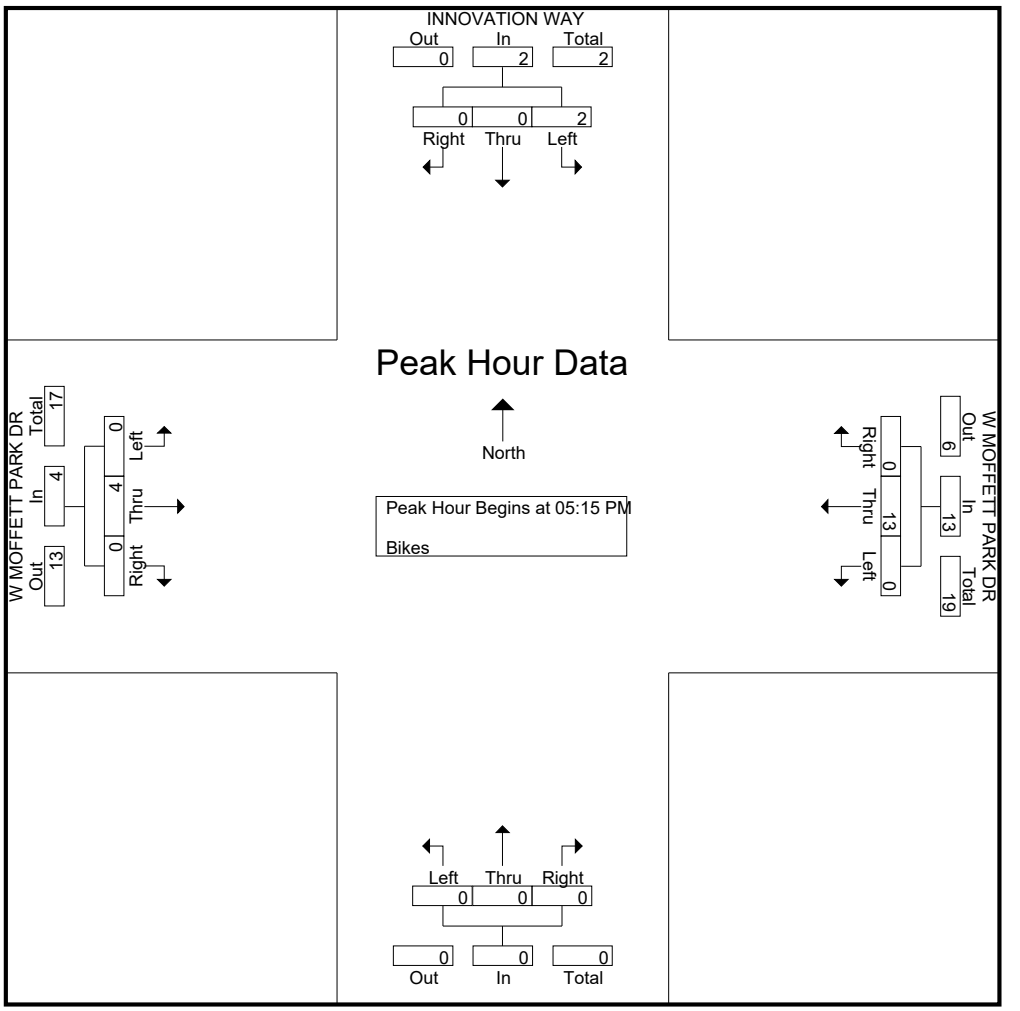

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File Name : 12AM FINAL
Site Code : 00000012
Start Date : 5/27/2015
Page No : 1

Groups Printed- Vehicles

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					11TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	28	2	0	0	30	0	0	0	0	0	0	1	14	0	15	4	0	1	0	5	50
07:15 AM	23	8	0	0	31	0	0	0	0	0	0	1	20	0	21	8	0	1	0	9	61
07:30 AM	27	9	0	1	37	0	0	0	0	0	0	0	21	0	21	15	0	2	0	17	75
07:45 AM	47	11	0	1	59	0	0	0	0	0	0	0	29	0	29	10	0	2	0	12	100
Total	125	30	0	2	157	0	0	0	0	0	0	2	84	0	86	37	0	6	0	43	286
08:00 AM	49	17	0	0	66	0	0	0	0	0	0	0	30	0	30	7	0	2	0	9	105
08:15 AM	75	13	0	1	89	0	0	0	0	0	0	1	45	0	46	10	0	1	0	11	146
08:30 AM	95	13	0	0	108	0	0	0	0	0	0	1	35	0	36	18	0	4	0	22	166
08:45 AM	125	27	0	0	152	0	0	0	0	0	0	3	39	0	42	20	0	2	0	22	216
Total	344	70	0	1	415	0	0	0	0	0	0	5	149	0	154	55	0	9	0	64	633
Grand Total	469	100	0	3	572	0	0	0	0	0	0	7	233	0	240	92	0	15	0	107	919
Apprch %	82	17.5	0	0.5		0	0	0	0		0	2.9	97.1	0		86	0	14	0		
Total %	51	10.9	0	0.3	62.2	0	0	0	0	0	0	0.8	25.4	0	26.1	10	0	1.6	0	11.6	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				11TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	49	17	0	66	0	0	0	0	0	0	30	30	7	0	2	9	105
08:15 AM	75	13	0	88	0	0	0	0	0	1	**45**	**46**	10	0	1	11	145
08:30 AM	95	13	0	108	0	0	0	0	0	1	35	36	18	0	**4**	**22**	166
08:45 AM	**125**	**27**	0	**152**	0	0	0	0	0	**3**	39	42	**20**	0	2	22	**216**
Total Volume	344	70	0	414	0	0	0	0	0	5	149	154	55	0	9	64	632
% App. Total	83.1	16.9	0		0	0	0		0	3.2	96.8		85.9	0	14.1		
PHF	.688	.648	.000	.681	.000	.000	.000	.000	.000	.417	.828	.837	.688	.000	.563	.727	.731

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File Name : 12AM FINAL
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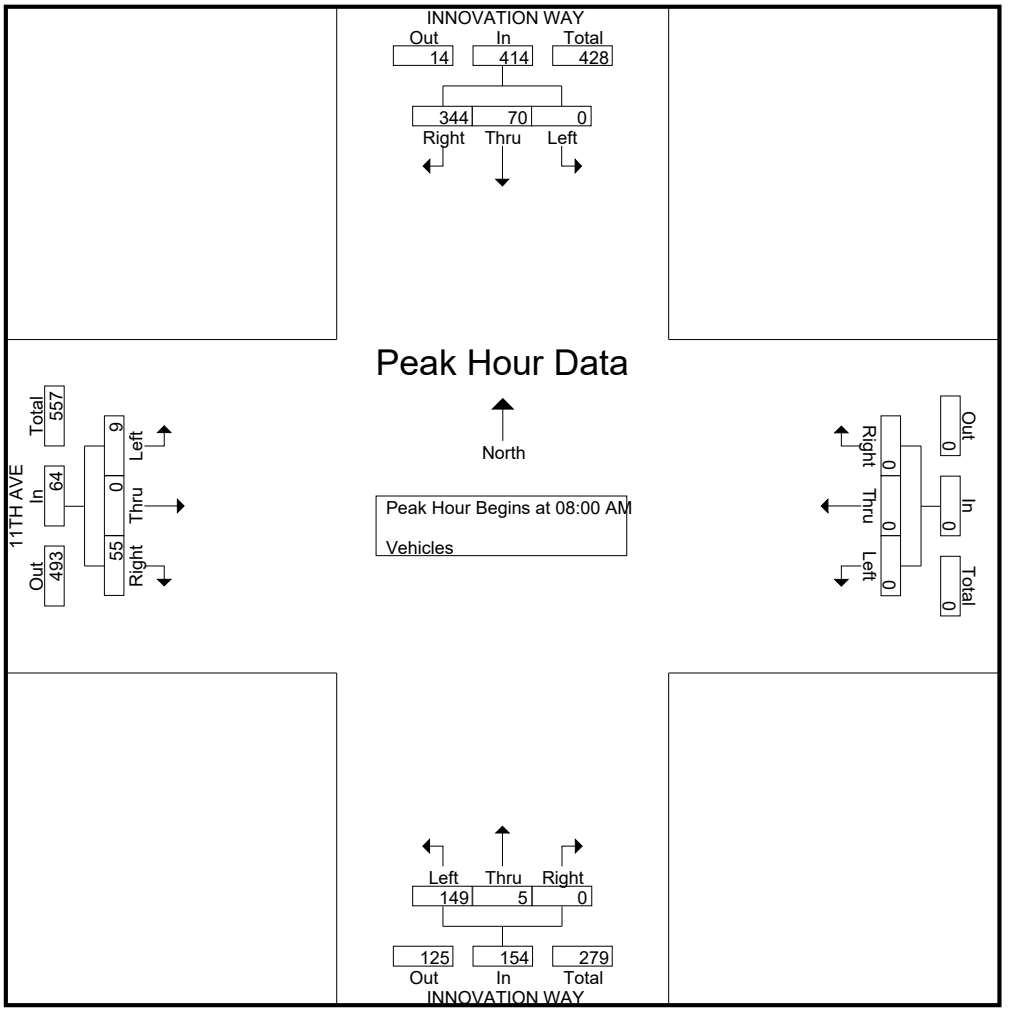

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File Name : 12AM FINAL
Site Code : 00000012
Start Date : 5/27/2015
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Groups Printed- Bikes

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					11TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
07:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	0	4	0	4	0	0	0	0	0	5
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Grand Total	1	0	0	0	1	0	0	0	0	0	0	1	4	0	5	0	0	0	0	0	6
Apprch %	100	0	0	0		0	0	0	0		0	20	80	0		0	0	0	0		
Total %	16.7	0	0	0	16.7	0	0	0	0	0	0	16.7	66.7	0	83.3	0	0	0	0	0	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				11TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
07:15 AM	**1**	0	0	**1**	0	0	0	0	0	0	1	1	0	0	0	0	**2**
07:30 AM	0	0	0	0	0	0	0	0	0	0	**2**	**2**	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	1	0	0	0	0	0	0	4	4	0	0	0	0	5
% App. Total	100	0	0		0	0	0		0	0	100		0	0	0		
PHF	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.500	.500	.000	.000	.000	.000	.625

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File Name : 12AM FINAL
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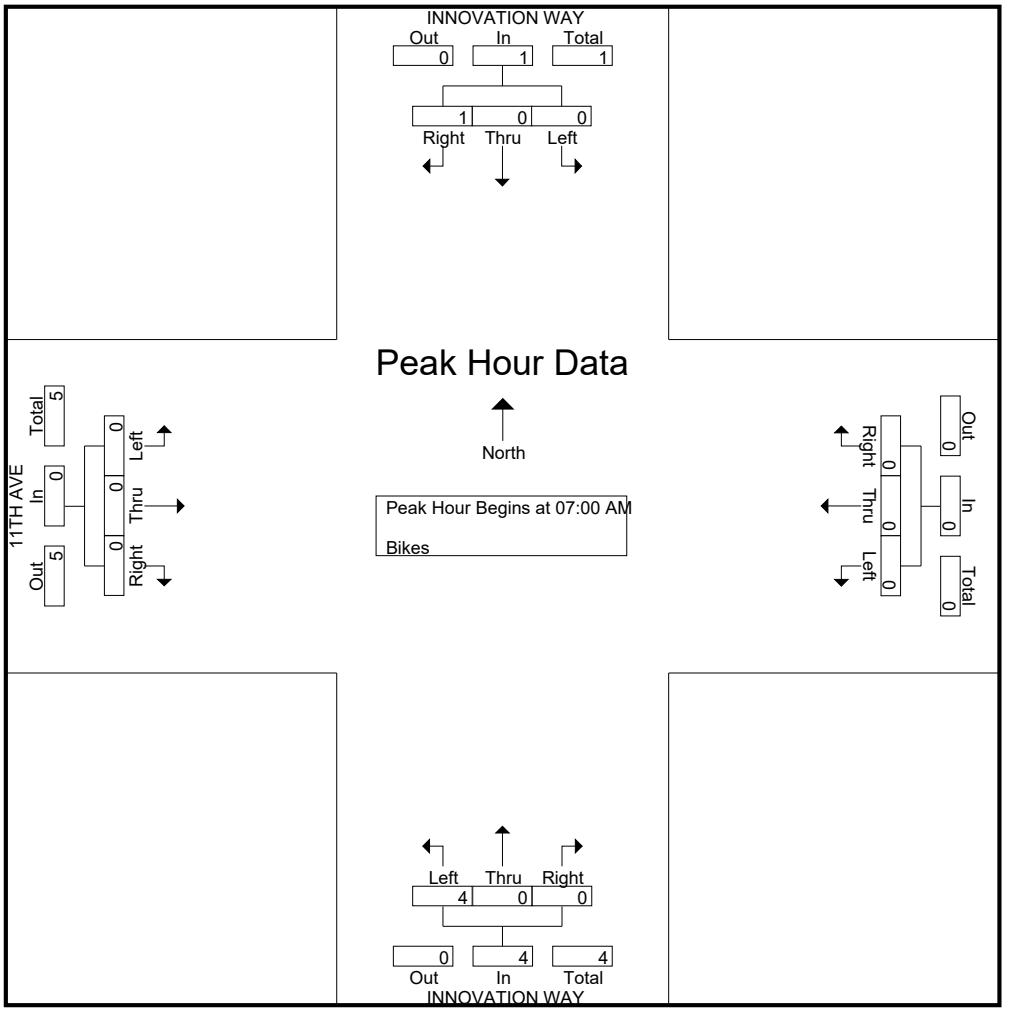

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File Name : 12PM FINAL
Site Code : 00000012
Start Date : 5/27/2015
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Groups Printed- Vehicles

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					11TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	4	4	0	0	8	0	0	0	0	0	0	2	2	0	4	51	0	34	0	85	97
04:15 PM	9	2	0	0	11	0	0	0	0	0	0	7	6	0	13	70	0	39	0	109	133
04:30 PM	3	7	0	0	10	0	0	0	0	0	0	5	4	0	9	64	0	45	0	109	128
04:45 PM	2	3	0	0	5	0	0	0	0	0	0	5	7	0	12	68	0	65	0	133	150
Total	18	16	0	0	34	0	0	0	0	0	0	19	19	0	38	253	0	183	0	436	508
05:00 PM	3	4	0	0	7	0	0	0	0	0	0	15	3	0	18	75	0	93	0	168	193
05:15 PM	3	11	0	0	14	0	0	0	0	0	0	27	8	0	35	68	0	106	0	174	223
05:30 PM	4	2	0	0	6	0	0	0	0	0	0	10	2	0	12	58	0	85	0	143	161
05:45 PM	4	15	0	0	19	0	0	0	0	0	0	10	11	0	21	47	0	73	0	120	160
Total	14	32	0	0	46	0	0	0	0	0	0	62	24	0	86	248	0	357	0	605	737
Grand Total	32	48	0	0	80	0	0	0	0	0	0	81	43	0	124	501	0	540	0	1041	1245
Apprch %	40	60	0	0		0	0	0	0		0	65.3	34.7	0		48.1	0	51.9	0		
Total %	2.6	3.9	0	0	6.4	0	0	0	0	0	0	6.5	3.5	0	10	40.2	0	43.4	0	83.6	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				11TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	3	4	0	7	0	0	0	0	0	15	3	18	**75**	0	93	168	193
05:15 PM	3	11	0	14	0	0	0	0	0	**27**	8	**35**	68	0	**106**	**174**	**223**
05:30 PM	**4**	2	0	6	0	0	0	0	0	10	2	12	58	0	85	143	161
05:45 PM	4	**15**	0	**19**	0	0	0	0	0	10	**11**	21	47	0	73	120	160
Total Volume	14	32	0	46	0	0	0	0	0	62	24	86	248	0	357	605	737
% App. Total	30.4	69.6	0		0	0	0		0	72.1	27.9		41	0	59		
PHF	.875	.533	.000	.605	.000	.000	.000	.000	.000	.574	.545	.614	.827	.000	.842	.869	.826

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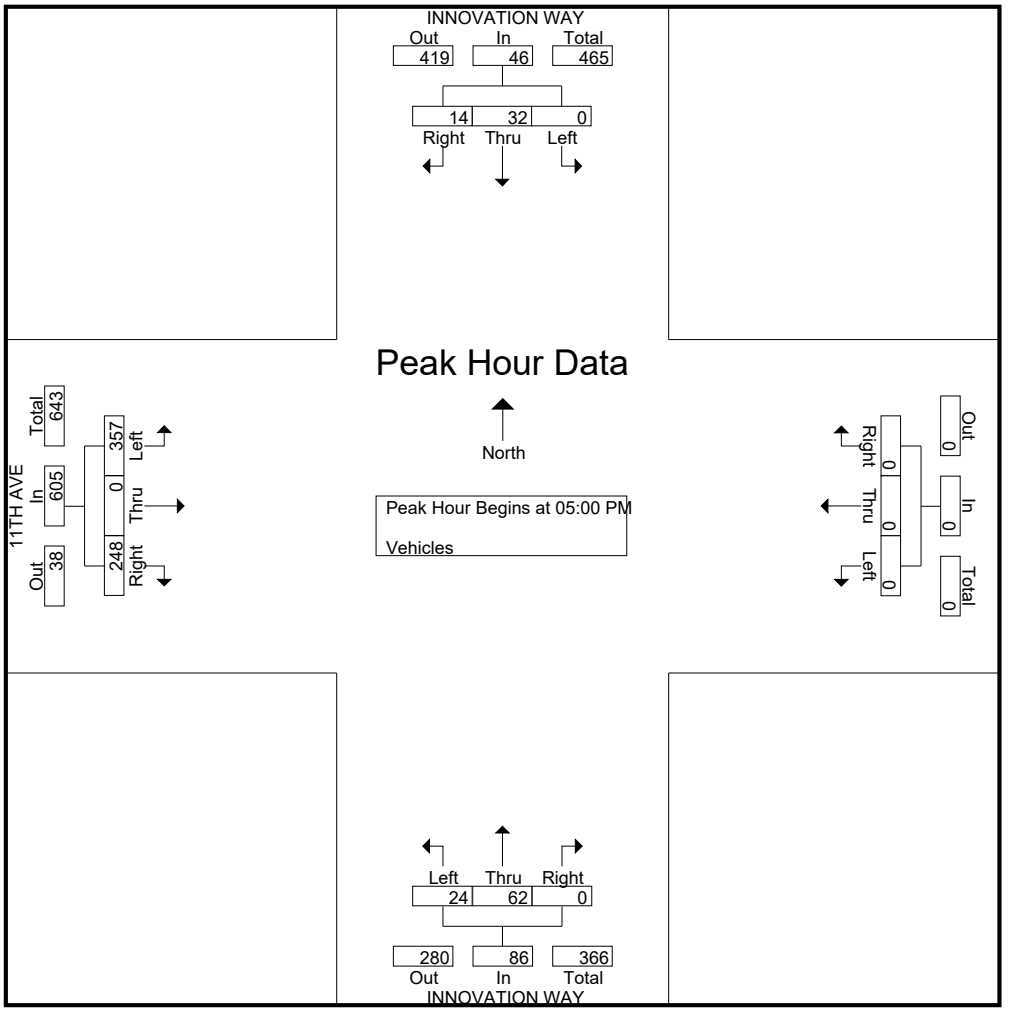

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File Name : 12PM FINAL
Site Code : 00000012
Start Date : 5/27/2015
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Groups Printed- Bikes

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					11TH AVE Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	3
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	0	4	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
05:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	3
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	4
Grand Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	2	0	7	8
Apprch %	100	0	0	0		0	0	0	0		0	0	0	0		71.4	0	28.6	0		
Total %	12.5	0	0	0	12.5	0	0	0	0	0	0	0	0	0	0	62.5	0	25	0	87.5	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				11TH AVE Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	**2**	0	**1**	**3**	**3**
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	4	4
% App. Total	0	0	0		0	0	0		0	0	0		75	0	25		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.000	.250	.333	.333

Traffic Data Service

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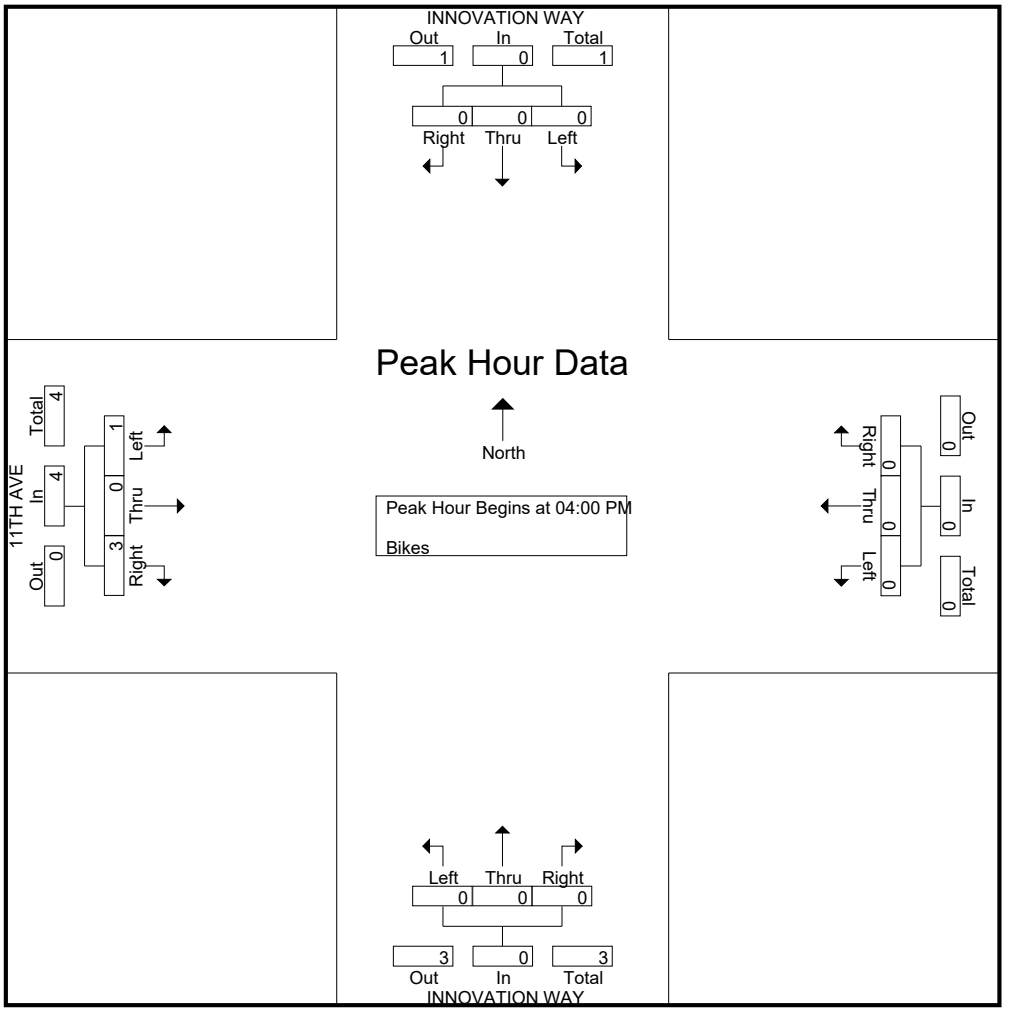

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File Name : 13AM FINAL
Site Code : 00000013
Start Date : 5/27/2015
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Groups Printed- Vehicles

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					JUNIPER NETWORKS DW Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	23	28	0	0	51	0	0	0	0	0	0	1	1	0	2	1	0	4	0	5	58
07:15 AM	33	31	0	0	64	0	0	0	0	0	0	2	0	0	2	1	0	3	1	5	71
07:30 AM	33	39	0	0	72	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3	76
07:45 AM	41	57	0	2	100	0	0	0	0	0	0	3	1	0	4	0	0	5	0	5	109
Total	130	155	0	2	287	0	0	0	0	0	0	7	2	0	9	2	0	15	1	18	314
08:00 AM	66	67	0	0	133	0	0	0	0	0	0	2	0	1	3	0	0	11	0	11	147
08:15 AM	77	93	0	0	170	0	0	0	0	0	0	2	0	0	2	0	0	5	0	5	177
08:30 AM	69	107	0	0	176	0	0	0	0	0	0	6	0	1	7	0	0	8	0	8	191
08:45 AM	87	153	0	0	240	0	0	0	0	0	0	6	0	0	6	1	0	4	0	5	251
Total	299	420	0	0	719	0	0	0	0	0	0	16	0	2	18	1	0	28	0	29	766
Grand Total	429	575	0	2	1006	0	0	0	0	0	0	23	2	2	27	3	0	43	1	47	1080
Apprch %	42.6	57.2	0	0.2		0	0	0	0		0	85.2	7.4	7.4		6.4	0	91.5	2.1		
Total %	39.7	53.2	0	0.2	93.1	0	0	0	0	0	0	2.1	0.2	0.2	2.5	0.3	0	4	0.1	4.4	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				JUNIPER NETWORKS DW Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	66	67	0	133	0	0	0	0	0	2	0	2	0	0	**11**	**11**	146
08:15 AM	77	93	0	170	0	0	0	0	0	2	0	2	0	0	5	5	177
08:30 AM	69	107	0	176	0	0	0	0	0	**6**	0	**6**	0	0	8	8	190
08:45 AM	**87**	**153**	0	**240**	0	0	0	0	0	6	0	6	**1**	0	4	5	**251**
Total Volume	299	420	0	719	0	0	0	0	0	16	0	16	1	0	28	29	764
% App. Total	41.6	58.4	0		0	0	0		0	100	0		3.4	0	96.6		
PHF	.859	.686	.000	.749	.000	.000	.000	.000	.000	.667	.000	.667	.250	.000	.636	.659	.761

Traffic Data Service

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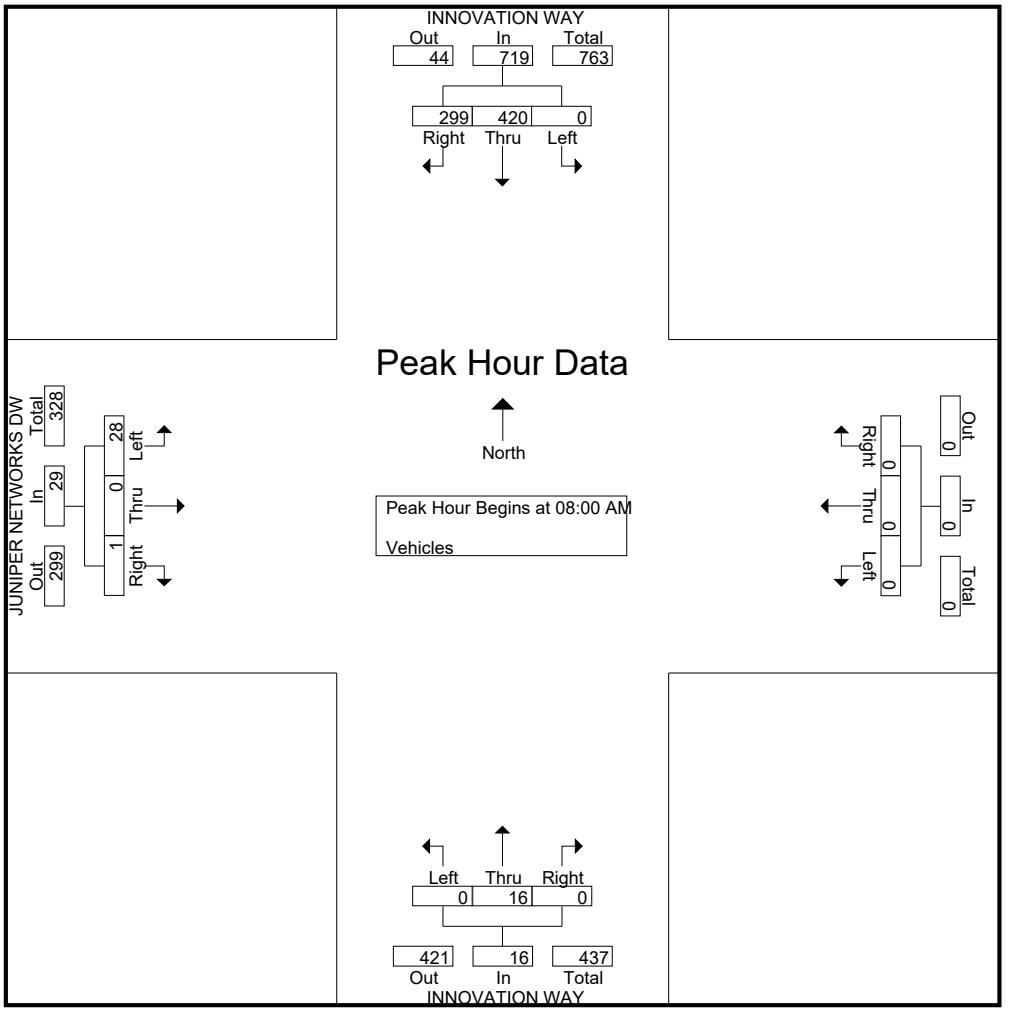

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File Name : 13AM FINAL
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Groups Printed- Bikes

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					JUNIPER NETWORKS DW Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
08:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3
Grand Total	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	4
Apprch %	0	100	0	0		0	0	0	0		0	0	100	0		100	0	0	0		
Total %	0	50	0	0	50	0	0	0	0	0	0	0	25	0	25	25	0	0	0	25	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				JUNIPER NETWORKS DW Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	0	**1**	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	**2**	0	**2**	0	0	0	0	0	0	**1**	**1**	0	0	0	0	**3**
Total Volume	0	2	0	2	0	0	0	0	0	0	1	1	1	0	0	1	4
% App. Total	0	100	0		0	0	0		0	0	100		100	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.000	.250	.250	.250	.000	.000	.250	.333

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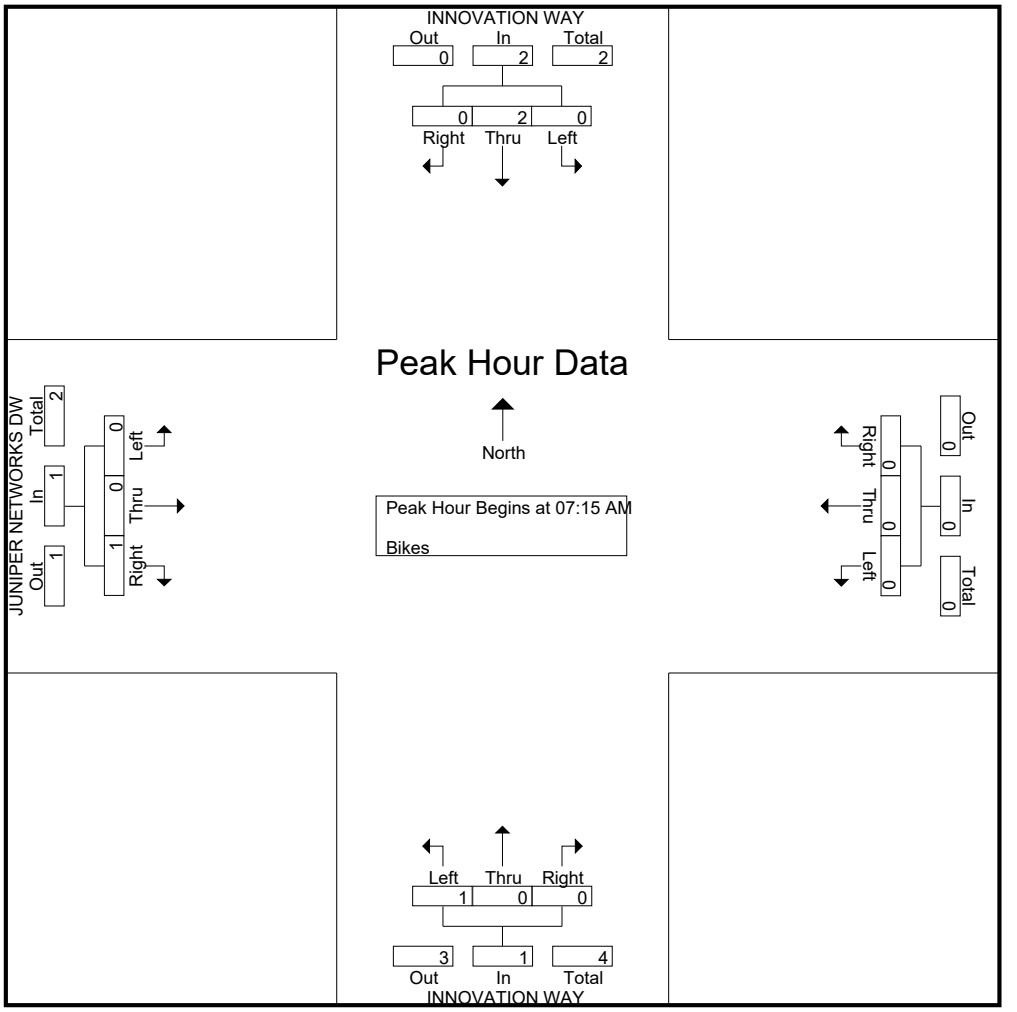

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File Name : 13PM FINAL
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Groups Printed- Vehicles

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					JUNIPER NETWORKS DW Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	12	7	0	0	19	0	0	0	0	0	0	36	1	0	37	1	0	40	0	41	97
04:15 PM	11	9	0	0	20	0	0	0	0	0	0	47	1	0	48	0	0	39	0	39	107
04:30 PM	9	7	0	0	16	0	0	0	0	0	0	52	0	0	52	4	0	57	0	61	129
04:45 PM	8	3	0	0	11	0	0	0	0	0	0	64	1	0	65	1	0	70	1	72	148
Total	40	26	0	0	66	0	0	0	0	0	0	199	3	0	202	6	0	206	1	213	481
05:00 PM	13	6	0	0	19	0	0	0	0	0	0	109	0	0	109	2	0	76	0	78	206
05:15 PM	12	9	0	0	21	0	0	0	0	0	0	133	0	0	133	4	0	55	0	59	213
05:30 PM	14	6	0	0	20	0	0	0	0	0	0	97	0	0	97	0	0	79	0	79	196
05:45 PM	17	11	0	0	28	0	0	0	0	0	0	86	0	0	86	9	0	74	0	83	197
Total	56	32	0	0	88	0	0	0	0	0	0	425	0	0	425	15	0	284	0	299	812
Grand Total	96	58	0	0	154	0	0	0	0	0	0	624	3	0	627	21	0	490	1	512	1293
Apprch %	62.3	37.7	0	0		0	0	0	0		0	99.5	0.5	0		4.1	0	95.7	0.2		
Total %	7.4	4.5	0	0	11.9	0	0	0	0	0	0	48.3	0.2	0	48.5	1.6	0	37.9	0.1	39.6	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				JUNIPER NETWORKS DW Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	13	6	0	19	0	0	0	0	0	109	0	109	2	0	76	78	206
05:15 PM	12	9	0	21	0	0	0	0	0	**133**	0	**133**	4	0	55	59	**213**
05:30 PM	14	6	0	20	0	0	0	0	0	97	0	97	0	0	**79**	79	196
05:45 PM	**17**	**11**	0	**28**	0	0	0	0	0	86	0	86	**9**	0	74	**83**	197
Total Volume	56	32	0	88	0	0	0	0	0	425	0	425	15	0	284	299	812
% App. Total	63.6	36.4	0		0	0	0		0	100	0		5	0	95		
PHF	.824	.727	.000	.786	.000	.000	.000	.000	.000	.799	.000	.799	.417	.000	.899	.901	.953

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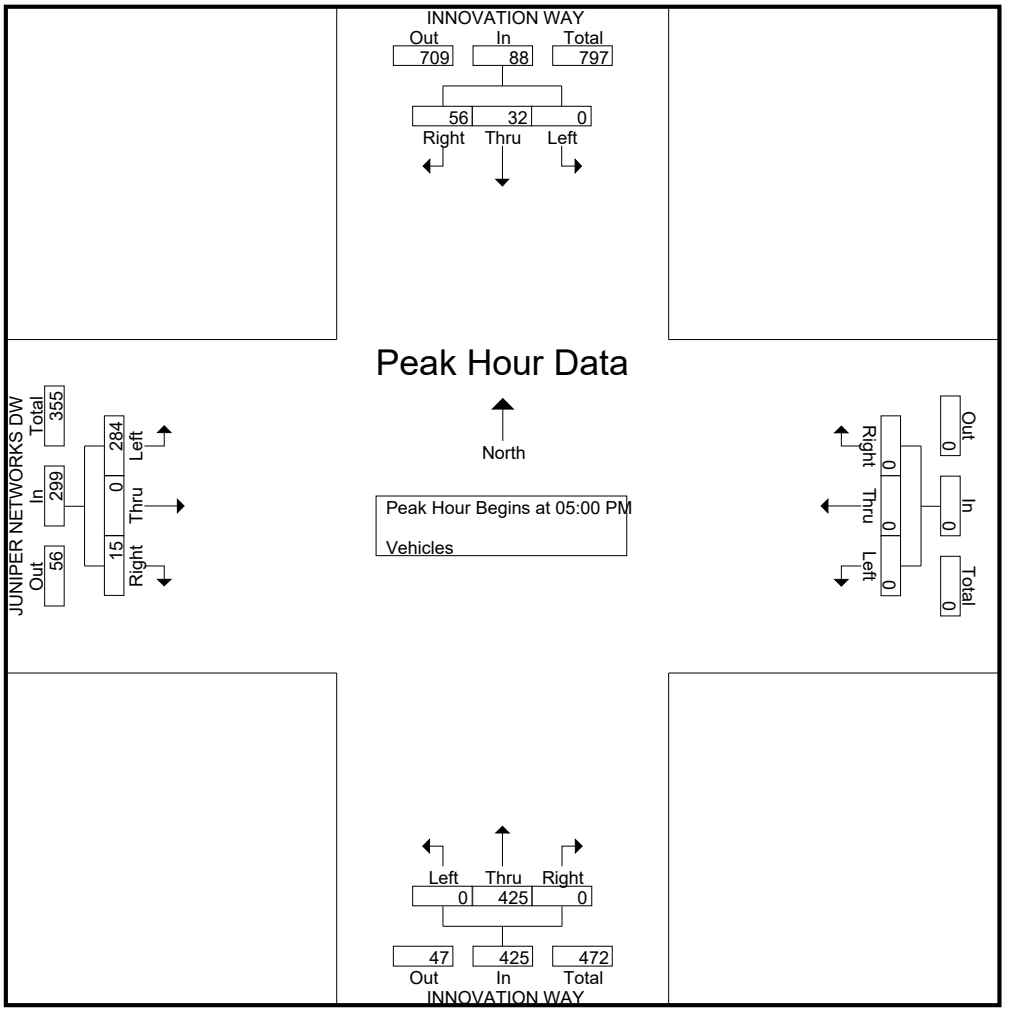

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Groups Printed- Bikes

	INNOVATION WAY Southbound					Westbound					INNOVATION WAY Northbound					JUNIPER NETWORKS DW Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
Grand Total	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Apprch %	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	33.3	0	0	33.3	0	0	0	0	0	0	66.7	0	0	66.7	0	0	0	0	0	

	INNOVATION WAY Southbound				Westbound				INNOVATION WAY Northbound				JUNIPER NETWORKS DW Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	**1**	0	**1**	0	0	0	0	0	**1**	0	**1**	0	0	0	0	**2**
Total Volume	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% App. Total	0	100	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.250	.000	.250	.000	.000	.000	.000	.000	.250	.000	.250	.000	.000	.000	.000	.250

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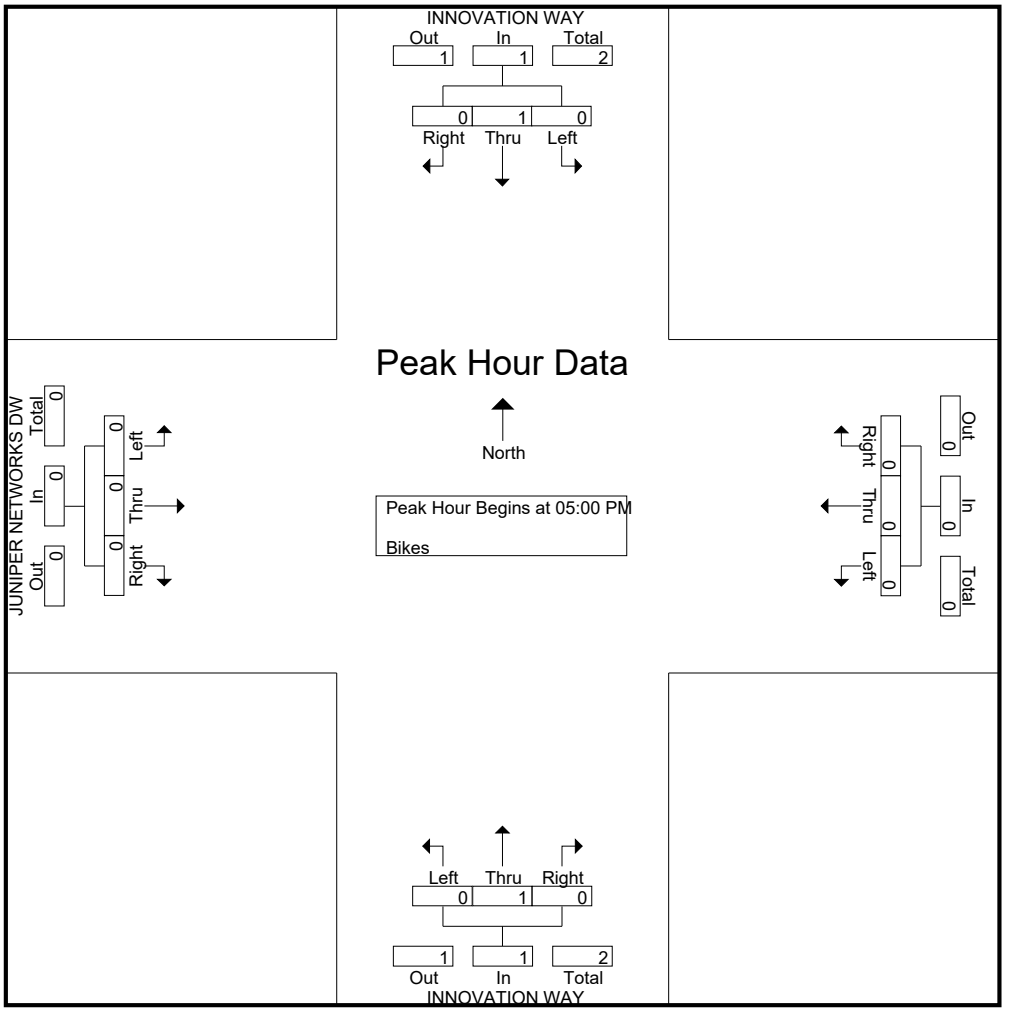

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File Name : 14AM FINAL
Site Code : 00000014
Start Date : 5/27/2015
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Groups Printed- Vehicles

	BORDEAUX DR Southbound					INNOVATION WAY EXT Westbound					BORDEAUX DR Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	4	2	0	6	2	0	4	0	6	2	16	0	0	18	0	0	0	0	0	30
07:15 AM	0	5	4	0	9	0	0	3	0	3	3	13	0	0	16	0	0	0	0	0	28
07:30 AM	0	4	0	0	4	3	0	1	0	4	3	12	0	0	15	0	0	0	0	0	23
07:45 AM	0	3	5	2	10	7	0	1	3	11	5	12	0	0	17	0	0	0	0	0	38
Total	0	16	11	2	29	12	0	9	3	24	13	53	0	0	66	0	0	0	0	0	119
08:00 AM	0	7	0	0	7	3	0	3	0	6	12	14	0	0	26	0	0	0	0	0	39
08:15 AM	0	10	6	0	16	1	0	1	3	5	7	27	0	2	36	0	0	0	0	0	57
08:30 AM	0	7	3	0	10	2	0	1	0	3	6	21	0	0	27	0	0	0	0	0	40
08:45 AM	0	7	1	0	8	2	0	1	1	4	5	29	0	2	36	0	0	0	0	0	48
Total	0	31	10	0	41	8	0	6	4	18	30	91	0	4	125	0	0	0	0	0	184
Grand Total	0	47	21	2	70	20	0	15	7	42	43	144	0	4	191	0	0	0	0	0	303
Apprch %	0	67.1	30	2.9		47.6	0	35.7	16.7		22.5	75.4	0	2.1		0	0	0	0		
Total %	0	15.5	6.9	0.7	23.1	6.6	0	5	2.3	13.9	14.2	47.5	0	1.3	63	0	0	0	0	0	

	BORDEAUX DR Southbound				INNOVATION WAY EXT Westbound				BORDEAUX DR Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	7	0	7	**3**	0	**3**	**6**	**12**	14	0	26	0	0	0	0	39
08:15 AM	0	**10**	**6**	**16**	1	0	1	2	7	27	0	**34**	0	0	0	0	**52**
08:30 AM	0	7	3	10	2	0	1	3	6	21	0	27	0	0	0	0	40
08:45 AM	0	7	1	8	2	0	1	3	5	**29**	0	34	0	0	0	0	45
Total Volume	0	31	10	41	8	0	6	14	30	91	0	121	0	0	0	0	176
% App. Total	0	75.6	24.4		57.1	0	42.9		24.8	75.2	0		0	0	0		
PHF	.000	.775	.417	.641	.667	.000	.500	.583	.625	.784	.000	.890	.000	.000	.000	.000	.846

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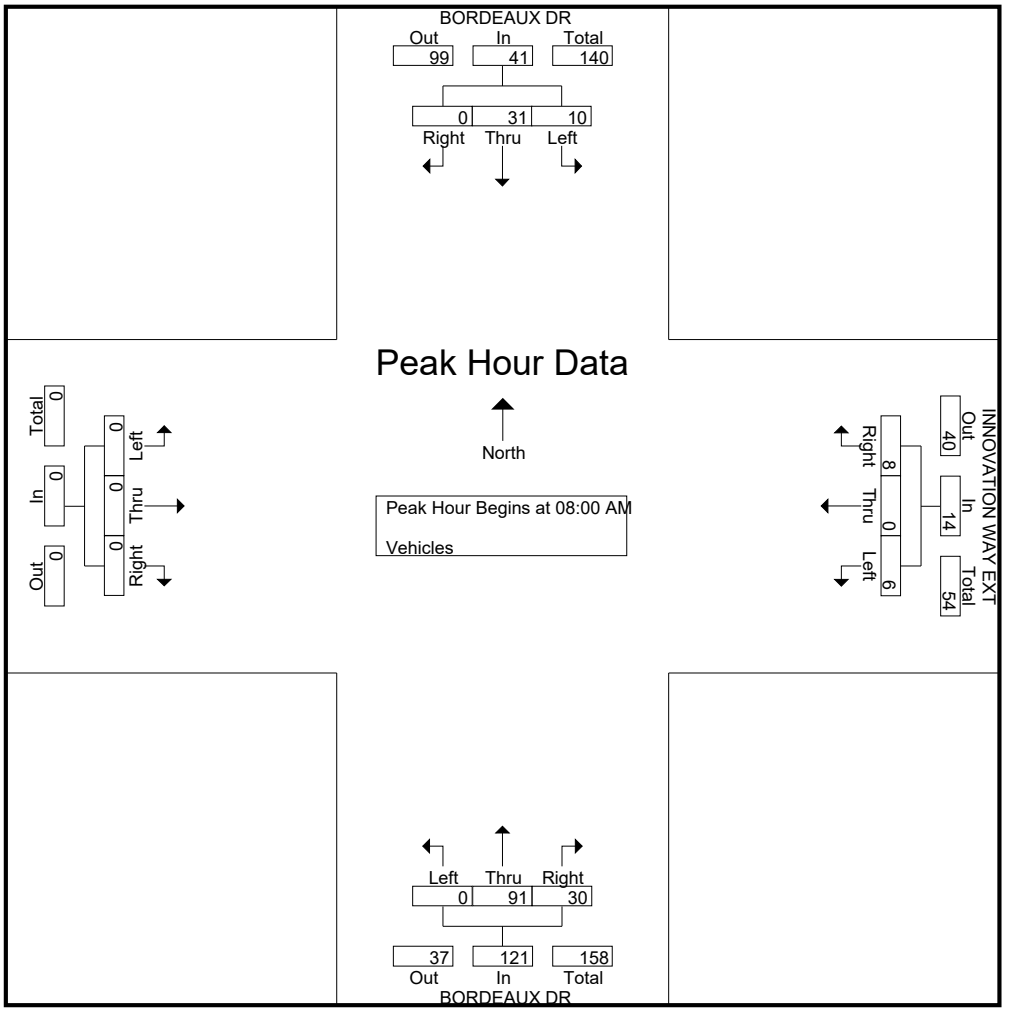

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Groups Printed- Bikes

	BORDEAUX DR Southbound					INNOVATION WAY EXT Westbound					BORDEAUX DR Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	5
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	9
Grand Total	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	0	0	0	0	11
Apprch %	0	0	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	0	0	0	100	0	0	100	0	0	0	0	0	

	BORDEAUX DR Southbound				INNOVATION WAY EXT Westbound				BORDEAUX DR Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	3	0	3	0	0	0	0	3
08:30 AM	0	0	0	0	0	0	0	0	0	**5**	0	**5**	0	0	0	0	**5**
Total Volume	0	0	0	0	0	0	0	0	0	10	0	10	0	0	0	0	10
% App. Total	0	0	0		0	0	0		0	100	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.500

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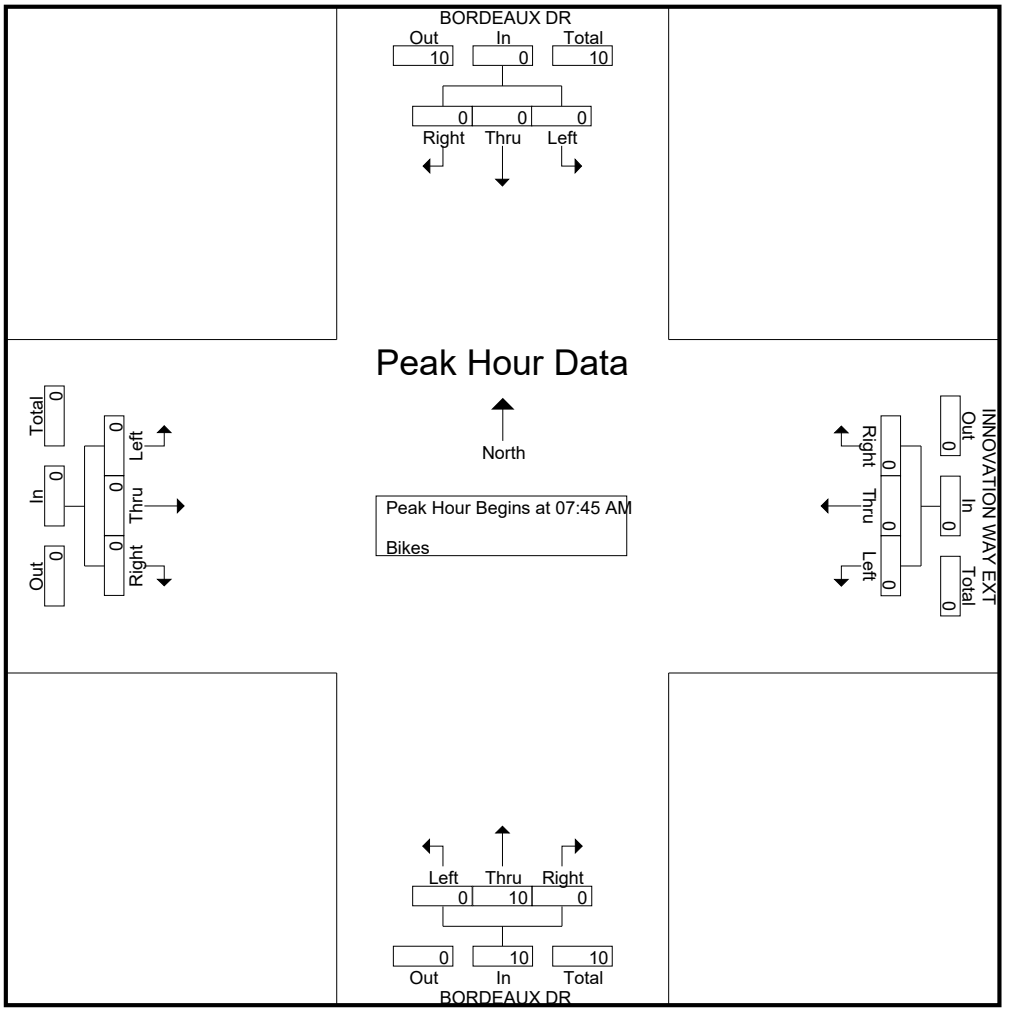

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Groups Printed- Vehicles

	BORDEAUX DR Southbound					INNOVATION WAY EXT Westbound					BORDEAUX DR Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	22	0	0	22	1	0	6	0	7	0	7	0	1	8	0	0	0	0	0	37
04:15 PM	0	25	2	0	27	2	0	6	0	8	2	6	0	0	8	0	0	0	0	0	43
04:30 PM	0	34	0	0	34	2	0	5	0	7	0	6	0	0	6	0	0	0	0	0	47
04:45 PM	0	37	1	0	38	3	0	4	0	7	2	6	0	0	8	0	0	0	0	0	53
Total	0	118	3	0	121	8	0	21	0	29	4	25	0	1	30	0	0	0	0	0	180
05:00 PM	0	27	3	0	30	1	0	7	0	8	0	2	0	1	3	0	0	0	0	0	41
05:15 PM	0	28	0	0	28	1	0	4	0	5	1	2	0	0	3	0	0	0	0	0	36
05:30 PM	0	26	0	0	26	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	33
05:45 PM	0	22	0	0	22	0	0	1	0	1	1	2	0	1	4	0	0	0	0	0	27
Total	0	103	3	0	106	2	0	18	1	21	2	6	0	2	10	0	0	0	0	0	137
Grand Total	0	221	6	0	227	10	0	39	1	50	6	31	0	3	40	0	0	0	0	0	317
Apprch %	0	97.4	2.6	0		20	0	78	2		15	77.5	0	7.5		0	0	0	0		
Total %	0	69.7	1.9	0	71.6	3.2	0	12.3	0.3	15.8	1.9	9.8	0	0.9	12.6	0	0	0	0	0	

	BORDEAUX DR Southbound				INNOVATION WAY EXT Westbound				BORDEAUX DR Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	25	2	27	2	0	6	**8**	**2**	**6**	0	**8**	0	0	0	0	43
04:30 PM	0	34	0	34	2	0	5	7	0	6	0	6	0	0	0	0	47
04:45 PM	0	**37**	1	**38**	**3**	0	4	7	2	6	0	8	0	0	0	0	**53**
05:00 PM	0	27	**3**	30	1	0	**7**	8	0	2	0	2	0	0	0	0	40
Total Volume	0	123	6	129	8	0	22	30	4	20	0	24	0	0	0	0	183
% App. Total	0	95.3	4.7		26.7	0	73.3		16.7	83.3	0		0	0	0		
PHF	.000	.831	.500	.849	.667	.000	.786	.938	.500	.833	.000	.750	.000	.000	.000	.000	.863

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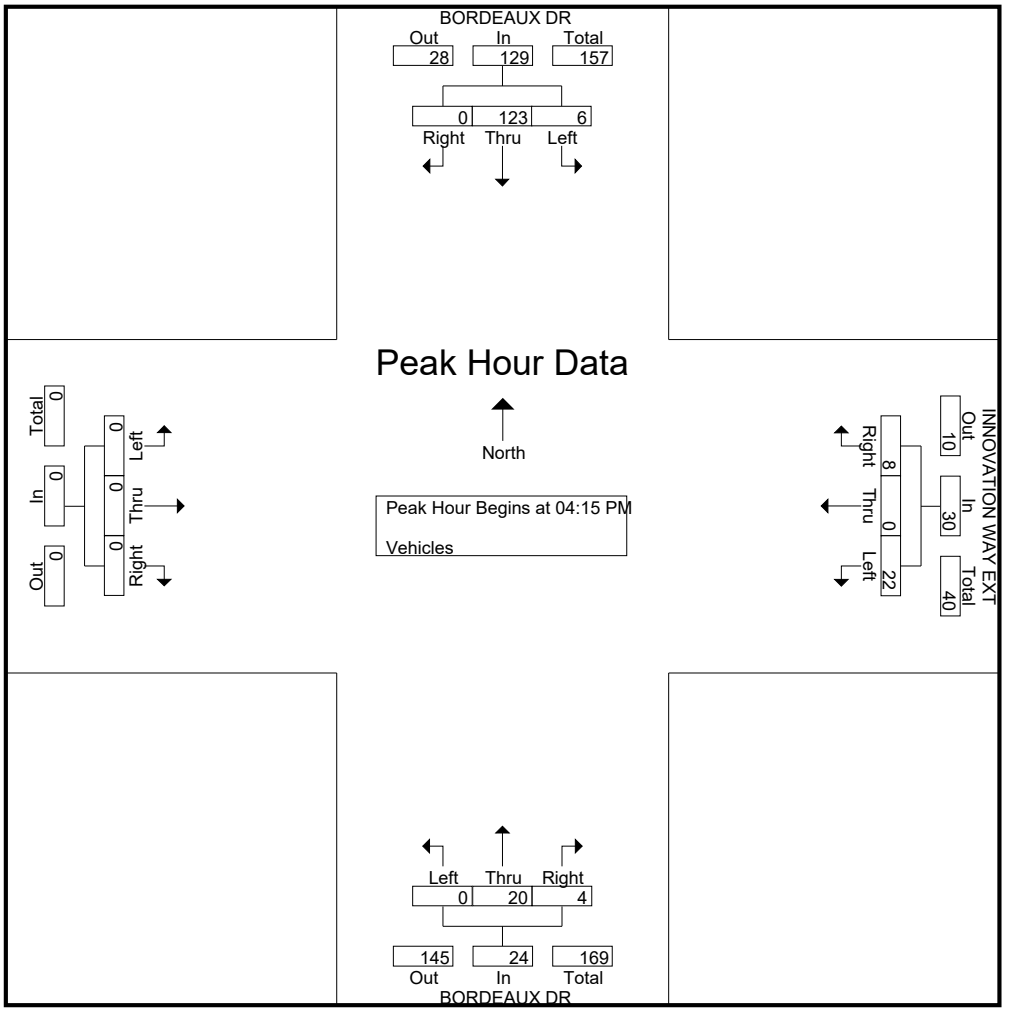

Traffic Data Service

Campbell, CA

(408) 377-2988

tdsbay@cs.com

File Name : 14PM FINAL
Site Code : 00000014
Start Date : 5/27/2015
Page No : 1

Groups Printed- Bikes

	BORDEAUX DR Southbound					INNOVATION WAY EXT Westbound					BORDEAUX DR Northbound					Eastbound					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
05:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
05:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Grand Total	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
Apprch %	0	100	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %	0	100	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

	BORDEAUX DR Southbound				INNOVATION WAY EXT Westbound				BORDEAUX DR Northbound				Eastbound				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	**4**	0	**4**	0	0	0	0	0	0	0	0	0	0	0	0	**4**
04:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	0	10	0	10	0	0	0	0	0	0	0	0	0	0	0	0	10
% App. Total	0	100	0		0	0	0		0	0	0		0	0	0		
PHF	.000	.625	.000	.625	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.625

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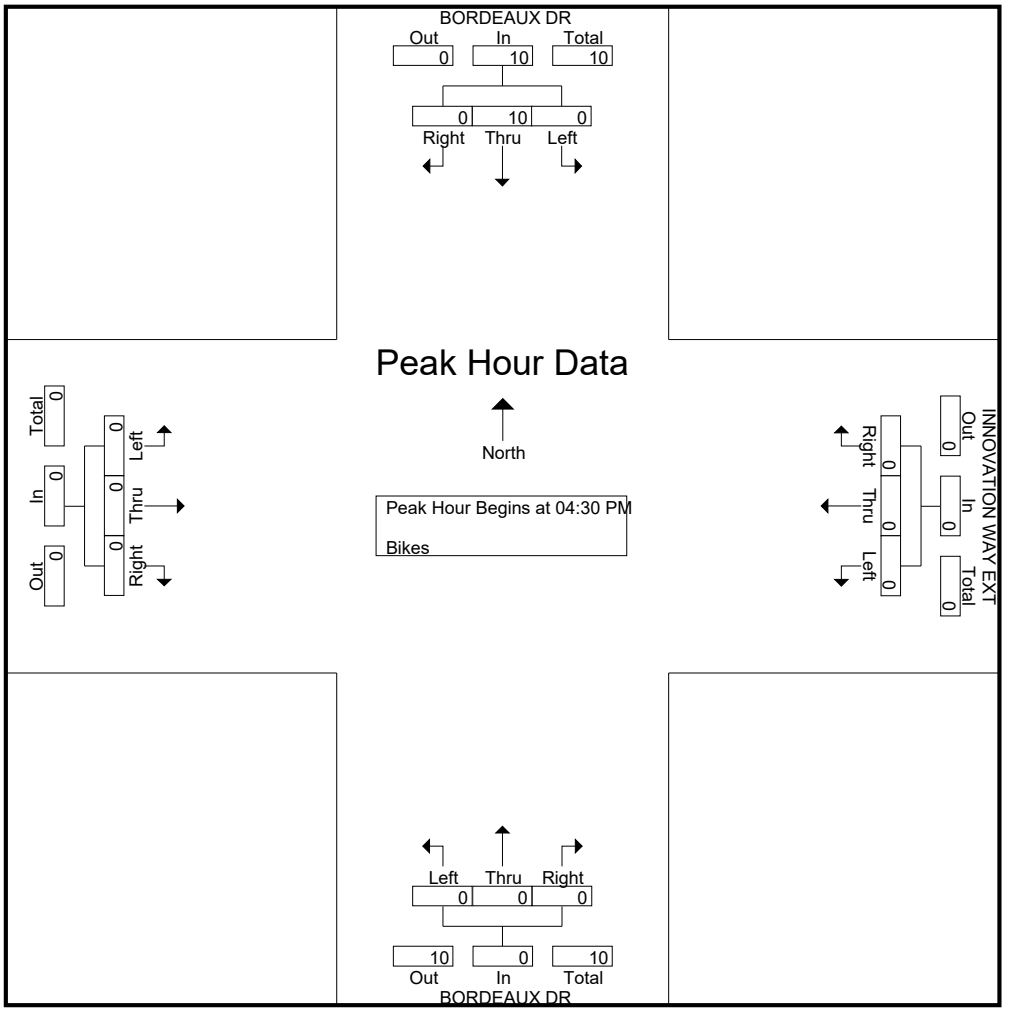


November 13, 2013 - Count Data at Pedestrian Overcrossing between Mathilda Avenue and Fair Oaks Avenue

	EB SR-237		WB SR-237	Pedestrian Overcrossing			
Time	HOV	REGULAR	REGULAR	NB PEDS	SB PEDS	NB BIKES	SB BIKES
7:00 AM	27	558	1044	0	0	2	0
7:15 AM	44	712	1077	0	0	2	1
7:30 AM	59	826	1043	1	0	6	0
7:45 AM	71	903	1112	0	0	4	1
8:00 AM	86	991	1011	0	1	2	0
8:15 AM	92	992	1052	2	0	3	1
8:30 AM	94	992	1187	1	0	5	1
8:45 AM	111	997	1145	0	2	4	5
4:00 PM	191	810	796	0	0	0	5
4:15 PM	215	674	900	0	0	3	0
4:30 PM	246	715	866	0	0	1	6
4:45 PM	239	718	945	0	1	2	10
5:00 PM	234	685	1020	0	0	0	8
5:15 PM	294	687	946	0	0	0	5
5:30 PM	295	611	956	0	0	2	7
5:45 PM	308	621	702	0	0	0	4
6:00 PM	240	575	771	0	0	1	1
6:15 PM	280	649	956	0	0	0	3
6:30 PM	197	677	879	0	0	0	11
6:45 PM	162	633	799	0	0	2	3

Source: Fehr & Peers, November 2013.

APPENDIX B – US 101 TRAVEL TIME RUN TABLES

US 101 Travel Time Runs

(GPS travel time surveys conducted on November 2013)

US 101 Northbound AM - Mixed Flow Lanes

Segment ID	Segment Location	Distance (miles)	Travel Time Run 1		Travel Time Run 2		Travel Time Run 3	
			Segment Start Time	Speed	Segment Start Time	Speed	Segment Start Time	Speed
1	Lawrence Expressway to End of Merge Lane	0.217	7:46:28	11.85	8:26:12	26.79	8:57:47	46.20
2	End of Merge Lane to Fair Oaks Off-Ramp	0.439	7:47:28	19.54	8:26:39	27.46	8:58:02	37.48
3	Fair Oaks Off-Ramp to Fair Oaks Bridge	0.153	7:48:46	19.22	8:27:35	28.06	8:58:43	39.58
4	Fair Oaks Bridge to Fair Oaks On-Ramp	0.122	7:49:13	5.99	8:27:54	27.67	8:58:56	39.20
5	Fair Oaks On-Ramp to Mathilda Off-Ramp	0.550	7:50:17	27.14	8:28:09	31.50	8:59:07	35.28
6	Mathilda Off-Ramp to Mathilda On-Ramp	0.167	7:51:27	26.92	8:29:10	22.73	9:00:01	44.47
7	Mathilda On-Ramp to Mathilda Off-Ramp	0.028	7:51:49	23.15	8:29:36	27.96	9:00:15	42.87
8	Mathilda Off-Ramp to SR 237 WB Off-Ramp	0.432	7:51:53	19.94	8:29:40	18.08	9:00:17	30.20
9	SR 237 WB Off-Ramp to Part-way to Ellis Street	0.457	7:53:08	11.47	8:31:01	16.79	9:01:07	20.65

Source: Fehr & Peers, November 2013.

US 101 Northbound PM - Mixed Flow Lanes

Segment ID	Segment Location	Distance (miles)	Travel Time Run 1		Travel Time Run 2		Travel Time Run 3	
			Segment Start Time	Speed	Segment Start Time	Speed	Segment Start Time	Speed
1	Lawrence Expressway to End of Merge Lane	0.217	::	0.00	17:49:39	41.87	18:58:46	44.48
2	End of Merge Lane to Fair Oaks Off-Ramp	0.439	::	0.00	17:49:58	46.73	18:59:02	57.51
3	Fair Oaks Off-Ramp to Fair Oaks Bridge	0.153	::	0.00	17:50:31	48.75	18:59:29	62.34
4	Fair Oaks Bridge to Fair Oaks On-Ramp	0.122	::	0.00	17:50:42	48.93	18:59:38	60.54
5	Fair Oaks On-Ramp to Mathilda Off-Ramp	0.550	17:05:09	47.74	17:50:50	58.57	18:59:45	59.87
6	Mathilda Off-Ramp to Mathilda On-Ramp	0.167	17:05:28	46.34	17:51:24	59.28	19:00:17	60.77
7	Mathilda On-Ramp to Mathilda Off-Ramp	0.028	17:05:40	43.50	17:51:34	57.17	19:00:27	62.14
8	Mathilda Off-Ramp to SR 237 WB Off-Ramp	0.432	17:05:43	50.52	17:51:35	45.65	19:00:28	59.46
9	SR 237 WB Off-Ramp to Part-way to Ellis Street	0.457	17:06:13	47.24	17:52:09	22.19	19:00:54	48.05

Source: Fehr & Peers, November 2013.

US 101 Southbound AM - Mixed Flow Lanes

Segment ID	Segment Location	Distance (miles)	Travel Time Run 1		Travel Time Run 2		Travel Time Run 3	
			Segment Start Time	Speed	Segment Start Time	Speed	Segment Start Time	Speed
1	SR 237 WB Off-Ramp to SR 237 WB On-Ramp	0.137	8:00:06	53.09	8:35:19	57.94	9:06:37	61.87
2	SR 237 WB On-Ramp to Mathilda Off-Ramp	0.198	8:00:15	52.82	8:35:27	59.76	9:06:44	62.91
3	Mathilda Off-Ramp to Mathilda On-Ramp	0.123	8:00:28	54.84	8:35:39	60.89	9:06:56	62.76
4	Mathilda On-Ramp to Mathilda On-Ramp	0.175	8:00:36	58.18	8:35:46	58.52	9:07:02	61.35
5	Mathilda On-Ramp to Fair Oaks Off-Ramp	0.530	8:00:47	57.39	8:35:57	59.34	9:07:13	62.61
6	Fair Oaks Off-Ramp to Fair Oaks On-Ramp	0.135	8:01:20	55.92	8:36:29	60.43	9:07:43	61.60
7	Fair Oaks On-Ramp to Fair Oaks Off-Ramp	0.026	8:01:28	54.68	8:36:37	57.17	9:07:50	62.14
8	Fair Oaks Off-Ramp to Fair Oaks On-Ramp	0.137	8:01:30	54.61	8:36:38	55.79	9:07:52	56.48
9	Fair Oaks On-Ramp to Half-way to Lawrence Expressway	0.332	8:01:39	51.90	8:36:47	52.96	9:08:01	46.01
10	Half-way to Lawrence Expressway to Lawrence Expressway Off-Ramp	0.315	8:02:02	49.06	8:37:09	54.21	9:08:26	52.20

Source: Fehr & Peers, November 2013.

US 101 Southbound PM - Mixed Flow Lanes

Segment ID	Segment Location	Distance (miles)	Travel Time Run 1		Travel Time Run 2		Travel Time Run 3	
			Segment Start Time	Speed	Segment Start Time	Speed	Segment Start Time	Speed
1	SR 237 WB Off-Ramp to SR 237 WB On-Ramp	0.137	17:12:08	9.19	18:00:22	14.89	18:44:50	35.23
2	SR 237 WB On-Ramp to Mathilda Off-Ramp	0.198	17:12:54	11.16	18:00:47	7.01	18:45:03	32.31
3	Mathilda Off-Ramp to Mathilda On-Ramp	0.123	17:13:52	14.27	18:02:24	7.01	18:45:25	8.12
4	Mathilda On-Ramp to Mathilda On-Ramp	0.175	17:14:21	16.50	18:03:20	7.81	18:46:13	13.90
5	Mathilda On-Ramp to Fair Oaks Off-Ramp	0.530	17:14:57	14.86	18:04:38	14.39	18:46:54	19.95
6	Fair Oaks Off-Ramp to Fair Oaks On-Ramp	0.135	17:16:58	12.66	18:06:42	11.89	18:48:26	9.93
7	Fair Oaks On-Ramp to Fair Oaks Off-Ramp	0.026	17:17:35	21.75	18:07:20	7.83	18:49:11	5.01
8	Fair Oaks Off-Ramp to Fair Oaks On-Ramp	0.137	17:17:39	18.26	18:07:30	12.54	18:49:26	10.00
9	Fair Oaks On-Ramp to Half-way to Lawrence Expre	0.332	17:18:05	16.42	18:08:07	14.22	18:50:11	19.25
10	Half-way to Lawrence Expressway to Lawrence Exp	0.315	17:19:13	31.86	18:09:25	33.97	18:51:09	30.77

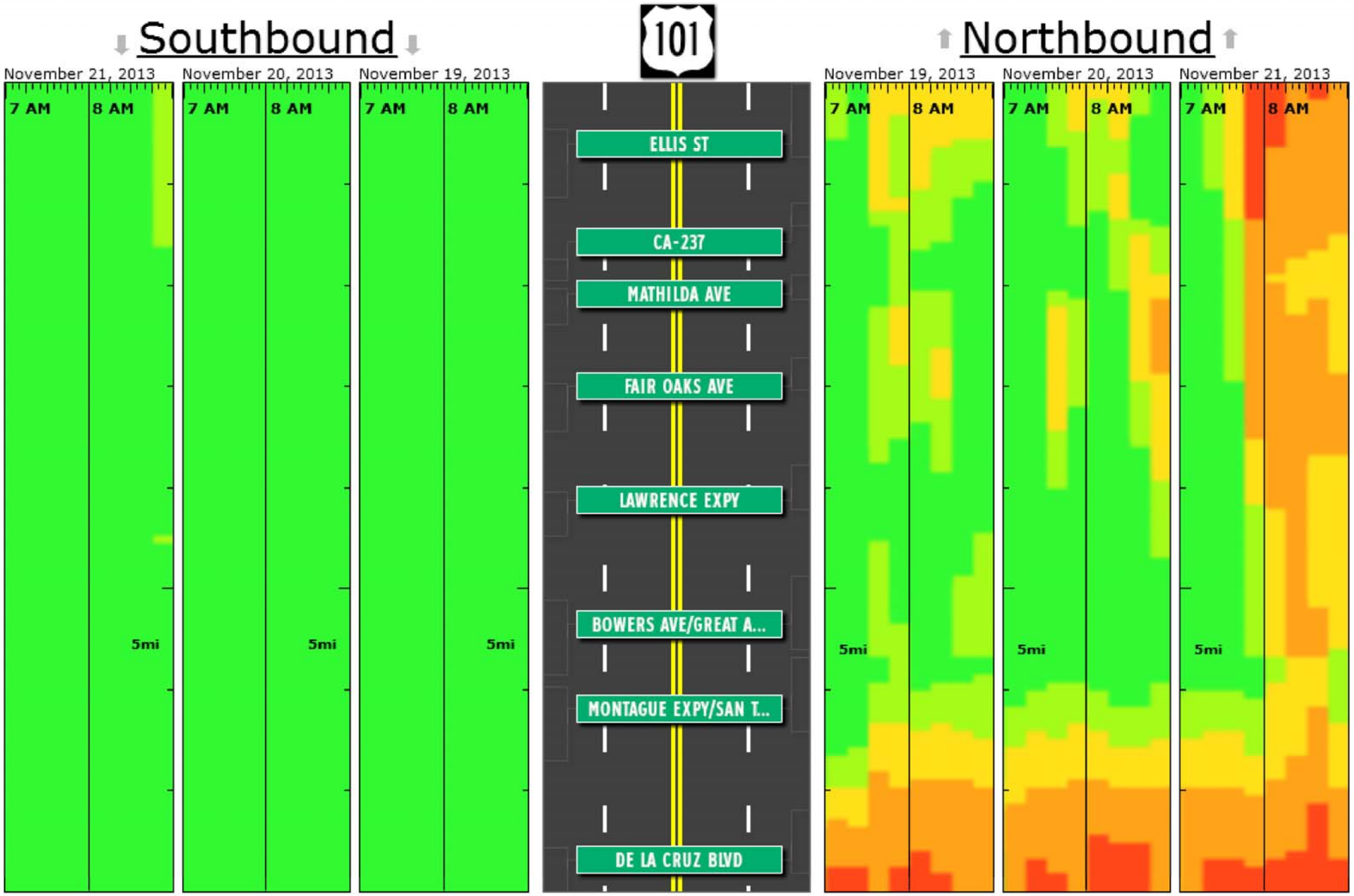
Source: Fehr & Peers, November 2013.

US 101 Travel Time Runs

(INRIX data in November 2013)

Speed on US-101 between De La Cruz Blvd and Ellis St

Averaged by 15 minutes for November 19, 2013, for November 20, 2013, and for November 21, 2013

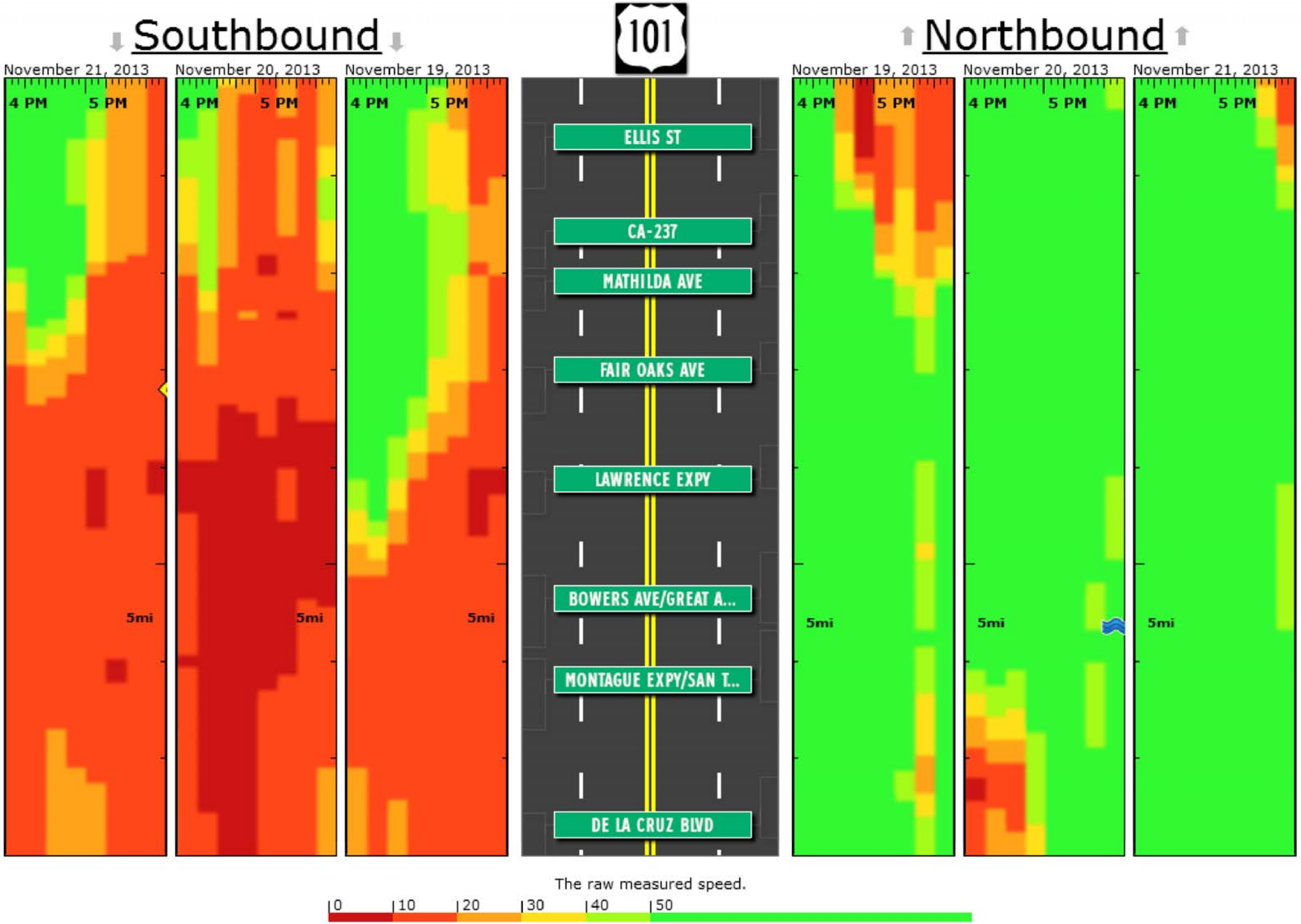


The raw measured speed.

0 | 10 | 20 | 30 | 40 | 50

Speed on US-101 between De La Cruz Blvd and Ellis St

Averaged by 15 minutes for November 19, 2013, for November 20, 2013, and for November 21, 2013



APPENDIX C – SR 237 TRAVEL TIME RUN INFORMATION

SR 237 Travel Time Runs

(Phase II of the SR 237 Existing Conditions Report - Chapter 4.3)

4.3 SR-237 Mainline Bottleneck Output Flows

Mainline counts were gathered locations just downstream of existing bottleneck locations. A summary of these counts are shown in **Table 4-6.**

Table 4-6 SR-237 Bottleneck Output Flow Summary

Description	Flow Volume (vph)									
	AM					PM				
	6 to 7	7 to 8	8 to 9	9 to 10	10 to 11	3 to 4	4 to 5	5 to 6	6 to 7	7 to 8
Westbound SR-237										
Between N. 1st Street Off-ramp and On-ramp (GP Lanes)	3847	3967	4188	3919	3519	2806	3206	3449	2956	2200
Between N. 1st Street Off-ramp and On-ramp (HOV Lane – Just downstream of the EL Double White Line End)	961	1529	1540	1614	1528	286	326	619	506	511
Total Mainline (Between N. 1st St Off-ramp and On-ramp)	**4808**	**5496**	**5728**	**5533**	**5047**	**3092**	**3532**	**4068**	**3462**	**2711**
Between Lawrence Expy On-ramp and Fair Oaks On-ramp (GP Lanes)	2663	3090	3167	2513	2281	2452	2813	3066	2564	1929
Between Lawrence Expy On-ramp and Fair Oaks On-ramp (HOV Lane)	707	1150	988	1292	1194	390	442	744	698	818
Total Mainline (Between Lawrence Expy On-ramp and Fair Oaks On-ramp)	**3370**	**4240**	**4155**	**3805**	**3475**	**2842**	**3255**	**3810**	**3262**	**2747**
Eastbound SR-237										
Between Mathilda Ave On-ramp and Lawrence Expy Off-ramp (GP Lanes)	1391	2823	3666	2813	2168	2977	2966	2810	2406	2068
Between Mathilda Ave On-ramp and Lawrence Expy Off-ramp (HOV Lane)	62	172	380	1189	662	573	687	991	778	712
Total Mainline (Between Mathilda Ave On-ramp and Lawrence Expy Off-ramp)	**1453**	**2995**	**4046**	**4002**	**2830**	**3550**	**3652**	**3800**	**3184**	**2780**
Between Zanker Rd Off-ramp and On-ramp (GP Lanes)	1493	2744	3404	2587	2042	3294	3627	3549	3437	3162
Between Zanker Rd Off-ramp and On-ramp (HOV Lane – Just upstream of the EL Double White Line Start)	75	203	313	874	581	1135	1400	1547	1353	1576
Total Mainline (Between Zanker Rd Off-ramp and On-ramp)	**1568**	**2947**	**3717**	**3461**	**2623**	**4429**	**5027**	**5096**	**4790**	**4738**

Source: VTA and DKS Associates, 2013

4.4 Truck Percentage

Truck percentage data for SR-237 within the study area were derived from the 2011 Caltrans Annual Average Daily Truck Traffic Database. The data represent the number of trucks as a percentage of the vehicle composition for certain locations. This report listed average daily truck percentage at one location in the study area, as shown in **Table 4-7.**

Table 4-7 Truck Percentage

Locations	Truck Percentage	Year Verified/Estimated
SR-237 at Jct. Rte. 101	4%	2001V
Jct. Rte. 880, Nimitz Freeway	6%	1998V

Source: Caltrans Annual Average Daily Truck Traffic 2011

4.5 Corridor Segment Travel Times

Corridor travel times were extracted from tachograph runs conducted in March to May 2013.

Table 4-8 and **Table 4-9** summarize the average general purpose lane travel times in each direction during the respective peak periods. The travel time results for the HOV lane are presented in **Table 4-10** and **Table 4-11.** The speed versus distance plots for each travel time run are provided in **Appendix B**. **Figure 4-5** and **Figure 4-6** show the average travel time by hour, direction and facility type along SR-237.

Table 4-8 Southbound I-880/Westbound SR-237 General Purpose Lane Average Travel Times

Segment	Distance (miles)	AM (Minutes)					PM (Minutes)				
		6-7	7-8	8-9	9-10	10-11	3-4	4-5	5-6	6-7	7-8
Southbound I-880 to Westbound SR-237											
Mission Blvd (SR-262) to Dixon Landing Rd	2.17	2.1	2.2	2.7	2.8	2.1	2.0	2.1	2.1	2.1	2.0
Dixon Landing Rd to McCarthy Blvd	2.29	3.9	5.4	6.6	8.3	3.1	2.2	2.3	2.3	2.3	2.3
McCarthy Blvd to Zanker Rd	0.94	2.1	3.5	4.0	3.1	2.4	0.9	0.9	1.6	1.0	0.9
Zanker Rd to N 1st St**	1.08	1.3	1.5	1.6	1.5	1.5	1.0	1.1	1.3	1.5	1.1
N. 1st St to Great America Pkwy	1.01	1.2	1.2	1.2	1.1	1.1	0.9	1.0	1.1	1.0	0.9
Great America Pkwy to Lawrence Expy	1.24	1.2	1.2	1.4	1.2	1.2	0.7	0.8	1.3	0.6	0.6
Lawrence Expy to Fair Oaks Ave	0.64	0.6	0.7	0.7	0.6	0.6	0.8	0.8	1.2	1.0	0.9
Fair Oaks Ave to Mathilda Ave	0.96	0.9	1.2	0.8	0.9	0.9	0.8	0.8	1.8	0.9	0.8
Mathilda Ave to US-101	0.55	0.6	0.7	0.5	0.6	0.6	0.5	0.5	0.6	0.6	0.5
Total Travel Time (Mission to Zanker)	5.4	8.2	11.1	13.3	14.1	7.6	5.1	5.3	5.9	5.4	5.3
Total Travel Time (Zanker to Mathilda)	4.9	5.2	5.8	5.7	5.4	5.3	4.3	4.5	6.6	4.9	4.3
Total Travel Time (Mission to Mathilda)	10.3	13.4	17.0	19.0	19.6	12.9	9.4	9.8	12.5	10.3	9.6
Westbound Calaveras Blvd											
I-680 to S Milpitas Blvd	0.69	1.6	1.5	N/A	3.0	3.6					
S Milpitas Blvd to N Abel St	0.49	0.8	2.0	N/A	3.8	3.3					
N Abel St to I-880	0.60	1.8	5.2	N/A	4.9	3.8					
I-880 to N McCarthy Blvd (via McCarthy Off/On)	0.40	1.2	1.1	3.2	2.1	1.4					
N. McCarthy Blvd to Zanker Rd (via McCarthy Off/On)	0.94	1.7	2.8	2.6	3.2	1.9					
I-880 to N McCarthy Blvd (via SR-237)	0.40	1.2	2.1	4.2	3.7	2.8					
McCarthy Blvd to Zanker Rd (via SR-237)	0.94	2.3	3.1	4.0	3.0	2.7					
Total Travel Time (I-680 to Zanker via HOV bypass/McCarthy Off/On)	3.12	7.1	12.6	N/A	17.0	14.1					
Total Travel Time (I-680 to Zanker via SR-237)	3.12	7.6	14.2	N/A	18.5	16.0					

Source: DKS Associates, 2013

Table 4-9 Eastbound SR-237/Northbound I-880 General Purpose Lane Average Travel Times

Segment	Distance (miles)	AM (Minutes)					PM (Minutes)				
		6-7	7-8	8-9	9-10	10-11	3-4	4-5	5-6	6-7	7-8
Eastbound SR-237 to Northbound I-880											
US-101 to Mathilda Ave	0.54	0.5	0.5	0.7	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Mathilda Ave to Fair Oaks Ave	0.95	0.8	0.9	1.1	0.9	0.9	0.9	0.9	1.1	1.0	0.9
Fair Oaks Ave to Lawrence Expy	0.63	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.7	0.7	0.5
Lawrence Expy to Great American Pkwy	1.25	1.2	1.2	1.4	1.2	1.2	1.7	2.3	4.3	5.7	1.2
Great American Pkwy to N. 1st St.	1.06	1.0	1.1	1.1	1.1	1.1	1.9	2.4	3.0	4.1	1.3
N. 1st St. to Zanker Rd	1.07	1.1	1.1	1.2	1.1	1.0	1.6	1.7	2.4	2.7	1.4
Zanker Rd to N. McCarthy Blvd	0.97	1.0	1.0	1.0	1.0	1.0	1.4	1.2	1.3	1.2	1.0
N. McCarthy Blvd to Dixon Landing Rd	2.36	2.3	2.2	2.3	2.2	2.2	8.9	9.8	10.0	5.8	2.6
Dixon Landing Rd to Mission Blvd (SR-262)	2.19	2.1	2.0	2.1	2.1	2.0	2.6	6.5	6.6	7.3	2.2
Total Travel Time (Mathilda to Zanker)	4.96	4.7	4.9	5.4	4.8	4.8	6.6	7.9	11.5	14.2	5.3
Total Travel Time (Zanker to Mission)	5.51	5.3	5.2	5.4	5.2	5.2	12.9	17.4	17.9	14.4	5.8
Total Travel Time (Mathilda to Mission)	10.47	10.0	10.1	10.7	10.0	10.1	19.5	25.3	29.5	28.6	11.1
Eastbound Calaveras Blvd											
N. McCarthy Blvd to I-880	0.40	0.6	0.6	0.6	0.7	0.8					
I-880 to N Abel St	0.61	1.3	1.8	0.9	1.2	1.6					
N Abel St to S Milpitas Blvd	0.48	0.7	0.6	0.6	0.3	1.1					
S Milpitas Blvd to I-680	0.62	0.5	N/A	N/A	N/A	0.6					
Total Travel Time (McCarthy to I-680)	2.11	3.1	N/A	N/A	N/A	4.2					

Source: DKS Associates, 2013

Table 4-10 Southbound I-880/Westbound SR-237 HOV/EL Average Travel Times

Segment	Distance (miles)	AM (Minutes)					PM (Minutes)				
		6-7	7-8	8-9	9-10	10-11	3-4	4-5	5-6	6-7	7-8
Southbound I-880 to Westbound SR-237											
Mission Blvd (SR-262) to Dixon Landing Rd	2.17	1.9	2.0	2.3	2.6	1.9	1.9	1.8	1.9	1.8	1.8
Dixon Landing Rd to McCarthy Blvd	2.33	2.2	2.3	2.5	2.8	3.0	2.1	2.1	2.1	2.1	2.0
McCarthy Blvd to Zanker Rd	0.94	1.0	1.1	1.2	1.2	1.2	0.8	0.9	0.9	0.9	0.8
Zanker Rd to N 1st St	1.10	1.0	1.2	1.2	1.2	1.1	1.0	1.0	1.0	1.0	1.0
N. 1st St. to Great America Pkwy	1.02	0.9	1.0	1.0	0.9	0.9	0.9	0.9	0.9	1.0	0.9
Great America Pkwy to Lawrence Expy	1.28	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Lawrence Expy to N. Fair Oaks Ave	0.64	0.6	0.6	0.6	0.5	0.5	0.6	0.5	0.6	0.6	0.6
HOV/EL Total Travel Time (Mission to Zanker)	5.44	5.0	5.4	6.0	6.6	6.1	4.8	4.7	4.8	4.8	4.7
HOV/EL Total Travel Time (Zanker to Fair Oaks)	4.04	3.6	3.8	3.8	3.7	3.6	3.5	3.5	3.6	3.7	3.5
HOV/EL Total Travel Time (Mission to Fair Oaks)	9.48	8.6	9.2	9.8	10.2	9.8	8.3	8.2	8.4	8.5	8.2

Source: DKS Associates, 2013

Table 4-11 Eastbound SR-237/Northbound I-880 HOV/EL Average Travel Times

Segment	Distance (miles)	AM (Minutes)					PM (Minutes)				
		6-7	7-8	8-9	9-10	10-11	3-4	4-5	5-6	6-7	7-8
Eastbound SR-237 to Northbound I-880											
N. Fair Oaks Ave to Lawrence Expy	0.63	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.7	0.5
Lawrence Expy to Great America Pkwy	1.24	0.8	1.1	1.1	1.1	1.0	1.2	1.3	1.4	1.5	1.1
Great America Pkwy to N. 1st St.	1.08	0.7	0.9	0.9	0.9	0.9	1.1	1.1	1.2	1.4	1.1
N. 1st St to Zanker Rd	1.08	0.7	0.9	0.9	0.9	0.9	1.1	1.3	1.2	1.3	1.2
Zanker Rd to N. McCarthy Blvd	0.94	0.6	0.8	0.8	0.8	0.8	1.0	1.0	1.0	1.0	0.9
N. McCarthy Blvd to Dixon Landing Rd	2.33	1.6	2.1	2.1	2.1	2.5	2.3	3.0	5.8	3.6	2.2
Dixon Landing Rd to Mission Blvd (SR-262)	2.19	1.4	1.9	1.9	1.8	2.0	2.0	3.3	4.3	4.0	2.0
HOV/EL Total Travel Time (Fair Oaks to Zanker)	4.0	2.5	3.4	3.4	3.4	3.4	4.0	4.3	4.5	5.0	3.9
HOV/EL Total Travel Time (Zanker to Mission)	5.5	3.6	4.8	4.9	4.7	5.3	5.2	7.3	11.0	8.5	5.0
HOV/EL Total Travel Time (Fair Oaks to Mission)	10.4	7.0	9.1	9.4	9.0	9.6	10.1	12.5	16.6	14.5	9.9

Source: DKS Associates, 2013

Figure 4-5 AM Peak Period Average Travel Time

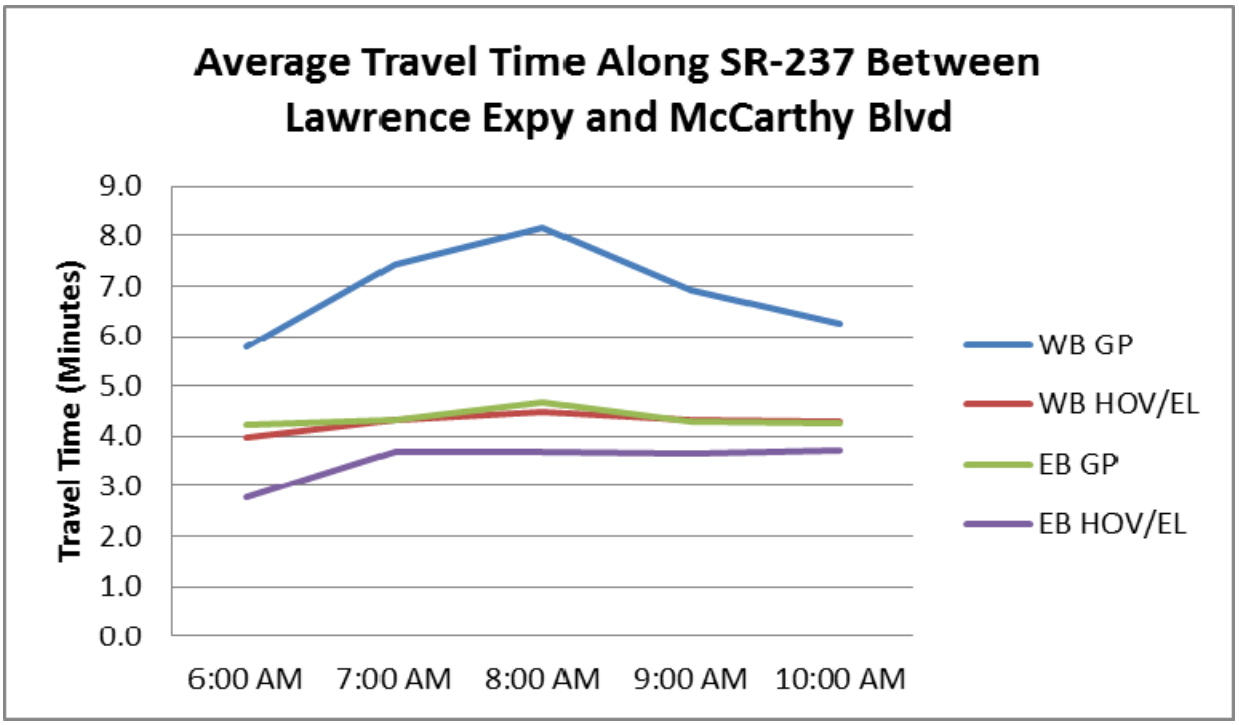
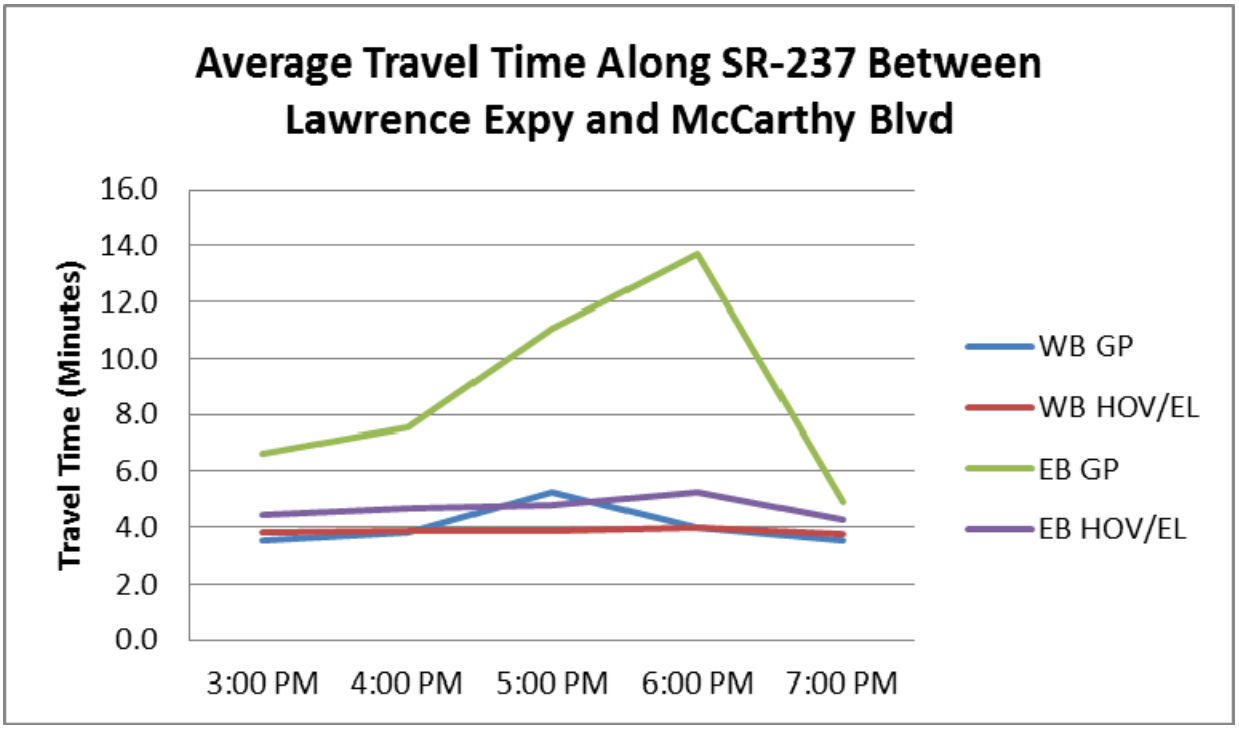


Figure 4-6 PM Peak Period Average Travel Time



4.6 Existing Congestion Patterns and Bottlenecks

Bottleneck locations within the study area were compiled from a variety of sources including, Spring 2013 Tach Runs, INRIX historical speeds (See **Appendix C**), and DKS field observations. The primary source used for this effort was the Spring 2013 Tach Run data as it also provides travel time data that may be used in the model calibration process. In general, the bottleneck locations are consistent; but the queue lengths and durations can vary between the sources.

4.6.1 Existing AM Peak Congestion Pattern

A review of available INRIX historical speed sampling revealed that the current bottleneck for the westbound direction within the study corridor is in the area between the Zanker Rd on-ramp to the N. 1st Street off-ramp. Field observations and travel time runs conducted in Spring 2013 confirm that this segment is the bottleneck location. This bottleneck forms at approximately 6:30 AM and does not dissipate until nearly 10:45 AM. During the peak hour, the back of the resulting queue reaches well beyond the interchange with I-880 along Calaveras Road to the east and general purpose lanes on I-880 to the north.

Field observations showed some minor congestion in the southbound to westbound HOV lane during the AM peak period. This typically occurred near Calaveras Blvd when the express/HOV lane was adjacent to congested traffic in the mixed flow lanes. This slowing occurred even though the express/HOV lanes are separated by pavement markings. This same area was also a common point of entry for vehicles violating the lane striping and illegally crossing the solid white lines to enter the express/HOV lane. Observations observed that Express/HOV lane users are generally cautious of vehicles entering into the lane and this may explain the slowing through this area.

In the eastbound direction, field observations confirmed that there are no bottlenecks through the study corridor during the AM Peak Period.

Existing AM peak-period bottlenecks and queues are displayed in **Figure 4-7**.

4.6.2 Existing PM Peak Congestion Pattern

In the westbound direction the current bottleneck is in the area between Zanker Rd and McCarthy Blvd. This bottleneck forms at approximately 5:30 PM and dissipates by 6:30 PM. At its peak the queue from this bottleneck spills back to McCarthy Blvd.

In the eastbound direction, the initial bottleneck is located between the Great America On-ramp and the N. 1st Street Off-ramp. This bottleneck begins to form by 4:00 PM and does not dissipate until 7:00 PM. During the peak hour, the back of the resulting queue of this bottleneck reaches as far back as the Fair Oaks Ave Interchange.

For much of the PM peak period, the resulting queue from the initial bottleneck merges with the queue from the next bottleneck which is located between the N. 1st Street on-ramp and the Zanker Rd off-ramp. This bottleneck is fully developed by 4:30 PM and does not dissipate until 7:00 PM. The resulting queue from this bottleneck extends beyond the Great America Interchange and merges with the previous bottleneck.

The next bottleneck is located at the ramp meters at the EB SR-237 to NB-I-880 Connector. This bottleneck is governed by the metering rates at the stop line. This queue develops at approximately 3:00 PM does not extend beyond the McCarthy Blvd interchange.

The westbound express/HOV lanes are generally uncongested during the PM Peak Period.

The speeds in the eastbound HOV lane are faster than the speeds in the mixed flow lanes from Mathilda Ave to Zanker Rd. At Zanker Rd the express/HOV lane separates from the mixed flow lanes and the speeds increase. There is some slowing for the area just before the start of the express lane at Zanker Rd. This could be a result of increased weaving prior to the express lane barrier start.

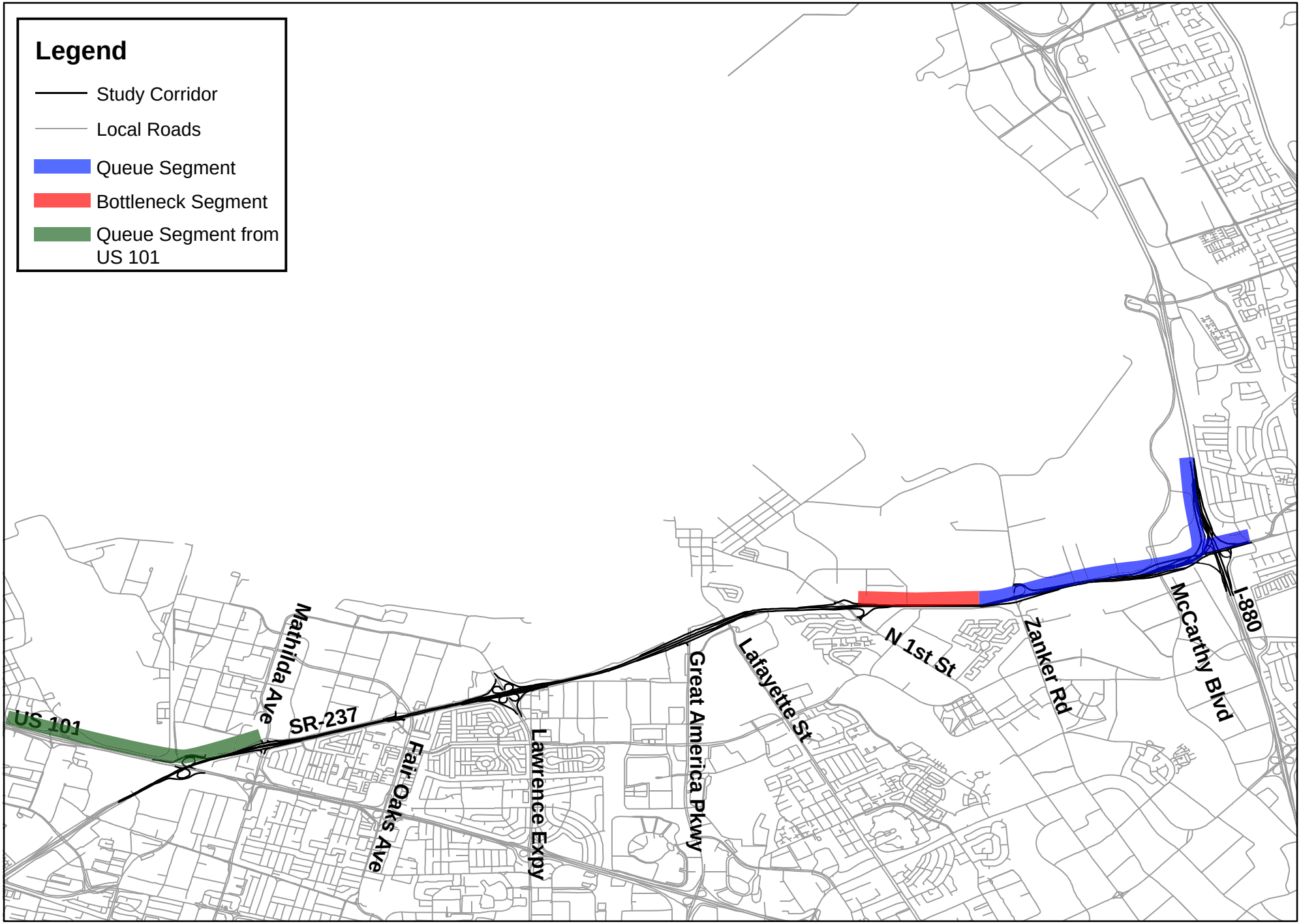
In the northbound direction along I-880, the bottleneck is located between the Mission Blvd on-ramp and the Fremont Blvd off-ramp. This bottleneck forms by 5:00 PM and does not dissipate until 7 PM. During the peak hour, the back of the resulting queue reaches beyond the SR-237 interchange. This queue sometimes reaches the eastbound to northbound express lane connector. When this occurs, the express lane tolling operations switches to "HOV Only" operation until the queue clears and average speeds in the express lane increases to 45 MPH.

Existing PM peak-period bottlenecks and queues are displayed in **Figure 4-8**.

4.7 Volume Balancing and Demand

A volume balancing and demand estimating exercise was conducted to adjust the volumes entering and exiting the study network. A brief summary of the volume balancing and demand estimating procedure is listed below. The existing AM peak and PM peak demands to be used in the VISSIM operational model are shown in **Appendix D**.

- Conduct a quality check of count data gathered in March and April 2013 to filter out "bad" counts. Caltrans Census was used as a point of comparison to filter the counts as well as to supplement at locations where the March/April count was deemed unreliable.
- Identify locations that was counted in-queue (and therefore does not represent demand) or that was counted under good flowing conditions and represent the true demand. If any location was in-queue, then the extent of the queue was identified to estimate the stored demand. The demand was estimated based on the observed count, its exact location and the extent of the queuing near the count location.
- Demand volumes were then balanced over the five-hour peak period at on and off-ramps.

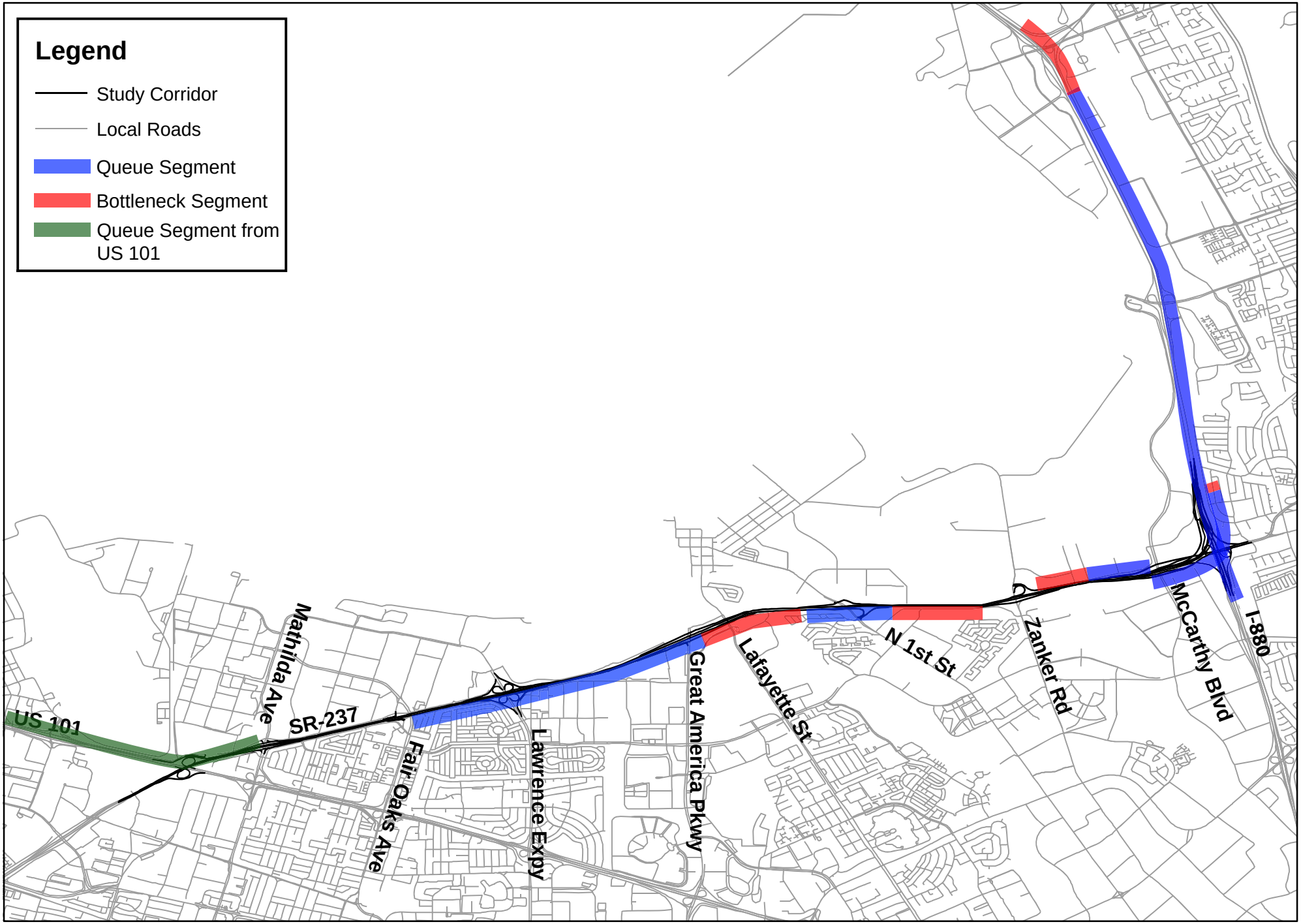


DKS

NO SCALE

Figure 4-7

SR-237 Congestion Map AM Peak Period



DKS

NO SCALE

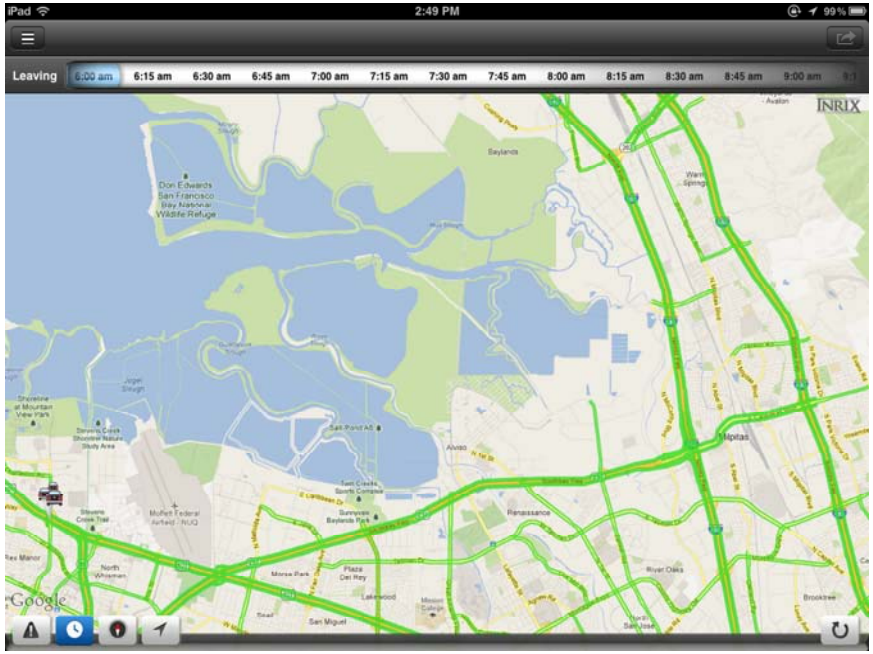
Figure 4-8

SR-237 Congestion Map PM Peak Period

SR 237 Travel Time Runs

(Phase II of the SR 237 Existing Conditions Report -

Appendix C – INRIX Congestion Maps)



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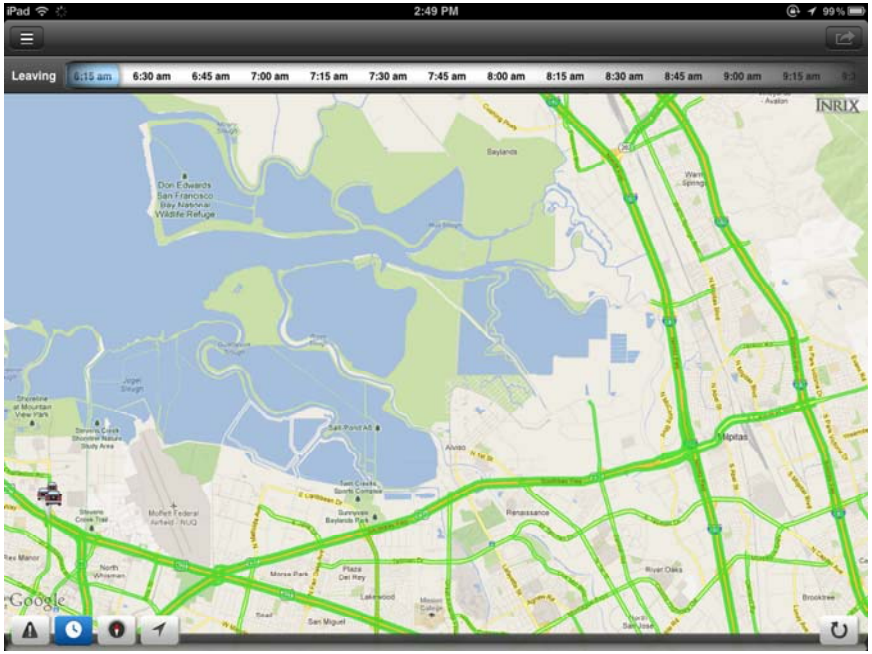

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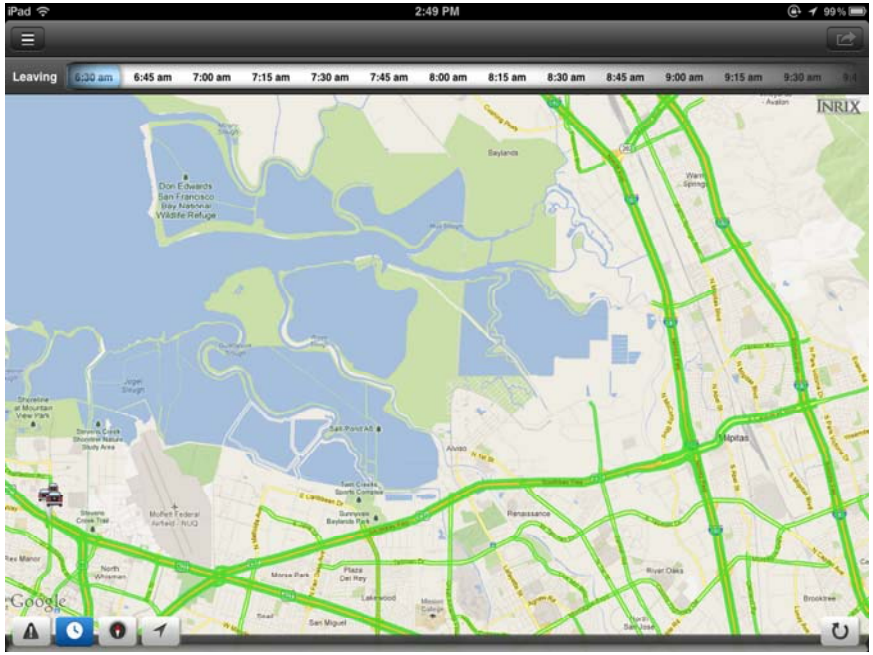

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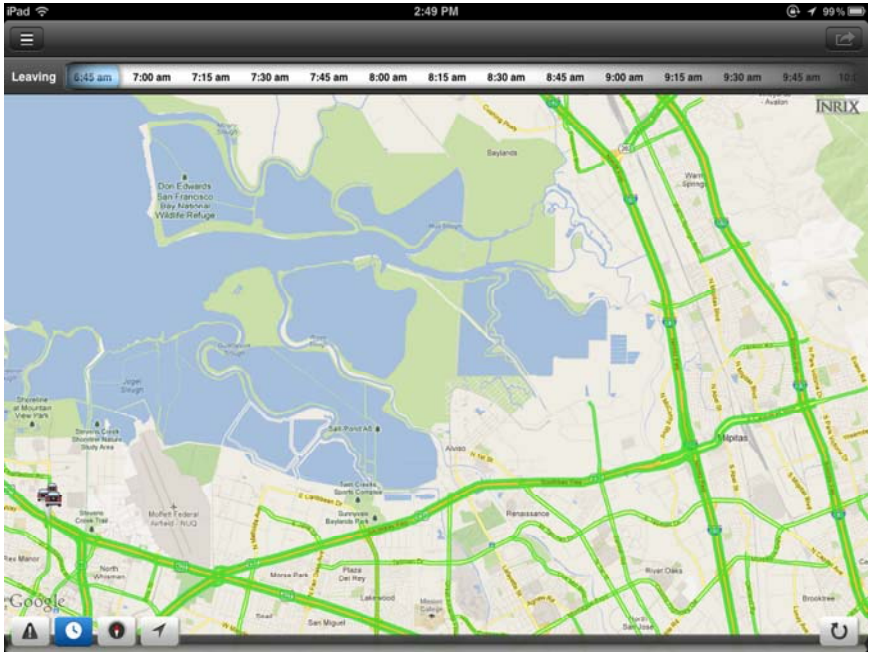

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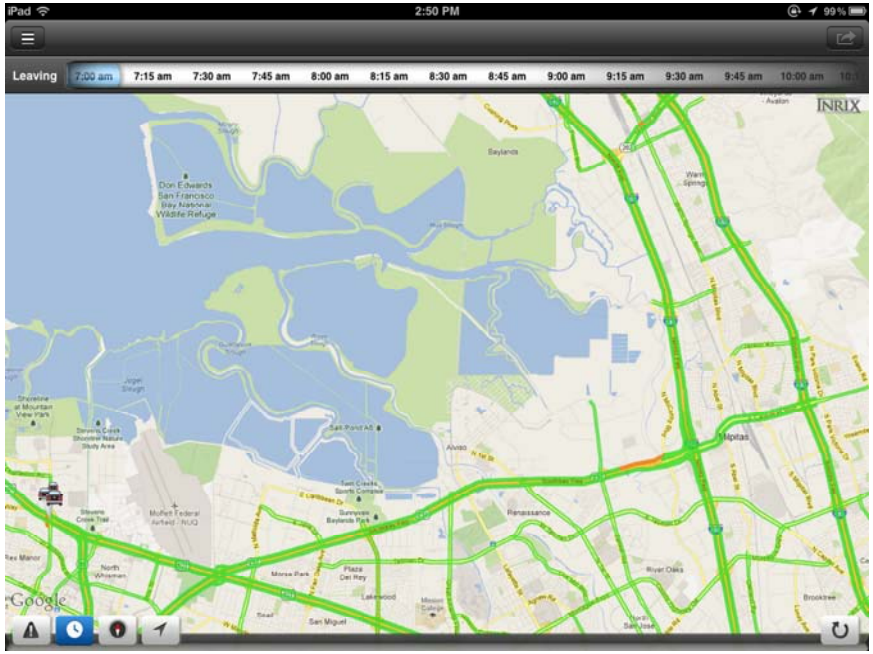

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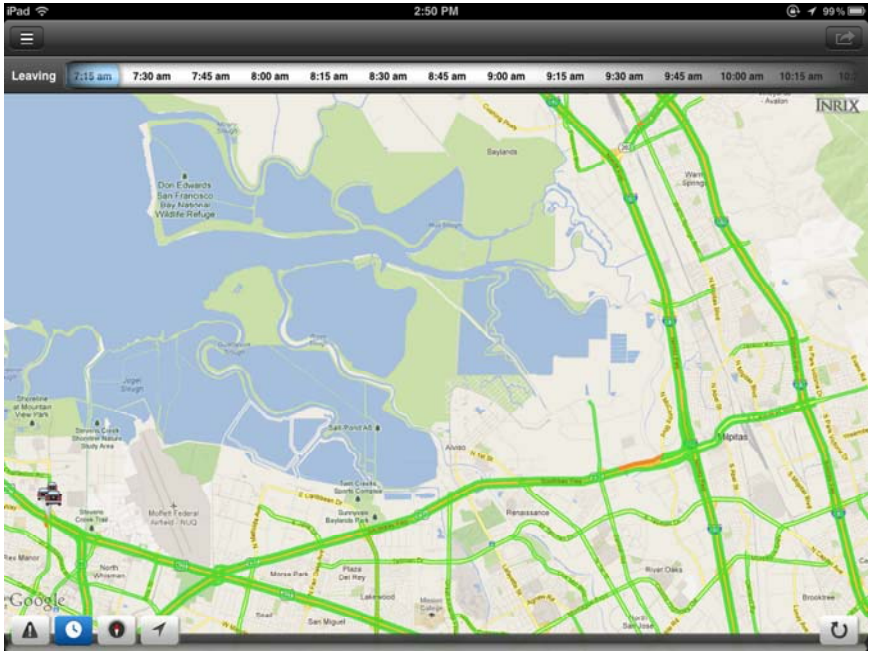

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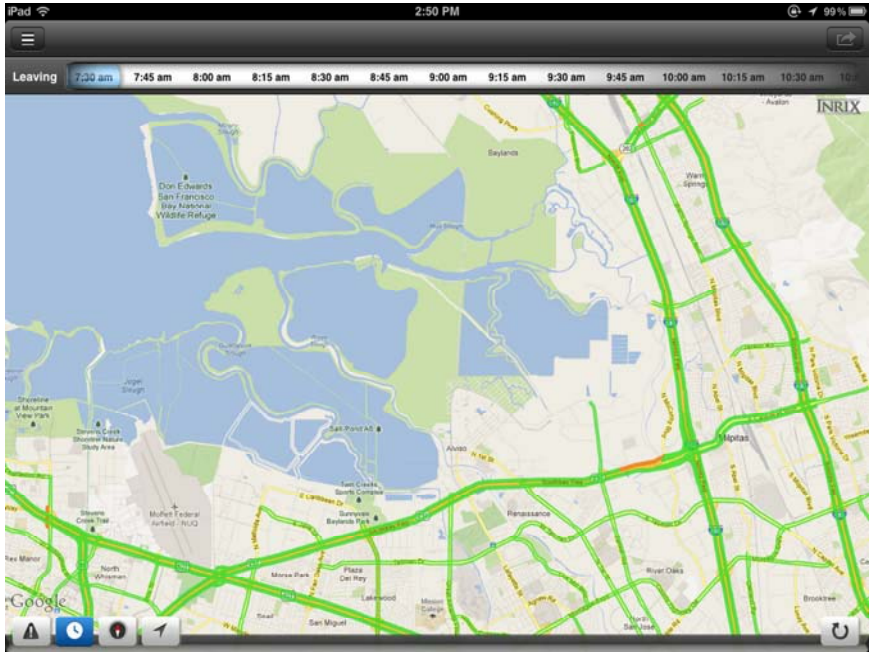

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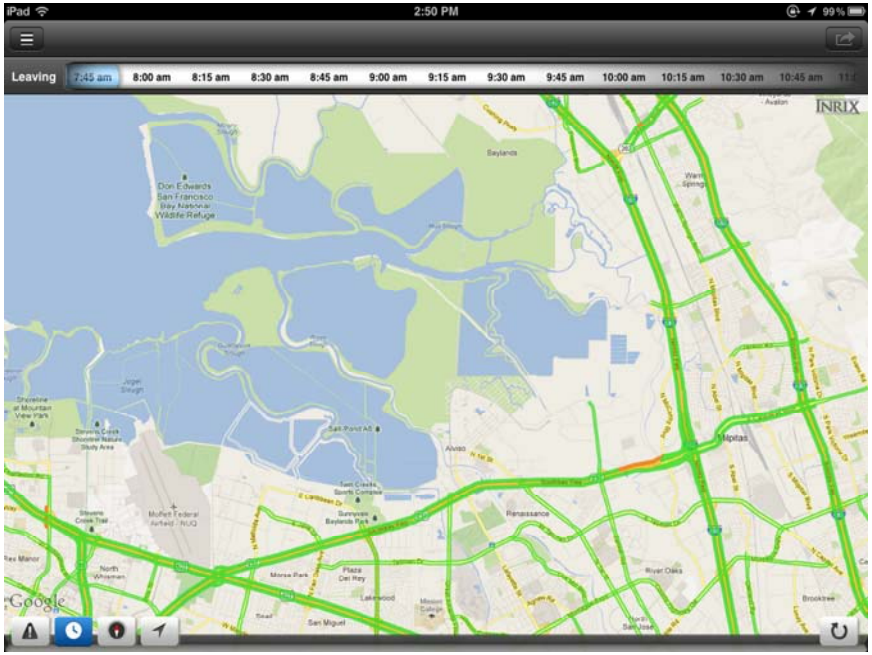

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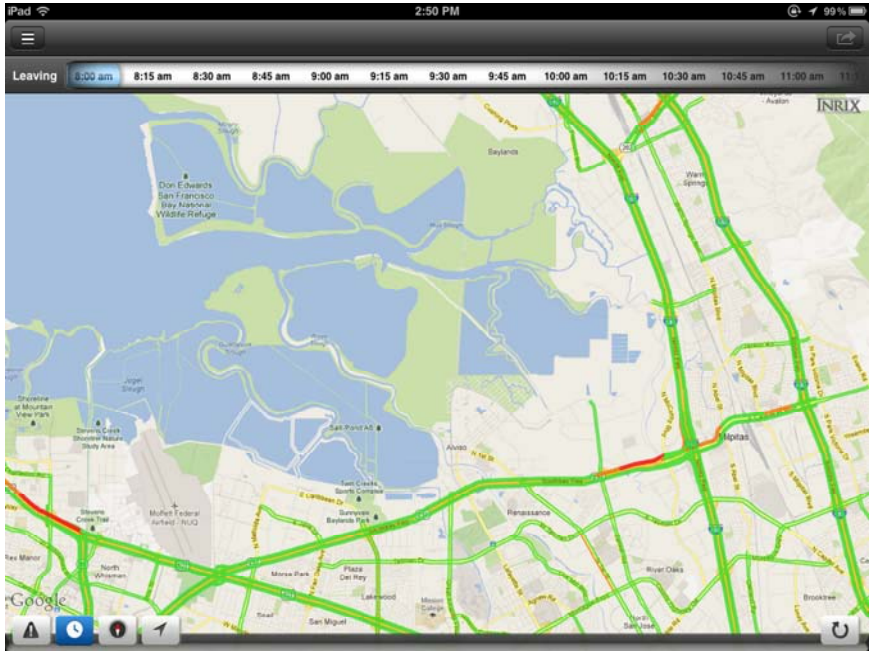

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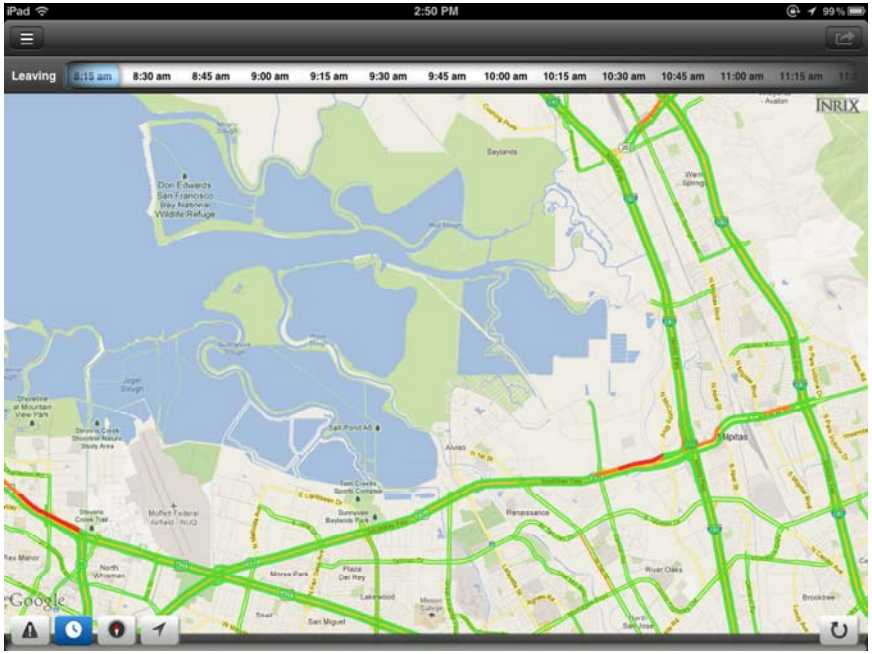

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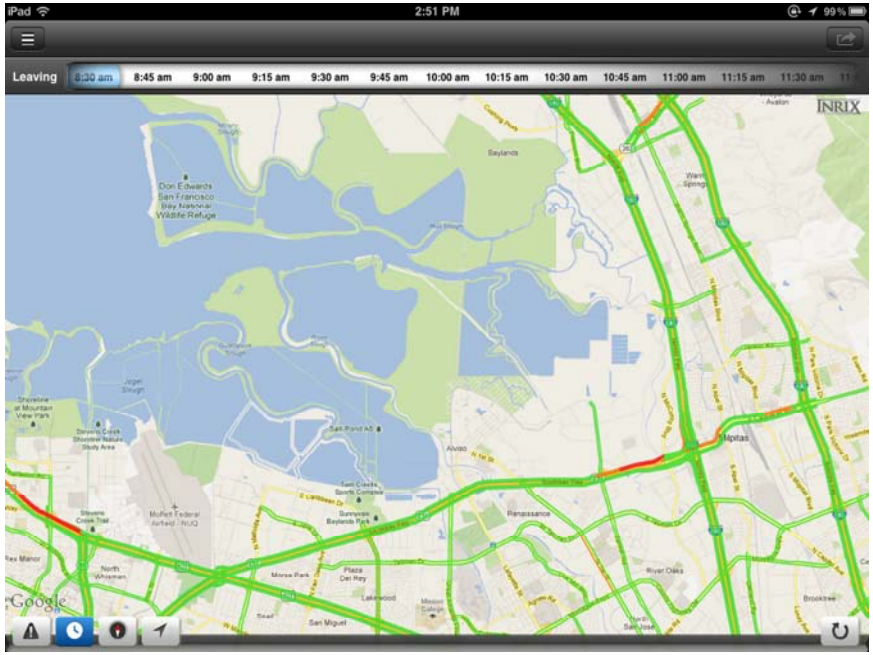

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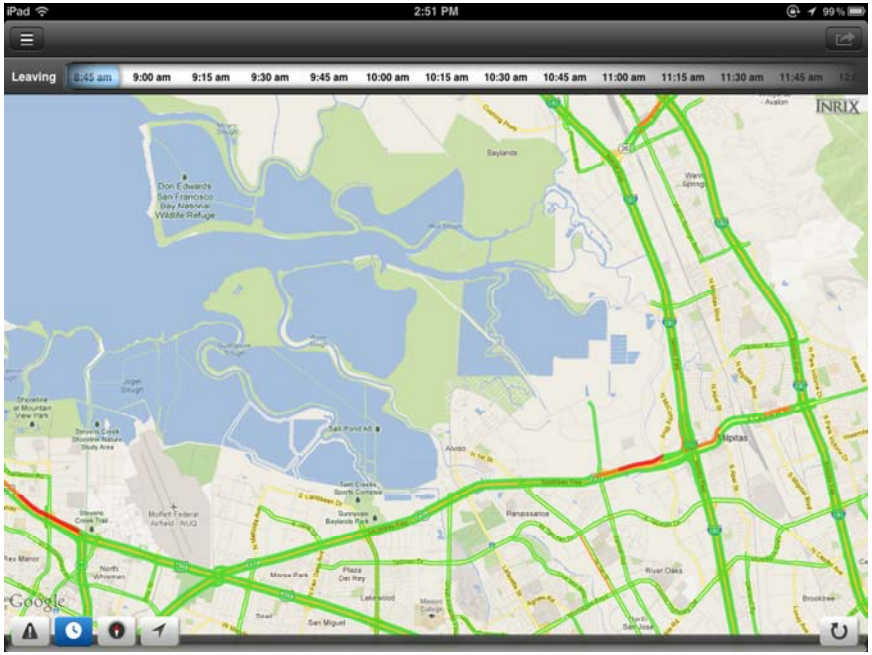

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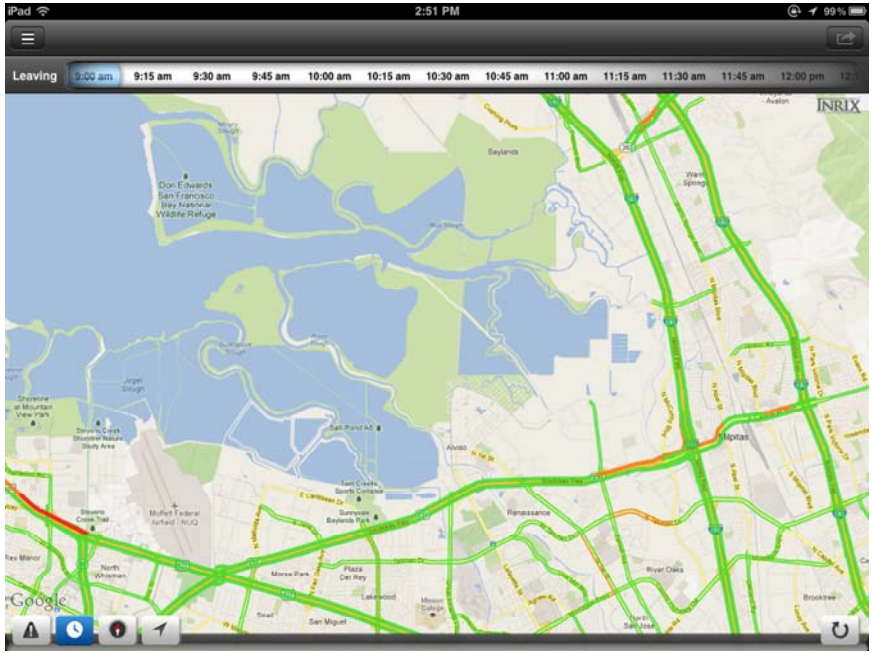

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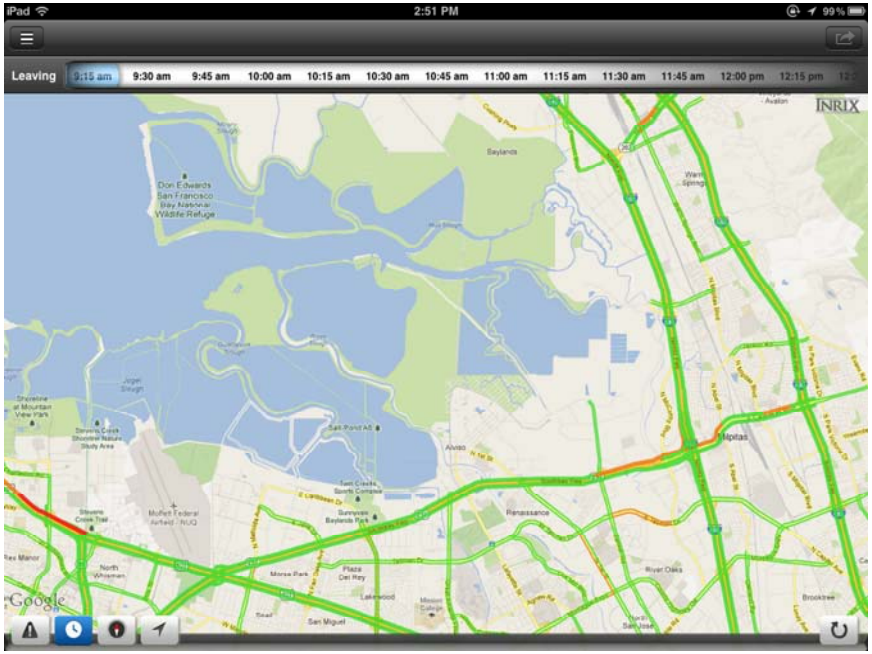

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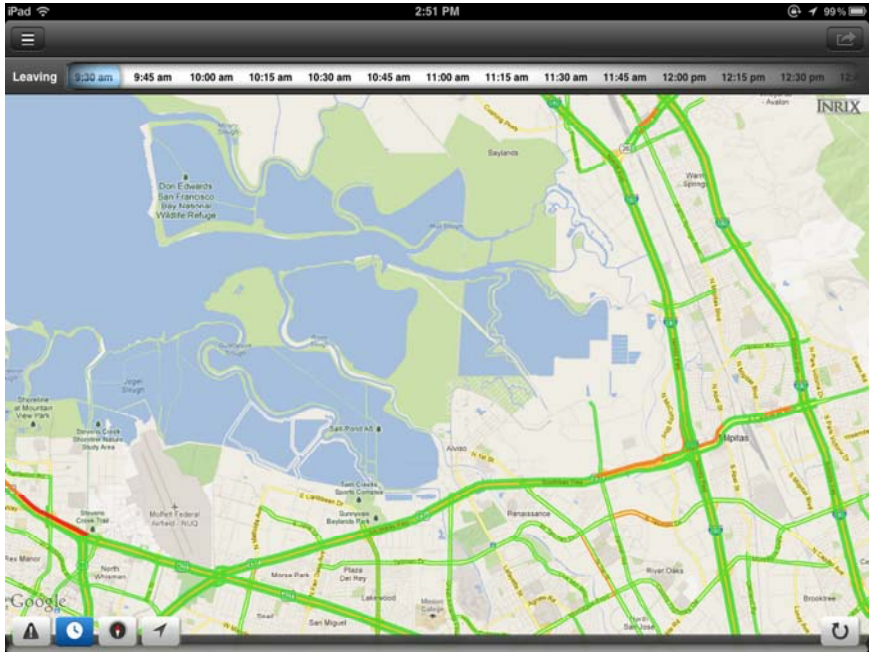

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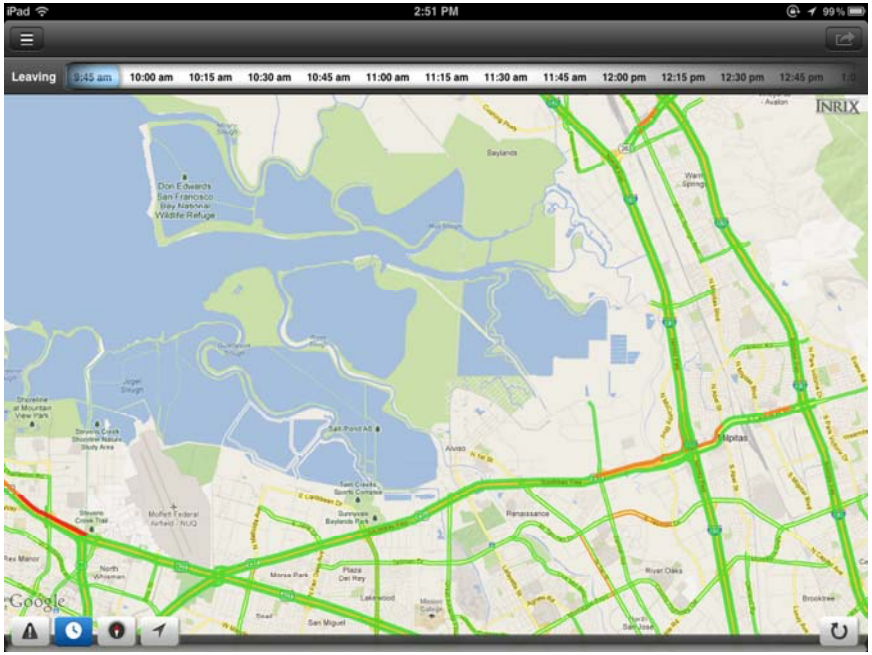

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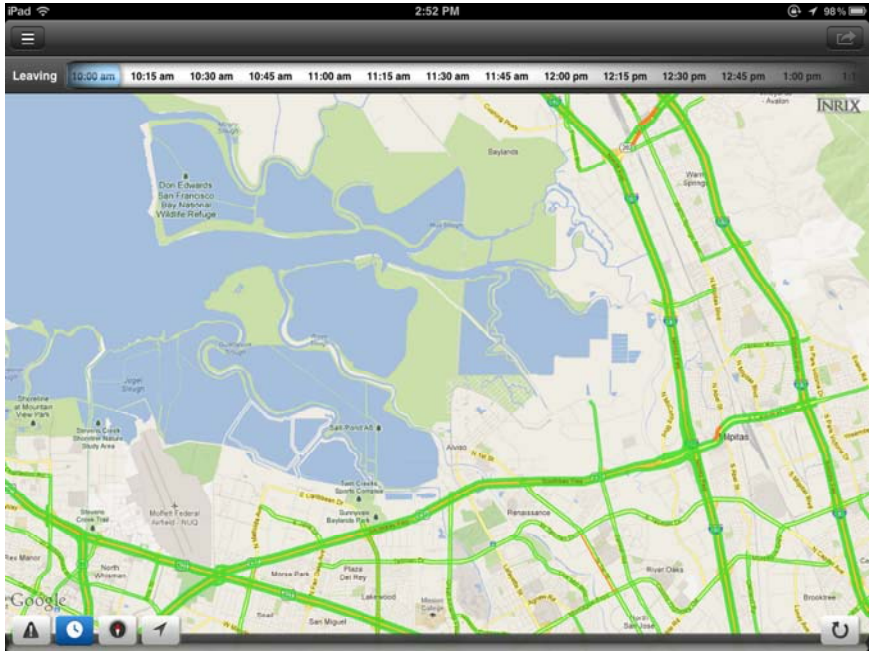

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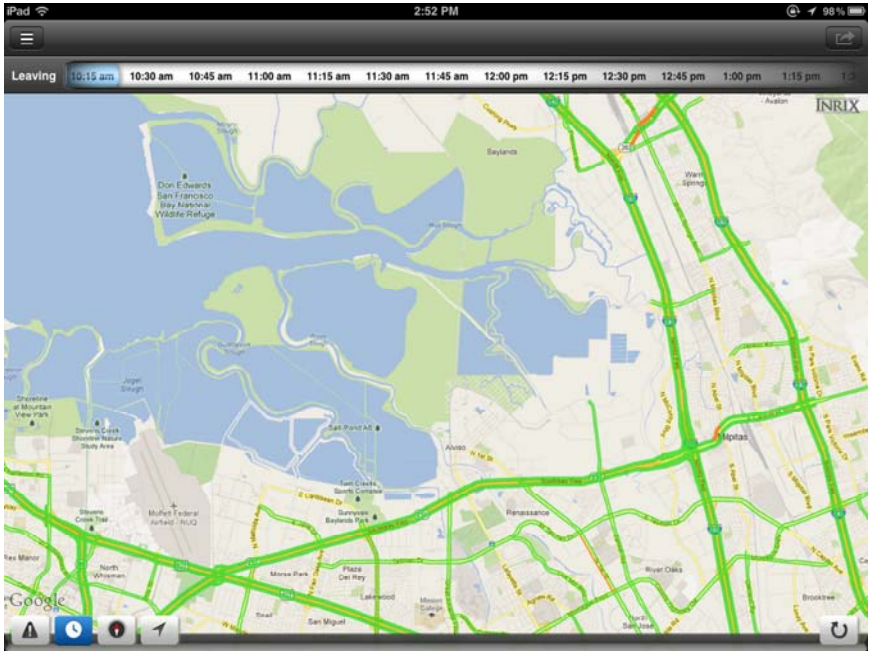

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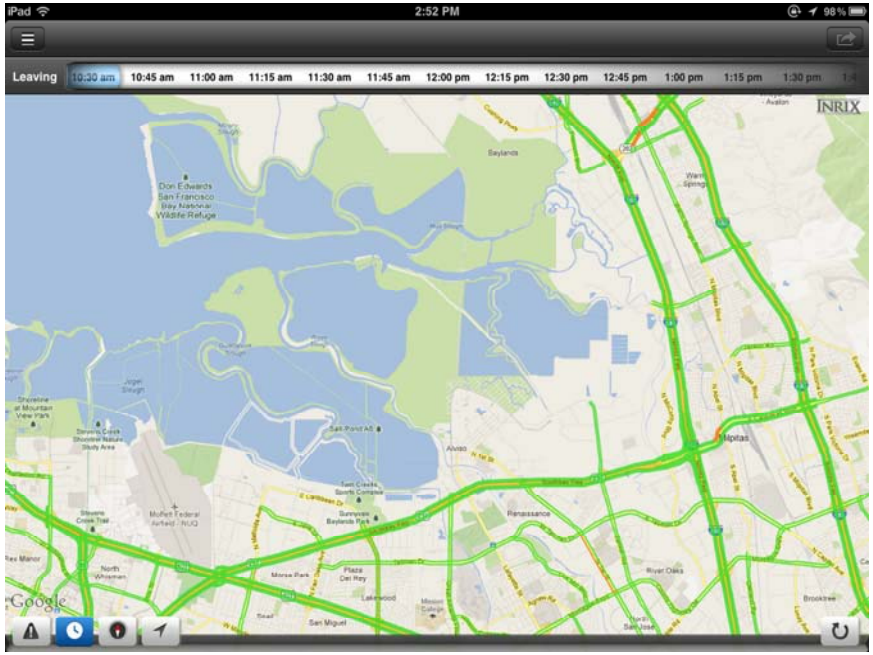

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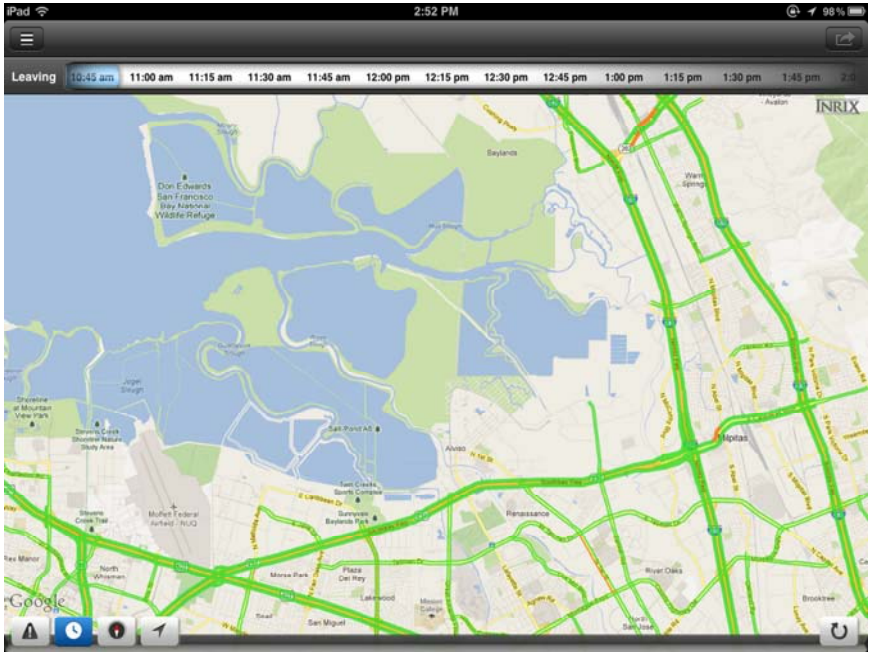

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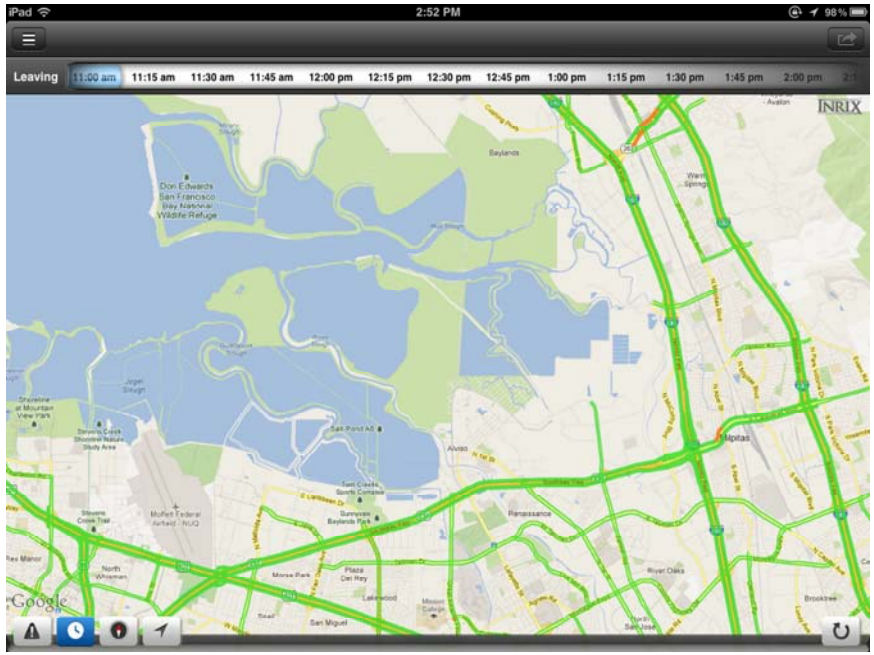

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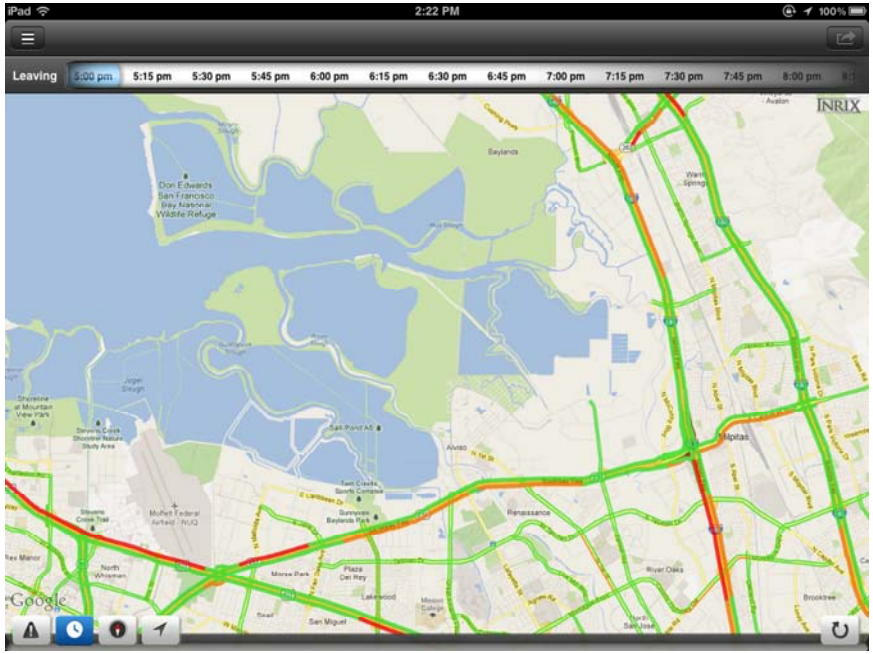

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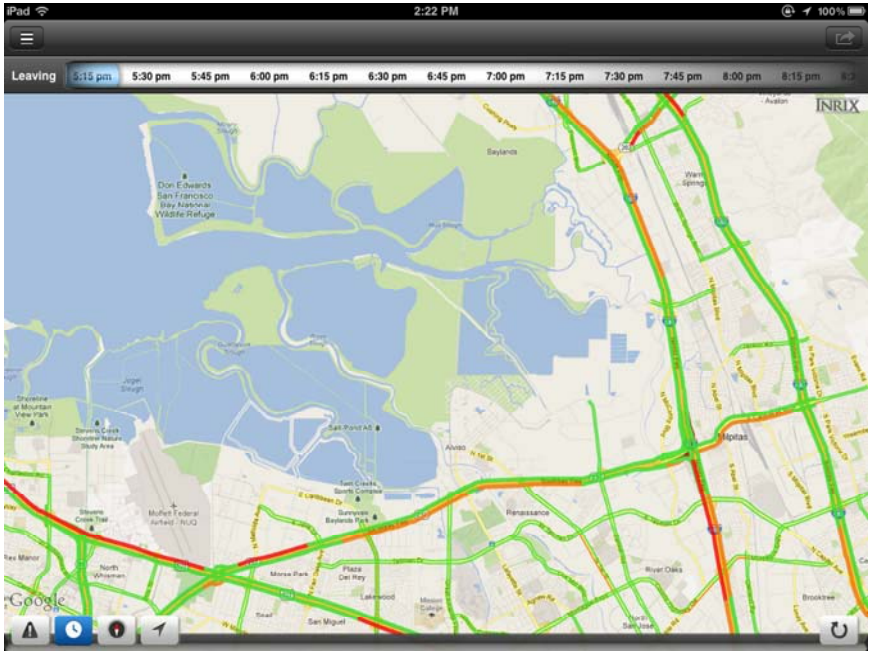

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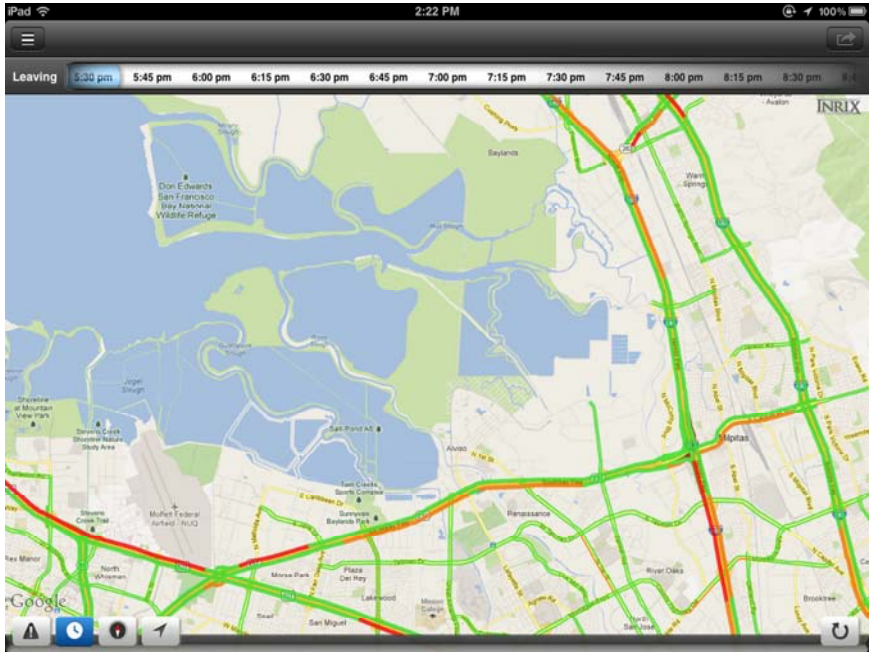

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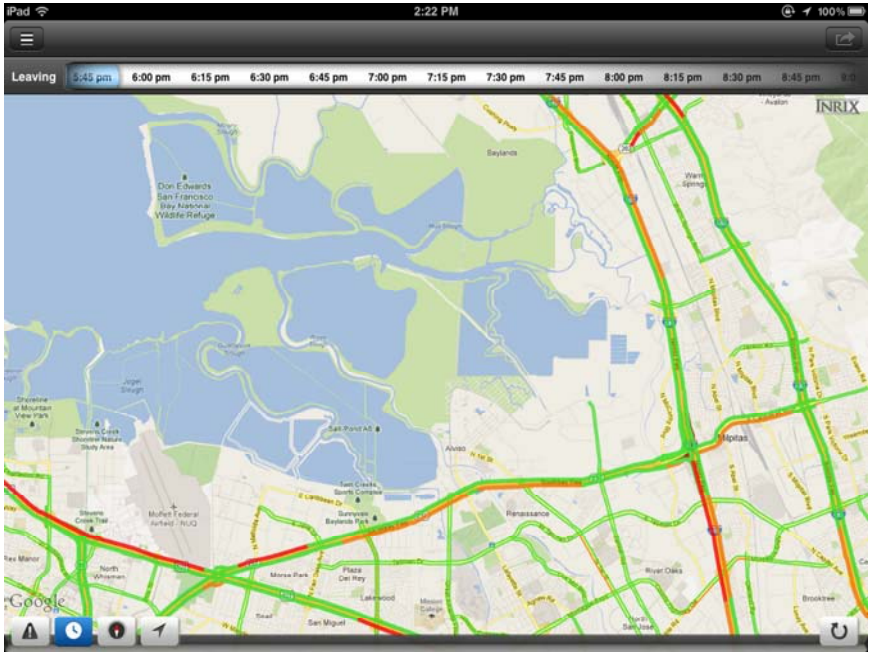

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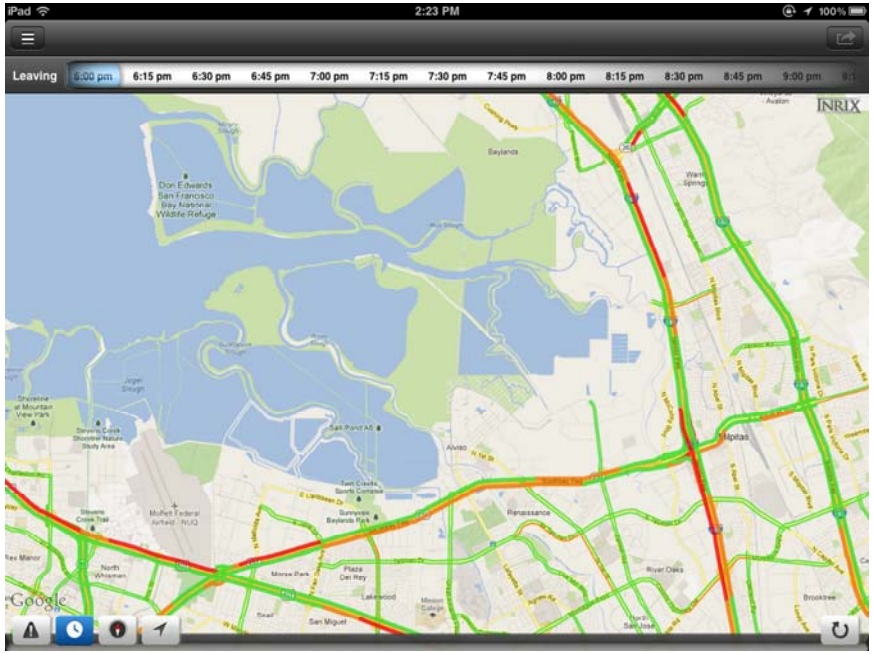

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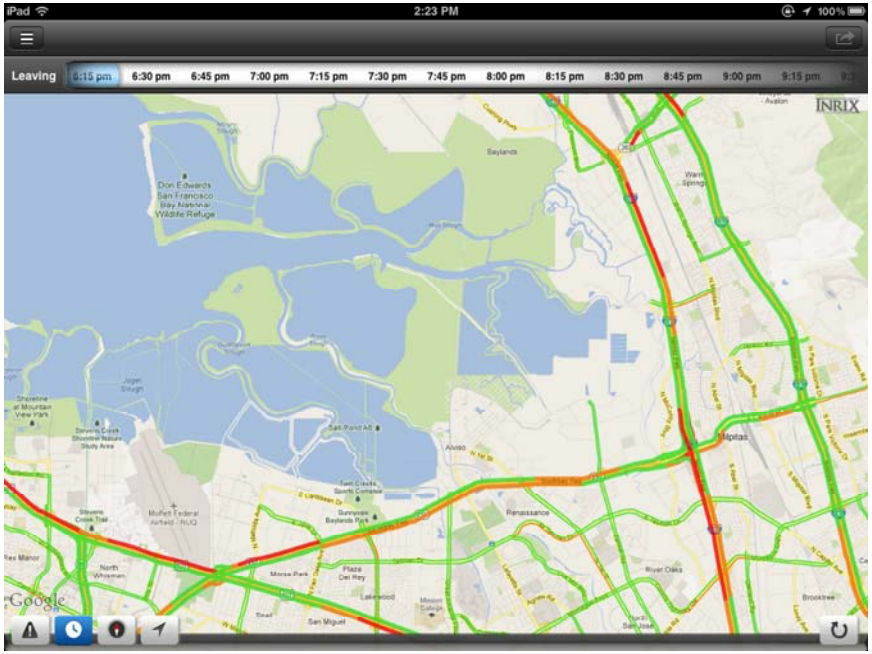

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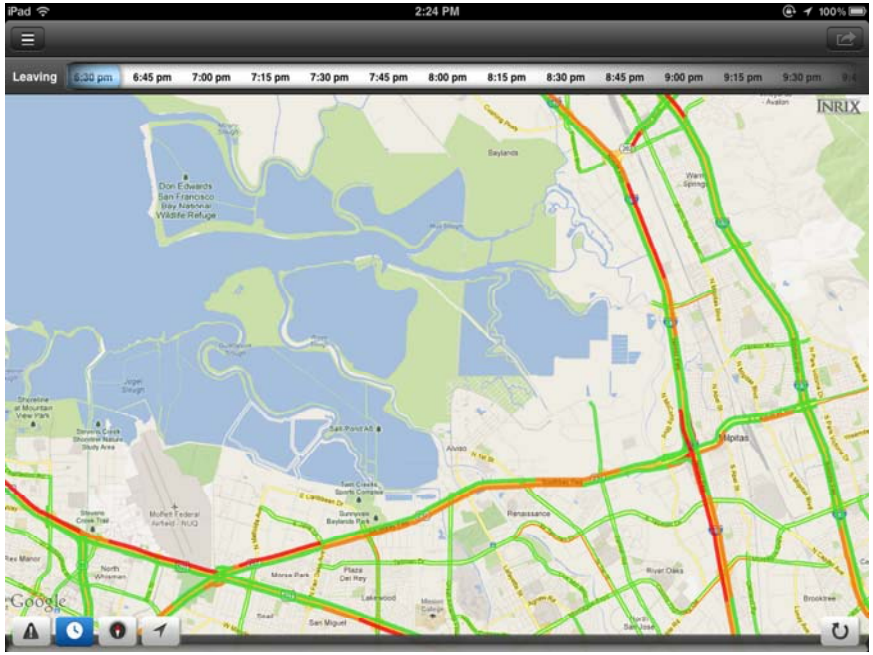

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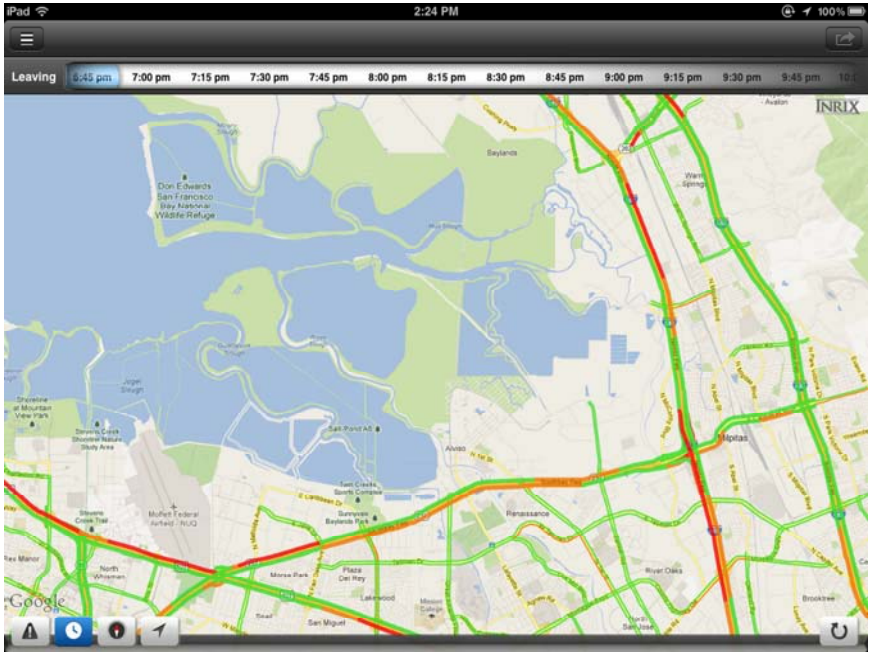

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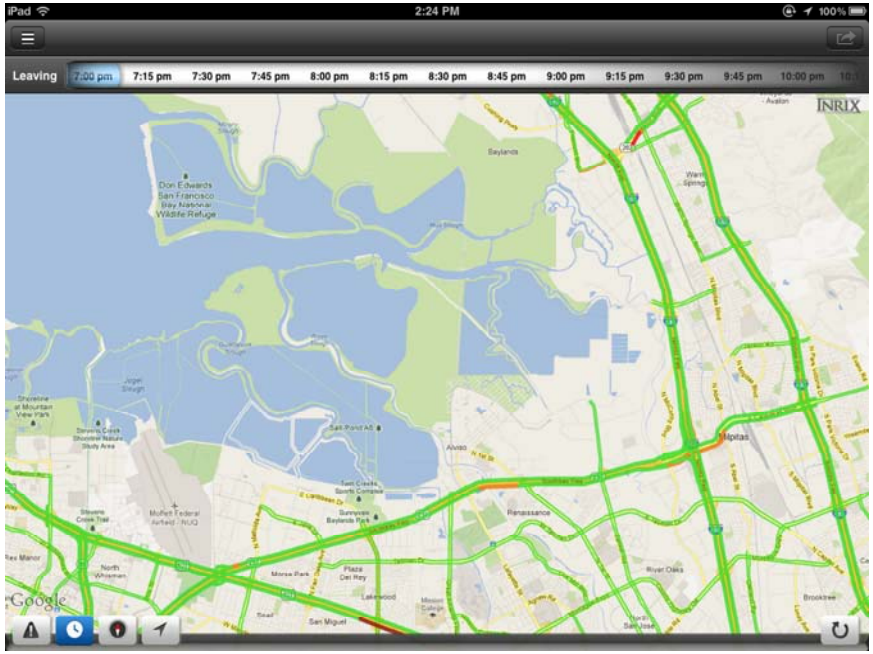

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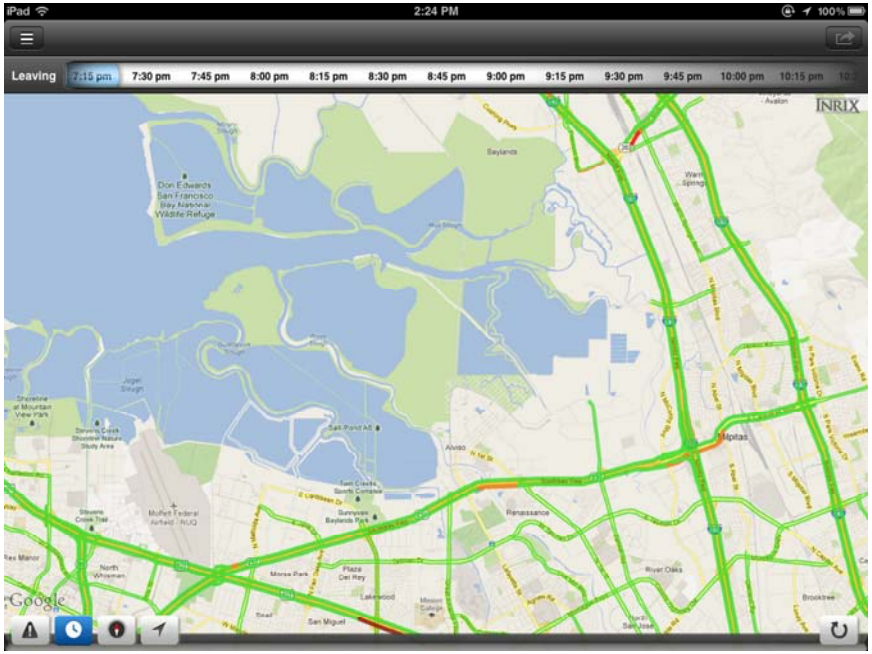

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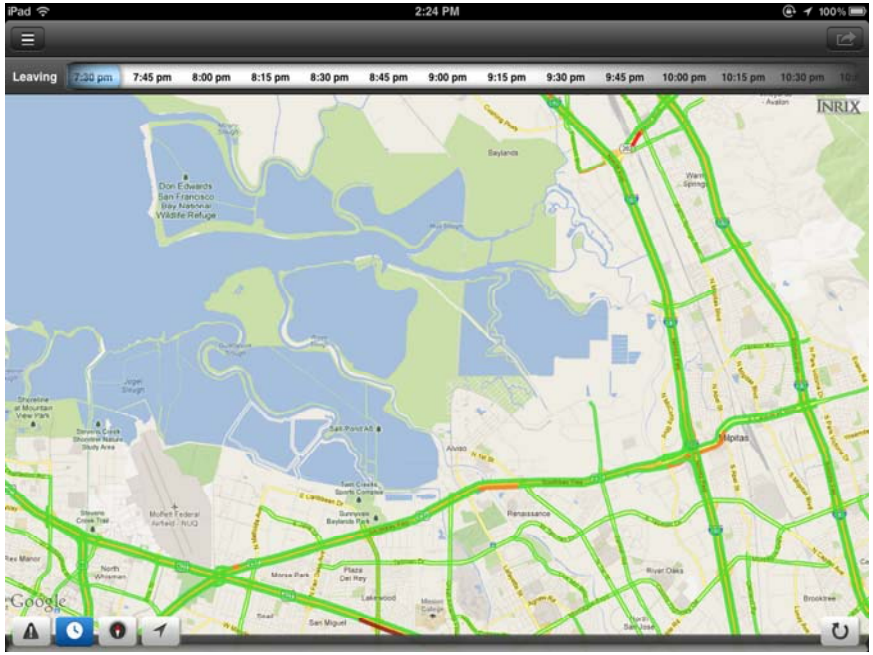

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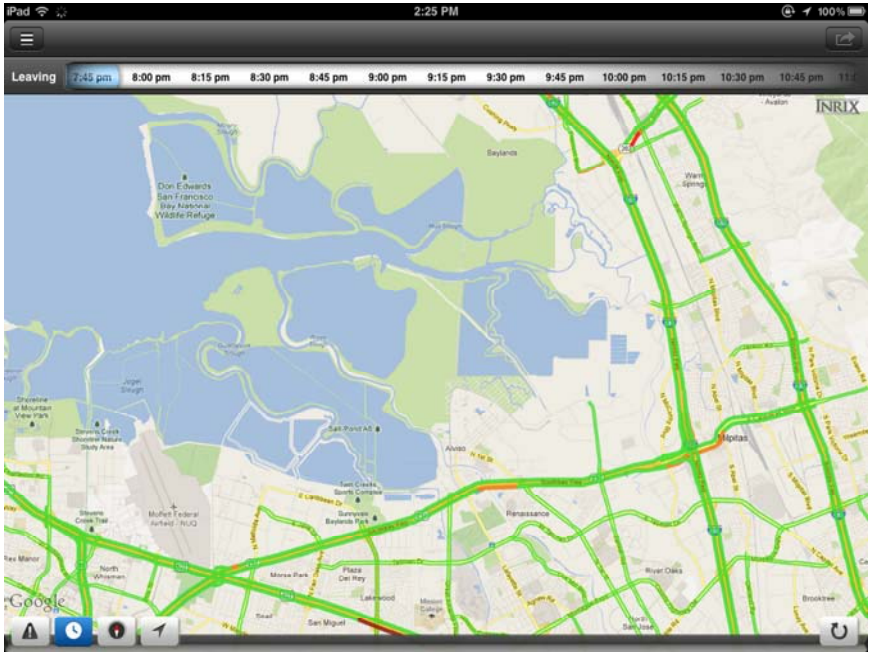

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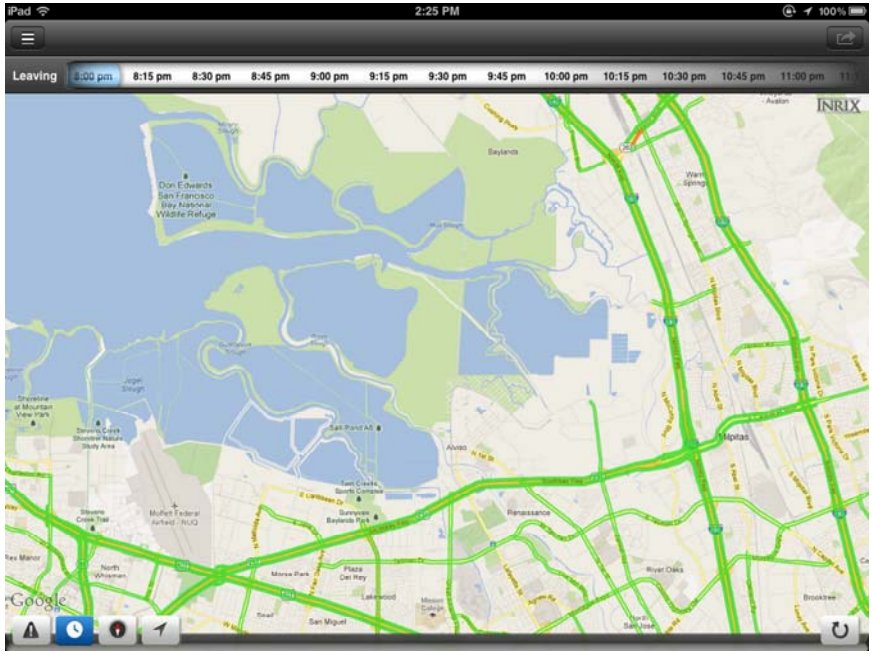

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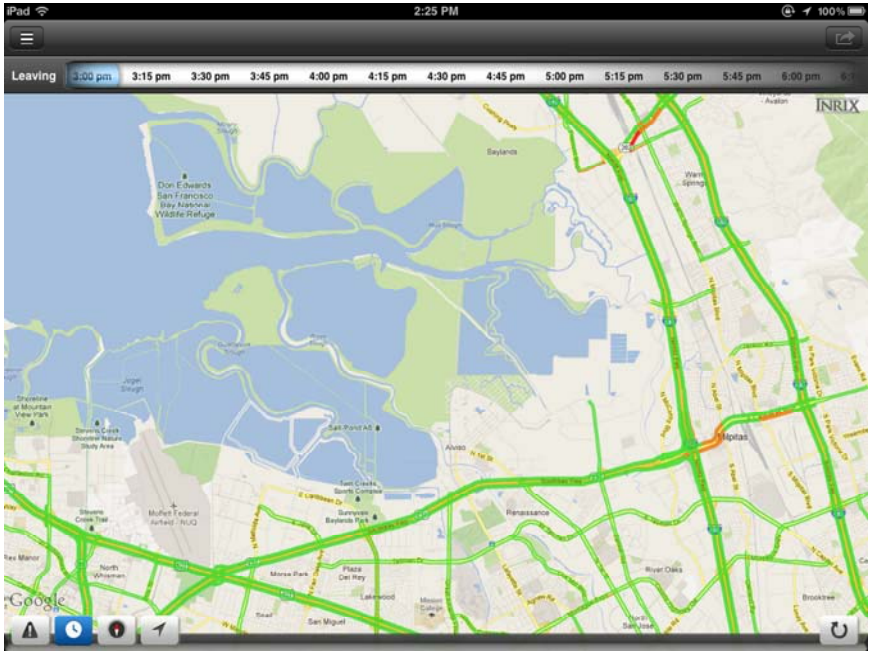

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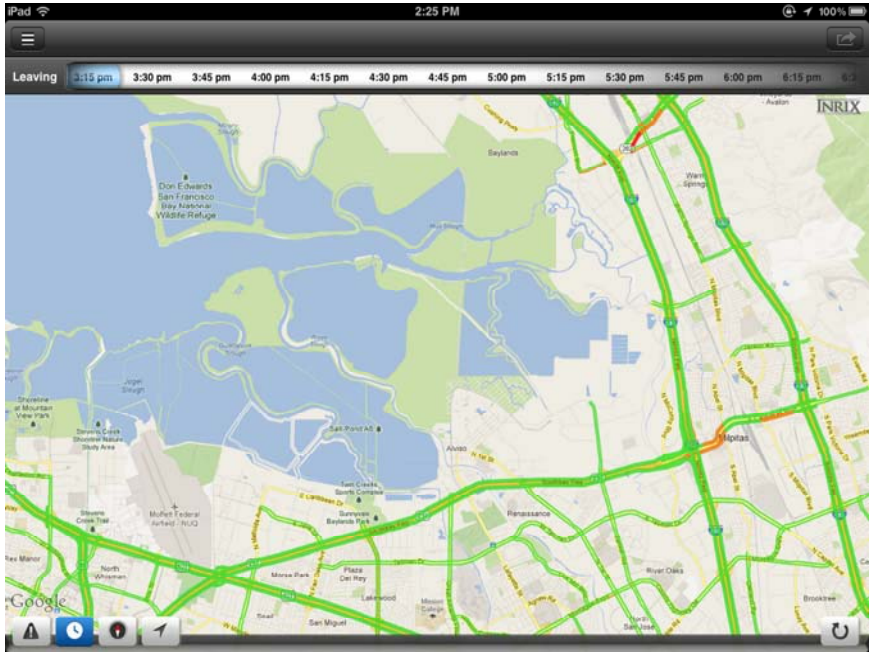

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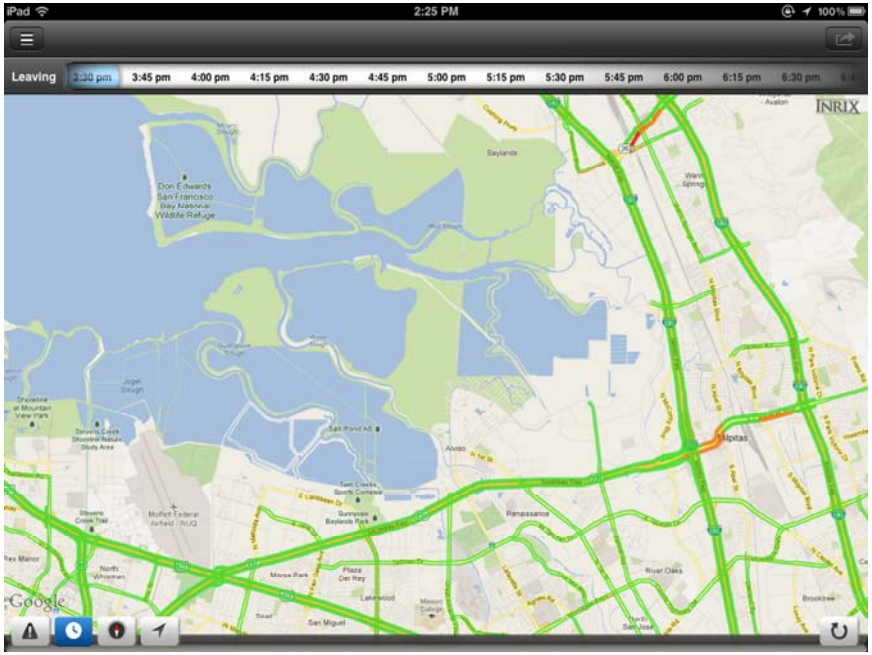

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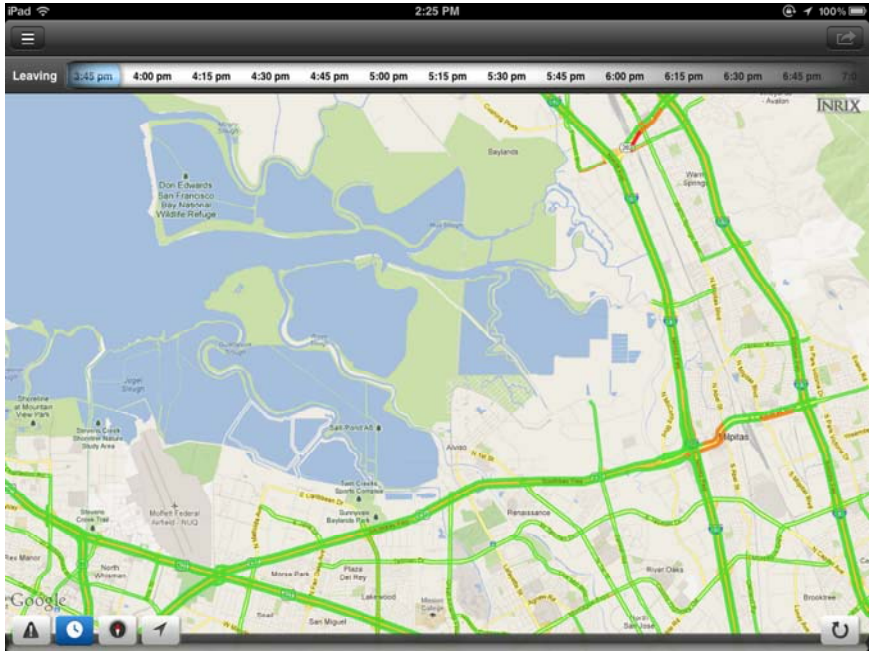

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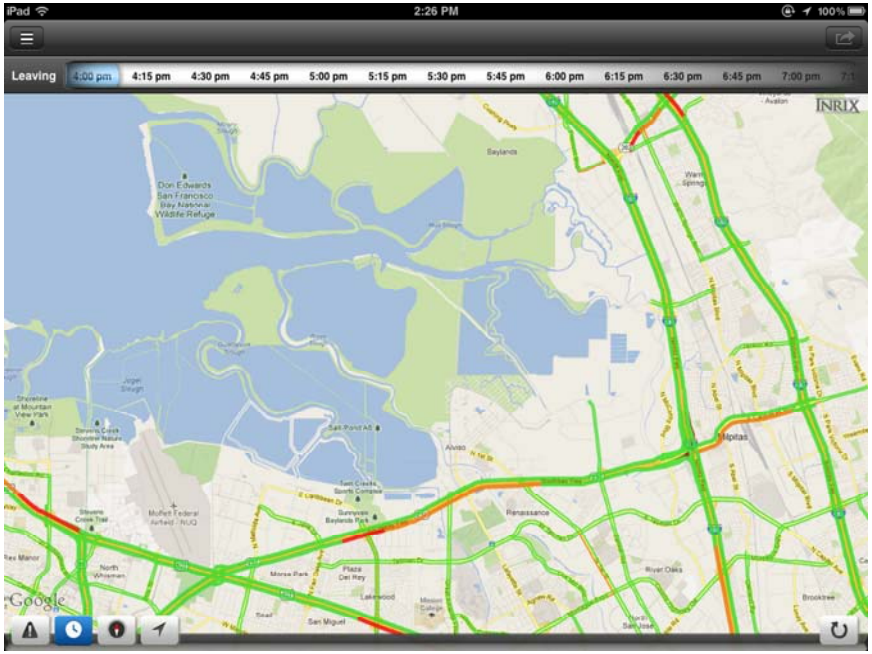

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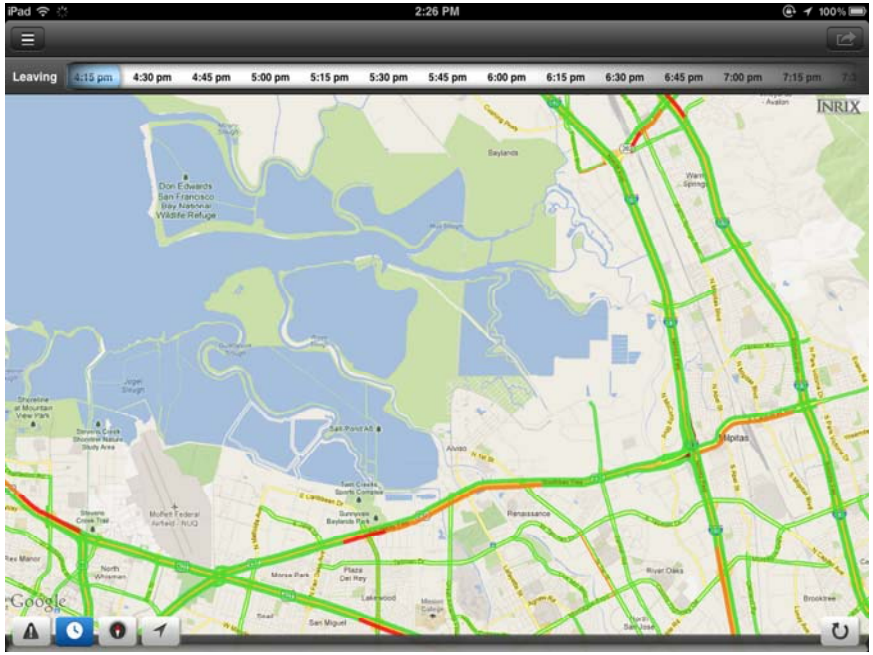

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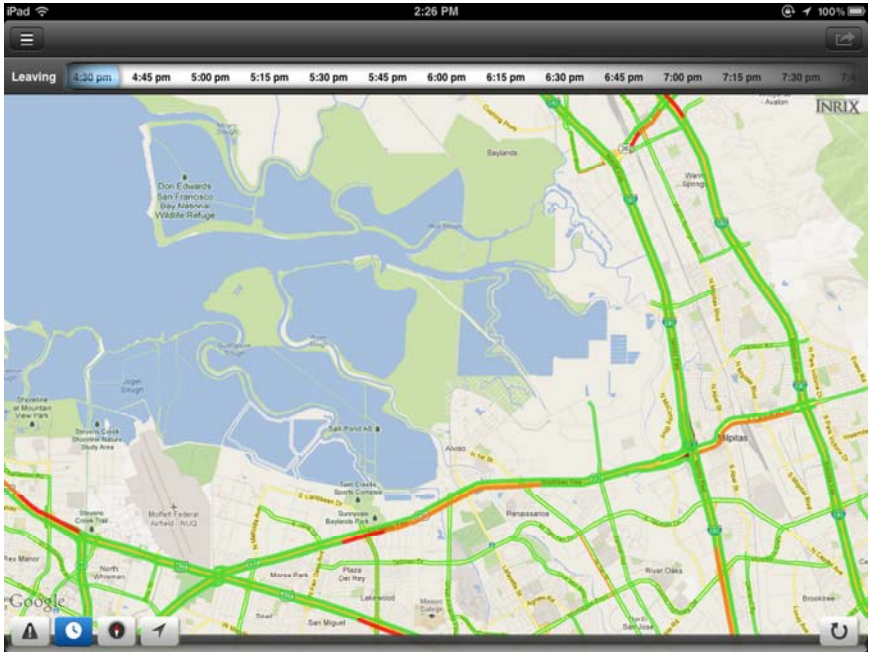

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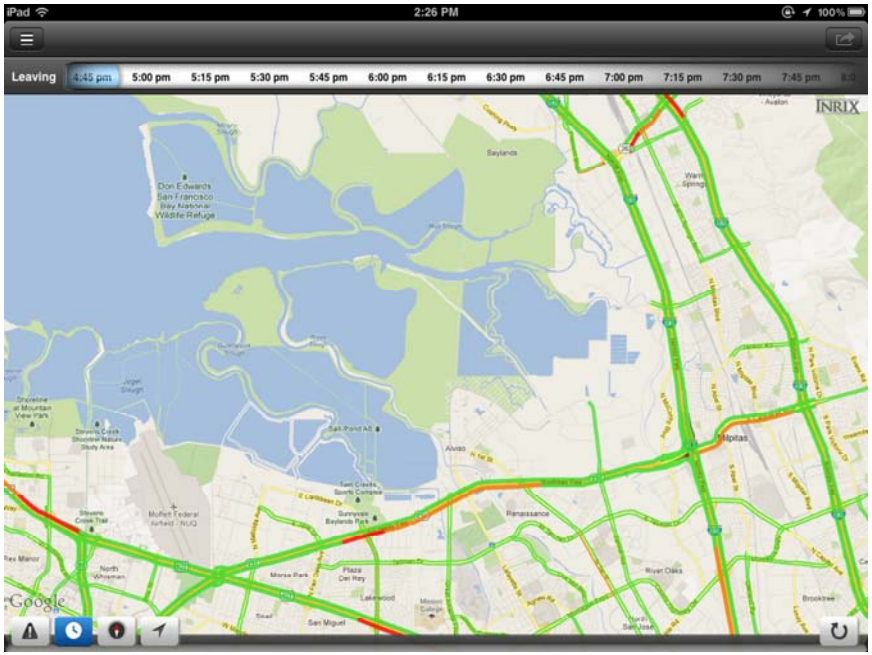
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INRIX
Don Edwards San Francisco Bay National Wildlife Refuge
Baylands
Milpitas
Renaissance
Google

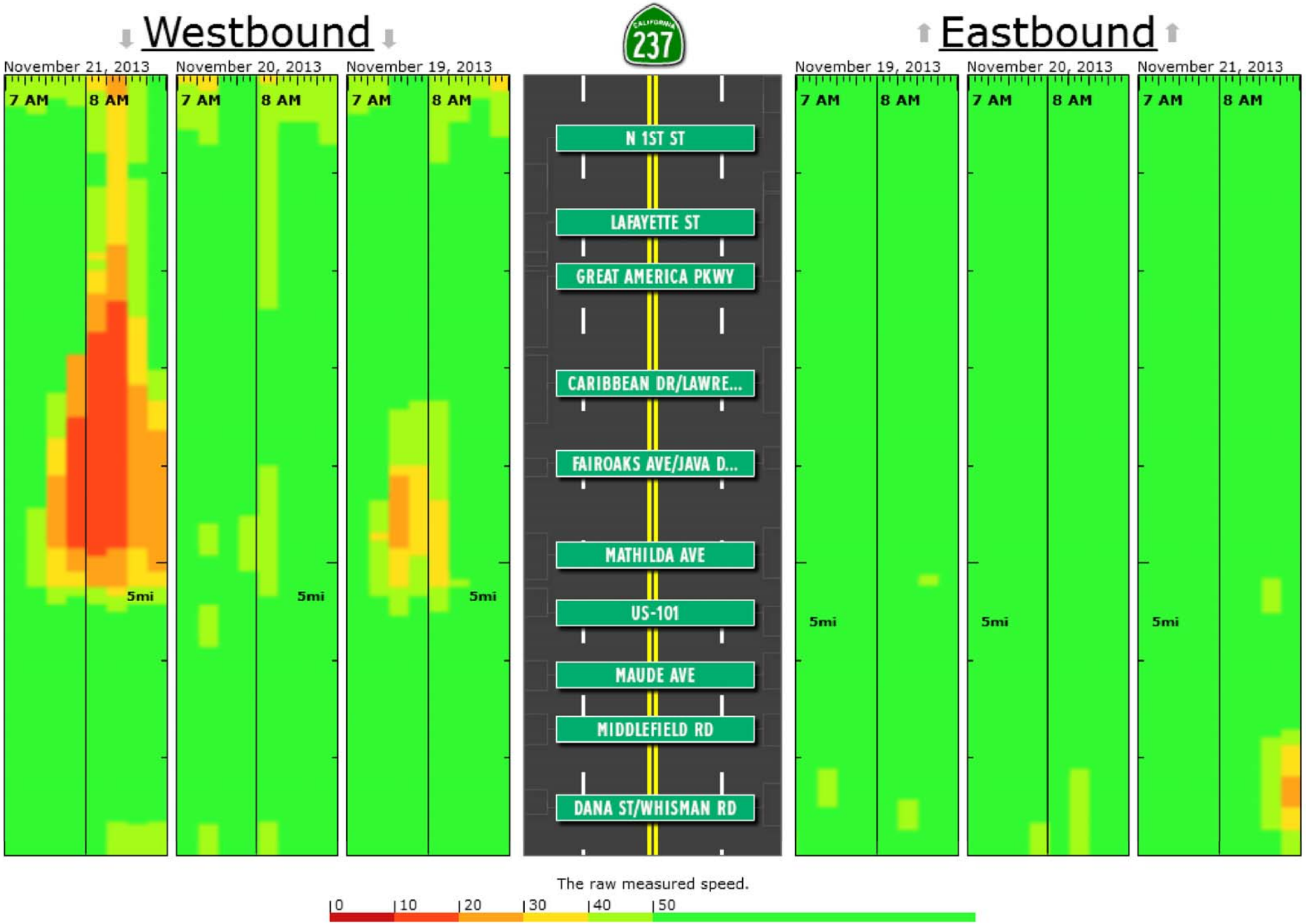
System_4.45P

SR 237 Travel Time Runs

(INRIX data in November 2013)

Speed on CA-237 between N 1st St and CA-85

Averaged by 15 minutes for November 19, 2013, for November 20, 2013, and for November 21, 2013

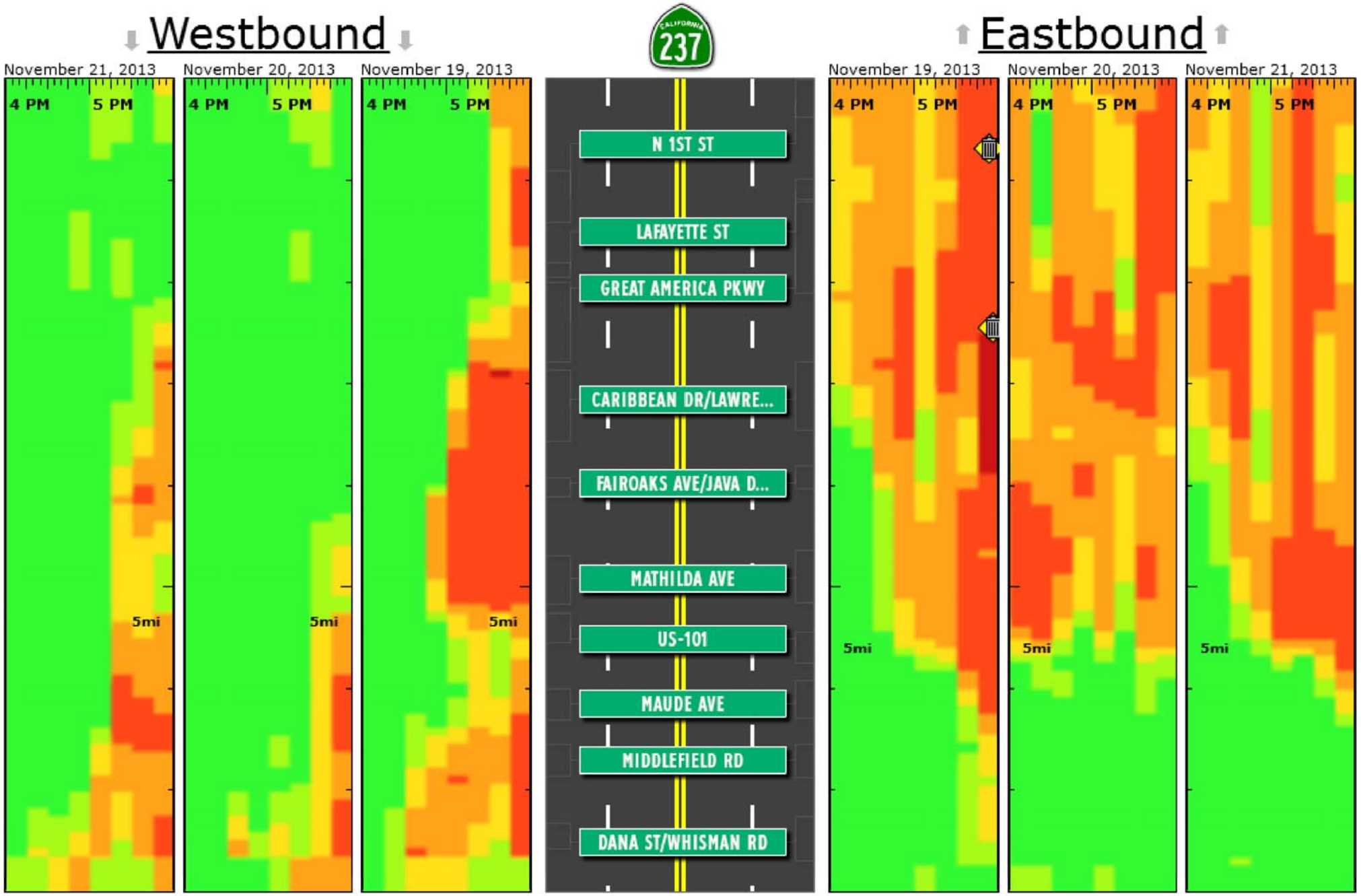


The raw measured speed.

0 | 10 | 20 | 30 | 40 | 50

Speed on CA-237 between N 1st St and CA-85

Averaged by 15 minutes for November 19, 2013, for November 20, 2013, and for November 21, 2013



The raw measured speed.

0 | 10 | 20 | 30 | 40 | 50

APPENDIX D – MATHILDA AVENUE TRAVEL TIME RUN INFORMATION

Mathilda Avenue

Northbound AM

Run 1

Mathilda Avenue

Northbound AM

Run 2

Mathilda Avenue

Southbound AM

Run 1

Mathilda Avenue

Southbound AM

Run 2

Mathilda Avenue

Northbound PM

Run 1

Mathilda Avenue

Northbound PM

Run 2

Mathilda Avenue

Northbound PM

Run 3

Mathilda Avenue

Northbound PM

Run 4

Mathilda Avenue

Southbound PM

Run 1

Mathilda Avenue

Southbound PM

Run 2

Mathilda Avenue

Southbound PM

Run 3

Mathilda Avenue

Southbound PM

Run 4

APPENDIX E – EXISTING INTERSECTION CALCULATION SHEETS

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	52	48	93.1%	40.0	8.4	D
	Through	890	859	96.5%	13.7	0.6	B
	Right Turn	61	62	101.0%	12.1	2.6	B
	Subtotal	1,003	969	96.6%	14.9	0.5	B
SB	Left Turn	7	6	88.6%	48.5	16.6	D
	Through	330	335	101.4%	13.4	1.2	B
	Right Turn	59	60	101.4%	2.5	0.7	A
	Subtotal	396	401	101.1%	12.3	1.2	B
EB	Left Turn	14	12	88.6%	45.2	8.5	D
	Through	6	7	115.0%	22.8	7.2	C
	Right Turn	17	17	98.2%	8.6	3.5	A
	Subtotal	37	36	97.3%	23.8	3.6	C
WB	Left Turn	19	19	98.9%	42.1	7.0	D
	Through	8	10	118.8%	23.7	11.4	C
	Right Turn	2	3	135.0%	8.4	5.8	A
	Subtotal	29	31	106.9%	33.3	6.8	C
Total		1,465	1,436	98.0%	14.8	0.5	B

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	619	595	96.1%	38.7	6.9	D
	Through	989	947	95.7%	10.5	2.4	B
	Right Turn						
	Subtotal	1,608	1,542	95.9%	21.4	3.7	C
SB	Left Turn	1	0	10.0%	1.1	3.4	A
	Through	265	261	98.6%	17.8	1.4	B
	Right Turn	100	108	107.6%	7.2	1.4	A
	Subtotal	366	369	100.8%	14.7	1.0	B
EB	Left Turn	14	14	100.7%	39.9	10.0	D
	Through						
	Right Turn	37	39	104.3%	40.5	5.2	D
	Subtotal	51	53	103.3%	40.4	6.3	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,025	1,963	96.9%	20.6	3.1	C

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **AM Peak Hour**

Intersection 3 **Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn (Moffett Park)	637	609	95.6%	27.4	0.8	C
	Left Turn (SR 237 WB On-Ramp)	135	129	95.6%	29.0	4.2	C
	Through	2,615	2,477	94.7%	23.5	0.8	C
	Right Turn (Moffett Park)	759	716	94.3%	19.8	1.0	B
	Subtotal	4,146	3,931	94.8%	23.6	0.9	C
SB	Left Turn (Moffett Park)	8	8	102.5%	74.6	16.0	E
	Through	197	194	98.4%	101.7	6.6	F
	Right Turn (Moffett Park)	97	95	97.9%	38.6	5.0	D
	Right Turn (SR 237 WB On-Ramp)	68	61	89.1%	79.8	7.9	E
	Subtotal	370	358	96.8%	80.6	6.7	F
EB (Moffett Park)	Left Turn	31	31	100.3%	63.4	10.0	E
	Through	54	52	95.7%	56.5	6.3	E
	Right Turn	45	48	106.7%	63.6	7.8	E
	Subtotal	130	131	100.8%	60.7	5.6	E
WB (Moffett Park)	Left Turn	72	72	100.3%	107.0	8.8	F
	Through	189	192	101.3%	59.7	2.4	E
	Right Turn	24	22	92.9%	49.6	4.8	D
	Subtotal	285	286	100.4%	70.8	2.7	E
WB (SR 237 WB Off-Ramp)	Left Turn	663	667	100.6%	78.9	21.4	E
	Through	23	24	106.1%	73.5	12.2	E
	Right Turn	334	338	101.1%	94.5	18.2	F
	Subtotal	1,020	1,030	100.9%	83.9	19.7	F
Total		5,951	5,735	96.4%	131.0	10.4	F

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,980	1,847	93.3%	41.3	3.6	D
	Right Turn	721	677	93.8%	3.8	0.4	A
	Subtotal	2,701	2,523	93.4%	31.2	2.5	C
SB	Left Turn	44	41	92.5%	56.2	7.0	E
	Through	865	879	101.7%	15.7	2.6	B
	Right Turn						
	Subtotal	909	920	101.2%	17.5	2.4	B
EB	Left Turn	770	761	98.8%	41.6	3.3	D
	Through						
	Right Turn	70	70	99.7%	28.6	4.2	C
	Subtotal	840	831	98.9%	40.5	3.1	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,450	4,274	96.0%	30.1	1.0	C

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	52	104.6%	49.1	5.9	D
	Through	2,388	2,221	93.0%	142.0	36.0	F
	Right Turn	96	93	96.4%	85.0	12.0	F
	Subtotal	2,534	2,366	93.4%	137.7	34.0	F
SB	Left Turn	50	48	96.2%	50.2	6.0	D
	Through	849	866	102.0%	19.8	3.8	B
	Right Turn	36	40	110.6%	14.2	5.4	B
	Subtotal	935	954	102.1%	21.1	3.5	C
EB	Left Turn	74	75	100.8%	41.2	5.0	D
	Through	53	55	103.0%	29.4	2.9	C
	Right Turn	18	18	100.0%	9.6	1.8	A
	Subtotal	145	147	101.5%	32.9	3.6	C
WB	Left Turn	105	104	98.8%	43.6	6.5	D
	Through	22	22	101.4%	40.6	7.8	D
	Right Turn	239	239	99.8%	29.9	4.6	C
	Subtotal	366	365	99.6%	34.5	5.0	C
Total		3,980	3,832	96.3%	94.6	19.6	F

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	107	110	102.4%	77.7	11.9	E
	Through	2,458	2,461	100.1%	55.6	12.5	E
	Right Turn	46	44	95.2%	51.1	13.1	D
	Subtotal	2,611	2,614	100.1%	56.5	12.3	E
SB	Left Turn	144	146	101.7%	120.2	27.5	F
	Through	1,505	1,513	100.5%	46.5	6.5	D
	Right Turn	278	281	101.0%	32.7	5.4	C
	Subtotal	1,927	1,940	100.7%	50.1	7.1	D
EB	Left Turn	75	71	94.1%	51.9	4.3	D
	Through	11	11	103.6%	39.9	9.2	D
	Right Turn	21	20	95.7%	8.2	3.1	A
	Subtotal	107	102	95.4%	41.8	3.0	D
WB	Left Turn	70	69	98.7%	60.7	11.2	E
	Through	27	28	103.0%	35.9	5.5	D
	Right Turn	171	174	101.5%	21.1	2.8	C
	Subtotal	268	271	100.9%	32.8	2.9	C
Total		4,913	4,927	100.3%	52.3	7.9	D

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	151	150	99.5%	3.4	0.3	A
	Right Turn	1	1	80.0%	2.8	1.4	A
	Subtotal	152	151	99.3%	3.4	0.3	A
WB	Left Turn	16	17	105.6%	8.3	0.6	A
	Through	873	841	96.3%	4.7	0.3	A
	Right Turn						
	Subtotal	889	858	96.5%	4.8	0.4	A
Total		1,041	1,009	96.9%	4.6	0.3	A

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	32	29	91.6%	13.9	3.2	B
	Through						
	Right Turn	100	98	98.2%	10.5	1.7	B
	Subtotal	132	128	96.6%	11.3	1.8	B
EB	Left Turn	49	46	93.1%	33.1	6.2	C
	Through	102	105	102.9%	4.1	0.9	A
	Right Turn						
	Subtotal	151	151	99.7%	12.8	1.5	B
WB	Left Turn						
	Through	789	762	96.5%	13.2	1.4	B
	Right Turn	134	131	97.5%	8.4	0.9	A
	Subtotal	923	892	96.7%	12.5	1.2	B
Total		1,206	1,170	97.0%	12.4	1.0	B

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	169	160	94.4%	5.9	0.2	A
	Through	14	16	114.3%	5.8	0.8	A
	Right Turn						
	Subtotal	183	176	96.0%	5.8	0.2	A
SB	Left Turn						
	Through	77	73	94.7%	9.6	1.2	A
	Right Turn	344	335	97.3%	8.9	1.2	A
	Subtotal	421	408	96.8%	9.0	1.2	A
EB	Left Turn	9	8	92.2%	4.3	0.4	A
	Through						
	Right Turn	55	57	102.7%	4.3	0.3	A
	Subtotal	64	65	101.3%	4.3	0.3	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		668	648	97.0%	7.7	0.8	A

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **AM Peak Hour**

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	23	23	100.4%	4.7	0.2	A
	Right Turn						
	Subtotal	23	23	100.4%	4.7	0.2	A
SB	Left Turn						
	Through	420	409	97.4%	14.7	1.3	B
	Right Turn	299	295	98.7%	9.2	1.1	A
	Subtotal	719	704	97.9%	12.4	1.2	B
EB	Left Turn	28	29	103.6%	5.3	0.5	A
	Through						
	Right Turn	1	1	130.0%	3.5	2.5	A
	Subtotal	29	30	104.5%	5.3	0.4	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		771	758	98.2%	11.9	1.1	B

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	97	90	92.5%	68.1	8.0	E
	Through	329	308	93.6%	18.1	3.0	B
	Right Turn	37	38	102.7%	11.4	4.3	B
	Subtotal	463	436	94.1%	27.9	3.0	C
SB	Left Turn	3	2	70.0%	113.2	132.2	F
	Through	1,102	1,012	91.8%	149.4	53.3	F
	Right Turn	9	9	96.7%	113.3	50.4	F
	Subtotal	1,114	1,023	91.8%	149.1	53.1	F
EB	Left Turn	38	37	96.3%	40.4	4.4	D
	Through	17	16	91.8%	56.6	13.4	E
	Right Turn	51	60	117.5%	13.4	4.1	B
	Subtotal	106	112	105.8%	28.0	4.3	C
WB	Left Turn	229	211	92.0%	157.9	87.0	F
	Through	4	4	92.5%	186.1	123.5	F
	Right Turn	8	8	96.3%	123.3	65.8	F
	Subtotal	241	222	92.1%	156.9	85.4	F
Total		1,924	1,793	93.2%	112.4	38.5	F

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	61	58	94.3%	57.6	7.9	E
	Through	376	353	93.8%	17.1	1.2	B
	Right Turn						
	Subtotal	437	410	93.9%	22.8	1.5	C
SB	Left Turn						
	Through	1,346	1,137	84.5%	280.1	31.5	F
	Right Turn	36	33	91.1%	243.0	51.1	F
	Subtotal	1,382	1,170	84.7%	279.0	31.7	F
EB	Left Turn	87	82	94.5%	63.0	5.8	E
	Through						
	Right Turn	622	560	90.0%	62.7	7.6	E
	Subtotal	709	642	90.6%	62.7	7.3	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,528	2,223	87.9%	168.9	15.9	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **PM Peak Hour**

Intersection 3 **Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn (Moffett Park)	84	80	95.6%	47.2	3.5	D
	Left Turn (SR 237 WB On-Ramp)	82	79	95.7%	128.1	27.0	F
	Through	438	434	99.2%	40.5	4.4	D
	Right Turn (Moffett Park)	145	145	99.7%	24.1	4.4	C
	Subtotal	749	738	98.5%	47.3	5.4	D
SB	Left Turn (Moffett Park)	39	32	83.1%	184.7	16.7	F
	Through	1,858	1,590	85.6%	224.7	7.8	F
	Right Turn (Moffett Park)	71	60	84.1%	256.3	13.4	F
	Right Turn (SR 237 WB On-Ramp)	403	343	85.2%	218.3	7.5	F
	Subtotal	2,371	2,026	85.4%	223.9	7.6	F
EB (Moffett Park)	Left Turn	44	41	92.0%	244.0	38.5	F
	Through	165	146	88.2%	225.3	40.0	F
	Right Turn	403	346	85.9%	258.0	39.8	F
	Subtotal	612	532	87.0%	248.0	39.7	F
WB (Moffett Park)	Left Turn	285	284	99.5%	78.3	5.1	E
	Through	237	237	100.2%	42.9	1.5	D
	Right Turn	20	21	103.5%	36.8	6.9	D
	Subtotal	542	542	100.0%	61.2	3.3	E
WB (SR 237 WB Off-Ramp)	Left Turn	709	613	86.4%	620.8	174.5	F
	Through	17	16	95.9%	622.6	170.9	F
	Right Turn	164	136	83.0%	534.0	164.7	F
	Subtotal	890	765	86.0%	605.4	173.3	F
Total		5,164	4,602	89.1%	286.7	28.0	F

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	354	338	95.6%	32.9	4.1	C
	Right Turn	625	625	100.0%	4.6	0.2	A
	Subtotal	979	963	98.4%	14.5	1.5	B
SB	Left Turn	331	296	89.4%	41.2	4.1	D
	Through	2,521	2,168	86.0%	16.9	1.5	B
	Right Turn						
	Subtotal	2,852	2,464	86.4%	19.8	1.7	B
EB	Left Turn	166	172	103.7%	46.4	2.7	D
	Through	29	29	100.0%	56.2	14.5	E
	Right Turn	195	191	97.7%	26.3	6.8	C
	Subtotal	390	392	100.4%	37.5	5.0	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,221	3,819	90.5%	20.3	1.4	C

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	87	86	98.6%	52.1	4.4	D
	Through	843	842	99.9%	59.6	9.4	E
	Right Turn	252	245	97.2%	68.6	11.7	E
	Subtotal	1,182	1,173	99.2%	60.9	9.2	E
SB	Left Turn	130	115	88.3%	41.1	4.9	D
	Through	2,499	2,158	86.3%	22.7	1.5	C
	Right Turn	87	77	88.7%	19.3	2.4	B
	Subtotal	2,716	2,350	86.5%	23.5	1.5	C
EB	Left Turn	39	36	92.3%	42.0	6.0	D
	Through	143	135	94.7%	38.6	3.2	D
	Right Turn	35	37	106.9%	27.2	4.7	C
	Subtotal	217	209	96.2%	37.2	1.9	D
WB	Left Turn	210	214	101.9%	168.4	96.6	F
	Through	48	44	91.9%	156.4	96.4	F
	Right Turn	97	97	100.2%	136.7	100.2	F
	Subtotal	355	355	100.1%	158.3	97.4	F
Total		4,470	4,087	91.4%	46.7	10.7	D

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	56	55	98.0%	67.3	3.2	E
	Through	1,275	1,260	98.8%	21.8	1.8	C
	Right Turn	36	38	105.8%	13.9	3.1	B
	Subtotal	1,367	1,353	98.9%	23.4	1.8	C
SB	Left Turn	156	145	93.1%	85.5	6.6	F
	Through	2,680	2,482	92.6%	62.8	5.6	E
	Right Turn	58	55	95.3%	18.0	4.0	B
	Subtotal	2,894	2,682	92.7%	63.1	5.5	E
EB	Left Turn	285	284	99.5%	59.3	7.7	E
	Through	23	21	93.0%	52.8	12.2	D
	Right Turn	64	62	96.9%	23.9	6.8	C
	Subtotal	372	367	98.7%	53.0	7.2	D
WB	Left Turn	41	41	99.8%	58.3	4.8	E
	Through	5	5	104.0%	71.6	21.3	E
	Right Turn	172	163	94.7%	12.8	1.0	B
	Subtotal	218	209	95.9%	23.0	1.6	C
Total		4,851	4,611	95.1%	48.8	3.4	D

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	731	668	91.4%	100.9	60.4	F
	Right Turn	77	73	94.7%	78.5	50.4	E
	Subtotal	808	741	91.7%	98.7	59.6	F
WB	Left Turn	205	183	89.2%	32.8	15.3	C
	Through	282	276	98.0%	1.9	0.3	A
	Right Turn						
	Subtotal	487	459	94.3%	14.2	6.3	B
Total		1,295	1,200	92.7%	65.6	36.8	E

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **PM Peak Hour**

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	153	150	98.2%	15.7	3.4	B
	Through						
	Right Turn	137	127	92.8%	5.7	1.0	A
	Subtotal	290	278	95.7%	11.1	1.9	B
EB	Left Turn	44	36	81.6%	106.5	53.3	F
	Through	687	585	85.2%	159.0	91.9	F
	Right Turn						
	Subtotal	731	621	85.0%	156.0	89.8	F
WB	Left Turn						
	Through	350	336	96.0%	17.2	1.6	B
	Right Turn	42	43	102.9%	4.1	0.4	A
	Subtotal	392	379	96.7%	15.7	1.5	B
Total		1,413	1,278	90.4%	81.5	41.8	F

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	24	23	95.4%	6.0	0.9	A
	Through	62	57	91.3%	6.2	0.3	A
	Right Turn						
	Subtotal	86	80	92.4%	6.1	0.4	A
SB	Left Turn						
	Through	42	35	82.4%	6.8	2.0	A
	Right Turn	14	12	86.4%	3.4	0.5	A
	Subtotal	56	47	83.4%	5.9	1.5	A
EB	Left Turn	363	365	100.4%	7.3	0.4	A
	Through						
	Right Turn	248	244	98.2%	6.5	3.2	A
	Subtotal	611	608	99.5%	7.0	1.5	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		753	734	97.5%	6.8	1.3	A

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Volume and Delay by Movement **PM Peak Hour**

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	425	403	94.9%	89.3	46.8	F
	Right Turn						
	Subtotal	425	403	94.9%	89.3	46.8	F
SB	Left Turn						
	Through	41	35	85.1%	39.6	14.5	E
	Right Turn	56	55	97.7%	25.6	6.8	D
	Subtotal	97	90	92.4%	31.2	8.7	D
EB	Left Turn	284	251	88.4%	213.2	133.0	F
	Through						
	Right Turn	15	12	80.0%	25.3	31.9	D
	Subtotal	299	263	88.0%	204.3	127.2	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		821	756	92.1%	120.6	64.8	F

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	625	25	6	50	17	50	17	0%	0%
	Through	625	25	3	25	5	50	7	0%	0%
	Right Turn	625	25	2	25	8	25	19	0%	0%
NB	Left Turn	425	50	3	75	9	100	18	0%	0%
	Through	1,150	100	8	225	21	275	48	0%	0%
	Through/Right	1,150	125	7	275	17	300	38	0%	0%
SB	Left Turn	225	25	3	50	6	50	12	0%	0%
	Through	1,375	75	7	150	18	175	39	0%	0%
	Right Turn	225	25	2	25	14	50	30	0%	0%
WB	Left Turn	925	25	9	50	23	75	34	2%	0%
	Through/Right	75	25	4	50	9	75	21	1%	0%

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	25	3	50	4	50	5	0%	0%
	Right Turn	200	25	5	50	8	50	14	0%	1%
NB	Left Turn	400	225	30	375	69	400	113	1%	0%
	Through	1,075	75	23	200	102	375	243	0%	0%
	Through/Right	1,075	100	18	200	36	250	54	0%	0%
SB	Left Turn	75	25	0	25	0	25	6	0%	0%
	Through	1,150	75	6	125	15	150	35	2%	0%
	Right Turn	225	25	8	100	21	125	39	0%	0%
WB	Shared	125	25	0	25	0	25	0	0%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft)		95th Queue (ft)		Maximum Queue (ft)		Block Time	
			Average	Std. Dev.	Average	Std. Dev.	Average	Std. Dev.	Pocket	Upstream
EB (Moffett Park)	Left Turn	350	25	5	50	18	75	33	0%	0%
	Through/Right	1,100	75	7	125	12	150	24	0%	0%
	Right Turn	1,100	25	6	50	15	75	16	0%	0%
NB	Left Turn (Moffett Park)	125	75	6	125	8	150	11	0%	23%
	Through	325	275	18	400	20	400	46	0%	37%
	Through/Right (Moffett Park)	325	275	16	375	19	375	42	0%	43%
	Left Turn (SR 237 WB On-Ramp)	200	100	5	150	15	175	26	0%	1%
SB	Left Turn (Moffett Park)	175	25	2	50	6	75	16	0%	0%
	Through	1,200	75	14	150	32	200	56	0%	28%
	Through/Right (Moffett Park)	1,075	125	8	200	16	250	36	0%	0%
	Through/Right (SR 237 WB On-Ramp)	1,200	75	14	175	32	225	52	0%	20%
WB (Moffett Park)	Left Turn	300	75	5	125	9	150	31	0%	0%
	Through/Right	650	150	12	250	18	275	18	0%	0%
WB (SR 237 WB Off-Ramp)	Left Turn	1,125	350	109	650	311	800	286	8%	1%
	Left/Through	325	275	29	425	60	425	16	8%	0%
	Right Turn	325	250	21	400	31	375	1	8%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,075	225	19	325	38	375	70	0%	0%
	Shared	450	175	12	275	23	325	48	0%	0%
NB	Through	275	250	10	325	20	325	27	0%	25%
	Right Turn	275	100	28	300	44	325	22	0%	4%
SB	Left Turn	200	50	9	100	18	100	24	0%	0%
	Through	200	125	19	275	31	250	23	0%	6%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	650	75	6	150	19	200	59	43%	0%
	Through	75	50	5	100	6	100	0	26%	0%
	Right Turn	50	25	5	75	7	75	4	3%	0%
NB	Left Turn	150	50	5	100	19	150	50	0%	0%
	Through	2,200	775	90	950	137	1,025	116	0%	1%
	Through/Right	450	500	23	625	37	550	6	0%	59%
SB	Left Turn	125	50	9	125	21	200	44	1%	0%
	Through	250	125	22	275	30	275	17	11%	3%
	Through/Right	250	150	22	275	27	275	17	0%	5%
WB	Left Turn	75	150	24	300	49	375	40	14%	0%
	Through	75	75	7	125	6	100	0	6%	0%
	Right Turn	75	75	2	100	4	100	0	29%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	350	50	5	100	13	125	28	0%	0%
	Through/Right	125	25	5	75	9	75	13	0%	0%
NB	Left Turn	375	150	31	325	61	375	0	0%	0%
	Through	675	450	52	675	91	675	49	51%	2%
	Right Turn	75	25	8	75	23	100	3	0%	0%
SB	Left Turn	125	150	10	225	9	175	0	44%	0%
	Through	2,200	450	44	575	96	625	97	15%	0%
	Through/Right	350	275	19	425	34	450	54	0%	4%
WB	Left Turn	250	75	10	125	21	150	28	0%	0%
	Through	625	75	15	150	34	200	52	4%	0%
	Right Turn	75	75	5	125	10	125	3	17%	0%

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	875	25	2	50	8	75	17	0%	0%
	Right Turn	150	25	0	25	0	25	0	0%	0%
WB	Left Turn	900	25	3	50	3	50	11	0%	0%
	Through	900	25	25	125	178	250	401	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	225	50	4	75	6	100	14	0%	0%
	Through	900	25	3	75	8	100	15	0%	0%
SB	Left Turn	525	25	3	50	5	50	12	0%	0%
	Shared	525	50	5	100	10	125	18	0%	0%
WB	Through	1,100	175	21	325	49	400	64	2%	0%
	Right Turn	225	25	19	125	52	225	44	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	25	3	50	5	50	0	0%	0%
	Right Turn	1,150	25	2	50	4	75	11	0%	0%
NB	Left Turn	125	50	3	75	4	75	9	0%	0%
	Left/Through	500	50	2	75	6	100	15	0%	0%
	Through	500	25	3	50	7	50	8	0%	0%
SB	Through	900	25	3	50	6	50	12	0%	0%
	Through/Right	900	100	9	175	27	200	50	0%	0%

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	25	3	50	4	75	13	0%	0%
	Right Turn	300	25	1	25	7	50	16	0%	0%
NB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through	900	25	5	50	10	50	13	0%	0%
SB	Through/Right	300	175	12	250	17	250	14	0%	24%
	Right Turn	300	100	12	175	21	200	31	0%	7%

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	800	25	0	25	3	25	9	0%	0%
NB	Through	1,350	50	3	75	7	75	12	0%	0%
SB	Through	675	50	4	75	6	75	13	0%	0%
WB	Through	625	25	0	25	0	25	0	0%	0%

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	25	7	75	10	75	16	0%	0%
	Through	625	25	3	25	4	50	5	0%	0%
	Right Turn	625	25	6	50	14	75	17	0%	0%
NB	Left Turn	425	75	6	125	9	150	22	0%	0%
	Through	1,150	50	6	125	15	150	25	0%	0%
	Through/Right	1,150	75	9	150	13	175	20	0%	0%
SB	Left Turn	225	25	8	50	53	125	135	0%	0%
	Through	1,375	500	140	1,050	325	1,150	303	47%	1%
	Right Turn	225	25	9	150	33	300	0	0%	0%
WB	Left Turn	925	225	99	500	254	600	211	71%	2%
	Through/Right	75	25	5	75	12	100	0	3%	0%

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	50	12	125	19	150	22	0%	8%
	Right Turn	200	225	14	275	16	275	22	0%	47%
NB	Left Turn	400	25	6	75	15	100	20	0%	0%
	Through	1,075	50	8	125	14	150	31	0%	0%
	Through/Right	1,075	75	8	150	17	175	27	0%	0%
SB	Through	1,150	1,000	94	1,450	78	1,225	15	81%	27%
	Right Turn	225	125	22	350	33	275	0	0%	0%
WB	Shared	125	25	0	25	0	25	0	0%	0%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Existing Conditions**
Queue Length **PM Peak Hour**

Intersection 3 **Mathilda Avenue/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft)		95th Queue (ft)		Maximum Queue (ft)		Block Time	
			Average	Std. Dev.	Average	Std. Dev.	Average	Std. Dev.	Pocket	Upstream
EB (Moffett Park)	Left Turn	350	500	396	900	492	850	412	1%	0%
	Through/Right	1,100	1,000	155	1,400	139	1,200	51	0%	24%
	Right Turn	1,100	525	480	625	541	600	512	0%	23%
NB	Left Turn (Moffett Park)	125	25	2	50	10	75	20	0%	4%
	Through	325	100	11	200	42	250	108	0%	29%
	Through/Right (Moffett Park)	325	100	14	200	37	250	103	0%	22%
	Left Turn (SR 237 WB On-Ramp)	200	125	20	225	30	250	21	0%	13%
SB	Left Turn (Moffett Park)	175	50	8	75	17	125	46	0%	0%
	Through	1,200	1,175	27	1,275	44	1,275	41	69%	61%
	Through/Right (Moffett Park)	1,075	1,125	7	1,175	26	1,175	12	0%	48%
	Through/Right (SR 237 WB On-Ramp)	1,200	1,225	20	1,300	43	1,275	38	69%	79%
WB (Moffett Park)	Left Turn	300	200	22	325	66	350	115	3%	0%
	Through/Right	650	150	14	250	33	275	60	0%	0%
WB (SR 237 WB Off-Ramp)	Left Turn	1,125	1,075	7	1,100	32	1,100	14	72%	60%
	Left/Through	325	425	4	450	8	450	0	71%	0%
	Right Turn	325	250	30	500	22	375	0	0%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,075	50	5	125	14	150	30	0%	0%
	Shared	450	150	25	275	49	325	59	0%	0%
NB	Through	275	50	21	125	46	175	68	0%	1%
	Right Turn	275	25	5	100	32	175	79	0%	0%
SB	Left Turn	200	125	16	225	20	250	26	0%	10%
	Through	200	200	20	300	21	275	18	0%	17%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	650	125	19	250	24	275	31	25%	0%
	Through	75	75	3	125	4	100	0	51%	0%
	Right Turn	50	50	5	75	6	75	2	11%	0%
NB	Left Turn	150	75	4	150	9	175	38	2%	0%
	Through	2,200	325	28	450	86	450	111	1%	4%
	Through/Right	450	325	19	450	43	450	48	0%	3%
SB	Left Turn	125	100	20	200	37	225	4	5%	0%
	Through	250	250	24	350	18	325	25	16%	8%
	Through/Right	250	275	16	350	11	325	20	0%	32%
WB	Left Turn	75	575	304	925	429	975	475	71%	0%
	Through	75	100	6	125	6	100	0	3%	0%
	Right Turn	75	50	4	100	4	75	0	5%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	350	175	14	250	25	325	51	28%	0%
	Through/Right	125	75	15	175	32	225	0	2%	0%
NB	Left Turn	375	75	7	125	14	150	19	0%	0%
	Through	675	200	20	325	30	350	59	27%	0%
	Right Turn	75	25	6	75	15	100	0	0%	0%
SB	Left Turn	125	150	7	200	7	175	0	29%	0%
	Through	2,200	925	33	1,225	48	1,375	49	24%	0%
	Through/Right	350	250	24	400	26	425	48	0%	2%
WB	Left Turn	250	50	4	100	9	125	16	0%	0%
	Through	625	25	5	75	11	125	16	0%	0%
	Right Turn	75	50	4	100	7	125	5	9%	0%

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	875	400	144	750	298	775	243	37%	4%
	Right Turn	150	100	47	250	141	325	123	0%	0%
WB	Left Turn	900	125	32	250	85	325	147	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	225	100	39	275	118	300	108	0%	0%
	Through	900	475	225	975	349	850	237	35%	14%
SB	Left Turn	525	75	46	200	82	300	89	0%	0%
	Shared	525	150	63	325	99	375	98	0%	2%
WB	Through	1,100	100	8	150	19	200	28	0%	0%
	Right Turn	225	25	3	25	26	50	70	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	75	3	125	5	125	5	1%	0%
	Right Turn	1,150	50	8	100	31	125	74	0%	0%
NB	Left Turn	125	25	1	25	6	50	14	0%	0%
	Left/Through	500	50	5	75	5	75	13	0%	0%
	Through	500	25	2	75	4	75	15	0%	0%
SB	Through	900	25	3	25	8	50	0	0%	0%
	Through/Right	900	25	3	75	5	75	9	0%	0%

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	300	500	243	1,000	448	1,000	286	0%	5%
	Right Turn	300	75	110	250	390	400	519	0%	0%
NB	Left Turn	125	25	4	50	31	100	84	0%	0%
	Through	900	25	0	25	0	25	0	0%	0%
SB	Through/Right	300	50	9	100	19	125	40	0%	5%
	Right Turn	300	50	4	100	14	125	37	0%	3%

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Through	1,350	25	3	50	3	75	12	0%	0%
SB	Through	675	50	2	75	4	75	8	0%	0%
0										
WB	Through	625	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	48.7	59.7	0.1	8
US 101 SB Diag. On-R	702	9.2	15.8	0.1	18
US 101 SB Loop On-Ra	701	5.6	13.5	0.1	28
US 101 NB Loop On-Ra	602	13.2	19.0	0.1	13
US 101 NB Diag.Off-R	601	43.1	50.1	0.1	7
Ross Dr	5	67.8	75.3	0.1	4
SR 237 EB On-Ramp	4	41.6	47.0	0.1	5
SR 237 WB Off-Ramp	33	16.3	20.0	0.0	8
Moffett Park Dr	3	5.7	8.5	0.0	18
Innovation Way	2	10.6	28.2	0.2	27
5th Ave	1	13.7	32.5	0.2	26
	107	4.2	26.2	0.3	37
Total		279.7	395.7	1.5	13

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	12.7	35.4	0.3	28
Innovation Way	2	17.8	36.6	0.2	23
Moffett Park Dr	3	53.6	70.9	0.2	11
SR 237 WB On-Ramp	33	55.7	58.7	0.0	3
SR 237 Off/On Ramp	4	17.3	21.4	0.0	8
Ross Dr	5	19.9	24.8	0.1	9
US 101 NB Diag.Off-R	601	6.0	14.3	0.1	23
US 101 NB Loop Off-R	602	2.7	8.4	0.1	39
US 101 SB Loop On-Ra	701	1.2	7.2	0.1	33
US 101 SB Off-Ramp	702	1.9	8.6	0.1	44
Almanor Ave	8	30.5	38.6	0.1	8
San Aleso Ave	201	4.0	15.4	0.1	33
Total		223.4	340.4	1.5	15

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	19.9	31.0	0.1	16
US 101 SB Diag. On-R	702	3.3	10.0	0.1	29
US 101 SB Loop On-Ra	701	0.7	8.6	0.1	44
US 101 NB Loop On-Ra	602	0.3	6.1	0.1	39
US 101 NB Diag.Off-R	601	1.3	8.3	0.1	39
Ross Dr	5	53.3	60.9	0.1	5
SR 237 EB On-Ramp	4	30.6	36.0	0.1	6
SR 237 WB Off-Ramp	33	5.5	9.3	0.0	19
Moffett Park Dr	3	39.9	42.7	0.0	3
Innovation Way	2	17.9	35.1	0.2	22
5th Ave	1	18.6	37.2	0.2	23
	107	3.3	25.2	0.3	39
Total		194.5	310.5	1.5	17

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	146.5	168.0	0.3	6
Innovation Way	2	268.7	286.0	0.2	3
Moffett Park Dr	3	204.1	220.2	0.2	3
SR 237 WB On-Ramp	33	5.7	8.7	0.0	17
SR 237 Off/On Ramp	4	9.6	13.8	0.0	13
Ross Dr	5	19.4	24.5	0.1	10
US 101 NB Diag.Off-R	601	24.1	32.3	0.1	10
US 101 NB Loop Off-R	602	9.8	15.4	0.1	21
US 101 SB Loop On-Ra	701	3.6	9.7	0.1	25
US 101 SB Off-Ramp	702	2.0	8.6	0.1	44
Almanor Ave	8	23.4	31.6	0.1	9
San Aleso Ave	201	5.1	16.5	0.1	31
Total		722.1	835.2	1.5	6

Lanes, Volumes, Timings
1: Mathilda Ave & 5th Ave

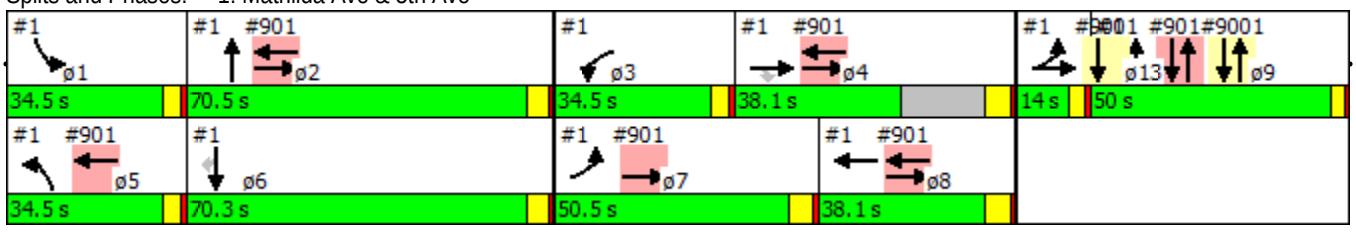
12/11/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	6	17	19	8	2	52	890	61	7	330	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	310		50	400		0	220		220
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (ft)	90			30			170			60		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	0.97	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor			0.93		1.00			1.00				0.98
Frt			0.850		0.973			0.990				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	3433	1805	0	3433	5020	0	1770	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1478	3433	1805	0	3433	5020	0	1770	5085	1548
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					2			5				
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		107			1003			1249			1438	
Travel Time (s)		2.9			27.4			18.9			21.8	
Confl. Peds. (#/hr)			23			4			6			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	7	18	21	9	2	57	967	66	8	359	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	7	18	21	11	0	57	1033	0	8	359	64
Turn Type	Prot	NA	custom	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7 13	4 13		3	8		5	2 9		1	6 9	
Permitted Phases			4									6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0		11.0			10.0		12.0
Minimum Split (s)			38.1	16.5	38.1		15.5			14.5		41.3
Total Split (s)			38.1	34.5	38.1		34.5			34.5		70.3
Total Split (%)			14.8%	13.4%	14.8%		13.4%			13.4%		27.3%
Yellow Time (s)			5.1	3.5	5.1		3.5			3.5		4.3
All-Red Time (s)			1.0	1.0	1.0		1.0			1.0		1.0
Lost Time Adjust (s)			0.0	0.0	0.0		0.0			0.0		0.0
Total Lost Time (s)			6.1	4.5	6.1		4.5			4.5		5.3
Lead/Lag			Lag	Lead	Lag		Lead			Lead		Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes			Yes		Yes
Recall Mode			None	None	None		None			None		Min

Intersection Summary

Area Type: Other
Cycle Length: 257.6
Actuated Cycle Length: 77.5
Natural Cycle: 180
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



Lane Group	ø2	ø7	ø9	ø13
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Ped Bike Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Confl. Peds. (#/hr)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	2	7	9	13
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	12.0	12.0	46.0	10.0
Minimum Split (s)	35.5	17.5	50.0	14.0
Total Split (s)	70.5	50.5	50.0	14.0
Total Split (%)	27%	20%	19%	5%
Yellow Time (s)	4.5	4.5	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Min	None	None	None

Intersection Summary

Lanes, Volumes, Timings
2: Mathilda Ave & Innovation Way

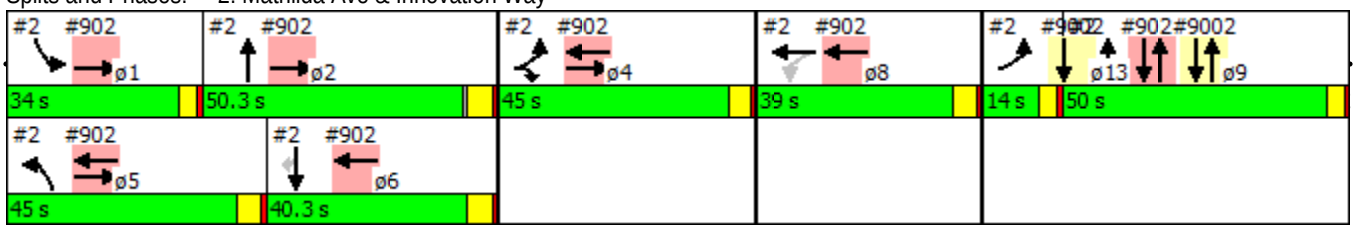
12/11/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	0	37	0	0	0	619	989	0	1	265	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	170		0	0		0	390		0	70		210
Storage Lanes	0		2	0		0	2		0	1		1
Taper Length (ft)	30			25			90			60		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor												0.99
Frt			0.850									0.850
Flt Protected	0.950						0.950			0.950		
Satd. Flow (prot)	1770	0	2787	0	1863	0	3433	5085	0	1770	5085	1583
Flt Permitted	0.950						0.950			0.950		
Satd. Flow (perm)	1770	0	2787	0	1863	0	3433	5085	0	1770	5085	1561
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)												112
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		121			908			1130			1249	
Travel Time (s)		3.3			24.8			17.1			18.9	
Confl. Peds. (#/hr)			5			2						1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	0	40	0	0	0	673	1075	0	1	288	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	15	0	40	0	0	0	673	1075	0	1	288	109
Turn Type	Prot		Prot				Prot	NA		Prot	NA	custom
Protected Phases	4 13		4		8		5	2 9		1	6 9	
Permitted Phases				8								6
Detector Phase	4		4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)			14.0	10.0	10.0		13.0			10.0		12.0
Minimum Split (s)			39.0	39.0	39.0		18.0			14.0		41.3
Total Split (s)			45.0	39.0	39.0		45.0			34.0		40.3
Total Split (%)			19.3%	16.7%	16.7%		19.3%			14.6%		17.3%
Yellow Time (s)			4.0	4.0	4.0		4.0			3.0		4.3
All-Red Time (s)			1.0	1.0	1.0		1.0			1.0		1.0
Lost Time Adjust (s)			0.0		0.0		0.0			0.0		0.0
Total Lost Time (s)			5.0		5.0		5.0			4.0		5.3
Lead/Lag							Lead			Lead		Lag
Lead-Lag Optimize?							Yes			Yes		Yes
Recall Mode			None	None	None		None			None		Min

Intersection Summary

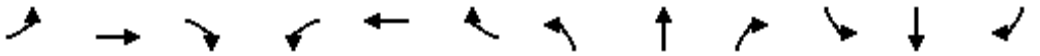
Area Type: Other
Cycle Length: 233.3
Actuated Cycle Length: 100.4
Natural Cycle: 205
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Mathilda Ave & Innovation Way



Lane Group	ø2	ø9	ø13
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	46.0	10.0
Minimum Split (s)	17.3	50.0	14.0
Total Split (s)	50.3	50.0	14.0
Total Split (%)	22%	21%	6%
Yellow Time (s)	4.3	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	Min	None	None

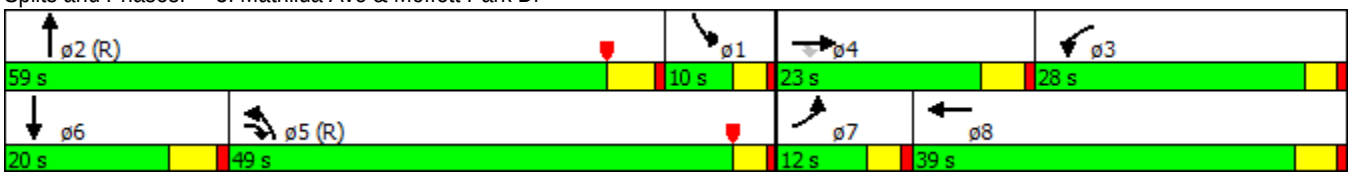
Intersection Summary

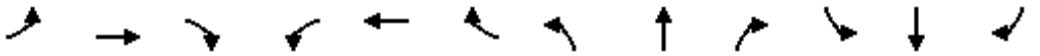


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	31	54	45	72	189	24	637	1553	759	8	197	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	263		0	280		0	90		0	150		0
Storage Lanes	0		1	2		0	0		0	2		0
Taper Length (ft)	55			240			0			90		
Lane Util. Factor	1.00	0.95	0.95	0.97	1.00	1.00	0.97	0.91	0.91	1.00	0.86	0.86
Ped Bike Factor					1.00			0.99				
Frt		0.988	0.850		0.983			0.951			0.951	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1748	1504	3433	1828	0	3433	4791	0	1770	6094	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1748	1504	3433	1828	0	3433	4791	0	1770	6094	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3	65		5			133			85	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		265			725			221			1130	
Travel Time (s)		4.5			12.4			3.3			17.1	
Confl. Peds. (#/hr)						1			4			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	59	49	78	205	26	692	1688	825	9	214	105
Shared Lane Traffic (%)			10%									
Lane Group Flow (vph)	34	64	44	78	231	0	692	2513	0	9	319	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	4.0	8.0	8.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	12.0	12.9	8.0	12.0	38.9		8.0	33.3		8.0	9.3	
Total Split (s)	12.0	23.0	49.0	28.0	39.0		49.0	59.0		10.0	20.0	
Total Split (%)	10.0%	19.2%	40.8%	23.3%	32.5%		40.8%	49.2%		8.3%	16.7%	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lead/Lag	Lead	Lead	Lag	Lag	Lag		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	None	C-Max	None	None		C-Max	C-Max		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 90 (75%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow	
Natural Cycle: 125	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Mathilda Ave & Moffett Park Dr

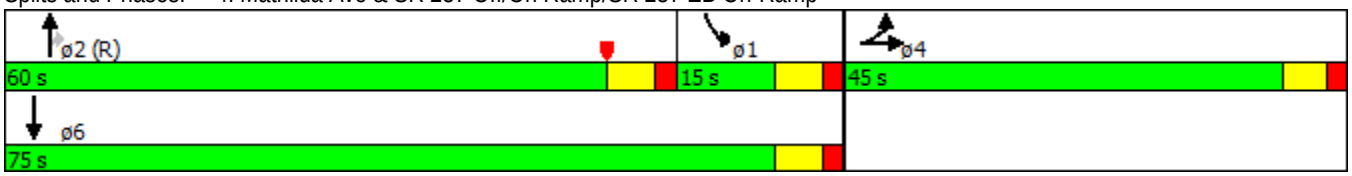


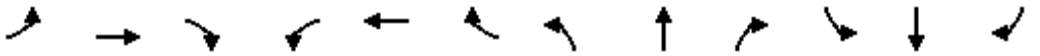


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	770	0	70	0	0	0	0	1980	721	44	865	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	440		430	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.91	1.00
Ped Bike Factor									0.99			
Frt		0.962							0.850			
Flt Protected	0.950	0.964								0.950		
Satd. Flow (prot)	3221	1572	0	0	0	0	0	7544	1583	1770	5085	0
Flt Permitted	0.950	0.964								0.950		
Satd. Flow (perm)	3221	1572	0	0	0	0	0	7544	1560	1770	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		87							784			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1145			778			341			246	
Travel Time (s)		17.3			11.8			5.2			3.7	
Confl. Bikes (#/hr)									5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	837	0	76	0	0	0	0	2152	784	48	940	0
Shared Lane Traffic (%)	27%											
Lane Group Flow (vph)	611	302	0	0	0	0	0	2152	784	48	940	0
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0						4.0	4.0	4.0	4.0	
Minimum Split (s)	10.9	10.9						20.3	20.3	10.3	10.3	
Total Split (s)	45.0	45.0						60.0	60.0	15.0	75.0	
Total Split (%)	37.5%	37.5%						50.0%	50.0%	12.5%	62.5%	
Yellow Time (s)	3.9	3.9						4.3	4.3	4.3	4.3	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lead/Lag								Lead	Lead	Lag		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	None	None						C-Max	C-Max	None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 114 (95%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 60	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp

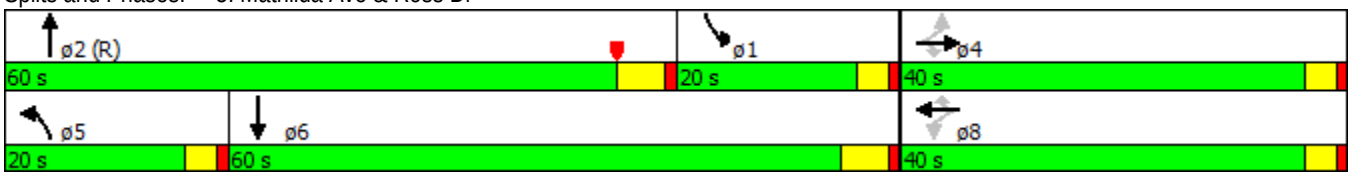


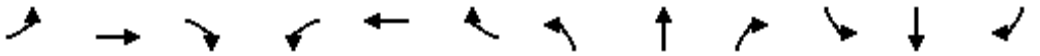


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	74	53	18	105	22	239	50	2388	96	50	849	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		30	30		60	130		0	100		0
Storage Lanes	0		2	0		2	1		0	1		0
Taper Length (ft)	30			25			90			120		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	1.00	0.91	0.91
Ped Bike Factor			0.98	1.00				1.00				
Frt			0.850			0.850		0.994			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	7490	0	1770	5055	0
Flt Permitted	0.742			0.719			0.950			0.950		
Satd. Flow (perm)	1382	1863	1557	1333	1863	1583	1770	7490	0	1770	5055	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			105			245		10			7	
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		696			2916			487			341	
Travel Time (s)		19.0			79.5			7.4			5.2	
Confl. Peds. (#/hr)			5	5					5			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	80	58	20	114	24	260	54	2596	104	54	923	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	80	58	20	114	24	260	54	2700	0	54	962	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0		4.0	5.0	
Minimum Split (s)	40.0	40.0	40.0	10.0	10.0	10.0	8.0	32.3		8.0	10.3	
Total Split (s)	40.0	40.0	40.0	40.0	40.0	40.0	20.0	60.0		20.0	60.0	
Total Split (%)	33.3%	33.3%	33.3%	33.3%	33.3%	33.3%	16.7%	50.0%		16.7%	50.0%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	None	None	None	None	None	None	None	C-Max		None	None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow, Master Intersection	
Natural Cycle: 85	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Mathilda Ave & Ross Dr

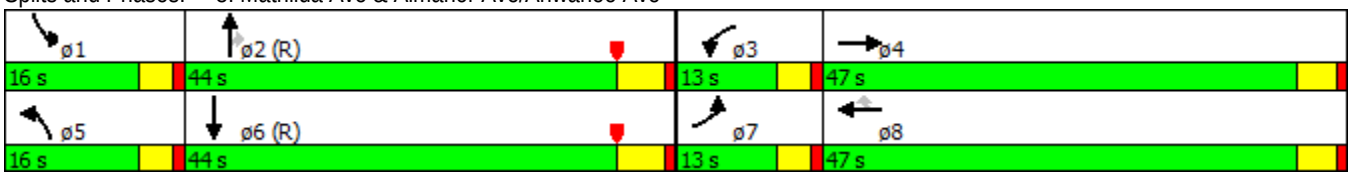




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	11	21	70	27	171	107	2458	46	144	1505	278
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320		120	230		50	350		70	110		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	90			120			25			60		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	0.86
Ped Bike Factor		0.97									1.00	
Frt		0.901				0.850			0.850		0.977	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1635	0	1770	1863	1583	1770	6408	1583	1770	6235	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1635	0	1770	1863	1583	1770	6408	1583	1770	6235	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				186			90		41	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		422			706			740			427	
Travel Time (s)		9.6			16.0			11.2			6.5	
Confl. Peds. (#/hr)			32									2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	12	23	76	29	186	116	2672	50	157	1636	302
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	35	0	76	29	186	116	2672	50	157	1938	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	12.0	12.0	8.0	12.0	
Minimum Split (s)	12.1	46.7		12.1	12.7	12.7	12.1	17.3	17.3	12.1	26.3	
Total Split (s)	13.0	47.0		13.0	47.0	47.0	16.0	44.0	44.0	16.0	44.0	
Total Split (%)	10.8%	39.2%		10.8%	39.2%	39.2%	13.3%	36.7%	36.7%	13.3%	36.7%	
Yellow Time (s)	3.1	3.7		3.1	3.7	3.7	3.1	4.3	4.3	3.1	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.1	4.7		4.1	4.7	4.7	4.1	5.3	5.3	4.1	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 73 (61%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave

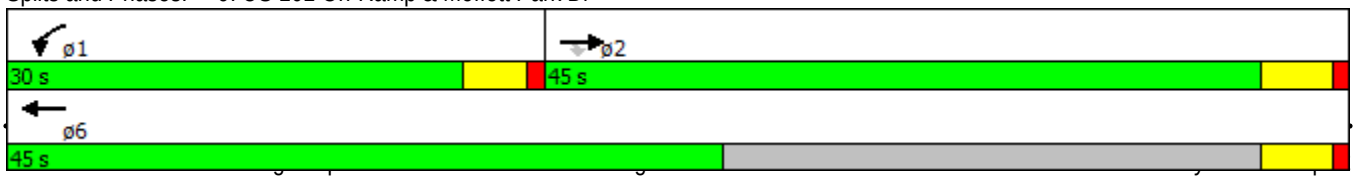


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	151	1	16	873	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		130	0		0	0
Storage Lanes		1	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	1863	1583	1770	1863	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	1863	1583	1770	1863	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		1				
Link Speed (mph)	30			30	30	
Link Distance (ft)	939			921	120	
Travel Time (s)	21.3			20.9	2.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	164	1	17	949	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	164	1	17	949	0	0
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	6		
Permitted Phases		2				
Detector Phase	2	2	1	6		
Switch Phase						
Minimum Initial (s)	15.0	15.0	6.0	15.0		
Minimum Split (s)	20.0	20.0	10.5	20.0		
Total Split (s)	45.0	45.0	30.0	45.0		
Total Split (%)	60.0%	60.0%	40.0%	60.0%		
Yellow Time (s)	4.0	4.0	3.5	4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	5.0	4.5	5.0		
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	None	Min		

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 42.8
Natural Cycle: 40
Control Type: Semi Act-Uncoord

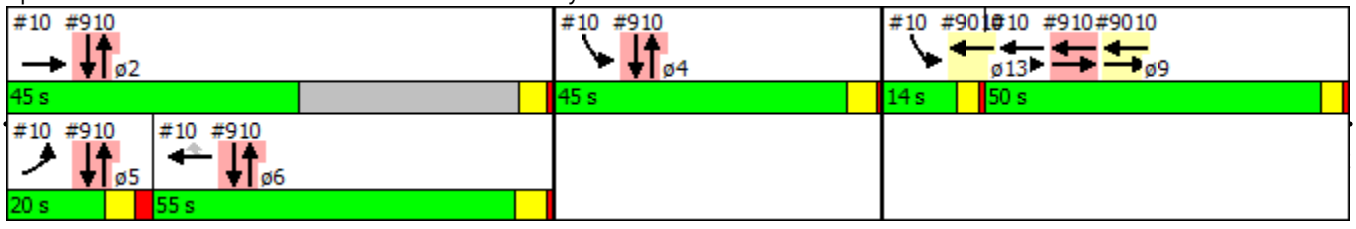
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

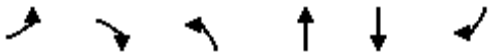


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø9	ø13
Lane Configurations										
Volume (vph)	49	102	789	134	32	100				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	200			200	0	0				
Storage Lanes	1			1	2	0				
Taper Length (ft)	140				25					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95				
Frt				0.850	0.886					
Flt Protected	0.950				0.988					
Satd. Flow (prot)	1770	3539	3539	1583	3163	0				
Flt Permitted	0.950				0.988					
Satd. Flow (perm)	1770	3539	3539	1583	3163	0				
Right Turn on Red				Yes		No				
Satd. Flow (RTOR)				78						
Link Speed (mph)		40	40		30					
Link Distance (ft)		921	1032		121					
Travel Time (s)		15.7	17.6		2.8					
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				
Adj. Flow (vph)	53	111	858	146	35	109				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	53	111	858	146	144	0				
Turn Type	Prot	NA	NA	custom	Prot					
Protected Phases	5	2 9	6 9		4 13		2	4	9	13
Permitted Phases				6						
Detector Phase	5	2	6	6	4					
Switch Phase										
Minimum Initial (s)	8.0			10.0			10.0	10.0	46.0	10.0
Minimum Split (s)	14.5			15.5			14.9	15.0	50.0	14.0
Total Split (s)	20.0			55.0			45.0	45.0	50.0	14.0
Total Split (%)	10.9%			29.9%			24%	24%	27%	8%
Yellow Time (s)	4.0			4.5			3.9	4.0	3.0	3.0
All-Red Time (s)	2.5			1.0			1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0						
Total Lost Time (s)	6.5			5.5						
Lead/Lag	Lead			Lag					Lag	Lead
Lead-Lag Optimize?	Yes			Yes					Yes	Yes
Recall Mode	None			Min			Min	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 184	
Actuated Cycle Length: 70.9	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 10: Moffett Park Dr & Innovation Way

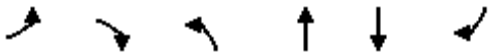




Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	9	55	169	14	77	344
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	100			0
Storage Lanes	1	2	1			0
Taper Length (ft)	30		60			
Lane Util. Factor	1.00	0.88	0.91	0.91	0.95	0.95
Ped Bike Factor						
Frt		0.850			0.878	
Flt Protected	0.950		0.950	0.959		
Satd. Flow (prot)	1770	2787	1610	3251	3107	0
Flt Permitted	0.950		0.950	0.959		
Satd. Flow (perm)	1770	2787	1610	3251	3107	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1177			601	841	
Travel Time (s)	32.1			16.4	22.9	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	10	60	184	15	84	374
Shared Lane Traffic (%)			50%			
Lane Group Flow (vph)	10	60	92	107	458	0
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other

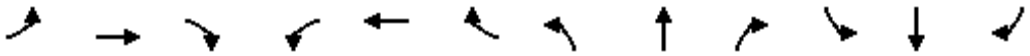
Control Type: Unsignalized



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	28	1	0	23	420	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		60			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.850			0.990	0.850
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	1863	3539	1752	1504
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	1863	3539	1752	1504
Link Speed (mph)	30			25	25	
Link Distance (ft)	335			299	197	
Travel Time (s)	7.6			8.2	5.4	
Confl. Peds. (#/hr)		5	5			5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	1	0	25	457	325
Shared Lane Traffic (%)						10%
Lane Group Flow (vph)	30	1	0	25	490	292
Sign Control	Stop			Stop	Stop	

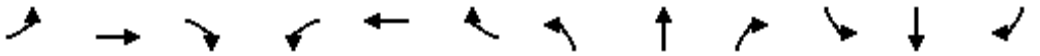
Intersection Summary	
Area Type:	Other

Control Type: Unsignalized



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	1	0	0	0	0	0	99	0	0	41	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	1863	0	0	1863	0	0	1863	0	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	1863	0	0	1863	0	0	1863	0
Link Speed (mph)		30			25			30			30	
Link Distance (ft)		908			601			1425			725	
Travel Time (s)		20.6			16.4			32.4			16.5	
Confl. Peds. (#/hr)			2						1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1	0	0	0	0	0	108	0	0	45	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1	0	0	0	0	0	108	0	0	45	0
Sign Control		Stop			Stop			Stop			Stop	

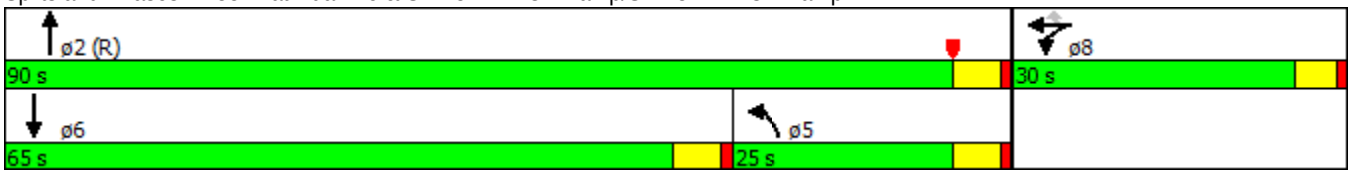
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	663	23	334	135	2615	0	0	246	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	310		310	0		0	0		0
Storage Lanes	0		0	0		2	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.86	1.00	1.00	0.86	0.86
Ped Bike Factor												
Frt						0.850					0.967	
Flt Protected				0.950	0.955		0.950					
Satd. Flow (prot)	0	0	0	1681	1690	1583	1770	6408	0	0	6196	0
Flt Permitted				0.950	0.955		0.950					
Satd. Flow (perm)	0	0	0	1681	1690	1583	1770	6408	0	0	6196	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						69					74	
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		107			1242			246			221	
Travel Time (s)		2.4			18.8			3.7			3.3	
Confl. Peds. (#/hr)									12			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	721	25	363	147	2842	0	0	267	74
Shared Lane Traffic (%)				48%								
Lane Group Flow (vph)	0	0	0	375	371	363	147	2842	0	0	341	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Detector Phase				8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Minimum Split (s)				8.9	8.9	8.9	9.3	18.3			9.3	
Total Split (s)				30.0	30.0	30.0	25.0	90.0			65.0	
Total Split (%)				25.0%	25.0%	25.0%	20.8%	75.0%			54.2%	
Yellow Time (s)				3.9	3.9	3.9	4.3	4.3			4.3	
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode				Max	Max	Max	None	C-Max			None	

Intersection Summary	
Area Type:	Other
Cycle Length: 120	
Actuated Cycle Length: 120	
Offset: 83 (69%), Referenced to phase 2:NBT, Start of Yellow	
Natural Cycle: 50	
Control Type: Actuated-Coordinated	

Splits and Phases: 33: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



Lanes, Volumes, Timings
1: Mathilda Ave & 5th Ave

12/11/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	38	17	51	229	4	8	97	329	37	3	1102	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	310		50	400		0	220		220
Storage Lanes	2		1	1		1	2		0	1		1
Taper Length (ft)	90			30			170			60		
Lane Util. Factor	0.97	1.00	1.00	0.97	1.00	1.00	0.97	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor			0.91		0.99			1.00				0.99
Frt			0.850		0.900			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1863	1583	3433	1655	0	3433	4990	0	1770	5085	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1863	1433	3433	1655	0	3433	4990	0	1770	5085	1561
Right Turn on Red			No			Yes			Yes			No
Satd. Flow (RTOR)					8			9				
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		107			1003			1249			1438	
Travel Time (s)		2.9			27.4			18.9			21.8	
Confl. Peds. (#/hr)			35			3			4			1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	39	18	53	236	4	8	100	339	38	3	1136	9
Shared Lane Traffic (%)												
Lane Group Flow (vph)	39	18	53	236	12	0	100	377	0	3	1136	9
Turn Type	Prot	NA	custom	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	7 13	4 13		3	8		5	2 9		1	6 9	
Permitted Phases			4									6
Detector Phase	7	4	4	3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0		11.0			10.0		12.0
Minimum Split (s)			38.1	16.5	38.1		15.5			14.5		41.3
Total Split (s)			38.1	34.5	38.1		34.5			34.5		70.3
Total Split (%)			14.8%	13.4%	14.8%		13.4%			13.4%		27.3%
Yellow Time (s)			5.1	3.5	5.1		3.5			3.5		4.3
All-Red Time (s)			1.0	1.0	1.0		1.0			1.0		1.0
Lost Time Adjust (s)			0.0	0.0	0.0		0.0			0.0		0.0
Total Lost Time (s)			6.1	4.5	6.1		4.5			4.5		5.3
Lead/Lag			Lag	Lead	Lag		Lead			Lead		Lag
Lead-Lag Optimize?			Yes	Yes	Yes		Yes			Yes		Yes
Recall Mode			None	None	None		None			None		Min

Intersection Summary

Area Type: Other

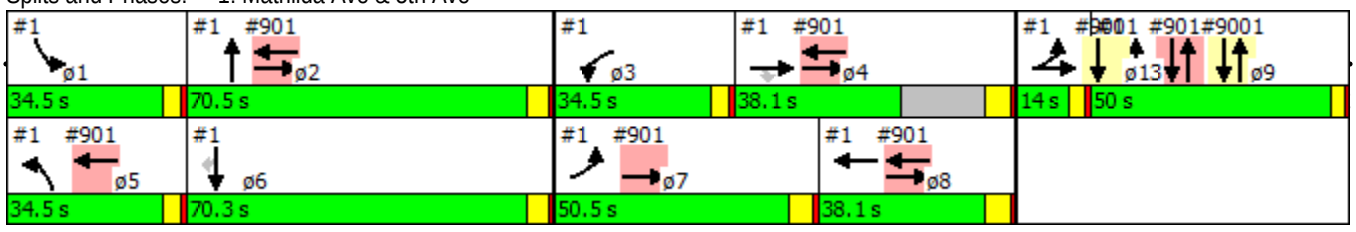
Cycle Length: 257.6

Actuated Cycle Length: 108.1

Natural Cycle: 180

Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



Lane Group	ø2	ø7	ø9	ø13
Lane Configurations				
Volume (vph)				
Ideal Flow (vphpl)				
Storage Length (ft)				
Storage Lanes				
Taper Length (ft)				
Lane Util. Factor				
Ped Bike Factor				
Frt				
Flt Protected				
Satd. Flow (prot)				
Flt Permitted				
Satd. Flow (perm)				
Right Turn on Red				
Satd. Flow (RTOR)				
Link Speed (mph)				
Link Distance (ft)				
Travel Time (s)				
Confl. Peds. (#/hr)				
Peak Hour Factor				
Adj. Flow (vph)				
Shared Lane Traffic (%)				
Lane Group Flow (vph)				
Turn Type				
Protected Phases	2	7	9	13
Permitted Phases				
Detector Phase				
Switch Phase				
Minimum Initial (s)	12.0	12.0	46.0	10.0
Minimum Split (s)	35.5	17.5	50.0	14.0
Total Split (s)	70.5	50.5	50.0	14.0
Total Split (%)	27%	20%	19%	5%
Yellow Time (s)	4.5	4.5	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)				
Total Lost Time (s)				
Lead/Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes
Recall Mode	Min	None	None	None

Intersection Summary

Lanes, Volumes, Timings
2: Mathilda Ave & Innovation Way

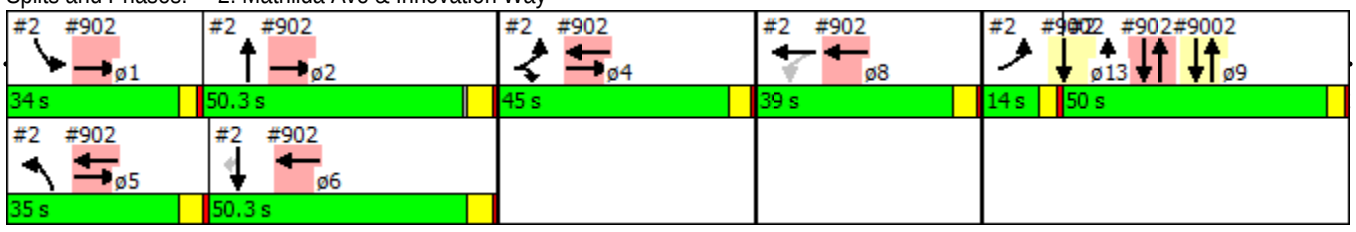
12/11/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	0	622	0	0	0	61	376	0	0	1346	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	170		0	0		0	390		0	70		210
Storage Lanes	0		2	0		0	2		0	1		1
Taper Length (ft)	30			25			90			60		
Lane Util. Factor	1.00	1.00	0.88	1.00	1.00	1.00	0.97	0.91	0.91	1.00	0.91	1.00
Ped Bike Factor												0.99
Frt			0.850									0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1770	0	2787	0	1863	0	3433	5085	0	1863	5085	1583
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1770	0	2787	0	1863	0	3433	5085	0	1863	5085	1561
Right Turn on Red			No			Yes			Yes			Yes
Satd. Flow (RTOR)												89
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		121			908			1130			1249	
Travel Time (s)		3.3			24.8			17.1			18.9	
Confl. Peds. (#/hr)						2			4			1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	90	0	641	0	0	0	63	388	0	0	1388	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	90	0	641	0	0	0	63	388	0	0	1388	37
Turn Type	Prot		Prot				Prot	NA		Prot	NA	custom
Protected Phases	4 13		4		8		5	2 9		1	6 9	
Permitted Phases				8								6
Detector Phase	4		4	8	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)			14.0	10.0	10.0		13.0			10.0		12.0
Minimum Split (s)			39.0	39.0	39.0		18.0			14.0		41.3
Total Split (s)			45.0	39.0	39.0		35.0			34.0		50.3
Total Split (%)			19.3%	16.7%	16.7%		15.0%			14.6%		21.6%
Yellow Time (s)			4.0	4.0	4.0		4.0			3.0		4.3
All-Red Time (s)			1.0	1.0	1.0		1.0			1.0		1.0
Lost Time Adjust (s)			0.0		0.0		0.0			0.0		0.0
Total Lost Time (s)			5.0		5.0		5.0			4.0		5.3
Lead/Lag							Lead			Lead		Lag
Lead-Lag Optimize?							Yes			Yes		Yes
Recall Mode			Max	None	None		None			None		Min

Intersection Summary

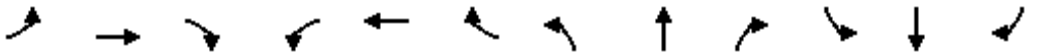
Area Type: Other
Cycle Length: 233.3
Actuated Cycle Length: 132.2
Natural Cycle: 205
Control Type: Semi Act-Uncoord

Splits and Phases: 2: Mathilda Ave & Innovation Way



Lane Group	ø2	ø9	ø13
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Ped Bike Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Peak Hour Factor			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	46.0	10.0
Minimum Split (s)	17.3	50.0	14.0
Total Split (s)	50.3	50.0	14.0
Total Split (%)	22%	21%	6%
Yellow Time (s)	4.3	3.0	3.0
All-Red Time (s)	1.0	1.0	1.0
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	Min	None	None

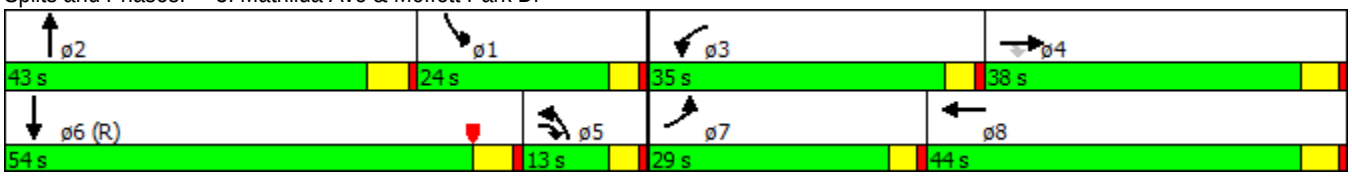
Intersection Summary

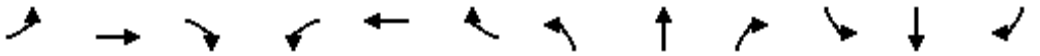


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	44	165	403	285	237	20	84	373	145	39	1858	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	263		0	280		0	90		0	150		0
Storage Lanes	0		1	2		0	0		0	2		0
Taper Length (ft)	55			240			0			90		
Lane Util. Factor	1.00	0.95	0.95	0.97	1.00	1.00	0.97	0.91	0.91	1.00	0.86	0.86
Ped Bike Factor					1.00			0.98				
Frt		0.933	0.850		0.988			0.958			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1651	1504	3433	1838	0	3433	4788	0	1770	6369	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1651	1504	3433	1838	0	3433	4788	0	1770	6369	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		27	122		3			68			6	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		265			725			214			1130	
Travel Time (s)		4.5			12.4			3.2			17.1	
Confl. Peds. (#/hr)						2			17			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	45	170	415	294	244	21	87	385	149	40	1915	73
Shared Lane Traffic (%)			33%									
Lane Group Flow (vph)	45	307	278	294	265	0	87	534	0	40	1988	0
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	
Protected Phases	7	4	5	3	8		5	2		1	6	
Permitted Phases			4									
Detector Phase	7	4	5	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0	4.0	8.0	8.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	12.0	12.9	8.0	12.0	38.9		8.0	33.3		8.0	9.3	
Total Split (s)	29.0	38.0	13.0	35.0	44.0		13.0	43.0		24.0	54.0	
Total Split (%)	20.7%	27.1%	9.3%	25.0%	31.4%		9.3%	30.7%		17.1%	38.6%	
Yellow Time (s)	3.0	3.9	3.0	3.0	3.9		3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.9	4.0	4.0	4.9		4.0	5.3		4.0	5.3	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Max	Max	Max	None		Max	Max		None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow, Master Intersection	
Natural Cycle: 95	
Control Type: Actuated-Coordinated	

Splits and Phases: 3: Mathilda Ave & Moffett Park Dr

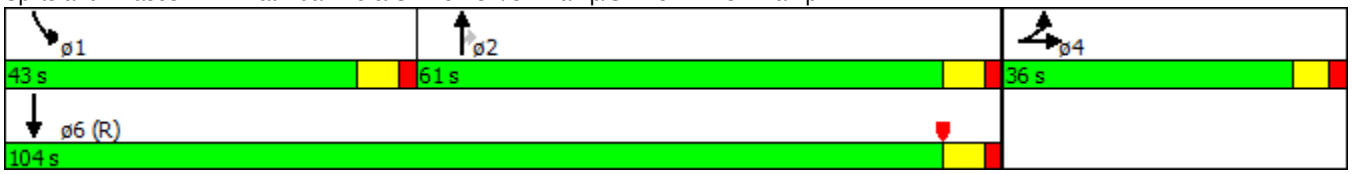


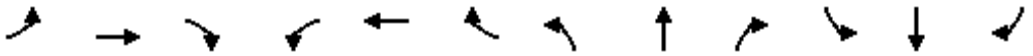


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	29	195	0	0	0	0	354	625	331	2521	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	440		430	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.91	0.91	1.00	1.00	1.00	1.00	1.00	0.81	1.00	1.00	0.91	1.00
Ped Bike Factor									0.99			
Frt		0.878							0.850			
Flt Protected	0.950	0.997								0.950		
Satd. Flow (prot)	3221	1484	0	0	0	0	0	7544	1583	1770	5085	0
Flt Permitted	0.950	0.997								0.950		
Satd. Flow (perm)	3221	1484	0	0	0	0	0	7544	1560	1770	5085	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6							520			
Link Speed (mph)		45			45			45			45	
Link Distance (ft)		1146			778			341			254	
Travel Time (s)		17.4			11.8			5.2			3.8	
Confl. Bikes (#/hr)									5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	171	30	201	0	0	0	0	365	644	341	2599	0
Shared Lane Traffic (%)	10%											
Lane Group Flow (vph)	154	248	0	0	0	0	0	365	644	341	2599	0
Turn Type	Split	NA						NA	Perm	Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases									2			
Detector Phase	4	4						2	2	1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0						4.0	4.0	4.0	4.0	
Minimum Split (s)	10.9	10.9						20.3	20.3	10.3	10.3	
Total Split (s)	36.0	36.0						61.0	61.0	43.0	104.0	
Total Split (%)	25.7%	25.7%						43.6%	43.6%	30.7%	74.3%	
Yellow Time (s)	3.9	3.9						4.3	4.3	4.3	4.3	
All-Red Time (s)	2.0	2.0						2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	0.0	0.0						0.0	0.0	0.0	0.0	
Total Lost Time (s)	5.9	5.9						6.3	6.3	6.3	6.3	
Lead/Lag								Lag	Lag	Lead		
Lead-Lag Optimize?								Yes	Yes	Yes		
Recall Mode	Max	Max						None	None	Max	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 50 (36%), Referenced to phase 6:SBT, Start of Yellow	
Natural Cycle: 75	
Control Type: Actuated-Coordinated	

Splits and Phases: 4: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp

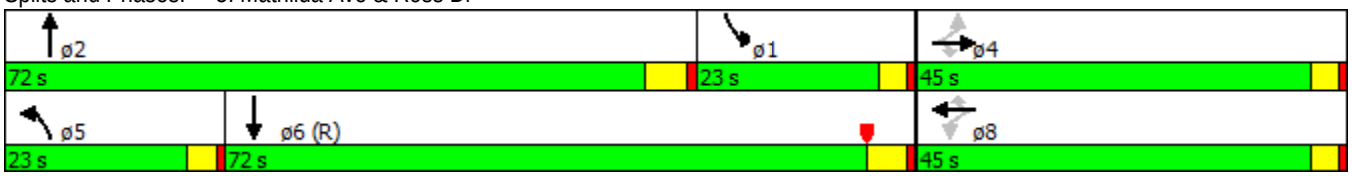


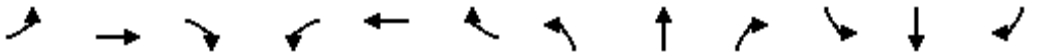


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	143	35	210	48	97	87	843	252	130	2499	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	80		30	30		60	130		0	100		0
Storage Lanes	0		2	0		2	1		0	1		0
Taper Length (ft)	30			25			90			120		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.81	0.81	1.00	0.91	0.91
Ped Bike Factor			0.98	1.00				0.99				
Frt			0.850			0.850		0.965			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	7225	0	1770	5060	0
Flt Permitted	0.725			0.586			0.950			0.950		
Satd. Flow (perm)	1350	1863	1555	1087	1863	1583	1770	7225	0	1770	5060	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90			100		74			5	
Link Speed (mph)		25			25			45			45	
Link Distance (ft)		696			2916			487			341	
Travel Time (s)		19.0			79.5			7.4			5.2	
Confl. Peds. (#/hr)			5	5					5			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	40	147	36	216	49	100	90	869	260	134	2576	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	147	36	216	49	100	90	1129	0	134	2666	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	4	8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0		4.0	5.0	
Minimum Split (s)	40.0	40.0	40.0	10.0	10.0	10.0	8.0	32.3		8.0	10.3	
Total Split (s)	45.0	45.0	45.0	45.0	45.0	45.0	23.0	72.0		23.0	72.0	
Total Split (%)	32.1%	32.1%	32.1%	32.1%	32.1%	32.1%	16.4%	51.4%		16.4%	51.4%	
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.3		3.0	4.3	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.3		4.0	5.3	
Lead/Lag							Lead	Lead		Lag	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	Max	Max	Max	Max	Max	Max	Max	None		None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 35 (25%), Referenced to phase 6:SBT, Start of Yellow	
Natural Cycle: 115	
Control Type: Actuated-Coordinated	

Splits and Phases: 5: Mathilda Ave & Ross Dr

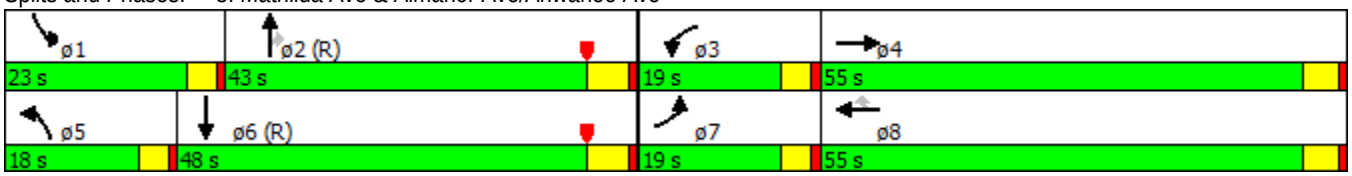




Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	285	23	64	41	5	172	56	1275	36	156	2680	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	320		120	230		50	350		70	110		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	90			120			25			60		
Lane Util. Factor	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.86	1.00	1.00	0.86	0.86
Ped Bike Factor		0.98							0.98		1.00	
Frt		0.890				0.850			0.850		0.997	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	1631	0	1770	1863	1583	1770	6408	1583	1770	6384	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	1631	0	1770	1863	1583	1770	6408	1549	1770	6384	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66				177			109		3	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		422			706			740			427	
Travel Time (s)		9.6			16.0			11.2			6.5	
Confl. Peds. (#/hr)			10						1			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	294	24	66	42	5	177	58	1314	37	161	2763	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	294	90	0	42	5	177	58	1314	37	161	2823	0
Turn Type	Prot	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8			2			
Detector Phase	7	4		3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	12.0	12.0	8.0	12.0	
Minimum Split (s)	12.1	46.7		12.1	12.7	12.7	12.1	17.3	17.3	12.1	26.3	
Total Split (s)	19.0	55.0		19.0	55.0	55.0	18.0	43.0	43.0	23.0	48.0	
Total Split (%)	13.6%	39.3%		13.6%	39.3%	39.3%	12.9%	30.7%	30.7%	16.4%	34.3%	
Yellow Time (s)	3.1	3.7		3.1	3.7	3.7	3.1	4.3	4.3	3.1	4.3	
All-Red Time (s)	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.1	4.7		4.1	4.7	4.7	4.1	5.3	5.3	4.1	5.3	
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 36 (26%), Referenced to phase 2:NBT and 6:SBT, Start of Yellow	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave

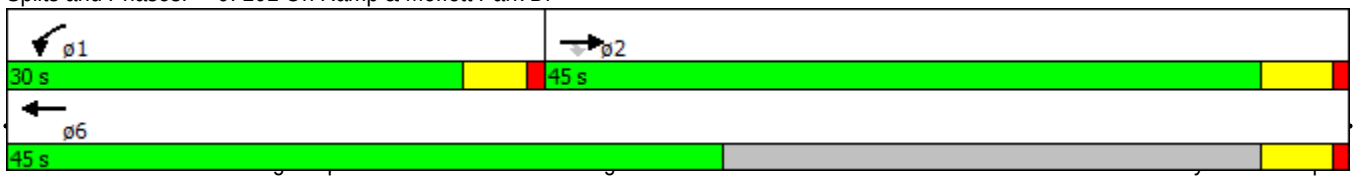


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	731	77	205	282	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		130	0		0	0
Storage Lanes		1	1		0	0
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				
Flt Protected			0.950			
Satd. Flow (prot)	1863	1583	1770	1863	0	0
Flt Permitted			0.950			
Satd. Flow (perm)	1863	1583	1770	1863	0	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		67				
Link Speed (mph)	30			30	30	
Link Distance (ft)	939			921	120	
Travel Time (s)	21.3			20.9	2.7	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	754	79	211	291	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	754	79	211	291	0	0
Turn Type	NA	Perm	Prot	NA		
Protected Phases	2		1	6		
Permitted Phases		2				
Detector Phase	2	2	1	6		
Switch Phase						
Minimum Initial (s)	15.0	15.0	6.0	15.0		
Minimum Split (s)	20.0	20.0	10.5	20.0		
Total Split (s)	45.0	45.0	30.0	45.0		
Total Split (%)	60.0%	60.0%	40.0%	60.0%		
Yellow Time (s)	4.0	4.0	3.5	4.0		
All-Red Time (s)	1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	5.0	5.0	4.5	5.0		
Lead/Lag	Lag	Lag	Lead			
Lead-Lag Optimize?						
Recall Mode	Min	Min	Max	Min		

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 67.3
Natural Cycle: 50
Control Type: Semi Act-Uncoord

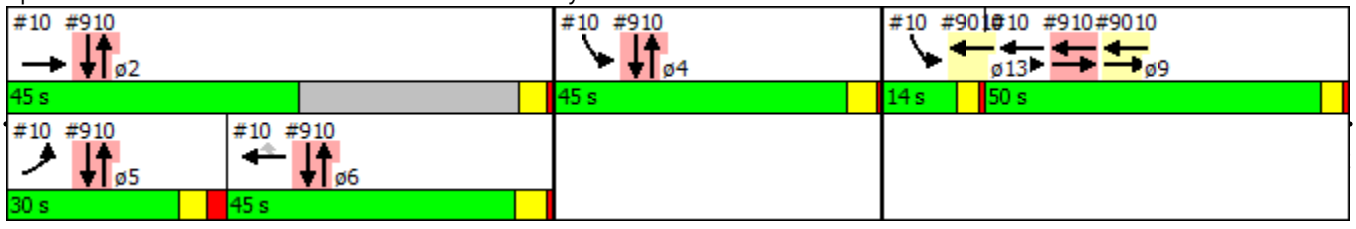
Splits and Phases: 9: 101 On Ramp & Moffett Park Dr

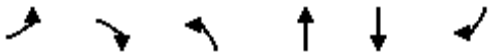


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	ø2	ø4	ø9	ø13
Lane Configurations										
Volume (vph)	44	687	350	42	153	137				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	200			200	0	0				
Storage Lanes	1			1	2	0				
Taper Length (ft)	140				25					
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	0.95				
Frt				0.850	0.929					
Flt Protected	0.950				0.974					
Satd. Flow (prot)	1770	3539	3539	1583	3270	0				
Flt Permitted	0.950				0.974					
Satd. Flow (perm)	1770	3539	3539	1583	3270	0				
Right Turn on Red				Yes		No				
Satd. Flow (RTOR)				43						
Link Speed (mph)		40	40		30					
Link Distance (ft)		921	1032		121					
Travel Time (s)		15.7	17.6		2.8					
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				
Adj. Flow (vph)	45	708	361	43	158	141				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	45	708	361	43	299	0				
Turn Type	Prot	NA	NA	custom	Prot					
Protected Phases	5	2 9	6 9		4 13		2	4	9	13
Permitted Phases				6						
Detector Phase	5	2	6	6	4					
Switch Phase										
Minimum Initial (s)	8.0			10.0			10.0	10.0	46.0	10.0
Minimum Split (s)	14.5			15.5			14.9	15.0	50.0	14.0
Total Split (s)	30.0			45.0			45.0	45.0	50.0	14.0
Total Split (%)	16.3%			24.5%			24%	24%	27%	8%
Yellow Time (s)	4.0			4.5			3.9	4.0	3.0	3.0
All-Red Time (s)	2.5			1.0			1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0						
Total Lost Time (s)	6.5			5.5						
Lead/Lag	Lead			Lag					Lag	Lead
Lead-Lag Optimize?	Yes			Yes					Yes	Yes
Recall Mode	None			Min			Min	None	None	None

Intersection Summary	
Area Type:	Other
Cycle Length: 184	
Actuated Cycle Length: 57.3	
Natural Cycle: 110	
Control Type: Actuated-Uncoordinated	

Splits and Phases: 10: Moffett Park Dr & Innovation Way

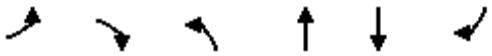




Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	363	248	24	62	42	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100	0	100			0
Storage Lanes	1	2	1			0
Taper Length (ft)	30		60			
Lane Util. Factor	1.00	0.88	0.91	0.91	0.95	0.95
Ped Bike Factor						
Frt		0.850			0.963	
Flt Protected	0.950		0.950	0.998		
Satd. Flow (prot)	1770	2787	1610	3383	3408	0
Flt Permitted	0.950		0.950	0.998		
Satd. Flow (perm)	1770	2787	1610	3383	3408	0
Link Speed (mph)	25			25	25	
Link Distance (ft)	1177			601	841	
Travel Time (s)	32.1			16.4	22.9	
Confl. Peds. (#/hr)	5	5	5			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	374	256	25	64	43	14
Shared Lane Traffic (%)			10%			
Lane Group Flow (vph)	374	256	22	67	57	0
Sign Control	Stop			Stop	Stop	

Intersection Summary	
Area Type:	Other

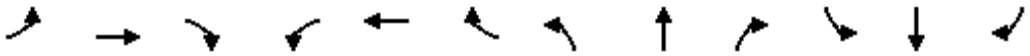
Control Type: Unsignalized



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	284	15	0	425	41	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25		60			
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor						
Frt		0.850			0.969	0.850
Flt Protected	0.950					
Satd. Flow (prot)	1770	1583	1863	3539	1715	1504
Flt Permitted	0.950					
Satd. Flow (perm)	1770	1583	1863	3539	1715	1504
Link Speed (mph)	30			25	25	
Link Distance (ft)	1347			299	197	
Travel Time (s)	30.6			8.2	5.4	
Confl. Peds. (#/hr)		5	5			5
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	293	15	0	438	42	58
Shared Lane Traffic (%)						19%
Lane Group Flow (vph)	293	15	0	438	53	47
Sign Control	Stop			Stop	Stop	

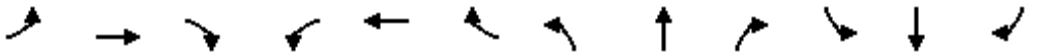
Intersection Summary	
Area Type:	Other

Control Type: Unsignalized



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑			↑			↑			↑	
Volume (vph)	0	0	0	0	0	0	0	28	0	0	129	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor												
Frt												
Flt Protected												
Satd. Flow (prot)	0	1863	0	0	1863	0	0	1863	0	0	1863	0
Flt Permitted												
Satd. Flow (perm)	0	1863	0	0	1863	0	0	1863	0	0	1863	0
Link Speed (mph)		30			25			30			30	
Link Distance (ft)		908			601			1425			725	
Travel Time (s)		20.6			16.4			32.4			16.5	
Confl. Peds. (#/hr)			2						1			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	0	0	0	0	29	0	0	133	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	0	0	0	29	0	0	133	0
Sign Control		Stop			Stop			Stop			Stop	

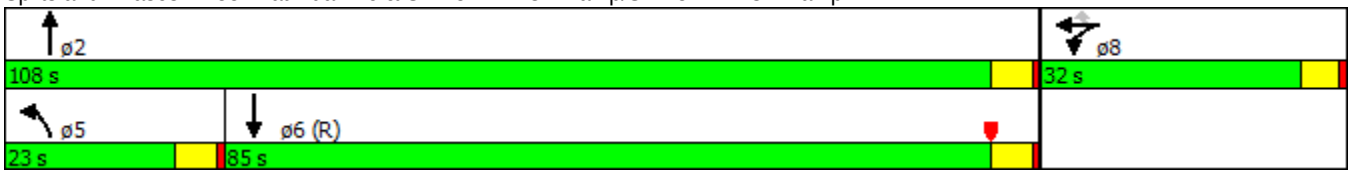
Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	709	17	164	82	438	0	0	2143	403
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	310		310	0		0	0		0
Storage Lanes	0		0	0		2	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.86	1.00	1.00	0.86	0.86
Ped Bike Factor												
Frt						0.850					0.976	
Flt Protected				0.950	0.955		0.950					
Satd. Flow (prot)	0	0	0	1681	1690	1583	1770	6408	0	0	6254	0
Flt Permitted				0.950	0.955		0.950					
Satd. Flow (perm)	0	0	0	1681	1690	1583	1770	6408	0	0	6254	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						169					56	
Link Speed (mph)		30			45			45			45	
Link Distance (ft)		132			1141			254			214	
Travel Time (s)		3.0			17.3			3.8			3.2	
Confl. Peds. (#/hr)									9			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	0	0	0	731	18	169	85	452	0	0	2209	415
Shared Lane Traffic (%)				49%								
Lane Group Flow (vph)	0	0	0	373	376	169	85	452	0	0	2624	0
Turn Type				Split	NA	Perm	Prot	NA			NA	
Protected Phases				8	8		5	2			6	
Permitted Phases						8						
Detector Phase				8	8	8	5	2			6	
Switch Phase												
Minimum Initial (s)				4.0	4.0	4.0	4.0	4.0			4.0	
Minimum Split (s)				8.9	8.9	8.9	9.3	18.3			9.3	
Total Split (s)				32.0	32.0	32.0	23.0	108.0			85.0	
Total Split (%)				22.9%	22.9%	22.9%	16.4%	77.1%			60.7%	
Yellow Time (s)				3.9	3.9	3.9	4.3	4.3			4.3	
All-Red Time (s)				1.0	1.0	1.0	1.0	1.0			1.0	
Lost Time Adjust (s)				0.0	0.0	0.0	0.0	0.0			0.0	
Total Lost Time (s)				4.9	4.9	4.9	5.3	5.3			5.3	
Lead/Lag							Lead				Lag	
Lead-Lag Optimize?							Yes				Yes	
Recall Mode				Max	Max	Max	Max	Max			C-Max	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 33 (24%), Referenced to phase 6:SBT, Start of Yellow	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	

Splits and Phases: 33: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



APPENDIX F – EXISTING FREQ MAINLINE CALCULATION SHEETS

US 101 Northbound

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
```

FREQ12PL

1. A TYPE 0 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	60	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
12	1	1650.	980.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	1	1650.	100.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	60	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture

3	3	7000.	2830.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	3	6000.	1000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
```

FREQ12PL

1. A TYPE 0 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.91	23.74	23.97	24.38	25.07	26.58	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1387.	0.	1387.	1387.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
3	1	2830.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
4	1	930.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
5	1	1490.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
6	1	3020.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
7	1	1030.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
8	1	1440.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
9	1	1430.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
10	1	3480.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
11	1	1020.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
12	1	980.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
13	1	1800.	0.	0.	1387.	0.	0.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
14	1	1500.	0.	160.	1387.	0.	160.	1387.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
15	1	1300.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	60.	20.4	C	22.7	12.1
16	1	1000.	80.	0.	1307.	80.	0.	1307.	1650.	0.	0.	0.	.79	60.	21.8	C	22.7	12.1
17	1	1100.	0.	0.	1307.	0.	0.	1307.	1650.	0.	0.	0.	.79	60.	21.8	C	22.7	12.1
18	1	1000.	0.	97.	1307.	0.	97.	1307.	1650.	0.	0.	0.	.79	60.	21.8	C	22.7	12.1
19	1	900.	0.	0.	1211.	0.	0.	1211.	1650.	0.	0.	0.	.73	60.	20.2	C	22.7	12.1
20	1	100.	42.	0.	1252.	42.	0.	1252.	1650.	0.	0.	0.	.76	60.	20.9	C	22.7	12.1
21	1	100.	0.	0.	1252.	0.	0.	1252.	1650.	0.	0.	0.	.76	60.	20.9	C	22.7	12.1
22	1	100.	0.	94.	1252.	0.	94.	1252.	1650.	0.	0.	0.	.76	60.	20.9	C	22.7	12.1
23	1	700.	0.	0.	1158.	0.	0.	1158.	1650.	0.	0.	0.	.70	60.	19.3	C	22.7	12.1
24	1	1500.	0.	137.	1158.	0.	137.	1158.	1650.	0.	0.	0.	.70	60.	19.3	C	22.7	12.1
25	1	800.	0.	0.	1021.	0.	0.	1021.	1650.	0.	0.	0.	.62	60.	17.0	B	22.7	12.1
26	1	1000.	204.	0.	1225.	204.	0.	1225.	1650.	0.	0.	0.	.74	60.	20.4	C	22.7	12.1
27	1	800.	0.	0.	1225.	0.	0.	1225.	1650.	0.	0.	0.	.74	60.	20.4	C	22.7	12.1
28	1	1000.	0.	58.	1225.	0.	58.	1225.	1650.	0.	0.	0.	.74	60.	20.4	C	22.7	12.1
29	1	8000.	0.	1167.	1167.	0.	1167.	1167.	1650.	0.	0.	0.	.71	60.	19.5	C	22.7	12.1
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES						MAX(V/C) = 0.84		LOWEST LOS = C		AVG = 60.		22.7		22.7		12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	603. VEH-HRS	1206. PASS-HRS	603. VEH-HRS	1206. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	603. VEH-HRS	1206. PASS-HRS	603. VEH-HRS	1206. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	36179. VEH-MI.	72358. PASS-MI.	36179. VEH-MI.	72358. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	23. VPMPL		23. VPMPL	
TOTAL FUEL =	1592. GALLONS		1592. GALLONS	
TOTAL EMISSIONS =	438. KILOGRAMS		438. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	33.68	3	0.95	4	0.31	5	0.50
6	1.02	7	0.35	8	0.49	9	0.48	10	1.17
11	0.34	12	0.33	13	0.61	14	0.51	15	0.39
16	0.32	17	0.35	18	0.32	19	0.26	20	0.03
21	0.03	22	0.03	23	0.20	24	0.42	25	0.20
26	0.30	27	0.24	28	0.30	29	2.27	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 46.4 VEH-HRS ***** AVERAGE DELAY = 2.04 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.91	23.74	23.97	24.38	25.07	26.58	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1205.	0.	1205.	1205.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
3	1	2830.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
4	1	930.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
5	1	1490.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
6	1	3020.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
7	1	1030.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
8	1	1440.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
9	1	1430.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
10	1	3480.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
11	1	1020.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
12	1	980.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
13	1	1800.	0.	0.	1205.	0.	0.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
14	1	1500.	0.	146.	1205.	0.	146.	1205.	1650.	0.	0.	0.	.73	60.	20.1	C	22.7	12.1
15	1	1300.	0.	0.	1059.	0.	0.	1059.	1650.	0.	0.	0.	.64	60.	17.6	B	22.7	12.1
16	1	1000.	69.	0.	1128.	69.	0.	1128.	1650.	0.	0.	0.	.68	60.	18.8	C	22.7	12.1
17	1	1100.	0.	0.	1128.	0.	0.	1128.	1650.	0.	0.	0.	.68	60.	18.8	C	22.7	12.1
18	1	1000.	0.	106.	1128.	0.	106.	1128.	1650.	0.	0.	0.	.68	60.	18.8	C	22.7	12.1
19	1	900.	0.	0.	1023.	0.	0.	1023.	1650.	0.	0.	0.	.62	60.	17.0	B	22.7	12.1
20	1	100.	35.	0.	1057.	35.	0.	1057.	1650.	0.	0.	0.	.64	60.	17.6	B	22.7	12.1
21	1	100.	0.	0.	1057.	0.	0.	1057.	1650.	0.	0.	0.	.64	60.	17.6	B	22.7	12.1
22	1	100.	0.	106.	1057.	0.	106.	1057.	1650.	0.	0.	0.	.64	60.	17.6	B	22.7	12.1
23	1	700.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
24	1	1500.	0.	153.	952.	0.	153.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
25	1	800.	0.	0.	799.	0.	0.	799.	1650.	0.	0.	0.	.48	60.	13.3	B	22.7	12.1
26	1	1000.	159.	0.	958.	159.	0.	958.	1650.	0.	0.	0.	.58	60.	16.0	B	22.7	12.1
27	1	800.	0.	0.	958.	0.	0.	958.	1650.	0.	0.	0.	.58	60.	16.0	B	22.7	12.1
28	1	1000.	0.	68.	958.	0.	68.	958.	1650.	0.	0.	0.	.58	60.	16.0	B	22.7	12.1
29	1	8000.	0.	890.	890.	0.	890.	890.	1650.	0.	0.	0.	.54	60.	14.8	B	22.7	12.1
30																		
31																		
32																		
TOTAL		140349. =	26.6 MILES					MAX(V/C) = 0.73		LOWEST LOS = C			AVG = 60.	19.5			22.7	12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	519. VEH-HRS	1038. PASS-HRS	1122. VEH-HRS	2244. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	519. VEH-HRS	1038. PASS-HRS	1122. VEH-HRS	2244. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	31138. VEH-MI.	62275. PASS-MI.	67316. VEH-MI.	134633. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	20. VPMPL		21. VPMPL	
TOTAL FUEL =	1370. GALLONS		2962. GALLONS	
TOTAL EMISSIONS =	377. KILOGRAMS		816. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	29.26	3	0.83	4	0.27	5	0.44
6	0.88	7	0.30	8	0.42	9	0.42	10	1.02
11	0.30	12	0.29	13	0.53	14	0.44	15	0.33
16	0.27	17	0.30	18	0.27	19	0.22	20	0.03
21	0.03	22	0.03	23	0.16	24	0.35	25	0.16
26	0.23	27	0.19	28	0.23	29	1.73	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 39.9 VEH-HRS ***** AVERAGE DELAY = 2.04 MIN/VEH *****

QUEUE COLL. SECTION 16 T2= 0.616

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.09	29.14	31.20	31.81	33.15	35.60	0.00	43.82
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.29	1.90	3.24	5.69	0.00	13.91
4	0.00	0.00	0.00	0.14	1.48	3.93	0.00	12.15
5	0.00	0.00	0.00	0.00	0.00	1.74	0.00	9.96
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.80
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	8160.	1387.	8160.	8160.	1387.	8160.	10000.	0.	0.	0.	.82	63.	32.6	D	20.2	13.2
2	3	99999.	0.	0.	6773.	0.	0.	6773.	7000.	0.	0.	0.	.97	53.	42.3	E	23.5	11.2
3	3	2830.	0.	0.	6773.	0.	0.	4720.	7000.	0. *	2109.	2053.	.67	51.	31.0	F	23.3	11.4
4	3	930.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	930.	2053.	.67	45.	34.7	F	22.8	11.7
5	3	1490.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	1490.	2053.	.67	42.	37.2	F	22.4	12.0
6	3	3020.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	3020.	2053.	.67	37.	42.1	F	21.8	12.4
7	3	1030.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	1030.	2053.	.67	34.	46.6	F	21.2	12.9
8	3	1440.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	1440.	2053.	.67	32.	49.5	F	20.9	13.2
9	3	1430.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	1430.	2053.	.67	30.	52.8	F	20.5	13.5
10	3	3480.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	3480.	2053.	.67	27.	58.8	F	19.8	14.1
11	3	1020.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	1020.	2053.	.67	24.	64.5	F	19.2	14.6
12	3	980.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	980.	2053.	.67	23.	67.1	F	19.0	14.9
13	3	1800.	0.	0.	6773.	0.	0.	4720.	7000.	0. **	1800.	2053.	.67	22.	70.8	F	18.6	15.2
14	3	1500.	0.	784.	6773.	0.	784.	4720.	7000.	0. **	1500.	2053.	.67	21.	75.4	F	18.2	15.7
15	3	1300.	0.	0.	5989.	0.	0.	3936.	6000.	0. **	1300.	2053.	.66	19.	68.1	F	17.9	16.0
16	3	1000.	610.	0.	6599.	610.	0.	4546.	6000.	0. **	1000.	1454.	.76	28.	53.8	F	20.7	13.7
17	3	1100.	0.	0.	6599.	0.	0.	4546.	6000.	0. **	1100.	1454.	.76	27.	55.6	F	20.5	13.9
18	3	1000.	0.	525.	6599.	0.	478.	4546.	6000.	0. **	1000.	1454.	.76	26.	57.3	F	20.3	14.1
19	3	900.	0.	0.	6073.	0.	0.	4067.	6000.	0. **	900.	1454.	.68	22.	61.4	F	18.2	15.6
20	3	100.	288.	0.	6362.	288.	0.	4356.	6000.	0. **	100.	1454.	.73	24.	61.3	F	19.1	15.0
21	3	100.	0.	0.	6362.	0.	0.	4356.	6000.	0. **	100.	1454.	.73	24.	61.5	F	19.1	15.0
22	3	100.	0.	539.	6362.	0.	493.	4356.	6000.	0. **	100.	1454.	.73	24.	61.7	F	19.0	15.0
23	3	700.	0.	0.	5823.	0.	0.	3862.	6000.	0. **	700.	1454.	.64	19.	66.1	F	17.3	16.4
24	3	1500.	0.	787.	5823.	0.	720.	3862.	6000.	0. **	1500.	1454.	.64	18.	70.1	F	17.0	16.8
25	3	800.	0.	0.	5036.	0.	0.	3143.	6000.	0. **	800.	1454.	.52	13.	82.2	F	13.6	19.3
26	3	1000.	1076.	0.	6112.	1076.	0.	4219.	6000.	0. **	1000.	1454.	.70	19.	74.3	F	17.4	16.6
27	3	800.	0.	0.	6112.	0.	0.	4219.	6000.	0. **	800.	1454.	.70	18.	76.9	F	17.2	16.9
28	3	1000.	0.	414.	6112.	0.	386.	4219.	6000.	0. **	1000.	1454.	.70	18.	79.5	F	17.0	17.2
29	3	8000.	0.	0.	5698.	0.	0.	3833.	6000.	0. **	8000.	1454.	.64	12.	104.3	F	14.5	20.5
30	4	100.	1167.	0.	6865.	1167.	0.	5000.	8000.	0. **	100.	1454.	.63	10.	126.8	F	12.9	23.0
31	4	1000.	1000.	0.	7865.	1000.	0.	6000.	6000.	0.	0.	0.	1.00	52.	28.7	E	23.8	11.1
32	4	2640.	0.	7865.	7865.	0.	6000.	6000.	8000.	0.	0.	0.	.75	64.	23.4	C	20.4	13.5
TOTAL		144589. =	27.4 MILES					MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 41.		48.6			22.1	12.2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4301. VEH-HRS	4318. PASS-HRS	4301. VEH-HRS	4318. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4301. VEH-HRS	4318. PASS-HRS	4301. VEH-HRS	4318. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	174619. VEH-MI.	175513. PASS-MI.	174619. VEH-MI.	175513. PASS-MI.
AVERAGE SYSTEM SPEED =	41. MPH.		41. MPH.	
AVERAGE DENSITY =	49. VPMPL		49. VPMPL	
TOTAL FUEL =	7894. GALLONS		7894. GALLONS	
TOTAL EMISSIONS =	2125. KILOGRAMS		2125. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.44	2	430.03	3	15.70	4	7.80	5	15.36
6	41.93	7	17.61	8	27.44	9	30.51	10	87.81
11	29.38	12	29.78	13	58.67	14	52.82	15	43.75
16	20.66	17	23.88	18	22.75	19	24.65	20	2.59
21	2.60	22	2.61	23	21.81	24	50.15	25	35.62
26	33.75	27	28.07	28	36.42	29	406.84	30	8.16
31	4.28	32	0.59						

***** TOTAL DELAY = 1614.5 VEH-HRS ***** AVERAGE DELAY = 20.82 MIN/VEH *****

****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.09	30.78	32.58	33.17	34.55	37.12	0.00	44.51
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.11	1.71	3.09	5.66	0.00	13.04
4	0.00	0.00	0.00	0.13	1.51	4.08	0.00	11.46
5	0.00	0.00	0.00	0.00	0.00	1.77	0.00	9.15
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.69

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	7089.	1205.	7089.	7089.	1205.	7089.	10000.	0.	0.	0.	.71	65.	27.4	D	19.3	13.9
2	3	99999.	0.	0.	5884.	0.	0.	5884.	7000.	0.	0.	0.	.84	59.	33.4	D	22.0	12.1
3	3	2830.	0.	0.	5884.	0.	0.	5949.	7000.	0. *	375.	-65.	.85	32.	62.7	F	20.3	13.9
4	3	930.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	930.	-65.	.85	20.	99.4	F	18.5	16.1
5	3	1490.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	1490.	-65.	.85	20.	99.4	F	18.5	16.1
6	3	3020.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	3020.	-65.	.85	20.	99.4	F	18.5	16.1
7	3	1030.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	1030.	-65.	.85	20.	99.4	F	18.5	16.1
8	3	1440.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	1440.	-65.	.85	20.	99.4	F	18.5	16.1
9	3	1430.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	1430.	-65.	.85	20.	99.4	F	18.5	16.1
10	3	3480.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	3480.	-65.	.85	20.	99.4	F	18.5	16.1
11	3	1020.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	1020.	-65.	.85	20.	99.4	F	18.5	16.1
12	3	980.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	980.	-65.	.85	20.	99.4	F	18.5	16.1
13	3	1800.	0.	0.	5884.	0.	0.	5949.	7000.	0. **	1800.	-65.	.85	20.	99.4	F	18.5	16.1
14	3	1500.	0.	714.	5884.	0.	714.	5949.	7000.	0. **	1500.	-65.	.85	20.	99.4	F	18.5	16.1
15	3	1300.	0.	0.	5170.	0.	0.	5235.	6000.	0. **	1300.	-65.	.87	22.	81.0	F	19.0	15.5
16	3	1000.	621.	0.	5791.	621.	0.	5856.	6000.	0. **	1000.	-65.	.98	32.	61.6	F	21.9	12.4
17	3	1100.	0.	0.	5791.	0.	0.	5856.	6000.	0. **	1100.	-65.	.98	32.	61.6	F	21.9	12.4
18	3	1000.	0.	584.	5791.	0.	584.	5856.	6000.	0. **	1000.	-65.	.98	32.	61.6	F	21.9	12.4
19	3	900.	0.	0.	5206.	0.	0.	5271.	6000.	0. **	900.	-65.	.88	22.	79.8	F	19.1	15.3
20	3	100.	275.	0.	5482.	275.	0.	5547.	6000.	0. **	100.	-65.	.92	26.	71.3	F	20.4	13.9
21	3	100.	0.	0.	5482.	0.	0.	5547.	6000.	0. **	100.	-65.	.92	26.	71.3	F	20.4	13.9
22	3	100.	0.	619.	5482.	0.	619.	5547.	6000.	0. **	100.	-65.	.92	26.	71.3	F	20.4	13.9
23	3	700.	0.	0.	4862.	0.	0.	4927.	6000.	0. **	700.	-65.	.82	18.	90.5	F	17.6	17.1
24	3	1500.	0.	897.	4862.	0.	897.	4927.	6000.	0. **	1500.	-65.	.82	18.	90.5	F	17.6	17.1
25	3	800.	0.	0.	3965.	0.	0.	4030.	6000.	0. **	800.	-65.	.67	11.	118.4	F	13.9	21.7
26	3	1000.	881.	0.	4846.	881.	0.	4911.	6000.	0. **	1000.	-65.	.82	18.	91.0	F	17.5	17.2
27	3	800.	0.	0.	4846.	0.	0.	4911.	6000.	0. **	800.	-65.	.82	18.	91.0	F	17.5	17.2
28	3	1000.	0.	501.	4846.	0.	501.	4911.	6000.	0. **	1000.	-65.	.82	18.	91.0	F	17.5	17.2
29	3	8000.	0.	0.	4345.	0.	0.	4410.	6000.	0. **	8000.	-65.	.74	14.	106.6	F	15.4	19.8
30	4	100.	890.	0.	5235.	890.	0.	5300.	8000.	0. **	100.	-65.	.66	11.	120.2	F	13.7	22.0
31	4	1000.	700.	0.	5935.	700.	0.	6000.	6000.	0.	0.	0.	1.00	52.	28.7	E	23.8	11.1
32	4	2640.	0.	5935.	5935.	0.	6000.	6000.	8000.	0.	0.	0.	.75	64.	23.4	C	20.4	13.5
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00	LOWEST LOS = F			AVG = 38.	50.0		20.8	13.2

UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 2 OF 2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4127. VEH-HRS	4145. PASS-HRS	8428. VEH-HRS	8464. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4127. VEH-HRS	4145. PASS-HRS	8428. VEH-HRS	8464. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	157819. VEH-MI.	158724. PASS-MI.	332438. VEH-MI.	334236. PASS-MI.
AVERAGE SYSTEM SPEED =	38. MPH.		39. MPH.	
AVERAGE DENSITY =	50. VPMPL		49. VPMPL	
TOTAL FUEL =	7592. GALLONS		15486. GALLONS	
TOTAL EMISSIONS =	2089. KILOGRAMS		4215. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.05	2	183.70	3	51.52	4	36.39	5	58.31
6	118.18	7	40.31	8	56.35	9	55.96	10	136.18
11	39.92	12	38.35	13	70.44	14	58.70	15	39.96
16	17.96	17	19.75	18	17.96	19	27.00	20	2.43
21	2.43	22	2.43	23	25.96	24	55.62	25	44.44
26	37.42	27	29.93	28	37.42	29	381.87	30	7.56
31	4.28	32	0.59						

***** TOTAL DELAY = 1699.4 VEH-HRS ***** AVERAGE DELAY = 19.22 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 0 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	60	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
12	1	1650.	980.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	1	1650.	100.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	60	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
3	3	7000.	2830.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	3	6000.	1000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	5500.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111          222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111        2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.91	23.74	23.97	24.38	25.07	26.58	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	894.	0.	894.	894.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
3	1	2830.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
4	1	930.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
5	1	1490.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
6	1	3020.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
7	1	1030.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
8	1	1440.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
9	1	1430.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
10	1	3480.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
11	1	1020.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
12	1	980.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
13	1	1800.	0.	0.	894.	0.	0.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
14	1	1500.	0.	104.	894.	0.	104.	894.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
15	1	1300.	0.	0.	791.	0.	0.	791.	1650.	0.	0.	0.	.48	60.	13.2	B	22.7	12.1
16	1	1000.	40.	0.	830.	40.	0.	830.	1650.	0.	0.	0.	.50	60.	13.8	B	22.7	12.1
17	1	1100.	0.	0.	830.	0.	0.	830.	1650.	0.	0.	0.	.50	60.	13.8	B	22.7	12.1
18	1	1000.	0.	27.	830.	0.	27.	830.	1650.	0.	0.	0.	.50	60.	13.8	B	22.7	12.1
19	1	900.	0.	0.	803.	0.	0.	803.	1650.	0.	0.	0.	.49	60.	13.4	B	22.7	12.1
20	1	100.	37.	0.	840.	37.	0.	840.	1650.	0.	0.	0.	.51	60.	14.0	B	22.7	12.1
21	1	100.	0.	0.	840.	0.	0.	840.	1650.	0.	0.	0.	.51	60.	14.0	B	22.7	12.1
22	1	100.	0.	72.	840.	0.	72.	840.	1650.	0.	0.	0.	.51	60.	14.0	B	22.7	12.1
23	1	700.	0.	0.	768.	0.	0.	768.	1650.	0.	0.	0.	.47	60.	12.8	B	22.7	12.1
24	1	1500.	0.	99.	768.	0.	99.	768.	1650.	0.	0.	0.	.47	60.	12.8	B	22.7	12.1
25	1	800.	0.	0.	669.	0.	0.	669.	1650.	0.	0.	0.	.41	60.	11.2	B	22.7	12.1
26	1	1000.	243.	0.	913.	243.	0.	913.	1650.	0.	0.	0.	.55	60.	15.2	B	22.7	12.1
27	1	800.	0.	0.	913.	0.	0.	913.	1650.	0.	0.	0.	.55	60.	15.2	B	22.7	12.1
28	1	1000.	0.	35.	913.	0.	35.	913.	1650.	0.	0.	0.	.55	60.	15.2	B	22.7	12.1
29	1	8000.	0.	878.	878.	0.	878.	878.	1650.	0.	0.	0.	.53	60.	14.6	B	22.7	12.1
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES						MAX(V/C) = 0.55		LOWEST LOS = B				AVG = 60.	14.8		22.7	12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	393. VEH-HRS	786. PASS-HRS	393. VEH-HRS	786. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	393. VEH-HRS	786. PASS-HRS	393. VEH-HRS	786. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	23590. VEH-MI.	47180. PASS-MI.	23590. VEH-MI.	47180. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	15. VPMPL		15. VPMPL	
TOTAL FUEL =	1038. GALLONS		1038. GALLONS	
TOTAL EMISSIONS =	286. KILOGRAMS		286. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	21.72	3	0.61	4	0.20	5	0.32
6	0.66	7	0.22	8	0.31	9	0.31	10	0.76
11	0.22	12	0.21	13	0.39	14	0.33	15	0.25
16	0.20	17	0.22	18	0.20	19	0.18	20	0.02
21	0.02	22	0.02	23	0.13	24	0.28	25	0.13
26	0.22	27	0.18	28	0.22	29	1.71	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 30.2 VEH-HRS ***** AVERAGE DELAY = 2.04 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.91	23.74	23.97	24.38	25.07	26.58	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	952.	0.	952.	952.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
3	1	2830.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
4	1	930.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
5	1	1490.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
6	1	3020.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
7	1	1030.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
8	1	1440.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
9	1	1430.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
10	1	3480.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
11	1	1020.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
12	1	980.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
13	1	1800.	0.	0.	952.	0.	0.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
14	1	1500.	0.	158.	952.	0.	158.	952.	1650.	0.	0.	0.	.58	60.	15.9	B	22.7	12.1
15	1	1300.	0.	0.	794.	0.	0.	794.	1650.	0.	0.	0.	.48	60.	13.2	B	22.7	12.1
16	1	1000.	39.	0.	833.	39.	0.	833.	1650.	0.	0.	0.	.50	60.	13.9	B	22.7	12.1
17	1	1100.	0.	0.	833.	0.	0.	833.	1650.	0.	0.	0.	.50	60.	13.9	B	22.7	12.1
18	1	1000.	0.	30.	833.	0.	30.	833.	1650.	0.	0.	0.	.50	60.	13.9	B	22.7	12.1
19	1	900.	0.	0.	803.	0.	0.	803.	1650.	0.	0.	0.	.49	60.	13.4	B	22.7	12.1
20	1	100.	27.	0.	830.	27.	0.	830.	1650.	0.	0.	0.	.50	60.	13.8	B	22.7	12.1
21	1	100.	0.	0.	830.	0.	0.	830.	1650.	0.	0.	0.	.50	60.	13.8	B	22.7	12.1
22	1	100.	0.	111.	830.	0.	111.	830.	1650.	0.	0.	0.	.50	60.	13.8	B	22.7	12.1
23	1	700.	0.	0.	719.	0.	0.	719.	1650.	0.	0.	0.	.44	60.	12.0	B	22.7	12.1
24	1	1500.	0.	138.	719.	0.	138.	719.	1650.	0.	0.	0.	.44	60.	12.0	B	22.7	12.1
25	1	800.	0.	0.	581.	0.	0.	581.	1650.	0.	0.	0.	.35	60.	9.7	A	22.7	12.1
26	1	1000.	215.	0.	796.	215.	0.	796.	1650.	0.	0.	0.	.48	60.	13.3	B	22.7	12.1
27	1	800.	0.	0.	796.	0.	0.	796.	1650.	0.	0.	0.	.48	60.	13.3	B	22.7	12.1
28	1	1000.	0.	36.	796.	0.	36.	796.	1650.	0.	0.	0.	.48	60.	13.3	B	22.7	12.1
29	1	8000.	0.	760.	760.	0.	760.	760.	1650.	0.	0.	0.	.46	60.	12.7	B	22.7	12.1
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES								MAX(V/C) = 0.58	LOWEST LOS = B		AVG = 60.		15.4		22.7	12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	411. VEH-HRS	821. PASS-HRS	804. VEH-HRS	1608. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	411. VEH-HRS	821. PASS-HRS	804. VEH-HRS	1608. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	24637. VEH-MI.	49274. PASS-MI.	48227. VEH-MI.	96455. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	15. VPMPL		15. VPMPL	
TOTAL FUEL =	1084. GALLONS		2122. GALLONS	
TOTAL EMISSIONS =	299. KILOGRAMS		585. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	23.12	3	0.65	4	0.21	5	0.34
6	0.70	7	0.24	8	0.33	9	0.33	10	0.80
11	0.24	12	0.23	13	0.42	14	0.35	15	0.25
16	0.20	17	0.22	18	0.20	19	0.18	20	0.02
21	0.02	22	0.02	23	0.12	24	0.26	25	0.11
26	0.19	27	0.15	28	0.19	29	1.48	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 31.6 VEH-HRS ***** AVERAGE DELAY = 2.04 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.91	23.74	23.97	24.38	25.07	26.58	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.43	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.67	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																		
2	1	99999.	836.	0.	836.	836.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
3	1	2830.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
4	1	930.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
5	1	1490.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
6	1	3020.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
7	1	1030.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
8	1	1440.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
9	1	1430.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
10	1	3480.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
11	1	1020.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
12	1	980.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
13	1	1800.	0.	0.	836.	0.	0.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
14	1	1500.	0.	124.	836.	0.	124.	836.	1650.	0.	0.	0.	.51	60.	13.9	B	22.7	12.1
15	1	1300.	0.	0.	712.	0.	0.	712.	1650.	0.	0.	0.	.43	60.	11.9	B	22.7	12.1
16	1	1000.	37.	0.	749.	37.	0.	749.	1650.	0.	0.	0.	.45	60.	12.5	B	22.7	12.1
17	1	1100.	0.	0.	749.	0.	0.	749.	1650.	0.	0.	0.	.45	60.	12.5	B	22.7	12.1
18	1	1000.	0.	24.	749.	0.	24.	749.	1650.	0.	0.	0.	.45	60.	12.5	B	22.7	12.1
19	1	900.	0.	0.	725.	0.	0.	725.	1650.	0.	0.	0.	.44	60.	12.1	B	22.7	12.1
20	1	100.	28.	0.	753.	28.	0.	753.	1650.	0.	0.	0.	.46	60.	12.6	B	22.7	12.1
21	1	100.	0.	0.	753.	0.	0.	753.	1650.	0.	0.	0.	.46	60.	12.6	B	22.7	12.1
22	1	100.	0.	97.	753.	0.	97.	753.	1650.	0.	0.	0.	.46	60.	12.6	B	22.7	12.1
23	1	700.	0.	0.	656.	0.	0.	656.	1650.	0.	0.	0.	.40	60.	10.9	A	22.7	12.1
24	1	1500.	0.	117.	656.	0.	117.	656.	1650.	0.	0.	0.	.40	60.	10.9	A	22.7	12.1
25	1	800.	0.	0.	538.	0.	0.	538.	1650.	0.	0.	0.	.33	60.	9.0	A	22.7	12.1
26	1	1000.	225.	0.	763.	225.	0.	763.	1650.	0.	0.	0.	.46	60.	12.7	B	22.7	12.1
27	1	800.	0.	0.	763.	0.	0.	763.	1650.	0.	0.	0.	.46	60.	12.7	B	22.7	12.1
28	1	1000.	0.	23.	763.	0.	23.	763.	1650.	0.	0.	0.	.46	60.	12.7	B	22.7	12.1
29	1	8000.	0.	740.	740.	0.	740.	740.	1650.	0.	0.	0.	.45	60.	12.3	B	22.7	12.1
30																		
31																		
32																		
TOTAL		140349. =	26.6 MILES						MAX(V/C) = 0.51		LOWEST LOS = B		AVG = 60.		13.7		22.7	12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	364. VEH-HRS	727. PASS-HRS	1167. VEH-HRS	2335. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	364. VEH-HRS	727. PASS-HRS	1167. VEH-HRS	2335. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	21822. VEH-MI.	43644. PASS-MI.	70049. VEH-MI.	140099. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	14. VPMPL		15. VPMPL	
TOTAL FUEL =	960. GALLONS		3082. GALLONS	
TOTAL EMISSIONS =	264. KILOGRAMS		849. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	20.31	3	0.57	4	0.19	5	0.30
6	0.61	7	0.21	8	0.29	9	0.29	10	0.71
11	0.21	12	0.20	13	0.37	14	0.30	15	0.22
16	0.18	17	0.20	18	0.18	19	0.16	20	0.02
21	0.02	22	0.02	23	0.11	24	0.24	25	0.10
26	0.19	27	0.15	28	0.19	29	1.44	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 28.0 VEH-HRS ***** AVERAGE DELAY = 2.04 MIN/VEH *****

****
**
** FREEWAY TRAVEL TIME (MINUTES) **
**
****

****
* ORIGINS DESTINATIONS ACROSS *

DOWN	1	2	3	4	5	6	7	8
1	0.09	22.99	23.83	24.06	24.47	25.15	0.00	30.73
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.59	0.81	1.23	1.91	0.00	7.49
4	0.00	0.00	0.00	0.06	0.47	1.16	0.00	6.73
5	0.00	0.00	0.00	0.00	0.00	0.53	0.00	6.10
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.82
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5261.	894.	5261.	5261.	894.	5261.	10000.	0.	0.	0.	.53	65.	20.2	C	19.2	14.0
2	3	99999.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
3	3	2830.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
4	3	930.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
5	3	1490.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
6	3	3020.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
7	3	1030.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
8	3	1440.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
9	3	1430.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
10	3	3480.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
11	3	1020.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
12	3	980.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
13	3	1800.	0.	0.	4367.	0.	0.	4367.	7000.	0.	0.	0.	.62	60.	24.3	C	21.6	12.3
14	3	1500.	0.	506.	4367.	0.	506.	4367.	6896.	0.	0.	0.	.63	60.	24.3	C	21.6	12.3
15	3	1300.	0.	0.	3860.	0.	0.	3860.	6000.	0.	0.	0.	.64	60.	21.4	C	21.6	12.3
16	3	1000.	289.	0.	4150.	289.	0.	4150.	5960.	0.	0.	0.	.70	60.	23.1	C	21.6	12.3
17	3	1100.	0.	0.	4150.	0.	0.	4150.	6000.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
18	3	1000.	0.	143.	4150.	0.	143.	4150.	5973.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
19	3	900.	0.	0.	4007.	0.	0.	4007.	6000.	0.	0.	0.	.67	60.	22.3	C	21.6	12.3
20	3	100.	258.	0.	4265.	258.	0.	4265.	5963.	0.	0.	0.	.72	60.	23.7	C	21.6	12.3
21	3	100.	0.	0.	4265.	0.	0.	4265.	6000.	0.	0.	0.	.71	60.	23.7	C	21.6	12.3
22	3	100.	0.	408.	4265.	0.	408.	4265.	5928.	0.	0.	0.	.72	60.	23.7	C	21.6	12.3
23	3	700.	0.	0.	3857.	0.	0.	3857.	6000.	0.	0.	0.	.64	60.	21.4	C	21.6	12.3
24	3	1500.	0.	561.	3857.	0.	561.	3857.	5901.	0.	0.	0.	.65	60.	21.4	C	21.6	12.3
25	3	800.	0.	0.	3296.	0.	0.	3296.	6000.	0.	0.	0.	.55	60.	18.3	C	21.6	12.3
26	3	1000.	1277.	0.	4572.	1277.	0.	4572.	5757.	0.	0.	0.	.79	60.	25.4	C	21.6	12.3
27	3	800.	0.	0.	4572.	0.	0.	4572.	6000.	0.	0.	0.	.76	60.	25.4	C	21.6	12.3
28	3	1000.	0.	285.	4572.	0.	285.	4572.	5965.	0.	0.	0.	.77	60.	25.4	C	21.6	12.3
29	3	8000.	0.	0.	4287.	0.	0.	3822.	6000.	0. *	5268.	465.	.64	19.	66.7	F	16.2	16.4
30	4	100.	878.	0.	5165.	878.	0.	4700.	8000.	0. **	100.	465.	.59	6.	185.3	F	9.3	27.0
31	4	1000.	800.	0.	5965.	800.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	5965.	5965.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 54.		26.5		21.2	12.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2223. VEH-HRS	2237. PASS-HRS	2223. VEH-HRS	2237. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS

ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2223. VEH-HRS	2237. PASS-HRS	2223. VEH-HRS	2237. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	119518. VEH-MI.	120295. PASS-MI.	119518. VEH-MI.	120295. PASS-MI.
AVERAGE SYSTEM SPEED =	54. MPH.		54. MPH.	
AVERAGE DENSITY =	27. VPMPL		27. VPMPL	
TOTAL FUEL =	5650. GALLONS		5650. GALLONS	
TOTAL EMISSIONS =	1506. KILOGRAMS		1506. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	106.03	3	3.00	4	0.99	5	1.58
6	3.20	7	1.09	8	1.53	9	1.52	10	3.69
11	1.08	12	1.04	13	1.91	14	1.59	15	1.22
16	1.01	17	1.11	18	1.01	19	0.88	20	0.10
21	0.10	22	0.10	23	0.66	24	1.40	25	0.64
26	1.11	27	0.89	28	1.11	29	231.75	30	12.69
31	0.00	32	0.00						

***** TOTAL DELAY = 384.0 VEH-HRS ***** AVERAGE DELAY = 5.73 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.09	22.99	23.83	24.06	24.47	26.29	0.00	43.33
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.59	0.81	1.23	3.05	0.00	20.09
4	0.00	0.00	0.00	0.06	0.47	2.29	0.00	19.33
5	0.00	0.00	0.00	0.00	0.00	1.66	0.00	18.70
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.89
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5600.	952.	5600.	5600.	952.	5600.	10000.	0.	0.	0.	.56	65.	21.5	C	19.2	14.0
2	3	99999.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
3	3	2830.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
4	3	930.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
5	3	1490.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
6	3	3020.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
7	3	1030.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
8	3	1440.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
9	3	1430.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
10	3	3480.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
11	3	1020.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3
12	3	980.	0.	0.	4648.	0.	0.	4648.	7000.	0.	0.	0.	.66	60.	25.8	C	21.6	12.3

13	3	1800.	0.	0.	4648.	0.	0.	4648.	7000.	0.		0.	0.	.66	60.	25.8	C	21.6	12.3
14	3	1500.	0.	772.	4648.	0.	772.	4648.	6842.	0.		0.	0.	.68	60.	25.8	C	21.6	12.3
15	3	1300.	0.	0.	3876.	0.	0.	3876.	6000.	0.		0.	0.	.65	60.	21.5	C	21.6	12.3
16	3	1000.	340.	0.	4216.	340.	0.	4216.	5961.	0.		0.	0.	.71	60.	23.4	C	21.6	12.3
17	3	1100.	0.	0.	4216.	0.	0.	4216.	6000.	0.		0.	0.	.70	60.	23.4	C	21.6	12.3
18	3	1000.	0.	160.	4216.	0.	160.	4216.	5970.	0.		0.	0.	.71	60.	23.4	C	21.6	12.3
19	3	900.	0.	0.	4056.	0.	0.	4056.	6000.	0.		0.	0.	.68	60.	22.5	C	21.6	12.3
20	3	100.	223.	0.	4279.	223.	0.	4279.	5973.	0.		0.	0.	.72	60.	23.8	C	21.6	12.3
21	3	100.	0.	0.	4279.	0.	0.	4279.	6000.	0.		0.	0.	.71	60.	23.8	C	21.6	12.3
22	3	100.	0.	629.	4279.	0.	629.	4279.	5889.	0.		0.	0.	.73	60.	23.8	C	21.6	12.3
23	3	700.	0.	0.	3650.	0.	0.	3650.	6000.	0.		0.	0.	.61	60.	20.3	C	21.6	12.3
24	3	1500.	0.	782.	3650.	0.	782.	3650.	5862.	0.		0.	0.	.62	60.	20.3	C	21.6	12.3
25	3	800.	0.	0.	2868.	0.	0.	2298.	6000.	0.	*	183.	570.	.38	56.	13.6	F	21.5	12.4
26	3	1000.	1145.	0.	4013.	1145.	0.	3443.	5785.	0.	**	1000.	570.	.60	32.	35.8	F	19.0	13.9
27	3	800.	0.	0.	4013.	0.	0.	3443.	6000.	0.	**	800.	570.	.57	19.	59.8	F	16.3	15.9
28	3	1000.	0.	303.	4013.	0.	303.	3443.	5964.	0.	**	1000.	570.	.58	14.	83.7	F	14.2	18.0
29	3	8000.	0.	0.	3710.	0.	0.	3140.	6000.	0.	**	8000.	570.	.52	6.	186.0	F	9.0	26.9
30	4	100.	760.	0.	4470.	760.	0.	3900.	8000.	0.	**	100.	570.	.49	5.	214.0	F	8.4	28.7
31	4	1000.	1600.	0.	6070.	1600.	0.	5500.	5500.	0.		0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6070.	6070.	0.	5500.	5500.	8000.	0.		0.	0.	.69	65.	21.2	C	20.0	13.7

TOTAL 144589. = 27.4 MILES MAX(V/C) = 1.00 LOWEST LOS = F AVG = 42. 35.1 20.3 13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2928. VEH-HRS	2943. PASS-HRS	5150. VEH-HRS	5180. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2928. VEH-HRS	2943. PASS-HRS	5150. VEH-HRS	5180. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	124066. VEH-MI.	124856. PASS-MI.	243584. VEH-MI.	245151. PASS-MI.
AVERAGE SYSTEM SPEED =	42. MPH.		47. MPH.	
AVERAGE DENSITY =	35. VPMPL		31. VPMPL	
TOTAL FUEL =	6104. GALLONS		11753. GALLONS	
TOTAL EMISSIONS =	1614. KILOGRAMS		3120. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	112.86	3	3.19	4	1.05	5	1.68
6	3.41	7	1.16	8	1.63	9	1.61	10	3.93
11	1.15	12	1.11	13	2.03	14	1.69	15	1.22
16	1.02	17	1.13	18	1.02	19	0.89	20	0.10
21	0.10	22	0.10	23	0.62	24	1.33	25	1.05
26	11.82	27	21.51	28	41.13	29	784.20	30	15.07
31	0.00	32	0.00						

***** TOTAL DELAY = 1018.8 VEH-HRS ***** AVERAGE DELAY = 18.42 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.09	22.99	23.83	24.06	24.47	26.16	0.00	37.85
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.59	0.81	1.23	2.91	0.00	14.61
4	0.00	0.00	0.00	0.06	0.47	2.16	0.00	13.85

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                        *  5 *   0.00  0.00  0.00  0.00  0.00  1.52  0.00 13.22
+                       *                                                     *
                        *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.81
+                       *                                                     *
                        *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.64
+                       *                                                     *
                        *    *                                                *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	4920.	836.	4920.	4920.	836.	4920.	10000.	0.	0.	0.	.49	65.	18.9	C	19.2	14.0
2	3	99999.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
3	3	2830.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
4	3	930.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
5	3	1490.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
6	3	3020.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
7	3	1030.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
8	3	1440.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
9	3	1430.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
10	3	3480.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
11	3	1020.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
12	3	980.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
13	3	1800.	0.	0.	4084.	0.	0.	4084.	7000.	0.	0.	0.	.58	60.	22.7	C	21.6	12.3
14	3	1500.	0.	606.	4084.	0.	606.	4084.	6876.	0.	0.	0.	.59	60.	22.7	C	21.6	12.3
15	3	1300.	0.	0.	3478.	0.	0.	3478.	6000.	0.	0.	0.	.58	60.	19.3	C	21.6	12.3
16	3	1000.	303.	0.	3781.	303.	0.	3781.	5963.	0.	0.	0.	.63	60.	21.0	C	21.6	12.3
17	3	1100.	0.	0.	3781.	0.	0.	3781.	6000.	0.	0.	0.	.63	60.	21.0	C	21.6	12.3
18	3	1000.	0.	126.	3781.	0.	126.	3781.	5976.	0.	0.	0.	.63	60.	21.0	C	21.6	12.3
19	3	900.	0.	0.	3655.	0.	0.	3655.	6000.	0.	0.	0.	.61	60.	20.3	C	21.6	12.3
20	3	100.	222.	0.	3877.	222.	0.	3877.	5972.	0.	0.	0.	.65	60.	21.5	C	21.6	12.3
21	3	100.	0.	0.	3877.	0.	0.	3877.	6000.	0.	0.	0.	.65	60.	21.5	C	21.6	12.3
22	3	100.	0.	558.	3877.	0.	558.	3877.	5903.	0.	0.	0.	.66	60.	21.5	C	21.6	12.3
23	3	700.	0.	0.	3319.	0.	0.	3319.	6000.	0.	0.	0.	.55	60.	18.4	C	21.6	12.3
24	3	1500.	0.	673.	3319.	0.	673.	3319.	5883.	0.	0.	0.	.56	60.	18.4	C	21.6	12.3
25	3	800.	0.	0.	2647.	0.	0.	2647.	6000.	0.	0.	0.	.44	56.	15.8	B	21.4	12.4
26	3	1000.	1165.	0.	3812.	1165.	0.	3812.	5775.	0.	0.	0.	.66	33.	38.1	E	19.5	14.0
27	3	800.	0.	0.	3812.	0.	0.	3812.	6000.	0.	0.	0.	.64	21.	61.5	F	16.9	16.2
28	3	1000.	0.	197.	3812.	0.	197.	3812.	5977.	0.	0.	0.	.64	15.	82.8	F	15.1	18.3
29	3	8000.	0.	0.	3615.	0.	0.	4010.	6000.	0. *	6021.	-395.	.67	8.	160.0	F	11.0	24.5
30	4	100.	740.	0.	4355.	740.	0.	4750.	8000.	0. **	100.	-395.	.59	6.	186.2	F	9.3	27.1
31	4	1000.	750.	0.	5105.	750.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	5105.	5105.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00	LOWEST LOS = F			AVG = 44.	30.9		20.4	13.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2558. VEH-HRS	2572. PASS-HRS	7708. VEH-HRS	7752. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2558. VEH-HRS	2572. PASS-HRS	7708. VEH-HRS	7752. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	111726. VEH-MI.	112499. PASS-MI.	355310. VEH-MI.	357650. PASS-MI.
AVERAGE SYSTEM SPEED =	44. MPH.		46. MPH.	
AVERAGE DENSITY =	31. VPMPL		31. VPMPL	
TOTAL FUEL =	5487. GALLONS		17240. GALLONS	
TOTAL EMISSIONS =	1466. KILOGRAMS		4587. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY

1	0.00	2	99.15	3	2.81	4	0.92	5	1.48
6	2.99	7	1.02	8	1.43	9	1.42	10	3.45
11	1.01	12	0.97	13	1.78	14	1.49	15	1.10
16	0.92	17	1.01	18	0.92	19	0.80	20	0.09
21	0.09	22	0.09	23	0.56	24	1.21	25	1.03
26	10.67	27	19.67	28	37.75	29	630.43	30	12.72
31	0.00	32	0.00						

***** TOTAL DELAY = 839.0 VEH-HRS ***** AVERAGE DELAY = 12.57 MIN/VEH *****

US 101 Southbound

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	60	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
12	1	1650.	350.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	1	1650.	900.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	8000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	60	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
6	3	6000.	2630.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	3	6000.	1500.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	3	6000.	700.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	3	6000.	1500.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	8000.	350.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	8000.	350.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	8000.	350.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	8000.	100.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	8000.	100.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	4	8000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	4	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	4	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.38	21.72	22.59	22.80	25.00	0.00
3	0.00	0.00	0.00	0.00	2.12	4.32	0.00
4	0.00	0.00	0.00	0.00	0.00	3.48	0.00
5	0.00	0.00	0.00	0.00	0.00	3.14	0.00
6	0.00	0.00	0.00	0.00	0.00	2.97	0.00
7	0.00	0.00	0.00	0.00	0.00	2.23	0.00
8	0.00	0.00	0.00	0.00	0.00	2.08	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
+                                                                                                *
                                  * 11 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                                  *    *                                                         *
                                  *******************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1040.	0.	1040.	1040.	0.	1040.	1650.	0.	0.	0.	.63	60.	17.3	B	22.7	12.1
3	1	2740.	0.	0.	1040.	0.	0.	1040.	1650.	0.	0.	0.	.63	60.	17.3	B	22.7	12.1
4	1	600.	0.	0.	1040.	0.	0.	1040.	1650.	0.	0.	0.	.63	60.	17.3	B	22.7	12.1
5	1	700.	0.	0.	1040.	0.	0.	1040.	1650.	0.	0.	0.	.63	60.	17.3	B	22.7	12.1
6	1	2630.	0.	0.	1040.	0.	0.	1040.	1650.	0.	0.	0.	.63	60.	17.3	B	22.7	12.1
7	1	2530.	0.	0.	1040.	0.	0.	1040.	1650.	0.	0.	0.	.63	60.	17.3	B	22.7	12.1
8	1	1500.	19.	0.	1059.	19.	0.	1059.	1650.	0.	0.	0.	.64	60.	17.6	B	22.7	12.1
9	1	700.	0.	0.	1059.	0.	0.	1059.	1650.	0.	0.	0.	.64	60.	17.6	B	22.7	12.1
10	1	1500.	0.	295.	1059.	0.	292.	1059.	1650.	0.	0.	0.	.64	60.	17.6	B	22.7	12.1
11	1	750.	0.	0.	764.	0.	0.	764.	1650.	0.	0.	0.	.46	60.	12.7	B	22.7	12.1
12	1	350.	147.	0.	911.	147.	0.	911.	1650.	0.	0.	0.	.55	60.	15.2	B	22.7	12.1
13	1	350.	0.	0.	911.	0.	0.	911.	1650.	0.	0.	0.	.55	60.	15.2	B	22.7	12.1
14	1	350.	0.	45.	911.	0.	45.	911.	1650.	0.	0.	0.	.55	60.	15.2	B	22.7	12.1
15	1	700.	0.	0.	865.	0.	0.	865.	1650.	0.	0.	0.	.52	60.	14.4	B	22.7	12.1
16	1	900.	20.	0.	885.	20.	0.	885.	1650.	0.	0.	0.	.54	60.	14.8	B	22.7	12.1
17	1	1400.	64.	0.	950.	64.	0.	950.	1650.	0.	0.	0.	.58	60.	15.8	B	22.7	12.1
18	1	200.	0.	0.	950.	0.	0.	950.	1650.	0.	0.	0.	.58	60.	15.8	B	22.7	12.1
19	1	1400.	0.	45.	950.	0.	45.	950.	1650.	0.	0.	0.	.58	60.	15.8	B	22.7	12.1
20	1	900.	0.	0.	905.	0.	0.	905.	1650.	0.	0.	0.	.55	60.	15.1	B	22.7	12.1
21	1	100.	33.	0.	939.	33.	0.	939.	1650.	0.	0.	0.	.57	60.	15.6	B	22.7	12.1
22	1	100.	0.	12.	939.	0.	12.	939.	1650.	0.	0.	0.	.57	60.	15.6	B	22.7	12.1
23	1	600.	0.	0.	927.	0.	0.	927.	1650.	0.	0.	0.	.56	60.	15.4	B	22.7	12.1
24	1	1500.	98.	0.	1025.	98.	0.	1025.	1650.	0.	0.	0.	.62	60.	17.1	B	22.7	12.1
25	1	1500.	0.	0.	1025.	0.	0.	1025.	1650.	0.	0.	0.	.62	60.	17.1	B	22.7	12.1
26	1	8000.	0.	1025.	1025.	0.	1025.	1025.	1650.	0.	0.	0.	.62	60.	17.1	B	22.7	12.1
27																		
28																		
29																		

TOTAL 131999. = 25.0 MILES MAX(V/C) = 0.64 LOWEST LOS = B AVG = 60. 17.2 22.7 12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	430. VEH-HRS	859. PASS-HRS	430. VEH-HRS	859. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	2. VEH-HRS	4. PASS-HRS	2. VEH-HRS	4. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	432. VEH-HRS	863. PASS-HRS	432. VEH-HRS	863. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	25776. VEH-MI.	51553. PASS-MI.	25776. VEH-MI.	51553. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	17. VPMPL		17. VPMPL	
TOTAL FUEL =	1135. GALLONS		1135. GALLONS	
TOTAL EMISSIONS =	313. KILOGRAMS		313. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	25.25	3	0.69	4	0.15	5	0.18
6	0.66	7	0.64	8	0.39	9	0.18	10	0.39
11	0.14	12	0.08	13	0.08	14	0.08	15	0.15
16	0.19	17	0.32	18	0.05	19	0.32	20	0.20
21	0.02	22	0.02	23	0.14	24	0.37	25	0.37
26	1.99	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 33.0 VEH-HRS ***** AVERAGE DELAY = 1.92 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	4.	1.94	0.67	0.04	0.22	0.01	0.27

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.38	21.72	22.59	22.80	25.00	0.00
3	0.00	0.00	0.00	0.00	2.12	4.32	0.00
4	0.00	0.00	0.00	0.00	0.00	3.48	0.00
5	0.00	0.00	0.00	0.00	0.00	3.14	0.00
6	0.00	0.00	0.00	0.00	0.00	2.97	0.00
7	0.00	0.00	0.00	0.00	0.00	2.23	0.00
8	0.00	0.00	0.00	0.00	0.00	2.08	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1186.	0.	1186.	1186.	0.	1186.	1650.	0.	0.	0.	.72	60.	19.8	C	22.7	12.1
3	1	2740.	0.	0.	1186.	0.	0.	1186.	1650.	0.	0.	0.	.72	60.	19.8	C	22.7	12.1
4	1	600.	0.	0.	1186.	0.	0.	1186.	1650.	0.	0.	0.	.72	60.	19.8	C	22.7	12.1
5	1	700.	0.	0.	1186.	0.	0.	1186.	1650.	0.	0.	0.	.72	60.	19.8	C	22.7	12.1
6	1	2630.	0.	0.	1186.	0.	0.	1186.	1650.	0.	0.	0.	.72	60.	19.8	C	22.7	12.1
7	1	2530.	0.	0.	1186.	0.	0.	1186.	1650.	0.	0.	0.	.72	60.	19.8	C	22.7	12.1
8	1	1500.	25.	0.	1211.	25.	0.	1211.	1650.	0.	0.	0.	.73	60.	20.2	C	22.7	12.1
9	1	700.	0.	0.	1211.	0.	0.	1211.	1650.	0.	0.	0.	.73	60.	20.2	C	22.7	12.1
10	1	1500.	0.	329.	1211.	0.	291.	1211.	1650.	0.	0.	0.	.73	60.	20.2	C	22.7	12.1
11	1	750.	0.	0.	881.	0.	0.	881.	1650.	0.	0.	0.	.53	60.	14.7	B	22.7	12.1
12	1	350.	212.	0.	1093.	212.	0.	1093.	1650.	0.	0.	0.	.66	60.	18.2	C	22.7	12.1
13	1	350.	0.	0.	1093.	0.	0.	1093.	1650.	0.	0.	0.	.66	60.	18.2	C	22.7	12.1
14	1	350.	0.	54.	1093.	0.	54.	1093.	1650.	0.	0.	0.	.66	60.	18.2	C	22.7	12.1
15	1	700.	0.	0.	1039.	0.	0.	1039.	1650.	0.	0.	0.	.63	60.	17.3	B	22.7	12.1
16	1	900.	24.	0.	1062.	24.	0.	1062.	1650.	0.	0.	0.	.64	60.	17.7	B	22.7	12.1
17	1	1400.	104.	0.	1166.	104.	0.	1166.	1650.	0.	0.	0.	.71	60.	19.4	C	22.7	12.1

18	1	200.	0.	0.	1166.	0.	0.	1166.	1650.	0.	0.	0.	.71	60.	19.4	C	22.7	12.1
19	1	1400.	0.	31.	1166.	0.	31.	1166.	1650.	0.	0.	0.	.71	60.	19.4	C	22.7	12.1
20	1	900.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	60.	18.9	C	22.7	12.1
21	1	100.	45.	0.	1180.	45.	0.	1180.	1650.	0.	0.	0.	.72	60.	19.7	C	22.7	12.1
22	1	100.	0.	16.	1180.	0.	16.	1180.	1650.	0.	0.	0.	.72	60.	19.7	C	22.7	12.1
23	1	600.	0.	0.	1164.	0.	0.	1164.	1650.	0.	0.	0.	.71	60.	19.4	C	22.7	12.1
24	1	1500.	108.	0.	1272.	108.	0.	1272.	1650.	0.	0.	0.	.77	60.	21.2	C	22.7	12.1
25	1	1500.	0.	0.	1272.	0.	0.	1272.	1650.	0.	0.	0.	.77	60.	21.2	C	22.7	12.1
26	1	8000.	0.	1272.	1272.	0.	1272.	1272.	1650.	0.	0.	0.	.77	60.	21.2	C	22.7	12.1
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES								MAX(V/C) = 0.77		LOWEST LOS = C		AVG = 60.	19.8		22.7	12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	495. VEH-HRS	991. PASS-HRS	925. VEH-HRS	1850. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	23. VEH-HRS	47. PASS-HRS	25. VEH-HRS	50. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	519. VEH-HRS	1037. PASS-HRS	950. VEH-HRS	1900. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	29721. VEH-MI.	59442. PASS-MI.	55497. VEH-MI.	110995. PASS-MI.
AVERAGE SYSTEM SPEED =	57. MPH.		60. MPH.	
AVERAGE DENSITY =	20. VPMPL		18. VPMPL	
TOTAL FUEL =	1316. GALLONS		2451. GALLONS	
TOTAL EMISSIONS =	363. KILOGRAMS		676. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	28.80	3	0.79	4	0.17	5	0.20
6	0.76	7	0.73	8	0.44	9	0.21	10	0.44
11	0.16	12	0.09	13	0.09	14	0.09	15	0.18
16	0.23	17	0.40	18	0.06	19	0.40	20	0.25
21	0.03	22	0.03	23	0.17	24	0.46	25	0.46
26	2.47	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 38.1 VEH-HRS ***** AVERAGE DELAY = 1.92 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	43.	23.26	7.98	0.50	2.62	0.14	3.27

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.24	21.62	21.96	22.83	23.04	0.00	25.61
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.70	1.04	1.91	2.12	0.00	4.69
4	0.00	0.00	0.20	1.07	1.28	0.00	3.84
5	0.00	0.00	0.00	0.74	0.95	0.00	3.51

6	0.00	0.00	0.00	0.57	0.78	0.00	3.34	
7	0.00	0.00	0.00	0.00	0.04	0.00	2.60	
8	0.00	0.00	0.00	0.00	0.00	0.00	2.45	
9	0.00	0.00	0.00	0.00	0.00	0.00	0.37	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.35	
11	0.00	0.00	0.00	0.00	0.00	0.00	0.17	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	1370.	5200.	1040.	5200.	5200.	1040.	5200.	8000.	0.	0.	0.	.65	65.	20.0	C	19.2	14.0
2	3	99999.	0.	0.	4160.	0.	0.	4160.	6000.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
3	3	2740.	0.	0.	4160.	0.	0.	4160.	6000.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
4	3	600.	0.	0.	4160.	0.	0.	4160.	6000.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
5	3	700.	0.	0.	4160.	0.	0.	4160.	6000.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
6	3	2630.	0.	0.	4160.	0.	0.	4160.	6000.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
7	3	2530.	0.	0.	4160.	0.	0.	4160.	6000.	0.	0.	0.	.69	60.	23.1	C	21.6	12.3
8	3	1500.	132.	0.	4292.	132.	0.	4292.	5981.	0.	0.	0.	.72	60.	23.8	C	21.6	12.3
9	3	700.	0.	0.	4292.	0.	0.	4292.	6000.	0.	0.	0.	.72	60.	23.8	C	21.6	12.3
10	3	1500.	0.	1225.	4292.	0.	1208.	4292.	5705.	0.	0.	0.	.75	60.	23.8	C	21.6	12.3
11	3	750.	0.	0.	3067.	0.	0.	3067.	6000.	0.	0.	0.	.51	60.	17.0	B	21.6	12.3
12	4	350.	704.	0.	3771.	704.	0.	3771.	7853.	0.	0.	0.	.48	60.	15.7	B	21.6	12.3
13	4	350.	0.	0.	3771.	0.	0.	3771.	8000.	0.	0.	0.	.47	60.	15.7	B	21.6	12.3
14	4	350.	0.	241.	3771.	0.	241.	3771.	7955.	0.	0.	0.	.47	60.	15.7	B	21.6	12.3
15	3	700.	0.	0.	3531.	0.	0.	3531.	6000.	0.	0.	0.	.59	60.	19.6	C	21.6	12.3
16	3	900.	90.	0.	3621.	90.	0.	3621.	5980.	0.	0.	0.	.61	60.	20.1	C	21.6	12.3
17	3	1400.	286.	0.	3906.	286.	0.	3906.	5936.	0.	0.	0.	.66	60.	21.7	C	21.6	12.3
18	3	200.	0.	0.	3906.	0.	0.	3906.	6000.	0.	0.	0.	.65	60.	21.7	C	21.6	12.3
19	3	1400.	0.	264.	3906.	0.	264.	3906.	5955.	0.	0.	0.	.66	60.	21.7	C	21.6	12.3
20	3	900.	0.	0.	3642.	0.	0.	3642.	6000.	0.	0.	0.	.61	60.	20.2	C	21.6	12.3
21	4	100.	137.	0.	3778.	137.	0.	3778.	7967.	0.	0.	0.	.47	60.	15.7	B	21.6	12.3
22	4	100.	0.	70.	3778.	0.	70.	3778.	7988.	0.	0.	0.	.47	60.	15.7	B	21.6	12.3
23	3	600.	0.	0.	3708.	0.	0.	3708.	6000.	0.	0.	0.	.62	60.	20.6	C	21.6	12.3
24	3	1500.	392.	0.	4100.	392.	0.	4100.	5902.	0.	0.	0.	.69	60.	22.8	C	21.6	12.3
25	3	1500.	0.	0.	4100.	0.	0.	4100.	6000.	0.	0.	0.	.68	60.	22.8	C	21.6	12.3
26	3	8000.	0.	0.	4100.	0.	0.	4100.	6000.	0.	0.	0.	.68	60.	22.8	C	21.6	12.3
27	4	100.	1025.	0.	5125.	1025.	0.	5125.	8000.	0.	0.	0.	.64	65.	19.7	C	19.2	14.0
28	4	1000.	0.	0.	5125.	0.	0.	5125.	7750.	0.	0.	0.	.66	65.	19.7	C	19.2	14.0
29	4	1000.	0.	5125.	5125.	0.	5125.	5125.	7750.	0.	0.	0.	.66	65.	19.7	C	19.2	14.0
TOTAL		135469. = 25.7 MILES									MAX(V/C) = 0.75		LOWEST LOS = C	AVG = 60.	22.8		21.5	12.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1773. VEH-HRS	1784. PASS-HRS	1773. VEH-HRS	1784. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	8. VEH-HRS	8. PASS-HRS	8. VEH-HRS	8. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1781. VEH-HRS	1792. PASS-HRS	1781. VEH-HRS	1792. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	106648. VEH-MI.	107357. PASS-MI.	106648. VEH-MI.	107357. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	23. VPMPL		23. VPMPL	
TOTAL FUEL =	4954. GALLONS		4954. GALLONS	
TOTAL EMISSIONS =	1321. KILOGRAMS		1321. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	101.01	3	2.77	4	0.61	5	0.71
6	2.66	7	2.56	8	1.56	9	0.73	10	1.56
11	0.56	12	0.32	13	0.32	14	0.32	15	0.60
16	0.79	17	1.33	18	0.19	19	1.33	20	0.80
21	0.09	22	0.09	23	0.54	24	1.49	25	1.49
26	7.96	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 132.4 VEH-HRS ***** AVERAGE DELAY = 1.92 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	16.	8.06	2.88	0.18	0.93	0.05	1.16

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.24	21.64	21.98	22.85	23.06	0.00	25.69
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.72	1.06	1.93	2.14	0.00	4.77
4	0.00	0.00	0.20	1.07	1.28	0.00	3.91
5	0.00	0.00	0.00	0.74	0.95	0.00	3.58
6	0.00	0.00	0.00	0.57	0.78	0.00	3.41
7	0.00	0.00	0.00	0.00	0.04	0.00	2.67
8	0.00	0.00	0.00	0.00	0.00	0.00	2.52
9	0.00	0.00	0.00	0.00	0.00	0.00	0.38
10	0.00	0.00	0.00	0.00	0.00	0.00	0.36
11	0.00	0.00	0.00	0.00	0.00	0.00	0.18

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	1370.	5930.	1186.	5930.	5930.	1186.	5930.	8000.	0.	0.	0.	.74	64.	23.1	C	19.5	13.8
2	3	99999.	0.	0.	4744.	0.	0.	4744.	6000.	0.	0.	0.	.79	60.	26.4	D	21.6	12.3
3	3	2740.	0.	0.	4744.	0.	0.	4744.	6000.	0.	0.	0.	.79	60.	26.4	D	21.6	12.3
4	3	600.	0.	0.	4744.	0.	0.	4744.	6000.	0.	0.	0.	.79	60.	26.4	D	21.6	12.3
5	3	700.	0.	0.	4744.	0.	0.	4744.	6000.	0.	0.	0.	.79	60.	26.4	D	21.6	12.3
6	3	2630.	0.	0.	4744.	0.	0.	4744.	6000.	0.	0.	0.	.79	60.	26.4	D	21.6	12.3
7	3	2530.	0.	0.	4744.	0.	0.	4744.	6000.	0.	0.	0.	.79	60.	26.4	D	21.6	12.3

8	3	1500.	165.	0.	4909.	165.	0.	4909.	5975.	0.	0.	0.	.82	59.	27.7	D	21.9	12.2
9	3	700.	0.	0.	4909.	0.	0.	4909.	6000.	0.	0.	0.	.82	59.	27.7	D	21.9	12.2
10	3	1500.	0.	1371.	4909.	0.	1209.	4909.	5671.	0.	0.	0.	.87	58.	28.2	D	22.2	11.9
11	3	750.	0.	0.	3539.	0.	0.	3539.	6000.	0.	0.	0.	.59	60.	19.7	C	21.6	12.3
12	4	350.	989.	0.	4528.	989.	0.	4528.	7788.	0.	0.	0.	.58	60.	18.9	C	21.6	12.3
13	4	350.	0.	0.	4528.	0.	0.	4528.	8000.	0.	0.	0.	.57	60.	18.9	C	21.6	12.3
14	4	350.	0.	302.	4528.	0.	302.	4528.	7946.	0.	0.	0.	.57	60.	18.9	C	21.6	12.3
15	3	700.	0.	0.	4226.	0.	0.	4226.	6000.	0.	0.	0.	.70	60.	23.5	C	21.6	12.3
16	3	900.	101.	0.	4328.	101.	0.	4328.	5976.	0.	0.	0.	.72	60.	24.0	C	21.6	12.3
17	3	1400.	446.	0.	4774.	446.	0.	4774.	5896.	0.	0.	0.	.81	60.	26.5	D	21.6	12.3
18	3	200.	0.	0.	4774.	0.	0.	4774.	6000.	0.	0.	0.	.80	60.	26.5	D	21.6	12.3
19	3	1400.	0.	199.	4774.	0.	199.	4774.	5969.	0.	0.	0.	.80	60.	26.5	D	21.6	12.3
20	3	900.	0.	0.	4575.	0.	0.	4575.	6000.	0.	0.	0.	.76	60.	25.4	C	21.6	12.3
21	4	100.	185.	0.	4760.	185.	0.	4760.	7955.	0.	0.	0.	.60	60.	19.8	C	21.6	12.3
22	4	100.	0.	104.	4760.	0.	104.	4760.	7984.	0.	0.	0.	.60	60.	19.8	C	21.6	12.3
23	3	600.	0.	0.	4656.	0.	0.	4656.	6000.	0.	0.	0.	.78	60.	25.9	C	21.6	12.3
24	3	1500.	432.	0.	5088.	432.	0.	5088.	5892.	0.	0.	0.	.86	58.	29.2	D	22.2	12.0
25	3	1500.	0.	0.	5088.	0.	0.	5088.	6000.	0.	0.	0.	.85	59.	29.0	D	22.1	12.0
26	3	8000.	0.	0.	5088.	0.	0.	5088.	6000.	0.	0.	0.	.85	59.	29.0	D	22.1	12.0
27	4	100.	1272.	0.	6360.	1272.	0.	6360.	8000.	0.	0.	0.	.80	63.	25.1	C	20.0	13.4
28	4	1000.	0.	0.	6360.	0.	0.	6360.	7750.	0.	0.	0.	.82	63.	25.4	C	20.3	13.2
29	4	1000.	0.	6360.	6360.	0.	6360.	6360.	7750.	0.	0.	0.	.82	63.	25.4	C	20.3	13.2

TOTAL 135469. = 25.7 MILES MAX(V/C) = 0.87 LOWEST LOS = D AVG = 60. 26.4 21.6 12.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2055. VEH-HRS	2068. PASS-HRS	3828. VEH-HRS	3852. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	97. VEH-HRS	97. PASS-HRS	105. VEH-HRS	105. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2151. VEH-HRS	2165. PASS-HRS	3932. VEH-HRS	3957. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	123125. VEH-MI.	123973. PASS-MI.	229773. VEH-MI.	231330. PASS-MI.
AVERAGE SYSTEM SPEED =	57. MPH.		60. MPH.	
AVERAGE DENSITY =	26. VPMPL		25. VPMPL	
TOTAL FUEL =	5731. GALLONS		10685. GALLONS	
TOTAL EMISSIONS =	1532. KILOGRAMS		2853. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.25	2	115.19	3	3.16	4	0.69	5	0.81
6	3.03	7	2.91	8	2.14	9	0.99	10	2.57
11	0.64	12	0.38	13	0.38	14	0.38	15	0.72
16	0.95	17	1.62	18	0.23	19	1.62	20	1.00
21	0.12	22	0.12	23	0.68	24	2.64	25	2.46
26	13.11	27	0.05	28	0.73	29	0.73		

***** TOTAL DELAY = 160.3 VEH-HRS ***** AVERAGE DELAY = 2.01 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	177.	96.74	34.54	2.14	11.21	0.59	13.94

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
```

FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	60	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
12	1	1650.	350.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	1	1650.	900.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	60		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	60	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	60		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	60	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 10/19/2015 13:55 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	8000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	60	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
6	3	6000.	2630.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	3	6000.	1500.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	3	6000.	700.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	3	6000.	1500.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	8000.	350.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	8000.	350.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	8000.	350.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	8000.	100.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	8000.	100.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	60		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	60	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	60		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	60	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	4	8000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	4	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	4	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111          222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111        2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111      2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111     222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 9 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 10 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

QUEUE COLLISION IN SECTION 28 T2 =0.044
QUEUE COLLISION IN SECTION 10 T2 =0.941
QUEUE COLLISION IN SECTION 8 T2 =0.923

****
**
** FREEWAY TRAVEL TIME (MINUTES) **
**
****

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.26	24.74	25.72	28.47	29.46	45.04
2	0.00	1.18	2.16	4.91	5.90	21.48
3	0.00	0.00	0.66	3.42	4.40	19.98
4	0.00	0.00	0.00	2.31	3.29	18.87
5	0.00	0.00	0.00	1.81	2.79	18.37
6	0.00	0.00	0.00	0.00	0.24	15.82
7	0.00	0.00	0.00	0.00	0.00	15.05
8	0.00	0.00	0.00	0.00	0.00	1.30
9	0.00	0.00	0.00	0.00	0.00	1.14
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	1370.	7229.	1446.	7229.	7229.	1446.	7229.	8000.	0.	0.	0.	.90	59.	30.6	D	21.9	12.1
2	3	99999.	0.	0.	5783.	0.	0.	5783.	6000.	0.	0.	0.	.96	54.	36.0	E	23.5	11.3
3	3	2740.	0.	0.	5783.	0.	0.	5783.	6000.	0.	0.	0.	.96	54.	36.0	E	23.5	11.3
4	3	600.	0.	0.	5783.	0.	0.	5783.	6000.	0.	0.	0.	.96	54.	36.0	E	23.5	11.3
5	3	700.	0.	0.	5783.	0.	0.	5783.	6000.	0.	0.	0.	.96	54.	36.0	E	23.5	11.3
6	3	2630.	0.	0.	5783.	0.	0.	3357.	6000.	0. *	199.	2426.	.56	54.	20.9	F	23.5	11.3
7	3	2530.	0.	0.	5783.	0.	0.	3357.	6000.	0. **	2530.	2426.	.56	42.	26.5	F	22.3	11.8
8	3	1500.	258.	0.	6041.	240.	0.	3597.	5958.	0. **	1500.	2361.	.60	36.	33.7	F	21.9	12.1
9	3	700.	0.	0.	6041.	0.	0.	3597.	6000.	0. **	700.	2361.	.60	32.	37.8	F	21.0	12.5
10	3	1500.	0.	1172.	6041.	0.	1110.	3597.	5722.	0. **	1500.	2125.	.63	38.	31.6	F	22.3	11.9
11	3	750.	0.	0.	4869.	0.	0.	2487.	6000.	0. **	750.	2125.	.41	27.	30.6	F	19.3	13.6
12	4	350.	440.	0.	5309.	440.	0.	2927.	7910.	0. **	350.	2125.	.37	20.	36.2	F	18.6	14.0
13	4	350.	0.	0.	5309.	0.	0.	2927.	8000.	0. **	350.	2125.	.37	18.	41.0	F	18.1	14.3
14	4	350.	0.	358.	5309.	0.	341.	2927.	7923.	0. **	350.	2125.	.37	16.	45.1	F	17.7	14.7
15	3	700.	0.	0.	4951.	0.	0.	2586.	6000.	0. **	700.	2125.	.43	18.	48.4	F	17.3	14.9
16	3	900.	826.	0.	5777.	720.	0.	3306.	5816.	0. **	900.	2125.	.57	21.	53.6	F	17.5	14.7
17	3	1400.	360.	0.	6137.	360.	0.	3666.	5920.	0. **	1400.	2125.	.62	20.	60.8	F	17.6	14.9
18	3	200.	0.	0.	6137.	0.	0.	3666.	6000.	0. **	200.	2125.	.61	19.	65.7	F	16.9	15.4
19	3	1400.	0.	471.	6137.	0.	444.	3666.	5921.	0. **	1400.	2125.	.62	18.	68.7	F	16.7	15.7
20	3	900.	0.	0.	5666.	0.	0.	3222.	6000.	0. **	900.	2125.	.54	14.	78.2	F	14.8	17.2
21	4	100.	217.	0.	5883.	217.	0.	3439.	7947.	0. **	100.	2125.	.43	10.	89.5	F	13.9	18.1
22	4	100.	0.	127.	5883.	0.	120.	3439.	7979.	0. **	100.	2125.	.43	9.	91.4	F	13.8	18.2
23	3	600.	0.	0.	5756.	0.	0.	3319.	6000.	0. **	600.	2125.	.55	13.	85.6	F	14.3	17.7
24	3	1500.	176.	0.	5932.	176.	0.	3495.	5956.	0. **	1500.	2125.	.59	13.	90.6	F	14.2	18.0
25	3	1500.	0.	0.	5932.	0.	0.	3495.	6000.	0. **	1500.	2125.	.58	11.	102.1	F	13.4	19.1
26	3	8000.	0.	0.	5932.	0.	0.	3495.	6000.	0. **	8000.	2125.	.58	8.	140.1	F	11.1	22.7
27	4	100.	1483.	0.	7415.	1483.	0.	4978.	8000.	0. **	100.	2125.	.62	7.	170.9	F	10.1	25.7
28	4	1000.	1560.	0.	8975.	1212.	0.	6190.	7750.	0. **	1000.	1560.	.80	12.	125.7	F	14.4	20.9
29	4	1000.	1560.	10535.	10535.	1560.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	37.1	E	23.8	11.1
TOTAL		135469. =	25.7 MILES			MAX(V/C) = 1.00				LOWEST LOS = F				AVG = 37.	45.0		21.6	12.2

TIME SLICE 1 OF 3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3854. VEH-HRS	3891. PASS-HRS	3854. VEH-HRS	3891. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	236. VEH-HRS	271. PASS-HRS	236. VEH-HRS	271. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4090. VEH-HRS	4162. PASS-HRS	4090. VEH-HRS	4162. PASS-HRS
TOTAL TRAV DISTANCE =	143735. VEH-MI.	144726. PASS-MI.	143735. VEH-MI.	144726. PASS-MI.
AVERAGE SYSTEM SPEED =	35. MPH.		37. MPH.	
AVERAGE DENSITY =	45. VPMPL		45. VPMPL	
TOTAL FUEL =	6746. GALLONS		6746. GALLONS	
TOTAL EMISSIONS =	1786. KILOGRAMS		1786. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	2.94	2	358.28	3	9.82	4	2.15	5	2.51
6	9.49	7	22.54	8	20.72	9	12.04	10	17.22
11	13.22	12	10.61	13	12.50	14	14.02	15	22.53
16	27.27	17	46.27	18	7.28	19	53.56	20	43.09
21	7.67	22	7.83	23	30.98	24	79.40	25	89.19
26	624.43	27	11.67	28	77.66	29	5.53		

***** TOTAL DELAY = 1642.4 VEH-HRS ***** AVERAGE DELAY = 25.33 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	18.	9.00	2.09	3.21	0.20	1.04	0.06	1.30
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	18.	9.00	2.09	3.21	0.20	1.04	0.06	1.30
ON-RAMP	4	RAMP	106.	53.00	3.85	18.93	1.17	6.14	0.33	7.64
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	106.	53.00	3.85	18.93	1.17	6.14	0.33	7.64
ON-RAMP	9	RAMP	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08

TIME SLICE 2 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.25	27.54	30.34	33.66	34.77	45.01
2	0.00	2.35	5.15	8.47	9.58	19.82
3	0.00	0.00	1.84	5.16	6.27	16.51
4	0.00	0.00	0.00	2.48	3.60	13.84
5	0.00	0.00	0.00	1.82	2.94	13.18
6	0.00	0.00	0.00	0.00	0.31	10.55
7	0.00	0.00	0.00	0.00	0.00	9.72
8	0.00	0.00	0.00	0.00	0.00	0.90
9	0.00	0.00	0.00	0.00	0.00	0.81
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D ORG	O-D DES	DATA DEMANDS SSEC	ADJUSTED VOLUMES ORG	ADJUSTED VOLUMES DES	ADJUSTED VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	1370.	6699.	1340.	6699.	6699.	1340.	6699.	8000.	0.	0.	0.	.84	62.	27.0	D	20.6	13.0
2	3	99999.	0.	0.	5359.	0.	0.	5359.	6000.	0.	0.	0.	.89	57.	31.3	D	22.5	11.8
3	3	2740.	0.	0.	5359.	0.	0.	5092.	6000.	0. *	1592.	267.	.85	46.	37.2	F	21.7	12.4
4	3	600.	0.	0.	5359.	0.	0.	5092.	6000.	0. **	600.	267.	.85	28.	60.6	F	19.6	14.4
5	3	700.	0.	0.	5359.	0.	0.	5092.	6000.	0. **	700.	267.	.85	24.	71.5	F	18.7	15.4
6	3	2630.	0.	0.	5359.	0.	0.	5092.	6000.	0. **	2630.	267.	.85	17.	99.8	F	16.8	17.8
7	3	2530.	0.	0.	5359.	0.	0.	5092.	6000.	0. **	2530.	267.	.85	14.	119.6	F	15.7	19.5
8	3	1500.	312.	0.	5671.	280.	0.	5372.	5952.	0. **	1500.	267.	.90	17.	104.6	F	17.2	17.7
9	3	700.	0.	0.	5671.	0.	0.	5372.	6000.	0. **	700.	267.	.90	17.	107.4	F	17.0	17.9
10	3	1500.	0.	1175.	5671.	0.	1167.	5372.	5725.	0. **	1500.	267.	.94	20.	91.7	F	18.3	16.3
11	3	750.	0.	0.	4496.	0.	0.	4205.	6000.	0. **	750.	267.	.70	9.	158.2	F	11.7	24.1
12	4	350.	545.	0.	5041.	545.	0.	4750.	7895.	0. **	350.	267.	.60	7.	181.7	F	9.5	26.9
13	4	350.	0.	0.	5041.	0.	0.	4750.	8000.	0. **	350.	267.	.59	6.	186.2	F	9.3	27.1
14	4	350.	0.	390.	5041.	0.	388.	4750.	7920.	0. **	350.	267.	.60	6.	182.8	F	9.4	26.9
15	3	700.	0.	0.	4651.	0.	0.	4362.	6000.	0. **	700.	267.	.73	10.	151.4	F	12.6	23.3
16	3	900.	875.	0.	5526.	720.	0.	5082.	5815.	0. **	900.	267.	.87	15.	109.5	F	16.5	18.6
17	3	1400.	405.	0.	5931.	400.	0.	5482.	5915.	0. **	1400.	267.	.93	19.	97.7	F	17.9	16.8
18	3	200.	0.	0.	5931.	0.	0.	5482.	6000.	0. **	200.	267.	.91	18.	102.6	F	17.5	17.3
19	3	1400.	0.	623.	5931.	0.	599.	5482.	5903.	0. **	1400.	267.	.93	19.	97.1	F	17.9	16.7
20	3	900.	0.	0.	5308.	0.	0.	4883.	6000.	0. **	900.	267.	.81	13.	128.7	F	14.7	20.7
21	4	100.	234.	0.	5542.	234.	0.	5117.	7944.	0. **	100.	267.	.64	7.	171.8	F	10.2	25.8
22	4	100.	0.	199.	5542.	0.	191.	5117.	7969.	0. **	100.	267.	.64	7.	172.9	F	10.2	25.9
23	3	600.	0.	0.	5343.	0.	0.	4926.	6000.	0. **	600.	267.	.82	13.	126.8	F	14.8	20.5
24	3	1500.	160.	0.	5503.	160.	0.	5086.	5960.	0. **	1500.	267.	.85	14.	117.5	F	15.9	19.3
25	3	1500.	0.	0.	5503.	0.	0.	5086.	6000.	0. **	1500.	267.	.85	14.	119.8	F	15.7	19.5
26	3	8000.	0.	0.	5503.	0.	0.	5086.	6000.	0. **	8000.	267.	.85	14.	119.8	F	15.7	19.5
27	4	100.	1376.	0.	6879.	1376.	0.	6462.	8000.	0. **	100.	267.	.81	12.	130.3	F	14.5	20.9
28	4	1000.	520.	0.	7399.	768.	0.	7230.	7750.	0. **	1000.	267.	.93	19.	94.5	F	18.1	16.6
29	4	1000.	520.	7919.	7919.	520.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	37.1	E	23.8	11.1
TOTAL		135469. =	25.7 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 35.	50.1		20.6	13.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3937. VEH-HRS	3969. PASS-HRS	7791. VEH-HRS	7860. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	444. VEH-HRS	489. PASS-HRS	680. VEH-HRS	760. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4381. VEH-HRS	4458. PASS-HRS	8471. VEH-HRS	8620. PASS-HRS
TOTAL TRAV DISTANCE =	137305. VEH-MI.	138316. PASS-MI.	281040. VEH-MI.	283042. PASS-MI.
AVERAGE SYSTEM SPEED =	31. MPH.		36. MPH.	
AVERAGE DENSITY =	50. VPMPL		48. VPMPL	
TOTAL FUEL =	6835. GALLONS		13581. GALLONS	
TOTAL EMISSIONS =	1896. KILOGRAMS		3682. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	1.31	2	215.67	3	18.04	4	12.16	5	18.54
6	111.38	7	134.34	8	65.70	9	31.75	10	54.69
11	58.24	12	43.34	13	44.53	14	43.63	15	51.31
16	42.65	17	55.38	18	8.46	19	54.84	20	52.98
21	11.53	22	11.61	23	34.61	24	77.96	25	79.90
26	426.11	27	7.99	28	50.52	29	5.53		

***** TOTAL DELAY = 1824.7 VEH-HRS ***** AVERAGE DELAY = 21.36 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	34.00	6.18	12.14	0.75	3.94	0.21	4.90
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	34.00	6.18	12.14	0.75	3.94	0.21	4.90
ON-RAMP	4	RAMP	261.	183.50	11.22	65.52	4.06	21.26	1.13	26.45
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	261.	183.50	11.22	65.52	4.06	21.26	1.13	26.45
ON-RAMP	5	RAMP	5.	2.50	0.37	0.89	0.06	0.29	0.02	0.36
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	5.	2.50	0.37	0.89	0.06	0.29	0.02	0.36
ON-RAMP	9	RAMP	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	24.85	27.65	31.03	32.12	42.17
2	0.00	2.13	4.93	8.31	9.40	19.45
3	0.00	0.00	1.89	5.26	6.35	16.40
4	0.00	0.00	0.00	2.54	3.63	13.68
5	0.00	0.00	0.00	1.86	2.95	13.00
6	0.00	0.00	0.00	0.00	0.31	10.35
7	0.00	0.00	0.00	0.00	0.00	9.53
8	0.00	0.00	0.00	0.00	0.00	0.98
9	0.00	0.00	0.00	0.00	0.00	0.88
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1	4	1370.	5510.	1102.	5510.	5510.	1102.	5510.	8000.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
2	3	99999.	0.	0.	4408.	0.	0.	4408.	6000.	0.	0.	0.	.73	60.	24.5	C	21.6	12.3
3	3	2740.	0.	0.	4408.	0.	0.	4408.	6000.	0.	0.	0.	.73	52.	28.0	D	21.3	12.6
4	3	600.	0.	0.	4408.	0.	0.	4408.	6000.	0.	0.	0.	.73	38.	38.6	E	20.2	13.6
5	3	700.	0.	0.	4408.	0.	0.	4408.	6000.	0.	0.	0.	.73	34.	43.3	E	19.8	14.0
6	3	2630.	0.	0.	4408.	0.	0.	4408.	6000.	0.	0.	0.	.73	27.	55.1	F	18.8	15.1
7	3	2530.	0.	0.	4408.	0.	0.	4408.	6000.	0.	0.	0.	.73	20.	72.4	F	17.5	16.7
8	3	1500.	218.	0.	4626.	240.	0.	4648.	5968.	0.	0.	0.	.78	20.	77.3	F	17.8	16.6
9	3	700.	0.	0.	4626.	0.	0.	4648.	6000.	0.	0.	0.	.77	19.	83.7	F	17.4	17.2
10	3	1500.	0.	1059.	4626.	0.	1064.	4648.	5749.	0.	0.	0.	.81	20.	77.2	F	18.1	16.4
11	3	750.	0.	0.	3567.	0.	0.	4244.	6000.	0.	0.	-660.	.71	9.	151.8	F	12.1	23.5
12	4	350.	454.	0.	4021.	454.	0.	4698.	7914.	0. **	350.	-660.	.59	6.	184.2	F	9.3	27.1
13	4	350.	0.	0.	4021.	0.	0.	4698.	8000.	0. **	350.	-660.	.59	6.	187.9	F	9.3	27.2
14	4	350.	0.	352.	4021.	0.	353.	4698.	7927.	0. **	350.	-660.	.59	6.	184.8	F	9.3	27.1
15	3	700.	0.	0.	3669.	0.	0.	4345.	6000.	0. **	700.	-660.	.72	10.	152.1	F	12.5	23.4
16	3	900.	704.	0.	4373.	720.	0.	5065.	5853.	0. **	900.	-660.	.87	15.	112.4	F	16.3	18.8
17	3	1400.	389.	0.	4762.	394.	0.	5459.	5919.	0. **	1400.	-660.	.92	18.	99.0	F	17.7	17.0
18	3	200.	0.	0.	4762.	0.	0.	5459.	6000.	0. **	200.	-660.	.91	18.	103.6	F	17.4	17.4
19	3	1400.	0.	521.	4762.	0.	524.	5459.	5921.	0. **	1400.	-660.	.92	18.	99.1	F	17.7	17.0
20	3	900.	0.	0.	4241.	0.	0.	4935.	6000.	0. **	900.	-660.	.82	13.	126.4	F	14.9	20.4
21	4	100.	186.	0.	4427.	186.	0.	5121.	7956.	0. **	100.	-660.	.64	7.	172.2	F	10.2	25.8
22	4	100.	0.	174.	4427.	0.	174.	5121.	7973.	0. **	100.	-660.	.64	7.	172.9	F	10.2	25.9
23	3	600.	0.	0.	4253.	0.	0.	4947.	6000.	0. **	600.	-660.	.82	13.	125.9	F	14.9	20.3
24	3	1500.	192.	0.	4445.	192.	0.	5139.	5952.	0. **	1500.	-660.	.86	15.	114.8	F	16.2	18.9
25	3	1500.	0.	0.	4445.	0.	0.	5139.	6000.	0. **	1500.	-660.	.86	15.	117.5	F	16.0	19.2
26	3	8000.	0.	0.	4445.	0.	0.	5139.	6000.	0. **	8000.	-660.	.86	15.	117.5	F	16.0	19.2
27	4	100.	1111.	0.	5556.	1111.	0.	6250.	8000.	0. **	100.	-660.	.78	11.	137.2	F	13.9	21.7
28	4	1000.	750.	0.	6306.	750.	0.	7000.	7750.	0. **	1000.	-660.	.90	17.	102.0	F	17.2	17.6
29	4	1000.	750.	7056.	7056.	750.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	37.1	E	23.8	11.1
TOTAL	135469. =	25.7 MILES							MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 35.	42.1				19.9	13.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3352. VEH-HRS	3385. PASS-HRS	11143. VEH-HRS	11245. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	394. VEH-HRS	414. PASS-HRS	1075. VEH-HRS	1174. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3747. VEH-HRS	3799. PASS-HRS	12218. VEH-HRS	12419. PASS-HRS
TOTAL TRAV DISTANCE =	117844. VEH-MI.	118783. PASS-MI.	398885. VEH-MI.	401825. PASS-MI.
AVERAGE SYSTEM SPEED =	31. MPH.		36. MPH.	
AVERAGE DENSITY =	42. VPMPL		46. VPMPL	
TOTAL FUEL =	6050. GALLONS		19630. GALLONS	
TOTAL EMISSIONS =	1686. KILOGRAMS		5368. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	107.03	3	8.46	4	5.59	5	8.51
6	51.06	7	77.58	8	50.22	9	26.49	10	51.06
11	55.04	12	44.06	13	45.03	14	44.20	15	51.64
16	44.18	17	56.45	18	8.59	19	56.54	20	51.69
21	11.55	22	11.61	23	34.27	24	75.37	25	77.70
26	414.37	27	8.57	28	56.88	29	5.53		

***** TOTAL DELAY = 1539.3 VEH-HRS ***** AVERAGE DELAY = 18.77 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	28.	39.00	8.73	13.93	0.86	4.52	0.24	5.62
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	28.	39.00	8.73	13.93	0.86	4.52	0.24	5.62
ON-RAMP	4	RAMP	245.	253.00	15.73	90.34	5.60	29.31	1.55	36.47
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	245.	253.00	15.73	90.34	5.60	29.31	1.55	36.47

ON-RAMP	5	RAMP	0.	2.50	0.10	0.89	0.06	0.29	0.02	0.36
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	0.	2.50	0.10	0.89	0.06	0.29	0.02	0.36
ON-RAMP	9	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.38	21.72	22.59	22.80	25.00	0.00
3	0.00	0.00	0.00	0.00	2.12	4.32	0.00
4	0.00	0.00	0.00	0.00	0.00	3.48	0.00
5	0.00	0.00	0.00	0.00	0.00	3.14	0.00
6	0.00	0.00	0.00	0.00	0.00	2.97	0.00
7	0.00	0.00	0.00	0.00	0.00	2.23	0.00
8	0.00	0.00	0.00	0.00	0.00	2.08	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1446.	0.	1446.	1446.	0.	1446.	1650.	0.	0.	0.	.88	60.	24.1	C	22.7	12.1
3	1	2740.	0.	0.	1446.	0.	0.	1446.	1650.	0.	0.	0.	.88	60.	24.1	C	22.7	12.1
4	1	600.	0.	0.	1446.	0.	0.	1446.	1650.	0.	0.	0.	.88	60.	24.1	C	22.7	12.1
5	1	700.	0.	0.	1446.	0.	0.	1446.	1650.	0.	0.	0.	.88	60.	24.1	C	22.7	12.1
6	1	2630.	0.	0.	1446.	0.	0.	1446.	1650.	0.	0.	0.	.88	60.	24.1	C	22.7	12.1
7	1	2530.	0.	0.	1446.	0.	0.	1446.	1650.	0.	0.	0.	.88	60.	24.1	C	22.7	12.1
8	1	1500.	42.	0.	1488.	42.	0.	1488.	1650.	0.	0.	0.	.90	60.	24.8	C	22.7	12.1
9	1	700.	0.	0.	1488.	0.	0.	1488.	1650.	0.	0.	0.	.90	60.	24.8	C	22.7	12.1
10	1	1500.	0.	278.	1488.	0.	278.	1488.	1650.	0.	0.	0.	.90	60.	24.8	C	22.7	12.1
11	1	750.	0.	0.	1209.	0.	0.	1209.	1650.	0.	0.	0.	.73	60.	20.2	C	22.7	12.1
12	1	350.	90.	0.	1299.	90.	0.	1299.	1650.	0.	0.	0.	.79	60.	21.7	C	22.7	12.1
13	1	350.	0.	0.	1299.	0.	0.	1299.	1650.	0.	0.	0.	.79	60.	21.7	C	22.7	12.1
14	1	350.	0.	77.	1299.	0.	77.	1299.	1650.	0.	0.	0.	.79	60.	21.7	C	22.7	12.1
15	1	700.	0.	0.	1223.	0.	0.	1223.	1650.	0.	0.	0.	.74	60.	20.4	C	22.7	12.1
16	1	900.	184.	0.	1406.	184.	0.	1406.	1650.	0.	0.	0.	.85	60.	23.4	C	22.7	12.1
17	1	1400.	80.	0.	1486.	80.	0.	1486.	1650.	0.	0.	0.	.90	60.	24.8	C	22.7	12.1
18	1	200.	0.	0.	1486.	0.	0.	1486.	1650.	0.	0.	0.	.90	60.	24.8	C	22.7	12.1
19	1	1400.	0.	79.	1486.	0.	79.	1486.	1650.	0.	0.	0.	.90	60.	24.8	C	22.7	12.1
20	1	900.	0.	0.	1408.	0.	0.	1408.	1650.	0.	0.	0.	.85	60.	23.5	C	22.7	12.1
21	1	100.	53.	0.	1460.	53.	0.	1460.	1650.	0.	0.	0.	.89	60.	24.3	C	22.7	12.1
22	1	100.	0.	21.	1460.	0.	21.	1460.	1650.	0.	0.	0.	.89	60.	24.3	C	22.7	12.1
23	1	600.	0.	0.	1439.	0.	0.	1439.	1650.	0.	0.	0.	.87	60.	24.0	C	22.7	12.1
24	1	1500.	44.	0.	1483.	44.	0.	1483.	1650.	0.	0.	0.	.90	60.	24.7	C	22.7	12.1
25	1	1500.	0.	0.	1483.	0.	0.	1483.	1650.	0.	0.	0.	.90	60.	24.7	C	22.7	12.1
26	1	8000.	0.	1483.	1483.	0.	1483.	1483.	1650.	0.	0.	0.	.90	60.	24.7	C	22.7	12.1
27																		
28																		
29																		

TOTAL 131999. = 25.0 MILES MAX(V/C) = 0.90 LOWEST LOS = C AVG = 60. 24.1 22.7 12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	603. VEH-HRS	1206. PASS-HRS	603. VEH-HRS	1206. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	603. VEH-HRS	1206. PASS-HRS	603. VEH-HRS	1206. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	36169. VEH-MI.	72338. PASS-MI.	36169. VEH-MI.	72338. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	24. VPMPL		24. VPMPL	
TOTAL FUEL =	1591. GALLONS		1591. GALLONS	
TOTAL EMISSIONS =	438. KILOGRAMS		438. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	35.11	3	0.96	4	0.21	5	0.25
6	0.92	7	0.89	8	0.54	9	0.25	10	0.54
11	0.22	12	0.11	13	0.11	14	0.11	15	0.21
16	0.31	17	0.51	18	0.07	19	0.51	20	0.31
21	0.04	22	0.04	23	0.21	24	0.54	25	0.54
26	2.88	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 46.4 VEH-HRS ***** AVERAGE DELAY = 1.92 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.38	21.72	22.59	22.80	25.00	0.00
3	0.00	0.00	0.00	0.00	2.12	4.32	0.00
4	0.00	0.00	0.00	0.00	0.00	3.48	0.00
5	0.00	0.00	0.00	0.00	0.00	3.14	0.00
6	0.00	0.00	0.00	0.00	0.00	2.97	0.00
7	0.00	0.00	0.00	0.00	0.00	2.23	0.00
8	0.00	0.00	0.00	0.00	0.00	2.08	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1340.	0.	1340.	1340.	0.	1340.	1650.	0.	0.	0.	.81	60.	22.3	C	22.7	12.1
3	1	2740.	0.	0.	1340.	0.	0.	1340.	1650.	0.	0.	0.	.81	60.	22.3	C	22.7	12.1
4	1	600.	0.	0.	1340.	0.	0.	1340.	1650.	0.	0.	0.	.81	60.	22.3	C	22.7	12.1
5	1	700.	0.	0.	1340.	0.	0.	1340.	1650.	0.	0.	0.	.81	60.	22.3	C	22.7	12.1
6	1	2630.	0.	0.	1340.	0.	0.	1340.	1650.	0.	0.	0.	.81	60.	22.3	C	22.7	12.1
7	1	2530.	0.	0.	1340.	0.	0.	1340.	1650.	0.	0.	0.	.81	60.	22.3	C	22.7	12.1
8	1	1500.	48.	0.	1388.	48.	0.	1388.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
9	1	700.	0.	0.	1388.	0.	0.	1388.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
10	1	1500.	0.	275.	1388.	0.	275.	1388.	1650.	0.	0.	0.	.84	60.	23.1	C	22.7	12.1
11	1	750.	0.	0.	1113.	0.	0.	1113.	1650.	0.	0.	0.	.67	60.	18.5	C	22.7	12.1
12	1	350.	105.	0.	1217.	105.	0.	1217.	1650.	0.	0.	0.	.74	60.	20.3	C	22.7	12.1
13	1	350.	0.	0.	1217.	0.	0.	1217.	1650.	0.	0.	0.	.74	60.	20.3	C	22.7	12.1
14	1	350.	0.	80.	1217.	0.	80.	1217.	1650.	0.	0.	0.	.74	60.	20.3	C	22.7	12.1
15	1	700.	0.	0.	1137.	0.	0.	1137.	1650.	0.	0.	0.	.69	60.	19.0	C	22.7	12.1
16	1	900.	185.	0.	1322.	185.	0.	1322.	1650.	0.	0.	0.	.80	60.	22.0	C	22.7	12.1
17	1	1400.	85.	0.	1408.	85.	0.	1408.	1650.	0.	0.	0.	.85	60.	23.5	C	22.7	12.1
18	1	200.	0.	0.	1408.	0.	0.	1408.	1650.	0.	0.	0.	.85	60.	23.5	C	22.7	12.1
19	1	1400.	0.	97.	1408.	0.	97.	1408.	1650.	0.	0.	0.	.85	60.	23.5	C	22.7	12.1
20	1	900.	0.	0.	1311.	0.	0.	1311.	1650.	0.	0.	0.	.79	60.	21.9	C	22.7	12.1
21	1	100.	56.	0.	1367.	56.	0.	1367.	1650.	0.	0.	0.	.83	60.	22.8	C	22.7	12.1
22	1	100.	0.	31.	1367.	0.	31.	1367.	1650.	0.	0.	0.	.83	60.	22.8	C	22.7	12.1
23	1	600.	0.	0.	1336.	0.	0.	1336.	1650.	0.	0.	0.	.81	60.	22.3	C	22.7	12.1
24	1	1500.	40.	0.	1376.	40.	0.	1376.	1650.	0.	0.	0.	.83	60.	22.9	C	22.7	12.1
25	1	1500.	0.	0.	1376.	0.	0.	1376.	1650.	0.	0.	0.	.83	60.	22.9	C	22.7	12.1

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*  26   1    8000.      0. 1376. 1376.     0. 1376. 1376.  1650.     0.       0.     0.   .83    60.   22.9    C     22.7    12.1  *
*  27                                                                                                                              *
*  28                                                                                                                              *
*  29                                                                                                                              *
*                                                                                                                                  *
************************************************************************************************************************************
*                                                                                                                                  *
*   TOTAL  131999. =   25.0 MILES                        MAX(V/C) = 0.85  LOWEST LOS = C   AVG = 60.   22.4          22.7    12.1  *
*                                                                                                                                  *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	559. VEH-HRS	1119. PASS-HRS	1162. VEH-HRS	2324. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	559. VEH-HRS	1119. PASS-HRS	1162. VEH-HRS	2324. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	33555. VEH-MI.	67111. PASS-MI.	69724. VEH-MI.	139448. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	22. VPMPL		23. VPMPL	
TOTAL FUEL =	1476. GALLONS		3068. GALLONS	
TOTAL EMISSIONS =	407. KILOGRAMS		845. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	32.54	3	0.89	4	0.20	5	0.23
6	0.86	7	0.82	8	0.51	9	0.24	10	0.51
11	0.20	12	0.10	13	0.10	14	0.10	15	0.19
16	0.29	17	0.48	18	0.07	19	0.48	20	0.29
21	0.03	22	0.03	23	0.19	24	0.50	25	0.50
26	2.67	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 43.0 VEH-HRS ***** AVERAGE DELAY = 1.92 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.38	21.72	22.59	22.80	25.00	0.00
3	0.00	0.00	0.00	0.00	2.12	4.32	0.00
4	0.00	0.00	0.00	0.00	0.00	3.48	0.00
5	0.00	0.00	0.00	0.00	0.00	3.14	0.00
6	0.00	0.00	0.00	0.00	0.00	2.97	0.00
7	0.00	0.00	0.00	0.00	0.00	2.23	0.00
8	0.00	0.00	0.00	0.00	0.00	2.08	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1102.	0.	1102.	1102.	0.	1102.	1650.	0.	0.	0.	.67	60.	18.4	C	22.7	12.1
3	1	2740.	0.	0.	1102.	0.	0.	1102.	1650.	0.	0.	0.	.67	60.	18.4	C	22.7	12.1
4	1	600.	0.	0.	1102.	0.	0.	1102.	1650.	0.	0.	0.	.67	60.	18.4	C	22.7	12.1
5	1	700.	0.	0.	1102.	0.	0.	1102.	1650.	0.	0.	0.	.67	60.	18.4	C	22.7	12.1
6	1	2630.	0.	0.	1102.	0.	0.	1102.	1650.	0.	0.	0.	.67	60.	18.4	C	22.7	12.1
7	1	2530.	0.	0.	1102.	0.	0.	1102.	1650.	0.	0.	0.	.67	60.	18.4	C	22.7	12.1
8	1	1500.	32.	0.	1134.	32.	0.	1134.	1650.	0.	0.	0.	.69	60.	18.9	C	22.7	12.1
9	1	700.	0.	0.	1134.	0.	0.	1134.	1650.	0.	0.	0.	.69	60.	18.9	C	22.7	12.1
10	1	1500.	0.	251.	1134.	0.	251.	1134.	1650.	0.	0.	0.	.69	60.	18.9	C	22.7	12.1
11	1	750.	0.	0.	883.	0.	0.	883.	1650.	0.	0.	0.	.54	60.	14.7	B	22.7	12.1
12	1	350.	86.	0.	969.	86.	0.	969.	1650.	0.	0.	0.	.59	60.	16.1	B	22.7	12.1
13	1	350.	0.	0.	969.	0.	0.	969.	1650.	0.	0.	0.	.59	60.	16.1	B	22.7	12.1
14	1	350.	0.	73.	969.	0.	73.	969.	1650.	0.	0.	0.	.59	60.	16.1	B	22.7	12.1
15	1	700.	0.	0.	896.	0.	0.	896.	1650.	0.	0.	0.	.54	60.	14.9	B	22.7	12.1
16	1	900.	147.	0.	1043.	147.	0.	1043.	1650.	0.	0.	0.	.63	60.	17.4	B	22.7	12.1
17	1	1400.	81.	0.	1125.	81.	0.	1125.	1650.	0.	0.	0.	.68	60.	18.7	C	22.7	12.1
18	1	200.	0.	0.	1125.	0.	0.	1125.	1650.	0.	0.	0.	.68	60.	18.7	C	22.7	12.1
19	1	1400.	0.	79.	1125.	0.	79.	1125.	1650.	0.	0.	0.	.68	60.	18.7	C	22.7	12.1
20	1	900.	0.	0.	1045.	0.	0.	1045.	1650.	0.	0.	0.	.63	60.	17.4	B	22.7	12.1
21	1	100.	44.	0.	1090.	44.	0.	1090.	1650.	0.	0.	0.	.66	60.	18.2	C	22.7	12.1
22	1	100.	0.	27.	1090.	0.	27.	1090.	1650.	0.	0.	0.	.66	60.	18.2	C	22.7	12.1
23	1	600.	0.	0.	1063.	0.	0.	1063.	1650.	0.	0.	0.	.64	60.	17.7	B	22.7	12.1
24	1	1500.	48.	0.	1111.	48.	0.	1111.	1650.	0.	0.	0.	.67	60.	18.5	C	22.7	12.1
25	1	1500.	0.	0.	1111.	0.	0.	1111.	1650.	0.	0.	0.	.67	60.	18.5	C	22.7	12.1
26	1	8000.	0.	1111.	1111.	0.	1111.	1111.	1650.	0.	0.	0.	.67	60.	18.5	C	22.7	12.1
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES						MAX(V/C) = 0.69		LOWEST LOS = C				AVG = 60.	18.3		22.7	12.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	458. VEH-HRS	916. PASS-HRS	1620. VEH-HRS	3241. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	458. VEH-HRS	916. PASS-HRS	1620. VEH-HRS	3241. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	27495. VEH-MI.	54990. PASS-MI.	97219. VEH-MI.	194438. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		60. MPH.	
AVERAGE DENSITY =	18. VPMPL		22. VPMPL	
TOTAL FUEL =	1210. GALLONS		4278. GALLONS	
TOTAL EMISSIONS =	333. KILOGRAMS		1178. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	26.76	3	0.73	4	0.16	5	0.19
6	0.70	7	0.68	8	0.41	9	0.19	10	0.41
11	0.16	12	0.08	13	0.08	14	0.08	15	0.15
16	0.23	17	0.38	18	0.05	19	0.38	20	0.23
21	0.03	22	0.03	23	0.15	24	0.40	25	0.40
26	2.16	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 35.2 VEH-HRS ***** AVERAGE DELAY = 1.92 MIN/VEH *****

SR 237 Westbound

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ          QQQQ   1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ          QQQQ   1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111      2222      PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111     222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PE

1. THIS IS A SIMULATION ONLY EXECUTION.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	1400.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	DKS begin of netwrok
2	3	6000.	1500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
3	3	6000.	1400.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
4	3	6000.	1500.	65	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
5	3	6000.	1300.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
6	3	5020.	500.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
7	2	4000.	2300.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
8	3	4230.	700.	65	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / US 101
9	2	4000.	50.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
10	2	2470.	50.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
11	2	4000.	1000.	65	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
12	2	4000.	10.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
13	2	4000.	1500.	65	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
14	2	4000.	1500.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
15	2	4000.	100.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
```

FREQ12PE

1. THIS IS A SIMULATION ONLY EXECUTION.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	1.36	2.06	2.13	2.31	2.86	2.88
2	1.11	1.81	1.88	2.07	2.61	2.63
3	0.60	1.30	1.37	1.55	2.10	2.12
4	0.00	0.24	0.30	0.49	1.04	1.06
5	0.00	0.00	0.00	0.17	0.72	0.74
6	0.00	0.00	0.00	0.00	0.55	0.57

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF		CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	4420.	0.	4420.	4420.	0.	4420.	6000.	0.		0.	0.	.74	64.	22.9	C	19.2	13.9
2	3	1500.	20.	0.	4440.	20.	0.	4440.	6000.	0.		0.	0.	.74	64.	23.0	C	19.3	13.8
3	3	1400.	0.	0.	4440.	0.	0.	4440.	6000.	0.		0.	0.	.74	64.	23.0	C	19.3	13.8
4	3	1500.	231.	0.	4671.	231.	0.	4671.	6000.	0.		0.	0.	.78	64.	24.5	C	19.6	13.6
5	3	1300.	0.	0.	4671.	0.	0.	4671.	6000.	0.		0.	0.	.78	64.	24.5	C	19.6	13.6
6	3	500.	0.	890.	4671.	0.	890.	4671.	5020.	0.		0.	0.	.93	57.	27.1	D	22.1	11.9
7	2	2300.	0.	0.	3781.	0.	0.	3741.	4000.	0.	*	140.	40.	.94	56.	33.3	F	22.4	11.7
8	3	700.	189.	1530.	3970.	189.	10.	3930.	4230.	0.	**	700.	40.	.93	34.	38.9	F	19.0	14.6
9	2	50.	0.	0.	2440.	0.	0.	2400.	4000.	0.	**	50.	40.	.60	8.	145.0	F	10.7	24.8
10	2	50.	0.	0.	2440.	0.	0.	2400.	2400.	0.		0.	0.	1.00	65.	18.5	E	19.0	14.1
11	2	1000.	0.	0.	2440.	0.	0.	2400.	4000.	0.		0.	0.	.60	65.	18.5	C	19.0	14.1
12	2	10.	0.	0.	2440.	0.	0.	2400.	4000.	0.		0.	0.	.60	65.	18.5	C	19.0	14.1
13	2	1500.	920.	0.	3360.	920.	0.	3320.	4000.	0.		0.	0.	.83	62.	26.7	D	20.2	13.1
14	2	1500.	0.	730.	3360.	0.	721.	3320.	4000.	0.		0.	0.	.83	62.	26.7	D	20.2	13.1
15	2	100.	0.	2630.	2630.	0.	2599.	2599.	4000.	0.		0.	0.	.65	65.	20.0	C	19.0	14.1
TOTAL		14810. = 2.8 MILES										MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 59.		26.6	19.9	13.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	94. VEH-HRS	119. PASS-HRS	94. VEH-HRS	119. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	190. VEH-HRS	239. PASS-HRS	190. VEH-HRS	239. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	284. VEH-HRS	358. PASS-HRS	284. VEH-HRS	358. PASS-HRS
TOTAL TRAV DISTANCE =	5570. VEH-MI.	7019. PASS-MI.	5570. VEH-MI.	7019. PASS-MI.
AVERAGE SYSTEM SPEED =	20. MPH.		59. MPH.	
AVERAGE DENSITY =	27. VPMPL		27. VPMPL	
TOTAL FUEL =	348. GALLONS		348. GALLONS	
TOTAL EMISSIONS =	102. KILOGRAMS		102. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.09	2	0.10	3	0.09	4	0.22	5	0.19
6	0.45	7	2.00	8	3.74	9	1.20	10	0.00
11	0.00	12	0.00	13	0.32	14	0.32	15	0.00

***** TOTAL DELAY = 8.7 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	760.	190.00	68.51	4.24	22.16	1.17	27.57

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6

1	1.36	2.37	2.45	2.63	3.18	3.20
2	1.11	2.13	2.20	2.38	2.93	2.95
3	0.60	1.61	1.69	1.87	2.42	2.44
4	0.00	0.35	0.42	0.61	1.16	1.18
5	0.00	0.00	0.00	0.17	0.72	0.74
6	0.00	0.00	0.00	0.00	0.55	0.57

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	4420.	0.	4420.	4420.	0.	4420.	6000.	0.	0.	0.	.74	64.	22.9	C	19.2	13.9
2	3	1500.	20.	0.	4440.	20.	0.	4440.	6000.	0.	0.	0.	.74	64.	23.0	C	19.3	13.8
3	3	1400.	0.	0.	4440.	0.	0.	4440.	6000.	0.	0.	0.	.74	64.	23.0	C	19.3	13.8
4	3	1500.	231.	0.	4671.	231.	0.	4671.	6000.	0.	0.	0.	.78	64.	24.5	C	19.6	13.6
5	3	1300.	0.	0.	4671.	0.	0.	4671.	6000.	0.	0.	0.	.78	64.	24.5	C	19.6	13.6
6	3	500.	0.	890.	4671.	0.	890.	4671.	5020.	0.	0.	0.	.93	57.	27.1	D	22.1	11.9
7	2	2300.	0.	0.	3781.	0.	0.	3741.	4000.	0. *	1257.	40.	.94	39.	47.5	F	21.3	12.7
8	3	700.	189.	1530.	3970.	189.	10.	3930.	4230.	0. **	700.	40.	.93	23.	57.9	F	19.1	15.1
9	2	50.	0.	0.	2440.	0.	0.	2400.	4000.	0. **	50.	40.	.60	8.	153.8	F	10.4	25.5
10	2	50.	0.	0.	2440.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
11	2	1000.	0.	0.	2440.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
12	2	10.	0.	0.	2440.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
13	2	1500.	920.	0.	3360.	920.	0.	3320.	4000.	0.	0.	0.	.83	62.	26.7	D	20.2	13.1
14	2	1500.	0.	730.	3360.	0.	721.	3320.	4000.	0.	0.	0.	.83	62.	26.7	D	20.2	13.1
15	2	100.	0.	2630.	2630.	0.	2599.	2599.	4000.	0.	0.	0.	.65	65.	20.0	C	19.0	14.1
TOTAL		14810. =	2.8 MILES					MAX(V/C) = 1.00		LOWEST LOS = F			AVG = 53.		29.7		19.8	13.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	104. VEH-HRS	132. PASS-HRS	199. VEH-HRS	251. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	570. VEH-HRS	718. PASS-HRS	760. VEH-HRS	958. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	674. VEH-HRS	850. PASS-HRS	959. VEH-HRS	1208. PASS-HRS
TOTAL TRAV DISTANCE =	5566. VEH-MI.	7014. PASS-MI.	11137. VEH-MI.	14032. PASS-MI.
AVERAGE SYSTEM SPEED =	8. MPH.		56. MPH.	
AVERAGE DENSITY =	30. VPMPL		28. VPMPL	
TOTAL FUEL =	486. GALLONS		834. GALLONS	
TOTAL EMISSIONS =	158. KILOGRAMS		260. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.09	2	0.10	3	0.09	4	0.22	5	0.19
6	0.45	7	8.22	8	7.50	9	1.28	10	0.00
11	0.00	12	0.00	13	0.32	14	0.32	15	0.00

***** TOTAL DELAY = 18.8 VEH-HRS ***** AVERAGE DELAY = 0.30 MIN/VEH *****

***** RAMP DELAYS *****

TOTAL

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	1520.	570.00	205.54	12.71	66.47	3.52	82.70

QUEUE CLEAR SECTION 9 T2 =0.475

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	1.37	2.17	2.22	2.40	3.02	3.04
2	1.12	1.92	1.97	2.16	2.77	2.79
3	0.61	1.41	1.46	1.64	2.26	2.28
4	0.00	0.26	0.31	0.49	1.11	1.12
5	0.00	0.00	0.00	0.17	0.79	0.81
6	0.00	0.00	0.00	0.00	0.61	0.63

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	4455.	0.	4455.	4455.	0.	4455.	6000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
2	3	1500.	20.	0.	4475.	20.	0.	4475.	6000.	0.	0.	0.	.75	64.	23.2	C	19.3	13.8
3	3	1400.	0.	0.	4475.	0.	0.	4475.	6000.	0.	0.	0.	.75	64.	23.2	C	19.3	13.8
4	3	1500.	310.	0.	4785.	310.	0.	4785.	6000.	0.	0.	0.	.80	63.	25.2	C	19.8	13.5
5	3	1300.	0.	0.	4785.	0.	0.	4785.	6000.	0.	0.	0.	.80	63.	25.2	C	19.8	13.5
6	3	500.	0.	1020.	4785.	0.	1020.	4785.	5020.	0.	0.	0.	.95	56.	28.5	D	22.6	11.6
7	2	2300.	0.	0.	3765.	0.	0.	3765.	4000.	0.	0.	0.	.94	48.	39.4	E	21.9	12.1
8	3	700.	230.	1290.	3995.	230.	10.	3995.	4230.	0.	0.	0.	.94	31.	43.1	E	19.7	14.0
9	2	50.	0.	450.	2705.	0.	450.	2779.	4000.	0.	0.	-74.	.69	11.	124.5	F	13.5	21.9
10	2	50.	0.	0.	2255.	0.	0.	2329.	2400.	0.	0.	0.	.97	65.	17.9	B	19.0	14.1
11	2	1000.	450.	0.	2705.	450.	0.	2779.	4000.	0.	0.	0.	.69	65.	21.4	C	19.0	14.1
12	2	10.	0.	0.	2705.	0.	0.	2779.	4000.	0.	0.	0.	.69	65.	21.4	C	19.0	14.1
13	2	1500.	1050.	0.	3755.	1050.	0.	3829.	4000.	0.	0.	0.	.96	56.	34.4	D	22.7	11.5
14	2	1500.	0.	1191.	3755.	0.	1214.	3829.	4000.	0.	0.	0.	.96	56.	34.4	D	22.7	11.5
15	2	100.	0.	2564.	2564.	0.	2615.	2615.	4000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
TOTAL		14810. = 2.8 MILES									MAX(V/C) = 0.97		LOWEST LOS = F	AVG = 56.	29.7		20.4	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	104. VEH-HRS	131. PASS-HRS	303. VEH-HRS	381. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	920. VEH-HRS	1159. PASS-HRS	1680. VEH-HRS	2117. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1024. VEH-HRS	1290. PASS-HRS	1983. VEH-HRS	2498. PASS-HRS
TOTAL TRAV DISTANCE =	5808. VEH-MI.	7318. PASS-MI.	16945. VEH-MI.	21351. PASS-MI.
AVERAGE SYSTEM SPEED =	6. MPH.		56. MPH.	
AVERAGE DENSITY =	30. VPMPL		29. VPMPL	
TOTAL FUEL =	616. GALLONS		1450. GALLONS	
TOTAL EMISSIONS =	209. KILOGRAMS		469. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.10	2	0.11	3	0.11	4	0.30	5	0.26
6	0.57	7	4.54	8	4.56	9	0.97	10	0.00
11	0.00	12	0.00	13	1.41	14	1.41	15	0.00

***** TOTAL DELAY = 14.4 VEH-HRS ***** AVERAGE DELAY = 0.22 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	2160.	920.00	331.75	20.51	107.28	5.69	133.47

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	1.37	1.95	1.96	2.14	2.74	2.76
2	1.12	1.70	1.71	1.89	2.49	2.51
3	0.61	1.19	1.20	1.38	1.98	2.00
4	0.00	0.12	0.13	0.31	0.92	0.93
5	0.00	0.00	0.00	0.17	0.78	0.79
6	0.00	0.00	0.00	0.00	0.60	0.62

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB NO.	SSEC	O-D DATA DEMANDS	ADJUSTED VOLUMES	SSEC	WEAVE	CONGEST STORAGE	V/C	SPEED	DENSITY	LOS	FUEL	EMISS

SEC	LNS	LENGTH	ORG	DES	SSEC	ORG	DES	SSEC	CAP.	EFF	LENGTH	RATE	RATIO	MPH	VPMPL	LEVEL	MPG	GS/VM
1	3	1400.	4455.	0.	4455.	4455.	0.	4455.	6000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
2	3	1500.	20.	0.	4475.	20.	0.	4475.	6000.	0.	0.	0.	.75	64.	23.2	C	19.3	13.8
3	3	1400.	0.	0.	4475.	0.	0.	4475.	6000.	0.	0.	0.	.75	64.	23.2	C	19.3	13.8
4	3	1500.	310.	0.	4785.	310.	0.	4785.	6000.	0.	0.	0.	.80	63.	25.2	C	19.8	13.5
5	3	1300.	0.	0.	4785.	0.	0.	4785.	6000.	0.	0.	0.	.80	63.	25.2	C	19.8	13.5
6	3	500.	0.	1020.	4785.	0.	1020.	4785.	5020.	0.	0.	0.	.95	56.	28.5	D	22.6	11.6
7	2	2300.	0.	0.	3765.	0.	0.	3765.	4000.	0.	0.	0.	.94	57.	33.2	D	22.3	11.7
8	3	700.	230.	1290.	3995.	230.	10.	3995.	4230.	0.	0.	0.	.94	65.	20.5	C	19.0	14.1
9	2	50.	0.	450.	2705.	0.	450.	2705.	4000.	0.	0.	0.	.68	65.	20.8	C	19.0	14.1
10	2	50.	0.	0.	2255.	0.	0.	2255.	2400.	0.	0.	0.	.94	65.	17.3	B	19.0	14.1
11	2	1000.	450.	0.	2705.	450.	0.	2705.	4000.	0.	0.	0.	.68	65.	20.8	C	19.0	14.1
12	2	10.	0.	0.	2705.	0.	0.	2705.	4000.	0.	0.	0.	.68	65.	20.8	C	19.0	14.1
13	2	1500.	1050.	0.	3755.	1050.	0.	3755.	4000.	0.	0.	0.	.94	57.	33.0	D	22.3	11.8
14	2	1500.	0.	1191.	3755.	0.	1191.	3755.	4000.	0.	0.	0.	.94	57.	33.0	D	22.3	11.8
15	2	100.	0.	2564.	2564.	0.	2564.	2564.	4000.	0.	0.	0.	.64	65.	19.7	C	19.0	14.1
TOTAL		14810. =	2.8 MILES								MAX(V/C) = 0.95		LOWEST LOS = D	AVG = 61.	27.0		20.4	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	94. VEH-HRS	119. PASS-HRS	397. VEH-HRS	500. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	1240. VEH-HRS	1562. PASS-HRS	2920. VEH-HRS	3679. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1334. VEH-HRS	1681. PASS-HRS	3317. VEH-HRS	4179. PASS-HRS
TOTAL TRAV DISTANCE =	5773. VEH-MI.	7274. PASS-MI.	22718. VEH-MI.	28625. PASS-MI.
AVERAGE SYSTEM SPEED =	4. MPH.		57. MPH.	
AVERAGE DENSITY =	27. VPMPL		28. VPMPL	
TOTAL FUEL =	730. GALLONS		2181. GALLONS	
TOTAL EMISSIONS =	255. KILOGRAMS		724. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.10	2	0.11	3	0.11	4	0.30	5	0.26
6	0.57	7	1.84	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	1.17	14	1.17	15	0.00

***** TOTAL DELAY = 5.6 VEH-HRS ***** AVERAGE DELAY = 0.09 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	2800.	1240.00	447.14	27.64	144.60	7.66	179.90

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ          QQQQ   1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ          QQQQ   1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111      2222      PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111     222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PE

1. THIS IS A SIMULATION ONLY EXECUTION.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	1400.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	DKS begin of netwrok
2	3	6000.	1500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
3	3	6000.	1400.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
4	3	6000.	1500.	65	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
5	3	6000.	1300.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
6	3	5020.	500.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
7	2	4000.	2300.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
8	3	4230.	700.	65	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / US 101
9	2	4000.	50.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
10	2	2470.	50.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
11	2	4000.	1000.	65	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
12	2	4000.	10.	65		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
13	2	4000.	1500.	65	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
14	2	4000.	1500.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
15	2	4000.	100.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PE

1. THIS IS A SIMULATION ONLY EXECUTION.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	1.33	1.87	1.88	2.06	2.59	2.61
2	1.08	1.62	1.63	1.82	2.35	2.37
3	0.58	1.12	1.13	1.31	1.84	1.86
4	0.00	0.12	0.13	0.31	0.85	0.86
5	0.00	0.00	0.00	0.17	0.71	0.72
6	0.00	0.00	0.00	0.00	0.53	0.55

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D ORG	DATA DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	3336.	0.	3336.	3336.	0.	3336.	6000.	0.	0.	0.	.56	65.	17.1	B	19.0	14.1
2	3	1500.	40.	0.	3376.	40.	0.	3376.	6000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
3	3	1400.	0.	0.	3376.	0.	0.	3376.	6000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
4	3	1500.	550.	0.	3926.	550.	0.	3926.	6000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
5	3	1300.	0.	0.	3926.	0.	0.	3926.	6000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
6	3	500.	0.	641.	3926.	0.	641.	3926.	5020.	0.	0.	0.	.78	65.	20.1	C	19.0	14.1
7	2	2300.	0.	0.	3285.	0.	0.	3285.	4000.	0.	0.	0.	.82	63.	26.3	D	20.1	13.2
8	3	700.	690.	1670.	3975.	690.	10.	3975.	4230.	0.	0.	0.	.94	65.	20.4	C	19.0	14.1
9	2	50.	0.	50.	2305.	0.	50.	2305.	4000.	0.	0.	0.	.58	65.	17.7	B	19.0	14.1
10	2	50.	0.	0.	2255.	0.	0.	2255.	2470.	0.	0.	0.	.91	65.	17.3	B	19.0	14.1
11	2	1000.	50.	0.	2305.	50.	0.	2305.	4000.	0.	0.	0.	.58	65.	17.7	B	19.0	14.1
12	2	10.	0.	0.	2305.	0.	0.	2305.	4000.	0.	0.	0.	.58	65.	17.7	B	19.0	14.1
13	2	1500.	660.	0.	2965.	660.	0.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
14	2	1500.	0.	260.	2965.	0.	260.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
15	2	100.	0.	2705.	2705.	0.	2705.	2705.	4000.	0.	0.	0.	.68	65.	20.8	C	19.0	14.1
TOTAL		14810. = 2.8 MILES							MAX(V/C) = 0.94		LOWEST LOS = D		AVG = 64.		20.7		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	73. VEH-HRS	92. PASS-HRS	73. VEH-HRS	92. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	208. VEH-HRS	261. PASS-HRS	208. VEH-HRS	261. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	280. VEH-HRS	353. PASS-HRS	280. VEH-HRS	353. PASS-HRS
TOTAL TRAV DISTANCE =	4685. VEH-MI.	5903. PASS-MI.	4685. VEH-MI.	5903. PASS-MI.
AVERAGE SYSTEM SPEED =	17. MPH.		64. MPH.	
AVERAGE DENSITY =	21. VPMPL		21. VPMPL	
TOTAL FUEL =	319. GALLONS		319. GALLONS	
TOTAL EMISSIONS =	95. KILOGRAMS		95. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.44	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.07	14	0.07	15	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.01 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	830.	207.50	74.82	4.63	24.20	1.28	30.10

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6

1	1.33	1.87	1.88	2.06	2.59	2.61
2	1.08	1.62	1.63	1.82	2.35	2.37
3	0.58	1.12	1.13	1.31	1.84	1.86
4	0.00	0.12	0.13	0.31	0.85	0.86
5	0.00	0.00	0.00	0.17	0.71	0.72
6	0.00	0.00	0.00	0.00	0.53	0.55

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	3336.	0.	3336.	3336.	0.	3336.	6000.	0.	0.	0.	.56	65.	17.1	B	19.0	14.1
2	3	1500.	40.	0.	3376.	40.	0.	3376.	6000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
3	3	1400.	0.	0.	3376.	0.	0.	3376.	6000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
4	3	1500.	550.	0.	3926.	550.	0.	3926.	6000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
5	3	1300.	0.	0.	3926.	0.	0.	3926.	6000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
6	3	500.	0.	641.	3926.	0.	641.	3926.	5020.	0.	0.	0.	.78	65.	20.1	C	19.0	14.1
7	2	2300.	0.	0.	3285.	0.	0.	3285.	4000.	0.	0.	0.	.82	63.	26.3	D	20.1	13.2
8	3	700.	690.	1670.	3975.	690.	10.	3975.	4230.	0.	0.	0.	.94	65.	20.4	C	19.0	14.1
9	2	50.	0.	50.	2305.	0.	50.	2305.	4000.	0.	0.	0.	.58	65.	17.7	B	19.0	14.1
10	2	50.	0.	0.	2255.	0.	0.	2255.	2470.	0.	0.	0.	.91	65.	17.3	B	19.0	14.1
11	2	1000.	50.	0.	2305.	50.	0.	2305.	4000.	0.	0.	0.	.58	65.	17.7	B	19.0	14.1
12	2	10.	0.	0.	2305.	0.	0.	2305.	4000.	0.	0.	0.	.58	65.	17.7	B	19.0	14.1
13	2	1500.	660.	0.	2965.	660.	0.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
14	2	1500.	0.	260.	2965.	0.	260.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
15	2	100.	0.	2705.	2705.	0.	2705.	2705.	4000.	0.	0.	0.	.68	65.	20.8	C	19.0	14.1
TOTAL		14810. =	2.8 MILES								MAX(V/C) = 0.94		LOWEST LOS = D		AVG = 64.		20.7	19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	73. VEH-HRS	92. PASS-HRS	145. VEH-HRS	183. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	623. VEH-HRS	784. PASS-HRS	830. VEH-HRS	1046. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	695. VEH-HRS	876. PASS-HRS	975. VEH-HRS	1229. PASS-HRS
TOTAL TRAV DISTANCE =	4685. VEH-MI.	5903. PASS-MI.	9370. VEH-MI.	11807. PASS-MI.
AVERAGE SYSTEM SPEED =	7. MPH.		64. MPH.	
AVERAGE DENSITY =	21. VPMPL		21. VPMPL	
TOTAL FUEL =	469. GALLONS		788. GALLONS	
TOTAL EMISSIONS =	155. KILOGRAMS		251. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.44	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.07	14	0.07	15	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.01 MIN/VEH *****

***** RAMP DELAYS *****

TOTAL

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	1660.	622.50	224.47	13.88	72.59	3.85	90.31

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	1.35	2.65	2.72	2.90	3.46	3.48
2	1.10	2.41	2.48	2.66	3.22	3.24
3	0.59	1.90	1.97	2.15	2.71	2.73
4	0.00	0.31	0.37	0.56	1.12	1.13
5	0.00	0.00	0.00	0.17	0.73	0.75
6	0.00	0.00	0.00	0.00	0.56	0.58

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	3695.	0.	3695.	3695.	0.	3695.	6000.	0.	0.	0.	.62	65.	18.9	C	19.0	14.1
2	3	1500.	40.	0.	3735.	40.	0.	3735.	6000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
3	3	1400.	0.	0.	3735.	0.	0.	3735.	6000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
4	3	1500.	620.	0.	4355.	620.	0.	4355.	6000.	0.	0.	0.	.73	65.	22.5	C	19.2	13.9
5	3	1300.	0.	0.	4355.	0.	0.	4355.	6000.	0.	0.	0.	.73	65.	22.5	C	19.2	13.9
6	3	500.	0.	890.	4355.	0.	890.	4169.	5020.	0. *	275.	186.	.83	56.	24.6	F	20.8	12.8
7	2	2300.	0.	0.	3465.	0.	0.	3279.	4000.	0. **	2300.	186.	.82	26.	62.8	F	18.5	15.4
8	3	700.	730.	1489.	4195.	730.	10.	4009.	4230.	0. **	700.	186.	.95	26.	51.5	F	19.5	14.4
9	2	50.	0.	50.	2706.	0.	50.	2520.	4000.	0. **	50.	186.	.63	9.	145.5	F	11.3	24.5
10	2	50.	0.	0.	2656.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
11	2	1000.	50.	0.	2706.	50.	0.	2520.	4000.	0.	0.	0.	.63	65.	19.4	C	19.0	14.1
12	2	10.	0.	0.	2706.	0.	0.	2520.	4000.	0.	0.	0.	.63	65.	19.4	C	19.0	14.1
13	2	1500.	920.	0.	3626.	920.	0.	3440.	4000.	0.	0.	0.	.86	61.	28.2	D	20.8	12.7
14	2	1500.	0.	651.	3626.	0.	618.	3440.	4000.	0.	0.	0.	.86	61.	28.2	D	20.8	12.7
15	2	100.	0.	2975.	2975.	0.	2822.	2822.	4000.	0.	0.	0.	.71	65.	21.7	C	19.0	14.1
TOTAL	14810. =	2.8 MILES									MAX(V/C) = 1.00		LOWEST LOS = F	AVG = 49.	30.6		19.3	14.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	105. VEH-HRS	132. PASS-HRS	250. VEH-HRS	315. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	1015. VEH-HRS	1279. PASS-HRS	1845. VEH-HRS	2325. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1120. VEH-HRS	1411. PASS-HRS	2095. VEH-HRS	2640. PASS-HRS
TOTAL TRAV DISTANCE =	5148. VEH-MI.	6486. PASS-MI.	14518. VEH-MI.	18293. PASS-MI.

AVERAGE SYSTEM SPEED =	5. MPH.	58. MPH.
AVERAGE DENSITY =	31. VPMPL	24. VPMPL
TOTAL FUEL =	632. GALLONS	1420. GALLONS
TOTAL EMISSIONS =	219. KILOGRAMS	470. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.07	5	0.06
6	0.48	7	16.88	8	6.19	9	1.20	10	0.00
11	0.00	12	0.00	13	0.48	14	0.48	15	0.00

***** TOTAL DELAY = 25.8 VEH-HRS ***** AVERAGE DELAY = 0.46 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	2400.	1014.88	365.96	22.62	118.34	6.27	147.24

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	2.14	4.16	4.23	4.41	4.97	4.99
2	1.90	3.92	3.98	4.17	4.73	4.74
3	1.39	3.41	3.48	3.66	4.22	4.24
4	0.00	0.33	0.39	0.58	1.14	1.15
5	0.00	0.00	0.00	0.17	0.73	0.75
6	0.00	0.00	0.00	0.00	0.56	0.58

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	3695.	0.	3695.	3695.	0.	3695.	6000.	0.	0.	0.	.62	65.	18.9	C	19.0	14.1
2	3	1500.	40.	0.	3735.	40.	0.	3735.	6000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
3	3	1400.	0.	0.	3735.	0.	0.	3735.	6000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
4	3	1500.	620.	0.	4355.	620.	0.	4169.	6000.	0. *	51.	186.	.69	64.	21.6	F	19.2	13.9
5	3	1300.	0.	0.	4355.	0.	0.	4169.	6000.	0. **	1300.	186.	.69	19.	73.3	F	15.9	17.9

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*   6   3     500.      0.  890. 4355.     0.  890. 4169.  5020.     0. **  500.   186.   .83    16.   85.4    F     16.5    18.2  *
*   7   2    2300.      0.    0. 3465.     0.    0. 3279.  4000.     0. ** 2300.   186.   .82    15.  105.9    F     16.3    18.7  *
*   8   3     700.    730. 1489. 4195.   730.   10. 4009.  4230.     0. **  700.   186.   .95    24.   55.0    F     19.6    14.4  *
*   9   2      50.      0.   50. 2706.     0.   50. 2520.  4000.     0. **   50.   186.   .63     9.  147.3    F     11.2    24.6  *
*  10   2      50.      0.    0. 2656.     0.    0. 2470.  2470.     0.       0.     0.  1.00    65.   19.0    E     19.0    14.1  *
*  11   2    1000.     50.    0. 2706.    50.    0. 2520.  4000.     0.       0.     0.   .63    65.   19.4    C     19.0    14.1  *
*  12   2      10.      0.    0. 2706.     0.    0. 2520.  4000.     0.       0.     0.   .63    65.   19.4    C     19.0    14.1  *
*  13   2    1500.    920.    0. 3626.   920.    0. 3440.  4000.     0.       0.     0.   .86    61.   28.2    D     20.8    12.7  *
*  14   2    1500.      0.  651. 3626.     0.  618. 3440.  4000.     0.       0.     0.   .86    61.   28.2    D     20.8    12.7  *
*  15   2     100.      0. 2975. 2975.     0. 2822. 2822.  4000.     0.       0.     0.   .71    65.   21.7    C     19.0    14.1  *
*                                                                                                                                  *
************************************************************************************************************************************
*                                                                                                                                  *
*   TOTAL   14810. =    2.8 MILES                       MAX(V/C) = 1.00  LOWEST LOS = F   AVG = 34.   43.8          18.4    15.0  *
*                                                                                                                                  *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	152. VEH-HRS	191. PASS-HRS	402. VEH-HRS	506. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	1385. VEH-HRS	1745. PASS-HRS	3230. VEH-HRS	4069. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1536. VEH-HRS	1936. PASS-HRS	3631. VEH-HRS	4576. PASS-HRS
TOTAL TRAV DISTANCE =	5106. VEH-MI.	6433. PASS-MI.	19624. VEH-MI.	24726. PASS-MI.
AVERAGE SYSTEM SPEED =	3. MPH.		49. MPH.	
AVERAGE DENSITY =	44. VPMPL		29. VPMPL	
TOTAL FUEL =	777. GALLONS		2196. GALLONS	
TOTAL EMISSIONS =	278. KILOGRAMS		747. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.10	5	19.61
6	9.10	7	35.16	8	6.85	9	1.21	10	0.00
11	0.00	12	0.00	13	0.48	14	0.48	15	0.00

***** TOTAL DELAY = 73.0 VEH-HRS ***** AVERAGE DELAY = 1.21 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	3139.	1384.63	499.30	30.86	161.46	8.56	200.88

QUEUE CLEAR SECTION 9 T2 =0.445

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	1.78	3.18	3.23	3.42	4.00	4.01
2	1.54	2.94	2.99	3.17	3.75	3.77

*	3 *	1.03	2.43	2.48	2.66	3.24	3.26
*	4 *	0.00	0.29	0.34	0.52	1.10	1.12
*	5 *	0.00	0.00	0.00	0.17	0.75	0.77
*	6 *	0.00	0.00	0.00	0.00	0.58	0.60

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	3182.	0.	3182.	3182.	0.	3182.	6000.	0.	0.	0.	.53	65.	16.3	B	19.0	14.1
2	3	1500.	51.	0.	3233.	51.	0.	3233.	6000.	0.	0.	0.	.54	65.	16.6	B	19.0	14.1
3	3	1400.	0.	0.	3233.	0.	0.	3233.	6000.	0.	0.	0.	.54	65.	16.6	B	19.0	14.1
4	3	1500.	409.	0.	3642.	409.	0.	3642.	6000.	0.	0.	0.	.61	65.	18.7	C	19.0	14.1
5	3	1300.	0.	0.	3642.	0.	0.	3642.	6000.	0.	0.	0.	.61	28.	43.8	E	17.0	16.2
6	3	500.	0.	580.	3642.	0.	580.	3642.	5020.	0.	0.	0.	.73	24.	50.0	F	17.4	16.5
7	2	2300.	0.	0.	3062.	0.	0.	3062.	4000.	0.	0.	0.	.77	24.	65.1	F	18.1	16.0
8	3	700.	550.	1209.	3612.	550.	10.	3612.	4230.	0.	0.	0.	.85	27.	44.2	E	19.7	14.2
9	2	50.	0.	400.	2403.	0.	400.	2828.	4000.	0.	0.	-425.	.71	12.	119.7	F	13.8	21.4
10	2	50.	0.	0.	2003.	0.	0.	2428.	2470.	0.	0.	0.	.98	65.	18.7	C	19.0	14.1
11	2	1000.	400.	0.	2403.	400.	0.	2828.	4000.	0.	0.	0.	.71	65.	21.8	C	19.0	14.1
12	2	10.	0.	0.	2403.	0.	0.	2828.	4000.	0.	0.	0.	.71	65.	21.8	C	19.0	14.1
13	2	1500.	790.	0.	3193.	790.	0.	3618.	4000.	0.	0.	0.	.90	59.	30.7	D	21.7	12.2
14	2	1500.	0.	501.	3193.	0.	568.	3618.	4000.	0.	0.	0.	.90	59.	30.7	D	21.7	12.2
15	2	100.	0.	2692.	2692.	0.	3050.	3050.	4000.	0.	0.	0.	.76	64.	23.8	C	19.4	13.7
TOTAL		14810. =	2.8 MILES					MAX(V/C) = 0.98	LOWEST LOS = F		AVG = 41.			32.7			19.1	14.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	116. VEH-HRS	146. PASS-HRS	518. VEH-HRS	653. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	1719. VEH-HRS	2166. PASS-HRS	4949. VEH-HRS	6236. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1836. VEH-HRS	2313. PASS-HRS	5467. VEH-HRS	6888. PASS-HRS
TOTAL TRAV DISTANCE =	4813. VEH-MI.	6064. PASS-MI.	24436. VEH-MI.	30790. PASS-MI.
AVERAGE SYSTEM SPEED =	3. MPH.		47. MPH.	
AVERAGE DENSITY =	33. VPMPL		30. VPMPL	
TOTAL FUEL =	872. GALLONS		3069. GALLONS	
TOTAL EMISSIONS =	318. KILOGRAMS		1065. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.01	5	9.50
6	4.70	7	19.80	8	5.61	9	0.91	10	0.00
11	0.00	12	0.00	13	0.81	14	0.81	15	0.01

***** TOTAL DELAY = 42.2 VEH-HRS ***** AVERAGE DELAY = 0.76 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	3739.	1719.38	620.01	38.32	200.50	10.63	249.45

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	1.33	1.86	1.87	2.05	2.59	2.61
2	1.08	1.62	1.62	1.81	2.35	2.37
3	0.58	1.11	1.12	1.30	1.84	1.86
4	0.00	0.12	0.13	0.31	0.86	0.87
5	0.00	0.00	0.00	0.17	0.72	0.73
6	0.00	0.00	0.00	0.00	0.54	0.56

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	1400.	3182.	0.	3182.	3182.	0.	3182.	6000.	0.	0.	0.	.53	65.	16.3	B	19.0	14.1
2	3	1500.	51.	0.	3233.	51.	0.	3233.	6000.	0.	0.	0.	.54	65.	16.6	B	19.0	14.1
3	3	1400.	0.	0.	3233.	0.	0.	3233.	6000.	0.	0.	0.	.54	65.	16.6	B	19.0	14.1
4	3	1500.	409.	0.	3642.	409.	0.	3642.	6000.	0.	0.	0.	.61	65.	18.7	C	19.0	14.1
5	3	1300.	0.	0.	3642.	0.	0.	3642.	6000.	0.	0.	0.	.61	65.	18.7	C	19.0	14.1
6	3	500.	0.	580.	3642.	0.	580.	3642.	5020.	0.	0.	0.	.73	65.	18.7	C	19.0	14.1
7	2	2300.	0.	0.	3062.	0.	0.	3062.	4000.	0.	0.	0.	.77	64.	24.0	C	19.4	13.7
8	3	700.	550.	1209.	3612.	550.	10.	3612.	4230.	0.	0.	0.	.85	65.	18.5	C	19.0	14.1
9	2	50.	0.	400.	2403.	0.	400.	2403.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
10	2	50.	0.	0.	2003.	0.	0.	2003.	2470.	0.	0.	0.	.81	65.	15.4	B	19.0	14.1
11	2	1000.	400.	0.	2403.	400.	0.	2403.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
12	2	10.	0.	0.	2403.	0.	0.	2403.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
13	2	1500.	790.	0.	3193.	790.	0.	3193.	4000.	0.	0.	0.	.80	63.	25.3	C	19.8	13.4
14	2	1500.	0.	501.	3193.	0.	501.	3193.	4000.	0.	0.	0.	.80	63.	25.3	C	19.8	13.4
15	2	100.	0.	2692.	2692.	0.	2692.	2692.	4000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
TOTAL		14810. = 2.8 MILES						MAX(V/C) = 0.85		LOWEST LOS = C			AVG = 64.		20.2		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	70. VEH-HRS	89. PASS-HRS	588. VEH-HRS	741. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	2019. VEH-HRS	2544. PASS-HRS	6968. VEH-HRS	8780. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2090. VEH-HRS	2633. PASS-HRS	7556. VEH-HRS	9521. PASS-HRS
TOTAL TRAV DISTANCE =	4537. VEH-MI.	5717. PASS-MI.	28974. VEH-MI.	36507. PASS-MI.
AVERAGE SYSTEM SPEED =	2. MPH.		49. MPH.	
AVERAGE DENSITY =	20. VPMPL		28. VPMPL	
TOTAL FUEL =	964. GALLONS		4033. GALLONS	
TOTAL EMISSIONS =	356. KILOGRAMS		1421. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.17	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.20	14	0.20	15	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.01 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	4338.	2019.13	728.10	45.01	235.45	12.48	292.93

SR 237 Eastbound

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 0 PRIORITY LANE BETWEEN SUBSECTIONS 9 AND 14 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
10	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
11	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E

12	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
13	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
14	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
15															

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	2	4000.	1000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	4401.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude/US-101
3	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
4	3	4840.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
5	3	4840.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
6	3	4840.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
7	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
8	2	4000.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
9	2	4000.	800.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
10	2	4000.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
11	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
12	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
13	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
14	2	4000.	10000.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
15	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111          222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111        2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 0 PRIORITY LANE BETWEEN SUBSECTIONS 9 AND 14 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9	1	800.	225.	0.	225.	225.	0.	225.	1650.	0.	0.	0.	.14	65.	3.5	A	20.0	13.7
10	1	1400.	0.	0.	225.	0.	0.	225.	1650.	0.	0.	0.	.14	65.	3.5	A	20.0	13.7
11	1	1400.	0.	0.	225.	0.	0.	225.	1650.	0.	0.	0.	.14	65.	3.5	A	20.0	13.7
12	1	1500.	0.	0.	225.	0.	0.	225.	1650.	0.	0.	0.	.14	65.	3.5	A	20.0	13.7
13	1	1500.	0.	0.	225.	0.	0.	225.	1650.	0.	0.	0.	.14	65.	3.5	A	20.0	13.7
14	1	10000.	0.	225.	225.	0.	225.	225.	1650.	0.	0.	0.	.14	65.	3.5	A	20.0	13.7
15																		
TOTAL		16600. = 3.1 MILES											MAX(V/C) = 0.14	LOWEST LOS = A	AVG = 65.		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	11. VEH-HRS	22. PASS-HRS	11. VEH-HRS	22. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	11. VEH-HRS	22. PASS-HRS	11. VEH-HRS	22. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	707. VEH-MI.	1413. PASS-MI.	707. VEH-MI.	1413. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	3. VPMPL		3. VPMPL	
TOTAL FUEL =	35. GALLONS		35. GALLONS	
TOTAL EMISSIONS =	10. KILOGRAMS		10. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9	1	800.	302.	0.	302.	302.	0.	302.	1650.	0.	0.	0.	.18	65.	4.6	A	20.0	13.7
10	1	1400.	0.	0.	302.	0.	0.	302.	1650.	0.	0.	0.	.18	65.	4.6	A	20.0	13.7
11	1	1400.	0.	0.	302.	0.	0.	302.	1650.	0.	0.	0.	.18	65.	4.6	A	20.0	13.7
12	1	1500.	0.	0.	302.	0.	0.	302.	1650.	0.	0.	0.	.18	65.	4.6	A	20.0	13.7
13	1	1500.	0.	0.	302.	0.	0.	302.	1650.	0.	0.	0.	.18	65.	4.6	A	20.0	13.7
14	1	10000.	0.	302.	302.	0.	302.	302.	1650.	0.	0.	0.	.18	65.	4.6	A	20.0	13.7
15																		
TOTAL		16600. = 3.1 MILES						MAX(V/C) = 0.18		LOWEST LOS = A				AVG = 65.	4.6		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	15. VEH-HRS	29. PASS-HRS	25. VEH-HRS	51. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	15. VEH-HRS	29. PASS-HRS	25. VEH-HRS	51. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	948. VEH-MI.	1896. PASS-MI.	1655. VEH-MI.	3309. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH		65. MPH	
AVERAGE DENSITY =	5. VPMPL		4. VPMPL	
TOTAL FUEL =	47. GALLONS		83. GALLONS	
TOTAL EMISSIONS =	13. KILOGRAMS		23. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	9.41	9.94	10.46	10.85	11.35	11.62	0.00	13.50
2	0.17	0.71	1.23	1.62	2.12	2.39	0.00	4.27
3	0.00	0.37	0.89	1.28	1.78	2.05	0.00	3.93
4	0.00	0.00	0.12	0.51	1.02	1.28	0.00	3.16
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	2	52800.	2499.	0.	2499.	2499.	0.	2499.	4000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
2	3	1000.	219.	850.	2718.	219.	850.	2718.	4401.	0.	0.	0.	.62	65.	13.9	B	19.0	14.1
3	2	940.	0.	0.	1868.	0.	0.	1868.	4000.	0.	0.	0.	.47	65.	14.4	B	19.0	14.1
4	3	700.	1520.	0.	3388.	1520.	0.	3388.	4840.	0.	0.	0.	.70	65.	17.4	B	19.0	14.1
5	3	700.	0.	0.	3388.	0.	0.	3388.	4840.	0.	0.	0.	.70	65.	17.4	B	19.0	14.1
6	3	700.	0.	660.	3388.	0.	660.	3388.	4840.	0.	0.	0.	.70	65.	17.4	B	19.0	14.1
7	2	2300.	0.	0.	2728.	0.	0.	2728.	4000.	0.	0.	0.	.68	65.	21.0	C	19.0	14.1
8	2	700.	459.	225.	3187.	459.	225.	3187.	4400.	0.	0.	0.	.72	65.	24.7	C	19.2	13.9
9	2	800.	0.	0.	2962.	0.	0.	2962.	4400.	0.	0.	0.	.67	65.	22.8	C	19.0	14.0
10	2	1400.	0.	189.	2962.	0.	189.	2962.	4400.	0.	0.	0.	.67	65.	22.8	C	19.0	14.0
11	2	1400.	0.	0.	2773.	0.	0.	2773.	4000.	0.	0.	0.	.69	65.	21.3	C	19.0	14.1
12	2	1500.	0.	189.	2773.	0.	189.	2773.	4000.	0.	0.	0.	.69	65.	21.3	C	19.0	14.1
13	2	1500.	0.	0.	2584.	0.	0.	2584.	4000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
14	2	10000.	0.	0.	2584.	0.	0.	2584.	4000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
15	3	750.	225.	2809.	2809.	225.	2809.	2809.	5600.	0.	0.	0.	.50	65.	14.4	B	19.0	14.1
TOTAL		77190. =	14.6 MILES					MAX(V/C) = 0.72	LOWEST LOS = C		AVG = 65.			19.4			19.0	14.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	578. VEH-HRS	614. PASS-HRS	578. VEH-HRS	614. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	578. VEH-HRS	614. PASS-HRS	578. VEH-HRS	614. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	37581. VEH-MI.	39937. PASS-MI.	37581. VEH-MI.	39937. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	1980. GALLONS		1980. GALLONS	
TOTAL EMISSIONS =	528. KILOGRAMS		528. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.05	9	0.01	10	0.02
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00

***** TOTAL DELAY = 0.1 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	10.00	10.53	11.11	11.53	12.10	12.38	0.00	14.39
2	0.17	0.71	1.28	1.71	2.28	2.56	0.00	4.56
3	0.00	0.37	0.94	1.37	1.94	2.22	0.00	4.22
4	0.00	0.00	0.14	0.57	1.14	1.42	0.00	3.42
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	2	52800.	3441.	0.	3441.	3441.	0.	3441.	4000.	0.	0.	0.	.86	61.	28.2	D	20.8	12.7
2	3	1000.	400.	1200.	3841.	400.	1200.	3841.	4401.	0.	0.	0.	.87	65.	19.7	C	19.0	14.1
3	2	940.	0.	0.	2641.	0.	0.	2641.	4000.	0.	0.	0.	.66	65.	20.3	C	19.0	14.1
4	3	700.	1700.	0.	4341.	1700.	0.	4341.	4840.	0.	0.	0.	.90	65.	22.3	C	19.0	14.1
5	3	700.	0.	0.	4341.	0.	0.	4341.	4840.	0.	0.	0.	.90	65.	22.3	C	19.0	14.1
6	3	700.	0.	840.	4341.	0.	840.	4341.	4840.	0.	0.	0.	.90	65.	22.3	C	19.0	14.1
7	2	2300.	0.	0.	3501.	0.	0.	3501.	4000.	0.	0.	0.	.88	60.	29.0	D	21.1	12.5
8	2	700.	750.	302.	4251.	750.	302.	4251.	4400.	0.	0.	0.	.97	55.	38.7	E	22.9	11.4
9	2	800.	0.	0.	3949.	0.	0.	3949.	4400.	0.	0.	0.	.90	59.	33.3	D	21.6	12.2
10	2	1400.	0.	220.	3949.	0.	220.	3949.	4400.	0.	0.	0.	.90	59.	33.3	D	21.6	12.2
11	2	1400.	0.	0.	3729.	0.	0.	3729.	4000.	0.	0.	0.	.93	57.	32.5	D	22.1	11.9
12	2	1500.	0.	261.	3729.	0.	261.	3729.	4000.	0.	0.	0.	.93	57.	32.5	D	22.1	11.9
13	2	1500.	0.	0.	3468.	0.	0.	3468.	4000.	0.	0.	0.	.87	61.	28.5	D	21.0	12.6
14	2	10000.	0.	0.	3468.	0.	0.	3468.	4000.	0.	0.	0.	.87	61.	28.5	D	21.0	12.6
15	3	750.	302.	3770.	3770.	302.	3770.	3770.	5600.	0.	0.	0.	.67	65.	19.3	C	19.0	14.1
TOTAL		77190. = 14.6 MILES									MAX(V/C) = 0.97		LOWEST LOS = E		AVG = 61.		28.2	20.8	12.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	840. VEH-HRS	893. PASS-HRS	1418. VEH-HRS	1507. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	840. VEH-HRS	893. PASS-HRS	1418. VEH-HRS	1507. PASS-HRS

TOTAL FRWAY TRAV DISTANCE =	51207. VEH-MI.	54431. PASS-MI.	88787. VEH-MI.	94368. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		63. MPH.	
AVERAGE DENSITY =	28. VPMPL		24. VPMPL	
TOTAL FUEL =	2462. GALLONS		4443. GALLONS	
TOTAL EMISSIONS =	652. KILOGRAMS		1181. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	34.02	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	1.78	8	1.58	9	0.88	10	1.55
11	2.05	12	2.19	13	1.05	14	7.01	15	0.00

***** TOTAL DELAY = 52.1 VEH-HRS ***** AVERAGE DELAY = 0.89 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 0 PRIORITY LANE BETWEEN SUBSECTIONS 9 AND 14 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC NO.	LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
10	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
11	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E

12	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
13	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
14	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
15															

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	2	4000.	1000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	4630.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude/US-101
3	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
4	3	4390.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
5	3	4390.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
6	3	4390.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
7	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
8	2	4000.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
9	2	4000.	800.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
10	2	4000.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
11	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
12	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
13	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
14	2	4000.	10000.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
15	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q      111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111          222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111        2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
```

FREQ12PL

1. A TYPE 0 PRIORITY LANE BETWEEN SUBSECTIONS 9 AND 14 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9	1	800.	754.	0.	754.	754.	0.	754.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
10	1	1400.	0.	0.	754.	0.	0.	754.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
11	1	1400.	0.	0.	754.	0.	0.	754.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
12	1	1500.	0.	0.	754.	0.	0.	754.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
13	1	1500.	0.	0.	754.	0.	0.	754.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
14	1	10000.	0.	754.	754.	0.	754.	754.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
15																		
TOTAL		16600. = 3.1 MILES											MAX(V/C) = 0.46	LOWEST LOS = B	AVG = 62.		12.2	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	38. VEH-HRS	76. PASS-HRS	38. VEH-HRS	76. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	38. VEH-HRS	76. PASS-HRS	38. VEH-HRS	76. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2370. VEH-MI.	4739. PASS-MI.	2370. VEH-MI.	4739. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		12. VPMPL	
TOTAL FUEL =	110. GALLONS		110. GALLONS	
TOTAL EMISSIONS =	30. KILOGRAMS		30. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.09	10	0.15
11	0.15	12	0.16	13	0.16	14	1.06	15	0.00

***** TOTAL DELAY = 1.8 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9	1	800.	777.	0.	777.	777.	0.	777.	1650.	0.	0.	0.	.47	62.	12.5	B	21.6	12.8
10	1	1400.	0.	0.	777.	0.	0.	777.	1650.	0.	0.	0.	.47	62.	12.5	B	21.6	12.8
11	1	1400.	0.	0.	777.	0.	0.	777.	1650.	0.	0.	0.	.47	62.	12.5	B	21.6	12.8
12	1	1500.	0.	0.	777.	0.	0.	777.	1650.	0.	0.	0.	.47	62.	12.5	B	21.6	12.8
13	1	1500.	0.	0.	777.	0.	0.	777.	1650.	0.	0.	0.	.47	62.	12.5	B	21.6	12.8
14	1	10000.	0.	777.	777.	0.	777.	777.	1650.	0.	0.	0.	.47	62.	12.5	B	21.6	12.8
15																		
TOTAL		16600. = 3.1 MILES								MAX(V/C) = 0.47		LOWEST LOS = B		AVG = 62.	12.5		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	39. VEH-HRS	79. PASS-HRS	78. VEH-HRS	155. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	39. VEH-HRS	79. PASS-HRS	78. VEH-HRS	155. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2444. VEH-MI.	4888. PASS-MI.	4814. VEH-MI.	9628. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH		62. MPH	
AVERAGE DENSITY =	13. VPMPL		12. VPMPL	
TOTAL FUEL =	113. GALLONS		223. GALLONS	
TOTAL EMISSIONS =	31. KILOGRAMS		61. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.09	10	0.15
11	0.15	12	0.16	13	0.16	14	1.10	15	0.00

***** TOTAL DELAY = 1.8 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9	1	800.	559.	0.	559.	559.	0.	559.	1650.	0.	0.	0.	.34	62.	9.0	A	21.6	12.8
10	1	1400.	0.	0.	559.	0.	0.	559.	1650.	0.	0.	0.	.34	62.	9.0	A	21.6	12.8
11	1	1400.	0.	0.	559.	0.	0.	559.	1650.	0.	0.	0.	.34	62.	9.0	A	21.6	12.8
12	1	1500.	0.	0.	559.	0.	0.	559.	1650.	0.	0.	0.	.34	62.	9.0	A	21.6	12.8
13	1	1500.	0.	0.	559.	0.	0.	559.	1650.	0.	0.	0.	.34	62.	9.0	A	21.6	12.8
14	1	10000.	0.	559.	559.	0.	559.	559.	1650.	0.	0.	0.	.34	62.	9.0	A	21.6	12.8
15																		
TOTAL		16600. = 3.1 MILES									MAX(V/C) = 0.34		LOWEST LOS = A		AVG = 62.	9.0	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	28. VEH-HRS	57. PASS-HRS	106. VEH-HRS	212. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	28. VEH-HRS	57. PASS-HRS	106. VEH-HRS	212. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1757. VEH-MI.	3515. PASS-MI.	6571. VEH-MI.	13143. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		11. VPMPL	
TOTAL FUEL =	82. GALLONS		305. GALLONS	
TOTAL EMISSIONS =	22. KILOGRAMS		84. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.06	10	0.11
11	0.11	12	0.12	13	0.12	14	0.79	15	0.00

***** TOTAL DELAY = 1.3 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.35	0.88	1.41	1.81	2.35	2.62	0.00	4.59
2	0.17	0.71	1.24	1.64	2.17	2.45	0.00	4.41
3	0.00	0.37	0.90	1.30	1.83	2.11	0.00	4.07
4	0.00	0.00	0.13	0.53	1.06	1.34	0.00	3.30
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	2	1000.	1760.	0.	1760.	1760.	0.	1760.	4000.	0.	0.	0.	.44	65.	13.5	B	19.0	14.1
2	3	1000.	550.	530.	2310.	550.	530.	2310.	4630.	0.	0.	0.	.50	65.	11.8	B	19.0	14.1
3	2	940.	0.	0.	1780.	0.	0.	1780.	4000.	0.	0.	0.	.44	65.	13.7	B	19.0	14.1
4	3	700.	909.	0.	2689.	909.	0.	2689.	4390.	0.	0.	0.	.61	65.	13.8	B	19.0	14.1
5	3	700.	0.	0.	2689.	0.	0.	2689.	4390.	0.	0.	0.	.61	65.	13.8	B	19.0	14.1
6	3	700.	0.	240.	2689.	0.	240.	2689.	4390.	0.	0.	0.	.61	65.	13.8	B	19.0	14.1
7	2	2300.	0.	0.	2449.	0.	0.	2449.	4000.	0.	0.	0.	.61	65.	18.8	C	19.0	14.1
8	2	700.	900.	754.	3349.	900.	754.	3349.	4000.	0.	0.	0.	.84	62.	27.0	D	20.4	13.0
9	2	800.	0.	0.	2595.	0.	0.	2595.	4000.	0.	0.	0.	.65	62.	20.9	C	20.3	13.0
10	2	1400.	0.	200.	2595.	0.	200.	2595.	4000.	0.	0.	0.	.65	62.	20.9	C	20.3	13.0
11	2	1400.	0.	0.	2395.	0.	0.	2395.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0
12	2	1500.	0.	250.	2395.	0.	250.	2395.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0
13	2	1500.	0.	0.	2145.	0.	0.	2145.	4000.	0.	0.	0.	.54	62.	17.3	B	20.3	13.0
14	2	10000.	0.	0.	2145.	0.	0.	2145.	4000.	0.	0.	0.	.54	62.	17.3	B	20.3	13.0
15	3	750.	754.	2899.	2899.	754.	2899.	2899.	5600.	0.	0.	0.	.52	65.	14.9	B	19.0	14.1
TOTAL		25390. = 4.8 MILES											MAX(V/C) = 0.84	LOWEST LOS = D	AVG = 63.		17.4	19.9	13.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	177. VEH-HRS	195. PASS-HRS	177. VEH-HRS	195. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	177. VEH-HRS	195. PASS-HRS	177. VEH-HRS	195. PASS-HRS

```
 TOTAL FRWAY TRAV DISTANCE =   11149. VEH-MI.    12294. PASS-MI.        11149. VEH-MI.    12294. PASS-MI.
      AVERAGE SYSTEM SPEED =      63. MPH.                                  63. MPH.
           AVERAGE DENSITY =      17. VPMPL                                 17. VPMPL
                TOTAL FUEL =     561. GALLONS                              561. GALLONS
          TOTAL EMISSIONS =     149. KILOGRAMS                            149. KILOGRAMS
```


***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.33	9	0.29	10	0.51
11	0.47	12	0.51	13	0.45	14	3.02	15	0.00

***** TOTAL DELAY = 5.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.35	0.88	1.42	1.82	2.35	2.63	0.00	4.59
2	0.17	0.71	1.24	1.64	2.18	2.45	0.00	4.41
3	0.00	0.37	0.90	1.30	1.84	2.11	0.00	4.08
4	0.00	0.00	0.13	0.54	1.07	1.34	0.00	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	2	1000.	2060.	0.	2060.	2060.	0.	2060.	4000.	0.	0.	0.	.51	65.	15.8	B	19.0	14.1
2	3	1000.	729.	650.	2789.	729.	650.	2789.	4630.	0.	0.	0.	.60	65.	14.3	B	19.0	14.1
3	2	940.	0.	0.	2139.	0.	0.	2139.	4000.	0.	0.	0.	.53	65.	16.5	B	19.0	14.1
4	3	700.	711.	0.	2850.	711.	0.	2850.	4390.	0.	0.	0.	.65	65.	14.6	B	19.0	14.1
5	3	700.	0.	0.	2850.	0.	0.	2850.	4390.	0.	0.	0.	.65	65.	14.6	B	19.0	14.1
6	3	700.	0.	240.	2850.	0.	240.	2850.	4390.	0.	0.	0.	.65	65.	14.6	B	19.0	14.1
7	2	2300.	0.	0.	2610.	0.	0.	2610.	4000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
8	2	700.	919.	777.	3529.	919.	777.	3529.	4000.	0.	0.	0.	.88	60.	29.4	D	21.3	12.4
9	2	800.	0.	0.	2752.	0.	0.	2752.	4000.	0.	0.	0.	.69	62.	22.2	C	20.3	13.0
10	2	1400.	0.	319.	2752.	0.	319.	2752.	4000.	0.	0.	0.	.69	62.	22.2	C	20.3	13.0
11	2	1400.	0.	0.	2433.	0.	0.	2433.	4000.	0.	0.	0.	.61	62.	19.6	C	20.3	13.0
12	2	1500.	0.	220.	2433.	0.	220.	2433.	4000.	0.	0.	0.	.61	62.	19.6	C	20.3	13.0
13	2	1500.	0.	0.	2213.	0.	0.	2213.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
14	2	10000.	0.	0.	2213.	0.	0.	2213.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0

```
*  15   3     750.    777. 2990. 2990.   777. 2990. 2990.  5600.     0.       0.     0.   .53    65.   15.3    B     19.0    14.1  *
*                                                                                                                                    *
**************************************************************************************************************************************
*                                                                                                                                    *
*   TOTAL   25390. =    4.8 MILES                        MAX(V/C) = 0.88  LOWEST LOS = D   AVG = 63.   18.3          19.9    13.4  *
*                                                                                                                                    *
**************************************************************************************************************************************
```

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	187. VEH-HRS	206. PASS-HRS	364. VEH-HRS	401. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	187. VEH-HRS	206. PASS-HRS	364. VEH-HRS	401. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	11764. VEH-MI.	13014. PASS-MI.	22913. VEH-MI.	25308. PASS-MI.
AVERAGE SYSTEM SPEED =	63. MPH.		63. MPH.	
AVERAGE DENSITY =	18. VPMPL		18. VPMPL	
TOTAL FUEL =	591. GALLONS		1152. GALLONS	
TOTAL EMISSIONS =	157. KILOGRAMS		306. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.59	9	0.31	10	0.54
11	0.48	12	0.51	13	0.47	14	3.12	15	0.00

***** TOTAL DELAY = 6.0 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.35	0.88	1.41	1.81	2.34	2.62	0.00	4.58
2	0.17	0.71	1.23	1.63	2.17	2.44	0.00	4.40
3	0.00	0.37	0.89	1.29	1.83	2.10	0.00	4.07
4	0.00	0.00	0.12	0.53	1.06	1.33	0.00	3.30
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1	2	1000.	1500.	0.	1500.	1500.	0.	1500.	4000.	0.	0.	0.	.38	65.	11.5	B	19.0	14.1
2	3	1000.	550.	540.	2050.	550.	540.	2050.	4630.	0.	0.	0.	.44	65.	10.5	A	19.0	14.1
3	2	940.	0.	0.	1510.	0.	0.	1510.	4000.	0.	0.	0.	.38	65.	11.6	B	19.0	14.1
4	3	700.	571.	0.	2081.	571.	0.	2081.	4390.	0.	0.	0.	.47	65.	10.7	A	19.0	14.1
5	3	700.	0.	0.	2081.	0.	0.	2081.	4390.	0.	0.	0.	.47	65.	10.7	A	19.0	14.1
6	3	700.	0.	211.	2081.	0.	211.	2081.	4390.	0.	0.	0.	.47	65.	10.7	A	19.0	14.1
7	2	2300.	0.	0.	1870.	0.	0.	1870.	4000.	0.	0.	0.	.47	65.	14.4	B	19.0	14.1
8	2	700.	811.	559.	2681.	811.	559.	2681.	4000.	0.	0.	0.	.67	65.	20.6	C	19.0	14.1
9	2	800.	0.	0.	2122.	0.	0.	2122.	4000.	0.	0.	0.	.53	62.	17.1	B	20.3	13.0
10	2	1400.	0.	271.	2122.	0.	271.	2122.	4000.	0.	0.	0.	.53	62.	17.1	B	20.3	13.0
11	2	1400.	0.	0.	1851.	0.	0.	1851.	4000.	0.	0.	0.	.46	62.	14.9	B	20.3	13.0
12	2	1500.	0.	260.	1851.	0.	260.	1851.	4000.	0.	0.	0.	.46	62.	14.9	B	20.3	13.0
13	2	1500.	0.	0.	1591.	0.	0.	1591.	4000.	0.	0.	0.	.40	62.	12.8	B	20.3	13.0
14	2	10000.	0.	0.	1591.	0.	0.	1591.	4000.	0.	0.	0.	.40	62.	12.8	B	20.3	13.0
15	3	750.	559.	2150.	2150.	559.	2150.	2150.	5600.	0.	0.	0.	.38	65.	11.0	B	19.0	14.1
TOTAL		25390. =	4.8 MILES								MAX(V/C) = 0.67		LOWEST LOS = C		AVG = 63.		13.4	19.8	13.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	136. VEH-HRS	151. PASS-HRS	501. VEH-HRS	552. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	136. VEH-HRS	151. PASS-HRS	501. VEH-HRS	552. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	8610. VEH-MI.	9548. PASS-MI.	31523. VEH-MI.	34857. PASS-MI.
AVERAGE SYSTEM SPEED =	63. MPH.		63. MPH.	
AVERAGE DENSITY =	13. VPMPL		16. VPMPL	
TOTAL FUEL =	435. GALLONS		1587. GALLONS	
TOTAL EMISSIONS =	116. KILOGRAMS		422. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.24	10	0.42
11	0.37	12	0.39	13	0.34	14	2.24	15	0.00

***** TOTAL DELAY = 4.0 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

APPENDIX G – EXISTING LEISCH WEAVING ANALYSIS SHEETS

US 101, Southbound
On: SR 237
Off: Mathilda Ave
Existing AM (8-9)

1 HOV (dashed) + 3 Mix
1 Aux lane
Imbalanced

*Volumes adjusted for 4% trucks

LOS: C

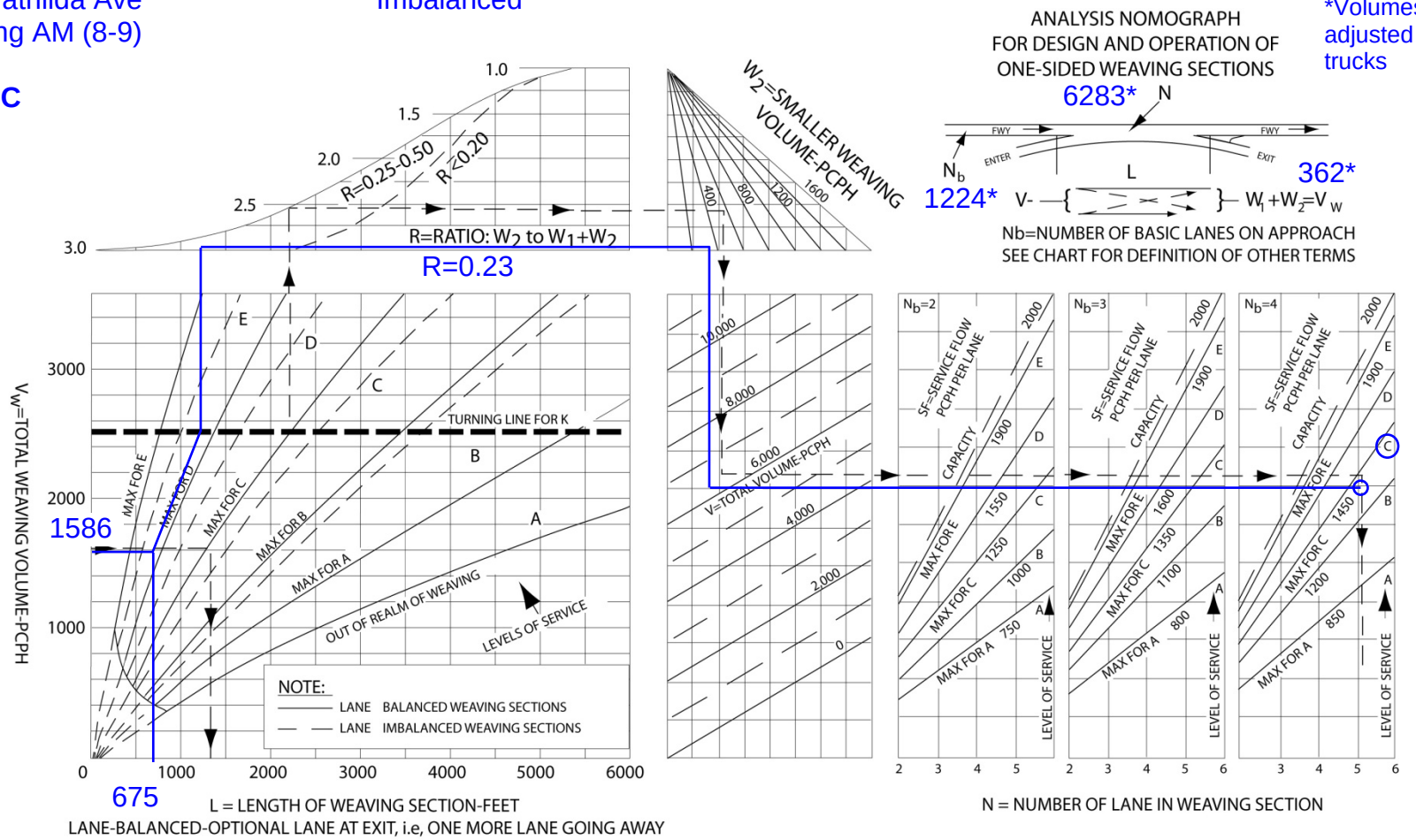


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

US 101, Southbound
On: SR 237
Off: Mathilda Ave
Existing PM (4-5)

1 HOV (dashed) + 3 Mix
1 Aux lane
Imbalanced

*Volumes adjusted for 4% trucks

LOS: D

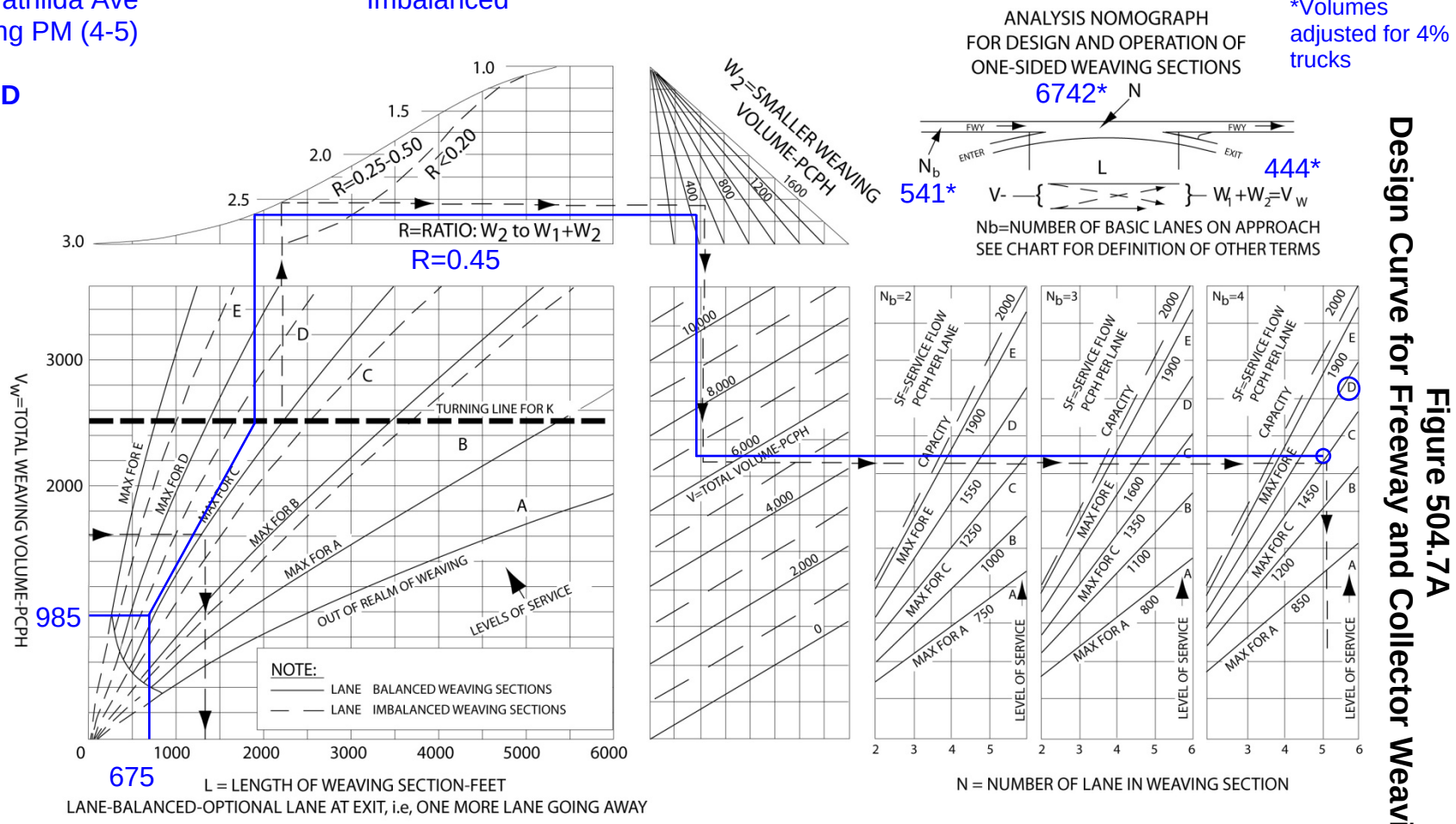


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

SR 237 Westbound
On: Mathilda Ave
Off: US 101
Existing AM (7-8)

2 Mix lanes
1 Aux lane
Imbalanced

LOS: D

*Volumes adjusted for 4% trucks

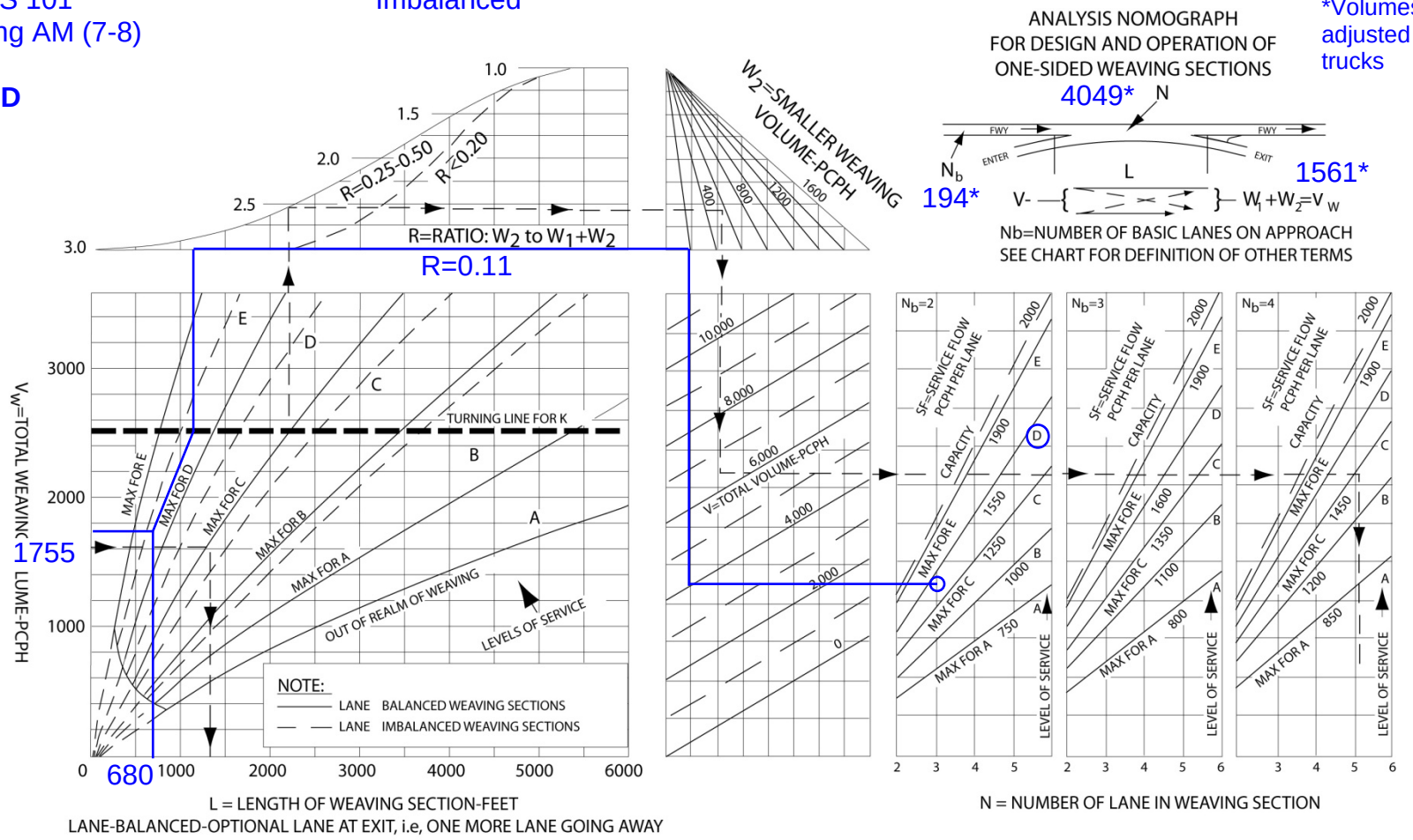


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

SR 237 Westbound
On: Mathilda Ave
Off: US 101
Existing PM (5-6)

2 Mix lanes
1 Aux lane
Imbalanced

LOS: F

*Volumes adjusted for 4% trucks

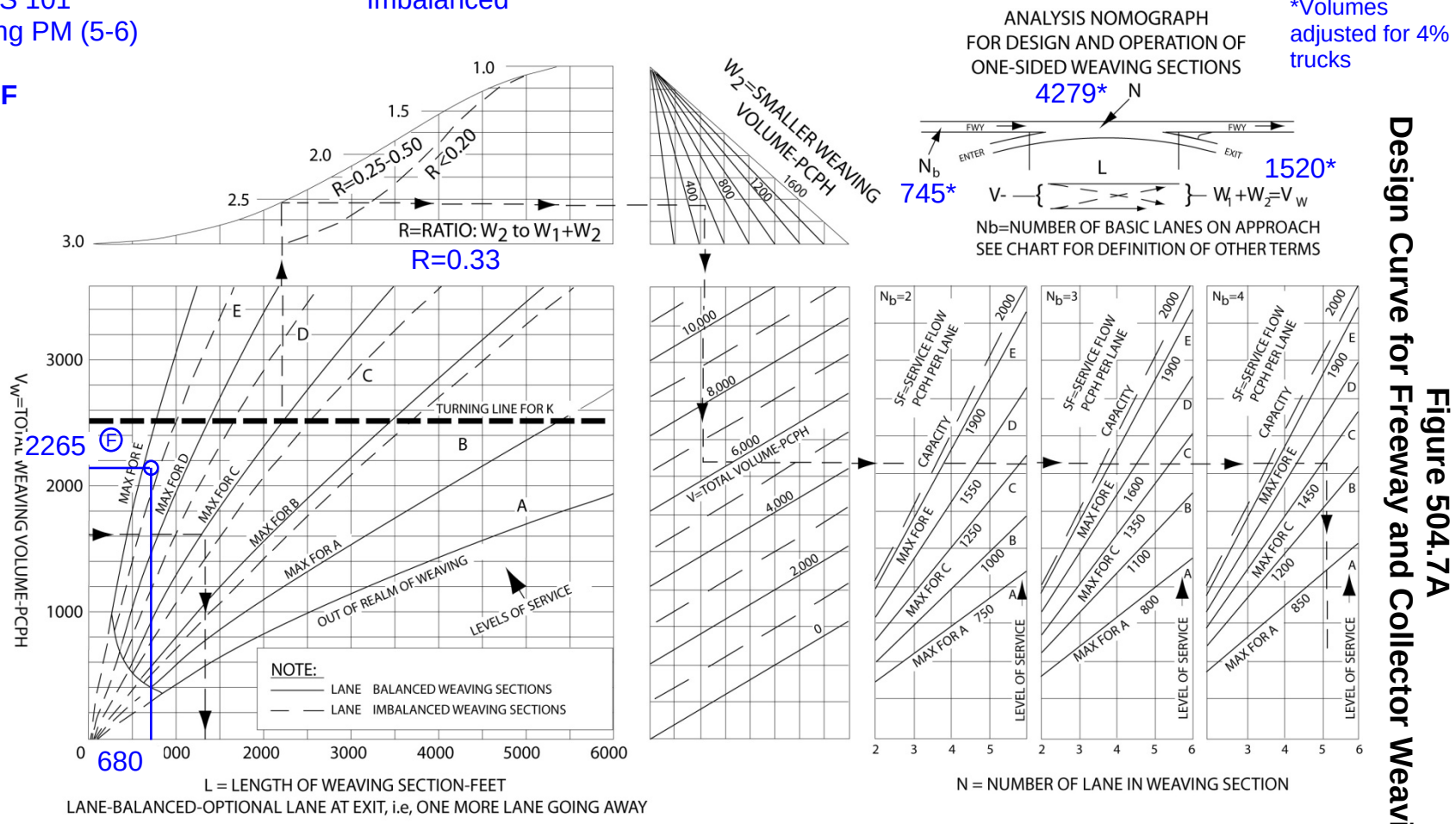


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

SR 237, Eastbound
On: US 101
Off: Mathilda Ave
Existing AM (8-9)

2 Mix lanes
1 Aux lane
Balanced

*Volumes adjusted for 4% trucks

LOS: E

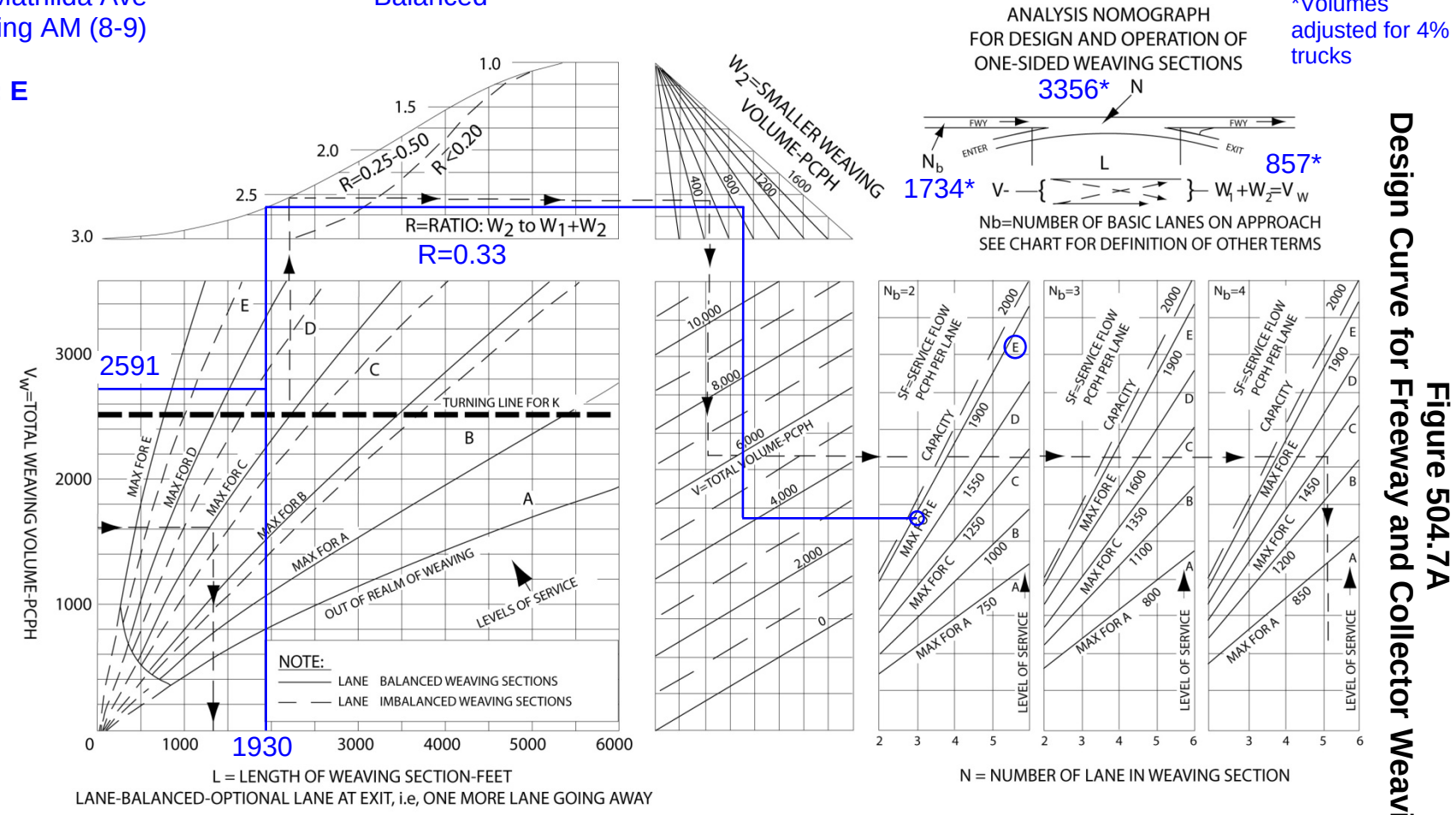


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

SR 237, Eastbound
On: US 101
Off: Mathilda Ave
Existing PM (5-6)

2 Mix lanes
1 Aux lane
Balanced

LOS: B

*Volumes adjusted for 4% trucks

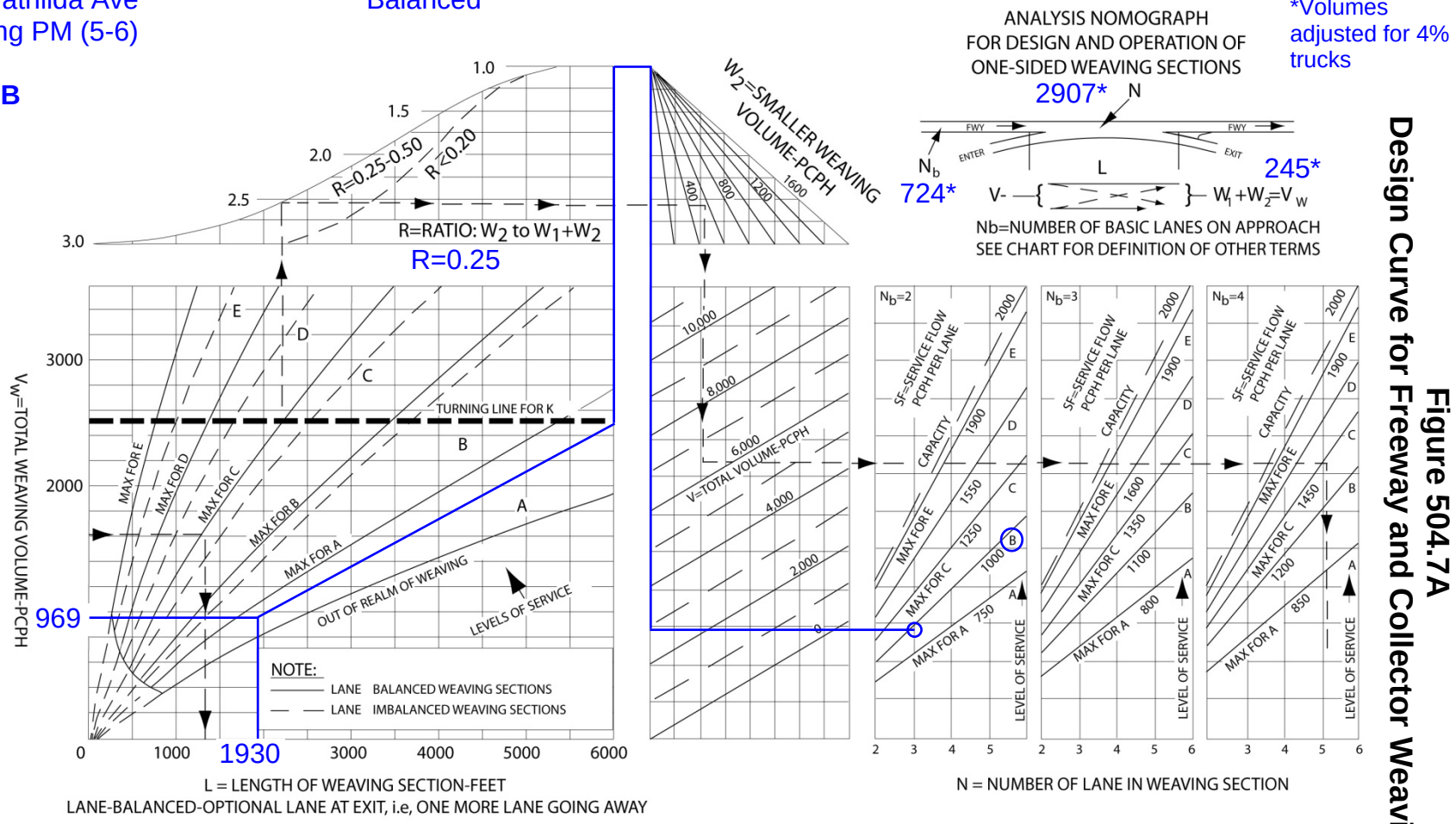


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

APPENDIX H – TRAVEL DEMAND MODEL VALIDATION MEMORANDUM

FEHR PEERS

MEMORANDUM

Date: October 14, 2015

To: Paul Ma, Caltrans
Phil Cox, Caltrans

From: Katie Leung, Matt Haynes and Ashley Brooks, Fehr & Peers
David Kobayashi and George Naylor, Valley Transportation Authority

Subject: Mathilda Avenue Improvements at SR 237 and US 101: Travel Demand Forecasting Model Validation Procedure and Results

SJ13-1460

A key step in conducting the transportation analysis for the Mathilda Avenue Improvements at SR 237 and US 101 Project is to determine the appropriate model to forecast traffic volumes within the study area. Two models were evaluated for potential application: the Santa Clara Valley Transportation Authority (VTA) travel demand model and the City of Sunnyvale travel demand model. The selected travel demand model will be used to forecast future traffic volumes to analyze the project alternatives and the potential effects of the project on the transportation network.

This memorandum describes steps taken to evaluate both models and associated validation results.

INTRODUCTION

The proposed Mathilda Avenue Improvements at SR 237 and US 101 Project is located within the City of Sunnyvale in Santa Clara County. **Figure 1** illustrates the project study area, which was identified based on input from the study team, Valley Transportation Authority (VTA), the City of Sunnyvale, and Caltrans staff. The Traffic Operations Analysis Report (TOAR) for this project will evaluate the following 14 intersections:

1. Mathilda Avenue / Fifth Avenue
2. Mathilda Avenue / Innovation Way
3. Mathilda Avenue / Moffett Park Drive
4. Mathilda Avenue / SR 237 WB Ramps
5. Mathilda Avenue / SR 237 EB Ramps
6. Mathilda Avenue / Ross Drive
7. Mathilda Avenue US 101 NB Ramps (project intersection)*
8. Mathilda Avenue / US 101 SB Ramps (project intersection)*
9. Mathilda Avenue / Ahwanee Avenue-Almanor Avenue
10. US 101 NB On-Ramp / Moffett Park Drive
11. Innovation Way / Moffett Park Drive
12. Innovation Way / Eleventh Avenue
13. Innovation Way / Juniper Networks Driveway
14. Bordeaux Drive / Innovation Way (future intersection)**

* Project intersection is defined as an intersection to be evaluated under the Build Alternatives.

** Future intersection is defined as an intersection to be built as part of a separate project (Moffett Place) and will be assumed to be built under all 2040 analyses.

In addition, this study will evaluate the following mainline segments along US 101 and SR 237:

US 101	
Northbound	**Southbound**
• Lawrence Expressway to Fair Oaks Avenue	• Ellis Street to SR 237 Ramps
• Fair Oaks Avenue to Mathilda Avenue	• SR 237 Ramps to Mathilda Avenue
• Mathilda Avenue to SR 237 Ramps	• Mathilda Avenue to Fair Oaks Avenue
• SR 237 Ramps to Ellis Street	• Fair Oaks Avenue to Lawrence Expressway
SR 237	
Westbound	**Eastbound**
• Lawrence Expressway to Fair Oaks Avenue	• Maude Avenue to US 101 Ramps
• Fair Oaks Avenue to Mathilda Avenue	• US 101 Ramps to Mathilda Avenue
• Mathilda Avenue to US 101 Ramps	• Mathilda Avenue to Fair Oaks Avenue
• US 101 Ramps to Maude Avenue	• Fair Oaks Avenue to Lawrence Expressway

MODEL VALIDATION – 2010 CALIFORNIA REGIONAL TRANSPORTATION PLAN GUIDELINES

In order to evaluate the model's performance in replicating existing conditions, the model results were compared to the model validation thresholds from the *2010 California Regional Transportation Plan (RTP)*

Guidelines, California Transportation Commission, which provide guidelines for determining whether a model is valid and acceptable for forecasting future year traffic volumes.

It is important to note that the thresholds in the *RTP Guidelines* were developed to be applied to regional-scale models and not to a model that is being used only for a small project-specific study area; however, the thresholds can still provide a useful indication of how well the model results match the existing demand volumes in the study area. The goal is not necessarily to meet all of the thresholds but instead to confirm or improve the model's performance within the project's study area.

The model results were compared to 2013 AM and PM peak hour traffic counts collected throughout the project study area (some counts were collected in 2011, 2012, and 2014). Existing mainline and ramp demand volumes were obtained from Table 6 of the *Forecasted Traffic Demand Memorandum SR 237 Express Lanes Phase 2 Project* (February 2014), Caltrans 2013 census counts and Appendix C of the *Final Existing Conditions and Model Calibration Report US 101 Express Lanes* (January 2013). For each location, the peak hour count was identified for the AM period (between 7-9 AM) and the PM period (4-6 PM).

The model validation process involved the evaluation of model parameters in the roadway network files, as well as other key model components. The parameters were iteratively adjusted and compared with the following validation criteria drawn from the *2010 California Regional Transportation Plan Guidelines:*

- Correlation Coefficient: greater than 0.88
- Percent Root Mean Square Error: less than 40 percent
- 75 percent of links within Caltrans Deviation Allowance
- Model/Count ratio[1]

The Caltrans Deviation Allowance is the difference between the model ADT volume and the actual ADT count divided by the actual ADT count. The Caltrans deviation thresholds shrink as the count increases as seen in Figure 3-9 of the Caltrans *Travel Forecasting Guidelines* (November 1992). The ADT thresholds found in the *Travel Forecasting Guidelines* document were adjusted to obtain peak hour thresholds based on the ratio between daily counts and peak hour counts from 24-hour tube counts performed in the area.

In addition, the following Model/Count validation goals used by VTA for project-level validation were applied:

- Freeway Mainline and Expressways within seven percent
- Arterial and Collectors within 25 percent

[1] Although there is no specified threshold for this metric, VTA validation goals recommend a threshold of "within five percent" of the sum of all locations, "within 25 percent" of the sum of all arterials and local street, and "within seven percent" of the sum of all freeway mainlines and expressways and "within 25 percent" for ramps.

- Freeway Ramps within 25 percent
- All Facility Types within five percent.

MODEL PERFORMANCE AND VALIDATION PROCESS

VTA Travel Demand Model

A portion of the VTA model was transmitted to Fehr & Peers by VTA staff for use on the Mathilda Avenue Improvements at SR 237 and US 101 Project. These files included the vehicle trip tables, the highway network, and the scripts to rerun the trip assignment portion of the model. The model includes Year 2013, 2020, and 2040 scenarios consistent with the land use projections in Plan Bay Area and regional roadway improvements included in the Valley Transportation Plan (VTP) 2040.

The validation criteria for the model outputs as received from VTA staff were reviewed for the AM and PM peak hour model runs. The results are summarized below in **Table 1**. Link-level model validation results are also provided on **Figure 1** and **Figure 2**.

TABLE 1 – VTA MODEL BASE YEAR VALIDATION

Criteria	AM Peak Hour	PM Peak Hour	Threshold
Model/Count Ratio	0.93	**0.96**	Within 5%[1]
Model/Count Ratio (for arterials and local streets)	**0.83**	**0.82**	Within 25%[2]
Model/Count Ratio (for ramps)	**0.93**	**0.94**	Within 25%[3]
Model/Count Ratio (for freeway mainline and expressways)	**0.97**	**1.02**	Within 7%[4]
Percent of Links within Caltrans Maximum Deviation	**76%**	**75%**	At least 75%
Percent Root Mean Square Error	**29%**	**37%**	Below 40%
Correlation Coefficient	**0.92**	**0.95**	At least 0.88
Number of Validation Locations	51	51	N/A

Note: **Bold** text indicates validation criteria met.

1. Although no specific threshold is specified in the 2010 *California Regional Transportation plan Guidelines*, per VTA a validation goal threshold of "within five percent" of the sum of all locations was used.
2. Per VTA validation goals, a threshold of "within 25 percent" of the sum of all arterials and local streets was used.
3. Per VTA validation goals, a threshold of "within 25 percent" of the sum of all ramps was used.
4. Per VTA validation goals, a threshold of "within seven percent" of the sum of all freeway mainline and expressways was used.

Source: Fehr & Peers, October 2015.

As received, the VTA model meets all of the validation thresholds in the AM and PM peak hours except for the model-to-count ratio during the AM peak hour. However on an overall basis the validation results are still acceptable because the VTA model meets or exceeds desired thresholds in all other categories. Therefore, the VTA model would be appropriate to use as the travel demand forecasting model for this project.

Sunnyvale Travel Demand Model

The same roadway links and freeway segments evaluated under the VTA model were also studied under the City of Sunnyvale travel demand model. However, the City of Sunnyvale model did not meet several of the validation criteria during the AM and PM peak hours as shown in **Table 2**. Because the VTA model performed well as shown in **Table 1**, no further testing was completed using the City of Sunnyvale model, and the VTA model was selected as the appropriate tool for forecasting future volumes.

TABLE 2 – SUNNYVALE MODEL BASE YEAR VALIDATION

Criteria	AM Peak Hour	PM Peak Hour	Threshold
Model/Count Ratio	0.93	1.07	Within 5%[1]
Model/Count Ratio (for arterials and local streets)	**0.91**	**0.97**	Within 25%[2]
Model/Count Ratio (for ramps)	**1.02**	**1.00**	Within 25%[3]
Model/Count Ratio (for freeway mainline and expressways)	**0.93**	1.12	Within 7%[4]
Percent of Links within Caltrans Maximum Deviation	63%	59%	At least 75%
Percent Root Mean Square Error	61%	86%	Below 40%
Correlation Coefficient	0.78	0.75	At least 0.88
Number of Validation Locations	51	51	N/A

Note: **Bold** text indicates validation criteria met.

1. Although no specific threshold is specified in the 2010 *California Regional Transportation plan Guidelines*, per VTA a validation goal threshold of "within five percent" of the sum of all locations was used.
2. Per VTA validation goals, a threshold of "within 25 percent" of the sum of all arterials and local streets was used.
3. Per VTA validation goals, a threshold of "within 25 percent" of the sum of all ramps was used.
4. Per VTA validation goals, a threshold of "within seven percent" of the sum of all freeway mainline and expressways was used.

Source: Fehr & Peers, October 2015.

CONCLUSIONS

Based on the model validation results presented above in **Table 1**, the VTA travel demand model has been tested and found to be valid for use in the development of future year traffic forecasts on roadway segments

within the project study area. While the "as received" model already meets all validation criteria as outlined in the 2010 *RTP Guidelines*, minor modifications to the local area model network may be made, such as the location of centroid connectors, for conducting the future year traffic forecasts.

Next Steps

The primary purpose of the VTA model in the transportation analysis process is to develop traffic forecasts for the anticipated opening year of 2020 and for the design year of 2040. The design year forecasts will be developed by applying versions of the VTA model, calculating the growth in link volumes projected by the model between the base year and the design year, and adding that growth to the existing volumes. Opening year forecasts will be estimated through linear interpolation between the existing demand volumes and the design year forecasts.

Once future travel demand forecasts are developed, results will be documented in a forthcoming technical memorandum for agency review and approval. After future forecasts are approved, the opening and design year forecasts will be used for the traffic operations analysis to be conducted in the PA&ED phase of the project.

ATTACHMENTS

Figure 1: Study Area

Figure 2: AM Peak Hour Link-Level Model Validation Results

Figure 3: PM Peak Hour Link-Level Model Validation Results

APPENDIX

Appendix A: VTA Model Link-Level Model Validation Results

Appendix B: Sunnyvale Model Link-Level Model Validation Results

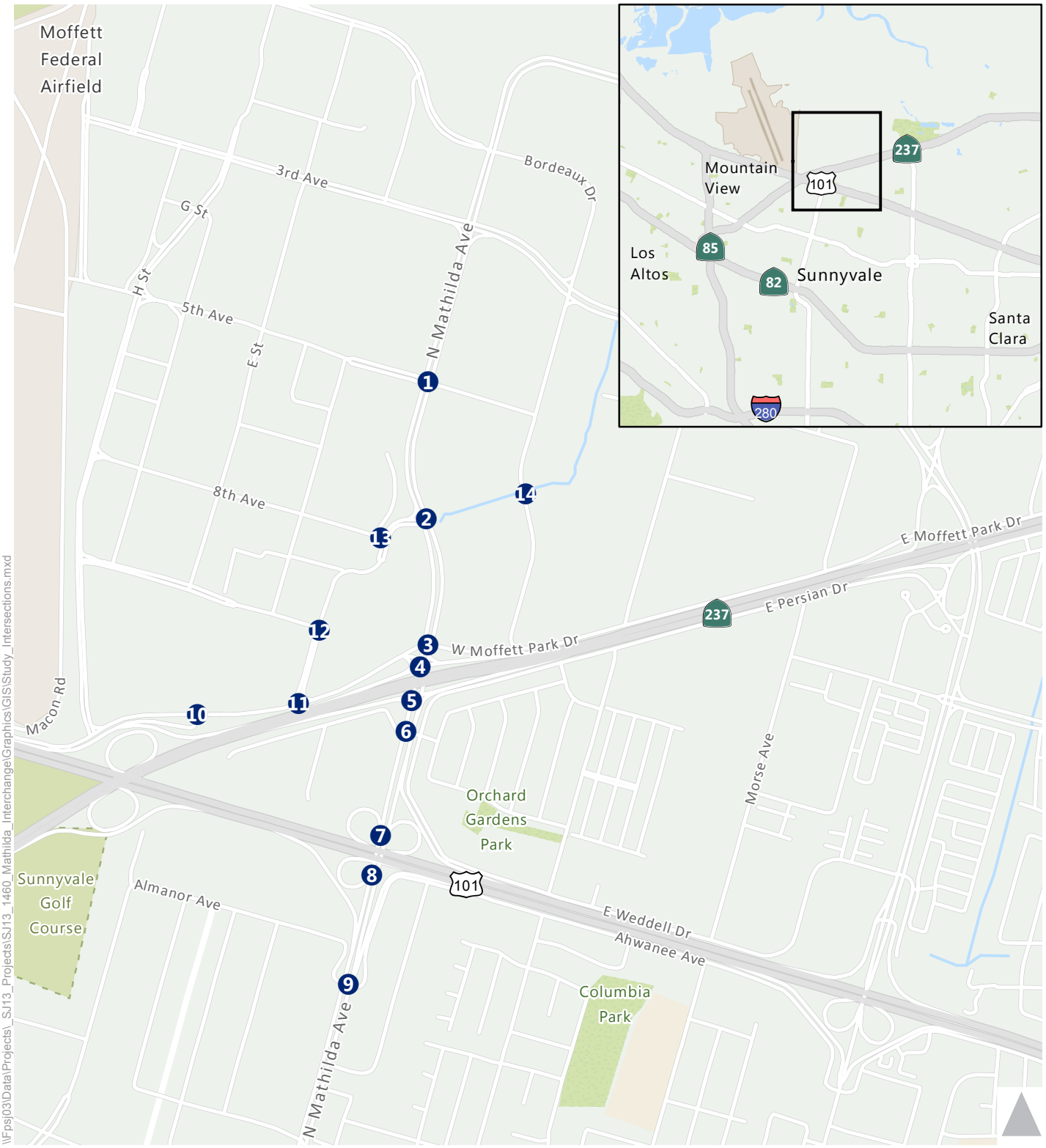
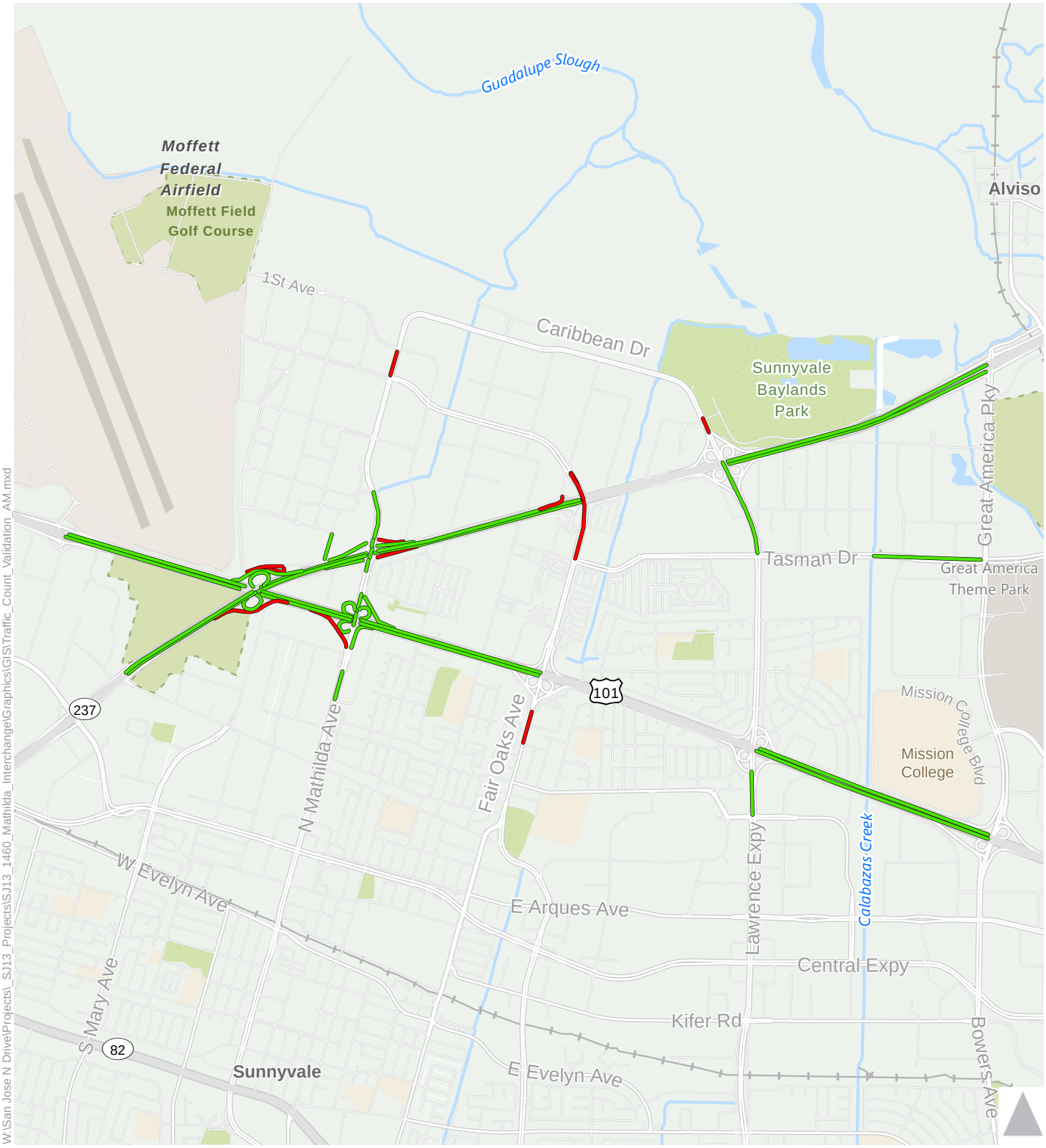


Figure 1

Vicinity Map
Mathilda Avenue Improvements



Traffic Count Validation (AM Peak Hour)

Within Deviation*

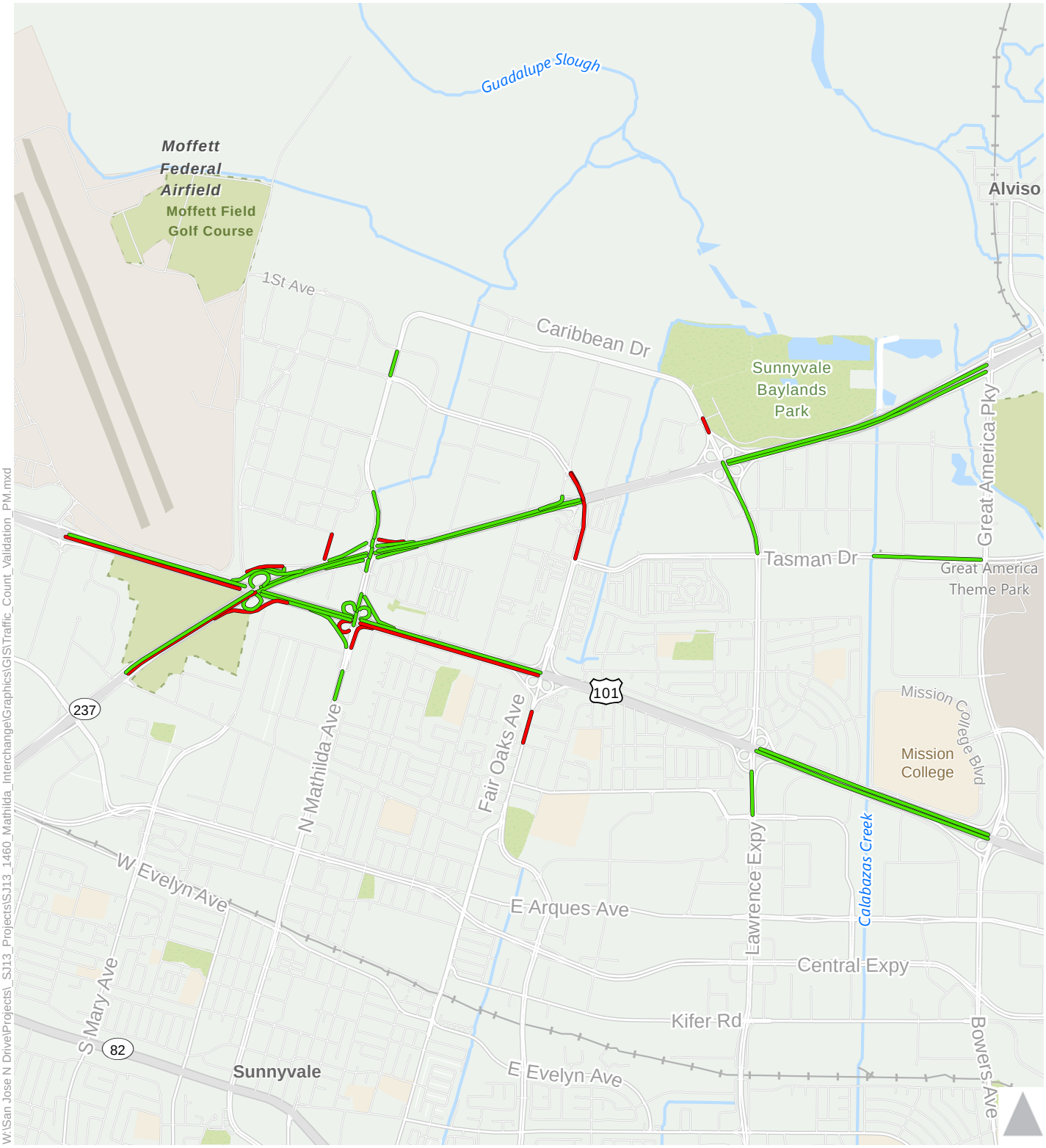
Outside of Deviation*

*Deviation per Caltrans Deviation Allowance

0 0.25 0.5 1 mi

Figure 2

AM Peak Hour Link-Level Model Validation



Traffic Count Validation (PM Peak Hour)

Within Deviation*

Outside of Deviation*

*Deviation per Caltrans Deviation Allowance

0 0.25 0.5 1 mi

Figure 3

PM Peak Hour Link-Level Model Validation

Type	Direction	Location	Model AM Peak Hour	Model PM Peak Hour	Count AM Peak Hour	Count PM Peak Hour	Two-Way Model AM Peak Hour	Two-Way Model PM Peak Hour	Two-Way Count AM Peak Hour	Two-Way Count PM Peak Hour	Model Delta AM Peak Hour	Model Delta PM Peak Hour	Dif Squared AM	Dif Squared PM	Model Delta/Count AM Peak Hour	Model Delta/Count PM Peak Hour	Caltrans Allowance AM	Caltrans Allowance PM	Within Dev? AM	Within Dev? PM
Local	SB	Mathilda Avenue between Bordeaux Drive and Java Drive	123	576	289	994	703	878	1091	1231	-388	-353	150544	124609	-0.356	-0.287	0.325	0.313	NO	YES
Local	NB	Mathilda Avenue between Java Drive and Bordeaux Drive	580	302	802	237														
Local	NB	Mathilda Avenue between Moffett Park Drive and Innovation Way	1386	519	1463	287	1590	2109	1758	1999	-168	110	28224	12100	-0.096	0.055	0.275	0.260	YES	YES
Local	SB	Mathilda Avenue between Innovation Way and Moffett Park Drive	204	1590	295	1712														
Local	EB	Moffett Park Drive between Innovation Way and Mathilda Avenue	92	602	158	700	755	819	992	1110	-237	-291	56169	84681	-0.239	-0.262	0.340	0.325	YES	YES
Local	WB	Moffett Park Drive between Mathilda Avenue and Innovation Way	663	217	834	410														
Local	WB	Moffett Park Drive between Bordeaux Drive and Mathilda Avenue	10	91	251	564	164	137	902	850	-738	-713	544644	508369	-0.818	-0.839	0.359	0.359	NO	NO
Local	EB	Moffett Park Drive between Mathilda Avenue and Bordeaux Drive	154	46	651	286														
Local	NB	Mathilda Avenue between SR 237 EB Ramps and SR 237 WB Ramps	1958	704	2359	521	3060	3361	3268	3043	-208	318	43264	101124	-0.064	0.105	0.224	0.229	YES	YES
Local	SB	Mathilda Avenue between SR 237 WB Ramps and SR 237 EB Ramps	1102	2657	909	2522														
Ramp	WB	SR 237 WB On-Ramp at Mathilda Avenue	246	733	230	730	246	733	230	730	16	3	256	9	0.070	0.004	0.575	0.380	YES	YES
Ramp	WB	SR 237 WB Off-Ramp at Mathilda Avenue	1287	1185	1020	890	1287	1185	1020	890	267	295	71289	87025	0.262	0.331	0.340	0.359	YES	YES
Ramp	EB	SR 237 EB Off-Ramp at Mathilda Avenue	711	403	840	390	711	403	840	390	-129	13	16641	169	-0.154	0.033	0.359	0.520	YES	YES
Ramp	EB	SR 237 EB On-Ramp at Mathilda Avenue	1203	1220	765	985	1203	1220	765	985	438	235	191844	55225	0.573	0.239	0.380	0.340	NO	YES
Ramp	WB	US 101 NB Diagonal Off-Ramp at Mathilda Avenue	747	259	690	190	747	259	690	190	57	69	3249	4761	0.083	0.363	0.410	0.630	YES	YES
Local	NB	Mathilda Avenue between US 101 SB Loop On-Ramp and US 101 NB Loop Ramps	2038	1121	1953	1213	3718	3883	3649	4222	69	-339	4761	114921	0.019	-0.080	0.214	0.199	YES	YES
Local	SB	Mathilda Avenue between US 101 NB Loop Ramps and US 101 SB Loop On-Ramp	1680	2762	1696	3009														
Local	SB	Mathilda Avenue between US 101 NB Diagonal Off-Ramp and US 101 NB Loop Ramps	1150	2295	972	2382	2816	3270	2633	3352	183	-82	33489	6724	0.070	-0.024	0.241	0.219	YES	YES
Local	NB	Mathilda Avenue between US 101 NB Loop Ramps and US 101 NB Diagonal Off-Ramp	1666	975	1661	970														
Ramp	EB	US 101 NB Loop Off-Ramp at Mathilda Avenue	530	467	725	740	530	467	725	740	-195	-273	38025	74529	-0.269	-0.369	0.410	0.380	YES	YES
Ramp	EB	US 101 NB Loop On-Ramp at Mathilda Avenue	372	146	330	295	372	146	330	295	42	-149	1764	22201	0.127	-0.505	0.520	0.575	YES	YES
Ramp	WB	US 101 SB Loop On-Ramp at Mathilda Avenue	160	699	125	1060	160	699	125	1060	35	-361	1225	130321	0.280	-0.341	0.630	0.325	YES	NO
Ramp	EB	US 101 SB Diagonal Off-Ramp at Mathilda Avenue	170	566	355	470	170	566	355	470	-185	96	34225	9216	-0.521	0.204	0.520	0.475	NO	YES
Ramp	EB	US 101 SB Diagonal On-Ramp at Mathilda Avenue	592	235	550	490	592	235	550	490	42	-255	1764	65025	0.076	-0.520	0.440	0.475	YES	NO
Ramp	SB	US 101 NB On-Ramp at Moffett Park Drive	37	212	20	280	37	212	20	280	17	-68	289	4624	0.850	-0.243	0.683	0.575	NO	YES
Local	EB	Moffett Park Drive between Enterprise Way and US 101 NB On-Ramp	12	63	126	594	68	85	792	783	-724	-698	524176	487204	-0.914	-0.891	0.380	0.380	NO	NO
Local	WB	Moffett Park Drive between US 101 NB On-Ramp and Enterprise Way	56	22	666	189														
Local	SB	Innovation Way between 11th Avenue and Moffett Park Drive	31	85	80	254	151	85	263	289	-112	-204	12544	41616	-0.426	-0.706	0.575	0.575	YES	NO
Local	NB	Innovation Way between Moffett Park Drive and 11th Avenue	120	0	183	35														
Mainline	EB	SR 237 EB HOV between Mathilda Avenue and Fair Oaks Avenue	936	760	0	0	4982	5079	4250	4270	732	809	535824	654481	0.172	0.189	0.199	0.199	YES	YES
Mainline	EB	SR 237 EB Mixed between Mathilda Avenue and Fair Oaks Avenue	3241	3388	4250	4270														
Mainline	EB	SR 237 EB Aux between Mathilda Avenue and Fair Oaks Avenue	805	931	0	0														
Mainline	WB	SR 237 WB HOV between Fair Oaks Avenue and Mathilda Avenue	1227	477	0	0	4879	4489	4764	4355	115	134	13225	17956	0.024	0.031	0.190	0.199	YES	YES
Mainline	WB	SR 237 WB Mixed between Fair Oaks Avenue and Mathilda Avenue	2897	3088	4764	4355														
Mainline	WB	SR 237 WB Aux between Fair Oaks Avenue and Mathilda Avenue	755	924	0	0														
Mainline	NB	US 101 NB HOV between Fair Oaks Avenue and Mathilda Avenue	1682	703	0	0	7236	5945	7910	5050	-674	895	454276	801025	-0.085	0.177	0.137	0.180	YES	YES
Mainline	NB	US 101 NB Mixed between Fair Oaks Avenue and Mathilda Avenue	5554	5242	7910	5050														
Mainline	SB	US 101 SB HOV between Mathilda Avenue and Fair Oaks Avenue	1522	834	0	0	6444	6458	6480	7625	-36	-1167	1296	1361889	-0.006	-0.153	0.150	0.138	YES	NO
Mainline	SB	US 101 SB Mixed between Mathilda Avenue and Fair Oaks Avenue	4922	5624	6480	7625														
Mainline	WB	SR 237 WB Mixed between Mathilda Avenue and US 101	3124	3187	3974	4195	3837	4037	3974	4195	-137	-158	18769	24964	-0.034	-0.038	0.204	0.199	YES	YES
Mainline	WB	SR 237 WB Aux between Mathilda Avenue and US 101	713	850	0	0														
Mainline	EB	SR 237 EB Mixed between US 101 and Mathilda Avenue	3556	3328	4340	3590	4490	4263	4340	3590	150	673	22500	452929	0.035	0.187	0.199	0.214	YES	YES
Mainline	EB	SR 237 EB Aux between US 101 and Mathilda Avenue	934	935	0	0														
Mainline	NB	US 101 NB HOV between Mathilda Avenue and SR 237	1682	703	0	0	6331	5364	6990	4625	-659	739	434281	546121	-0.094	0.160	0.143	0.190	YES	YES
Mainline	NB	US 101 NB Mixed between Mathilda Avenue and SR 237	4649	4661	6990	4625														
Mainline	SB	US 101 SB HOV between SR 237 and Mathilda Avenue	1456	757	0	0	5860	6042	6160	6610	-300	-568	90000	322624	-0.049	-0.086	0.158	0.150	YES	YES
Mainline	SB	US 101 SB Mixed between SR 237 and Mathilda Avenue	4318	4827	6160	6610														
Mainline	SB	US 101 SB Aux between SR 237 and Mathilda Avenue	86	458	0	0														
Ramp	WB	SR 237 WB to US 101 NB Ramp	1340	1230	1530	1670	1340	1230	1530	1670	-190	-440	36100	193600	-0.124	-0.263	0.286	0.275	YES	YES
Ramp	EB	SR 237 EB to US 101 SB Ramp	757	1064	1200	650	757	1064	1200	650	-443	414	196249	171396	-0.369	0.637	0.313	0.410	NO	NO
Ramp	NB	US 101 NB to SR 237 WB Ramp	962	885	1050	920	962	885	1050	920	-88	-35	7744	1225	-0.084	-0.038	0.325	0.359	YES	YES
Ramp	SB	US 101 SB to SR 237 EB Ramp	1411	1407	1700	1450	1411	1407	1700	1450	-289	-43	83521	1849	-0.170	-0.030	0.275	0.294	YES	YES
Local	NB	Fair Oaks Avenue between Tasman Drive and SR 237 Ramps	346	164	1389	239	612	762	1515	1485	-903	-723	815409	522729	-0.596	-0.487	0.286	0.286	NO	NO
Local	SB	Fair Oaks Avenue between SR 237 Ramps and Tasman Drive	266	598	126	1246														
Local	NB	Lawrence Expressway between Tasman Drive and SR 237 Ramps	2209	920	2130	925	3302	3094	3133	2957	169	137	28561	18769	0.054	0.046	0.224	0.229	YES	YES
Local	SB	Lawrence Expressway between SR 237 Ramps and Tasman Drive	1093	2174	1003	2032														
Local	NB	Lawrence Expressway between Oakmead Parkway and US 101	2905	1777	3418	2146	5029	4833	5738	5446	-709	-613	502681	375769	-0.124	-0.113	0.166	0.170	YES	YES
Local	SB	Lawrence Expressway between US 101 and Oakmead Parkway	2124	3056	2320	3300														
Local	EB	Tasman Drive between City Limits and Great America Parkway	349	869	691	1066	1065	1422	1203	1718	-138	-296	19044	87616	-0.115	-0.172	0.313	0.275	YES	YES
Local	WB	Tasman Drive between Great America Parkway and City Limits	716	553	512	652														
Local	NB	Mathilda Avenue between San Aleso Avenue and Almanor Avenue-Ahwanee Avenue	2626	1401	2253	1285	4287	4003	3566	4393	721	-390	519841	152100	0.202	-0.089	0.214	0.195	YES	YES
Local	SB	Mathilda Avenue between Almanor Avenue-Ahwanee Avenue and San Aleso Avenue	1661	2602	1313	3108														
Local	NB	Fair Oaks Avenue between Caliente Drive and Ahwanee Avenue	788	291	1505	894	1328	965	2316	2923	-988	-1958	976144	3833764	-0.427	-0.670	0.248	0.229	NO	NO
Local	SB	Fair Oaks Avenue between Ahwanee Avenue and Caliente Drive	540	674	811	2029														
Local	NB	Mathilda Avenue between Ross Drive and SR 237 EB Ramps	2504	1248	2308	978	3660	3634	3242	3365	418	269	174724	72361	0.129	0.080	0.224	0.219	YES	YES
Local	SB	Mathilda Avenue between SR 237 EB Ramps and Ross Drive	1156	2386	934	2387														
Local	NB	Mathilda Avenue between SR 237 WB Ramps and Moffett Park Drive	2191	758	2596	470	2485	3017	2902	2627	-417	390	173889	152100	-0.144	0.148	0.235	0.241	YES	YES
Local	SB	Mathilda Avenue between Moffett Park Drive and SR 237 WB Ramps	294	2259	306	2157														
Local	NB	Caribbean Drive between Moffett Park Drive and SR 237 WB Ramps	928	297	2027	758	1028	1572	2238	2571	-1210	-999	1464100	998001	-0.541	-0.389	0.252	0.241	NO	NO
Local	SB	Caribbean Drive between SR 237 WB Ramps and Moffett Park Drive	100	1275	211	1813														
Mainline	EB	SR 237 EB HOV between Lawrence Expressway and Great America Parkway	1346	909	0	0	5135	5219	5580	4960	-445	259	198025	67081	-0.080	0.052	0.170	0.185	YES	YES
Mainline	EB	SR 237 EB Mixed between Lawrence Expressway and Great America Parkway	3031	3392	5580	4960														
Mainline	EB	SR 237 EB Aux between Lawrence Expressway and Great America Parkway	758	918	0	0														
Mainline	WB	SR 237 WB HOV between Great America Parkway and Lawrence Expressway	1388	567	0	0	5298	4491	5954	4625	-656	-134	430336	17956	-0.110	-0.029	0.162	0.190	YES	YES
Mainline	WB	SR 237 WB Mixed between Great America Parkway and Lawrence Expressway	3116	3142	5954	4625														
Mainline	WB	SR 237 WB Aux between Great America Parkway and Lawrence Expressway	794	782	0	0														
Mainline	EB	SR 237 EB Mixed between Maude Avenue and US 101	3055	3102	3840	2790	3837	3920	3840	2790	-3	1130	9	1276900	-0.001	0.405	0.209	0.235	YES	NO
Mainline	EB	SR 237 EB Aux between Maude Avenue and US 101	782	818	0	0														
Mainline	WB	SR 237 WB between US 101 and Maude Avenue	3460	3691	3734	3625	3460	3691	3734	3625	-274	66	75076	4356	-0.073	0.018	0.214	0.214	YES	YES
Mainline	SB	US 101 SB HOV between Lawrence Expressway and Great America Parkway	1444	796	0	0	6841	6511	6070	6050	771	461	594441	212521	0.127	0.076	0.158	0.158	YES	YES
Mainline	SB	US 101 SB Mixed between Lawrence Expressway and Great America Parkway	5397	5715	6070	6050														
Mainline	NB	US 101 NB HOV between Great America Parkway and Lawrence Expressway	1663	597	0	0	7259	6305	7776	5970	-517	335	267289	112225	-0.066	0.056	0.137	0.162	YES	YES
Mainline	NB	US 101 NB Mixed between Great America Parkway and Lawrence Expressway	5596	5708	7776	5970														
Mainline	SB	US 101 SB Mixed between Ellis Street and SR 237	5058	5628	6660	7530	6514	6385	6660	7530	-146	-1145	21316	1311025	-0.022	-0.152	0.147	0.138	YES	NO
Mainline	SB	US 101 SB HOV between Ellis Street and SR 237	1456	757	0	0														
Mainline	NB	US 101 NB Mixed between SR 237 and Ellis Street	5226	5282	7600	5635	6745	5922	7600	5635	-855	287	731025	82369	-0.113	0.051	0.138	0.166	YES	YES
Mainline	NB	US 101 NB HOV between SR 237 and Ellis Street	1519	640	0	0														
Local	WB	Java Drive between SR 237 and Crossman Avenue	542	196	1289	196	584	484	1378	1445	-794	-961	630436	923521	-0.576	-0.665	0.294	0.294	NO	NO
Local	EB	Java Drive between Crossman Avenue and SR 237	42	288	89	1249														
Ramp	SB	SR 237 WB On-Ramp at Moffett Park Drive	121	410	310	620	121	410	310	620	-189	-210	35721	44100	-0.610	-0.339	0.575	0.440	NO	YES

Type	Direction	Location	Model AM Peak Hour	Model PM Peak Hour	Count AM Peak Hour	Count PM Peak Hour	Two-Way Model AM Peak Hour	Two-Way Model PM Peak Hour	Two-Way Count AM Peak Hour	Two-Way Count PM Peak Hour	Model Delta AM Peak Hour	Model Delta PM Peak Hour	Dif Squared AM	Dif Squared PM	Model Delta/Count AM Peak Hour	Model Delta/Count PM Peak Hour	Caltrans Allowance AM	Caltrans Allowance PM	Within Dev? AM	Within Dev? PM
Local	SB	Mathilda Avenue between Bordeaux Drive and Java Drive	237	749	289	994	1202	1487	1091	1231	111	256	12321	65536	0.102	0.208	0.325	0.313	YES	YES
Local	NB	Mathilda Avenue between Java Drive and Bordeaux Drive	965	738	802	237														
Local	NB	Mathilda Avenue between Moffett Park Drive and Innovation Way	1266	432	1463	287	1430	1661	1758	1999	-328	-338	107584	114244	-0.187	-0.169	0.275	0.260	YES	YES
Local	SB	Mathilda Avenue between Innovation Way and Moffett Park Drive	164	1229	295	1712														
Local	EB	Moffett Park Drive between Innovation Way and Mathilda Avenue	128	704	158	700	1406	1124	992	1110	414	14	171396	196	0.417	0.013	0.340	0.325	NO	YES
Local	WB	Moffett Park Drive between Mathilda Avenue and Innovation Way	1278	420	834	410														
Local	WB	Moffett Park Drive between Bordeaux Drive and Mathilda Avenue	28	130	251	564	246	219	902	850	-656	-631	430336	398161	-0.727	-0.742	0.359	0.359	NO	NO
Local	EB	Moffett Park Drive between Mathilda Avenue and Bordeaux Drive	218	89	651	286														
Local	NB	Mathilda Avenue between SR 237 EB Ramps and SR 237 WB Ramps	2206	763	2359	521	2974	3266	3268	3043	-294	223	86436	49729	-0.090	0.073	0.224	0.229	YES	YES
Local	SB	Mathilda Avenue between SR 237 WB Ramps and SR 237 EB Ramps	768	2503	909	2522														
Ramp	WB	SR 237 WB On-Ramp at Mathilda Avenue	252	591	230	730	252	591	230	730	22	-139	484	19321	0.096	-0.190	0.575	0.380	YES	YES
Ramp	WB	SR 237 WB Off-Ramp at Mathilda Avenue	1256	1210	1020	890	1256	1210	1020	890	236	320	55696	102400	0.231	0.360	0.340	0.359	YES	NO
Ramp	EB	SR 237 EB Off-Ramp at Mathilda Avenue	834	482	840	390	834	482	840	390	-6	92	36	8464	-0.007	0.236	0.359	0.520	YES	YES
Ramp	EB	SR 237 EB On-Ramp at Mathilda Avenue	791	746	765	985	791	746	765	985	26	-239	676	57121	0.034	-0.243	0.380	0.340	YES	YES
Ramp	WB	US 101 NB Diagonal Off-Ramp at Mathilda Avenue	937	574	690	190	937	574	690	190	247	384	61009	147456	0.358	2.021	0.410	0.630	YES	NO
Local	NB	Mathilda Avenue between US 101 SB Loop On-Ramp and US 101 NB Loop Ramps	1794	926	1953	1213	2838	3452	3649	4222	-811	-770	657721	592900	-0.222	-0.182	0.214	0.199	NO	YES
Local	SB	Mathilda Avenue between US 101 NB Loop Ramps and US 101 SB Loop On-Ramp	1044	2526	1696	3009														
Local	SB	Mathilda Avenue between US 101 NB Diagonal Off-Ramp and US 101 NB Loop Ramps	980	2523	972	2382	2262	3251	2633	3352	-371	-101	137641	10201	-0.141	-0.030	0.241	0.219	YES	YES
Local	NB	Mathilda Avenue between US 101 NB Loop Ramps and US 101 NB Diagonal Off-Ramp	1282	728	1661	970														
Ramp	EB	US 101 NB Loop Off-Ramp at Mathilda Avenue	64	2	725	740	64	2	725	740	-661	-738	436921	544644	-0.912	-0.997	0.410	0.380	NO	NO
Ramp	EB	US 101 NB Loop On-Ramp at Mathilda Avenue	512	197	330	295	512	197	330	295	182	-98	33124	9604	0.552	-0.332	0.520	0.575	NO	YES
Ramp	WB	US 101 SB Loop On-Ramp at Mathilda Avenue	193	776	125	1060	193	776	125	1060	68	-284	4624	80656	0.544	-0.268	0.630	0.325	YES	YES
Ramp	EB	US 101 SB Diagonal Off-Ramp at Mathilda Avenue	585	1048	355	470	585	1048	355	470	230	578	52900	334084	0.648	1.230	0.520	0.475	NO	NO
Ramp	EB	US 101 SB Diagonal On-Ramp at Mathilda Avenue	664	431	550	490	664	431	550	490	114	-59	12996	3481	0.207	-0.120	0.440	0.475	YES	YES
Ramp	SB	US 101 NB On-Ramp at Moffett Park Drive	140	418	20	280	140	418	20	280	120	138	14400	19044	6.000	0.493	0.683	0.575	NO	YES
Local	EB	Moffett Park Drive between Enterprise Way and US 101 NB On-Ramp	199	851	126	594	1030	1150	792	783	238	367	56644	134689	0.301	0.469	0.380	0.380	YES	NO
Local	WB	Moffett Park Drive between US 101 NB On-Ramp and Enterprise Way	831	299	666	189														
Local	SB	Innovation Way between 11th Avenue and Moffett Park Drive	46	407	80	254	436	506	263	289	173	217	29929	47089	0.658	0.751	0.575	0.575	NO	NO
Local	NB	Innovation Way between Moffett Park Drive and 11th Avenue	390	99	183	35														
Mainline	EB	SR 237 EB HOV between Mathilda Avenue and Fair Oaks Avenue	334	373	0	0	3896	4432	4250	4270	-354	162	125316	26244	-0.083	0.038	0.199	0.199	YES	YES
Mainline	EB	SR 237 EB Mixed between Mathilda Avenue and Fair Oaks Avenue	3562	4059	4250	4270														
Mainline	EB	SR 237 EB Aux between Mathilda Avenue and Fair Oaks Avenue	0	0	0	0														
Mainline	WB	SR 237 WB HOV between Fair Oaks Avenue and Mathilda Avenue	619	295	0	0	5167	4390	4764	4355	403	35	162409	1225	0.085	0.008	0.190	0.199	YES	YES
Mainline	WB	SR 237 WB Mixed between Fair Oaks Avenue and Mathilda Avenue	4548	4095	4764	4355														
Mainline	WB	SR 237 WB Aux between Fair Oaks Avenue and Mathilda Avenue	0	0	0	0														
Mainline	NB	US 101 NB HOV between Fair Oaks Avenue and Mathilda Avenue	1210	494	0	0	6952	5595	7910	5050	-958	545	917764	297025	-0.121	0.108	0.137	0.180	YES	YES
Mainline	NB	US 101 NB Mixed between Fair Oaks Avenue and Mathilda Avenue	5742	5101	7910	5050														
Mainline	SB	US 101 SB HOV between Mathilda Avenue and Fair Oaks Avenue	627	1495	0	0	5704	8066	6480	7625	-776	441	602176	194481	-0.120	0.058	0.150	0.138	YES	YES
Mainline	SB	US 101 SB Mixed between Mathilda Avenue and Fair Oaks Avenue	5077	6571	6480	7625														
Mainline	WB	SR 237 WB Mixed between Mathilda Avenue and US 101	3756	3699	3974	4195	3756	3699	3974	4195	-218	-496	47524	246016	-0.055	-0.118	0.204	0.199	YES	YES
Mainline	WB	SR 237 WB Aux between Mathilda Avenue and US 101	0	0	0	0														
Mainline	EB	SR 237 EB Mixed between US 101 and Mathilda Avenue	3939	4168	4340	3590	3939	4168	4340	3590	-401	578	160801	334084	-0.092	0.161	0.199	0.214	YES	YES
Mainline	EB	SR 237 EB Aux between US 101 and Mathilda Avenue	0	0	0	0														
Mainline	NB	US 101 NB HOV between Mathilda Avenue and SR 237	1067	498	0	0	6464	5216	6990	4625	-526	591	276676	349281	-0.075	0.128	0.143	0.190	YES	YES
Mainline	NB	US 101 NB Mixed between Mathilda Avenue and SR 237	5397	4718	6990	4625														
Mainline	SB	US 101 SB HOV between SR 237 and Mathilda Avenue	578	1374	0	0	5433	7904	6160	6610	-727	1294	528529	1674436	-0.118	0.196	0.158	0.150	YES	NO
Mainline	SB	US 101 SB Mixed between SR 237 and Mathilda Avenue	4324	5608	6160	6610														
Mainline	SB	US 101 SB Aux between SR 237 and Mathilda Avenue	531	922	0	0														
Ramp	WB	SR 237 WB to US 101 NB Ramp	1762	1288	1530	1670	1762	1288	1530	1670	232	-382	53824	145924	0.152	-0.229	0.286	0.275	YES	YES
Ramp	EB	SR 237 EB to US 101 SB Ramp	711	792	1200	650	711	792	1200	650	-489	142	239121	20164	-0.408	0.218	0.313	0.410	NO	YES
Ramp	NB	US 101 NB to SR 237 WB Ramp	1020	782	1050	920	1020	782	1050	920	-30	-138	900	19044	-0.029	-0.150	0.325	0.359	YES	YES
Ramp	SB	US 101 SB to SR 237 EB Ramp	1758	1944	1700	1450	1758	1944	1700	1450	58	494	3364	244036	0.034	0.341	0.275	0.294	YES	NO
Local	NB	Fair Oaks Avenue between Tasman Drive and SR 237 Ramps	1184	225	1389	239	1334	1763	1515	1485	-181	278	32761	77284	-0.119	0.187	0.286	0.286	YES	YES
Local	SB	Fair Oaks Avenue between SR 237 Ramps and Tasman Drive	150	1538	126	1246														
Local	NB	Lawrence Expressway between Tasman Drive and SR 237 Ramps	3006	1505	2130	925	4138	4779	3133	2957	1005	1822	1010025	3319684	0.321	0.616	0.224	0.229	NO	NO
Local	SB	Lawrence Expressway between SR 237 Ramps and Tasman Drive	1132	3274	1003	2032														
Local	NB	Lawrence Expressway between Oakmead Parkway and US 101	3525	2675	3418	2146	5531	7017	5738	5446	-207	1571	42849	2468041	-0.036	0.288	0.166	0.170	YES	NO
Local	SB	Lawrence Expressway between US 101 and Oakmead Parkway	2006	4342	2320	3300														
Local	EB	Tasman Drive between City Limits and Great America Parkway	1010	1645	691	1066	2380	3157	1203	1718	1177	1439	1385329	2070721	0.978	0.838	0.313	0.275	NO	NO
Local	WB	Tasman Drive between Great America Parkway and City Limits	1370	1512	512	652														
Local	NB	Mathilda Avenue between San Aleso Avenue and Almanor Avenue-Ahwanee Avenue	1969	969	2253	1285	2785	3525	3566	4393	-781	-868	609961	753424	-0.219	-0.198	0.214	0.195	NO	NO
Local	SB	Mathilda Avenue between Almanor Avenue-Ahwanee Avenue and San Aleso Avenue	816	2556	1313	3108														
Local	NB	Fair Oaks Avenue between Caliente Drive and Ahwanee Avenue	1286	536	1505	894	1707	2216	2316	2923	-609	-707	370881	499849	-0.263	-0.242	0.248	0.229	NO	NO
Local	SB	Fair Oaks Avenue between Ahwanee Avenue and Caliente Drive	421	1680	811	2029														
Local	NB	Mathilda Avenue between Ross Drive and SR 237 EB Ramps	2191	968	2308	978	2986	3412	3242	3365	-256	47	65536	2209	-0.079	0.014	0.224	0.219	YES	YES
Local	SB	Mathilda Avenue between SR 237 EB Ramps and Ross Drive	795	2444	934	2387														
Local	NB	Mathilda Avenue between SR 237 WB Ramps and Moffett Park Drive	2728	868	2596	470	3013	2857	2902	2627	111	230	12321	52900	0.038	0.088	0.235	0.241	YES	YES
Local	SB	Mathilda Avenue between Moffett Park Drive and SR 237 WB Ramps	285	1989	306	2157														
Local	NB	Caribbean Drive between Moffett Park Drive and SR 237 WB Ramps	1194	198	2027	758	1299	1722	2238	2571	-939	-849	881721	720801	-0.420	-0.330	0.252	0.241	NO	NO
Local	SB	Caribbean Drive between SR 237 WB Ramps and Moffett Park Drive	105	1524	211	1813														
Mainline	EB	SR 237 EB HOV between Lawrence Expressway and Great America Parkway	432	553	0	0	4840	4990	5580	4960	-740	30	547600	900	-0.133	0.006	0.170	0.185	YES	YES
Mainline	EB	SR 237 EB Mixed between Lawrence Expressway and Great America Parkway	3636	4006	5580	4960														
Mainline	EB	SR 237 EB Aux between Lawrence Expressway and Great America Parkway	772	431	0	0														
Mainline	WB	SR 237 WB HOV between Great America Parkway and Lawrence Expressway	4106	4017	0	0	6998	7033	5954	4625	1044	2408	1089936	5798464	0.175	0.521	0.162	0.190	NO	NO
Mainline	WB	SR 237 WB Mixed between Great America Parkway and Lawrence Expressway	1880	1975	5954	4625														
Mainline	WB	SR 237 WB Aux between Great America Parkway and Lawrence Expressway	1012	1041	0	0														
Mainline	EB	SR 237 EB Mixed between Maude Avenue and US 101	3456	3424	3840	2790	3827	4800	3840	2790	-13	2010	169	4040100	-0.003	0.720	0.209	0.235	YES	NO
Mainline	EB	SR 237 EB Aux between Maude Avenue and US 101	371	1376	0	0														
Mainline	WB	SR 237 WB between US 101 and Maude Avenue	4612	5111	3734	3625	4612	5111	3734	3625	878	1486	770884	2208196	0.235	0.410	0.214	0.214	NO	NO
Mainline	SB	US 101 SB HOV between Lawrence Expressway and Great America Parkway	1700	1630	0	0	2981	2164	6070	6050	-3089	-3886	9541921	15100996	-0.509	-0.642	0.158	0.158	NO	NO
Mainline	SB	US 101 SB Mixed between Lawrence Expressway and Great America Parkway	1281	534	6070	6050														
Mainline	NB	US 101 NB HOV between Great America Parkway and Lawrence Expressway	5826	5709	0	0	10283	11391	7776	5970	2507	5421	6285049	29387241	0.322	0.908	0.137	0.162	NO	NO
Mainline	NB	US 101 NB Mixed between Great America Parkway and Lawrence Expressway	4457	5682	7776	5970														
Mainline	SB	US 101 SB Mixed between Ellis Street and SR 237	1582	1821	6660	7530	2023	3374	6660	7530	-4637	-4156	21501769	17272336	-0.696	-0.552	0.147	0.138	NO	NO
Mainline	SB	US 101 SB HOV between Ellis Street and SR 237	441	1553	0	0														
Mainline	NB	US 101 NB Mixed between SR 237 and Ellis Street	6051	5549	7600	5635	7345	6140	7600	5635	-255	505	65025	255025	-0.034	0.090	0.138	0.166	YES	YES
Mainline	NB	US 101 NB HOV between SR 237 and Ellis Street	1294	591	0	0														
Local	WB	Java Drive between SR 237 and Crossman Avenue	1455	282	1289	196	1509	1531	1378	1445	131	86	17161	7396	0.095	0.060	0.294	0.294	YES	YES
Local	EB	Java Drive between Crossman Avenue and SR 237	54	1249	89	1249														
Ramp	SB	SR 237 WB On-Ramp at Moffett Park Drive	173	558	310	620	173	558	310	620	-137	-62	18769	3844	-0.442	-0.100	0.575	0.440	YES	YES

APPENDIX I – BUILD ALTERNATIVE CONCEPTUAL DRAWINGS

Build Alternative 1

Existing northbound US 101 loop off-ramp would be closed and traffic shifted to the northbound US 101 diagonal off-ramp. Northbound US 101 diagonal off-ramp and loop on-ramp would be realigned and widened to terminate at a new signalized intersection on Mathilda Avenue. Left-turn access from southbound Mathilda Avenue to northbound US 101 loop on-ramp would be provided. This new ramp configuration would provide full access to northbound US 101 by adding access to northbound US 101 from southbound on Mathilda Avenue.

Southbound US 101 off-ramp and loop on-ramp would be realigned and widened to terminate at a new signalized intersection on Mathilda Avenue. Left-turn access from southbound US 101 off-ramp to northbound Mathilda Avenue would be provided. This new ramp configuration would provide full access to southbound US 101 by adding access to northbound on Mathilda Avenue from southbound US 101.

The westbound SR 237 off-ramp would be realigned with Moffett Park Drive on the east leg of the intersection and the signal at existing SR 237 westbound ramps would be removed. Moffett Park Drive access on the east side of Mathilda Avenue would be closed and traffic shifted to Bordeaux Drive and Innovation Way. Moffett Park Drive access west of Mathilda Avenue would remain open. Access to the westbound SR 237 on-ramp from northbound Mathilda Avenue would be accomplished with a U-turn movement at the new signalized intersection.

Build Alternative 2

Existing northbound US 101 loop off-ramp would be closed and traffic shifted to the northbound US 101 diagonal off-ramp. Northbound US 101 diagonal off-ramp and loop on-ramp would be realigned and widened to terminate at a new signalized intersection on Mathilda Avenue. Left-turn access from southbound Mathilda Avenue to northbound US 101 loop on-ramp would be provided. This new ramp configuration would provide full access to northbound US 101 by adding access to northbound US 101 from southbound on Mathilda Avenue.

Southbound US 101 off-ramp and loop on-ramp would be realigned and widened to terminate at a new signalized intersection on Mathilda Avenue. Left-turn access from southbound US 101 off-ramp to northbound Mathilda Avenue would be provided. This new ramp configuration would provide full access to southbound US 101 by adding access to northbound on Mathilda Avenue from southbound US 101.

Existing SR 237 ramps would be realigned and widened to accommodate a diverging diamond interchange configuration. Existing signalized intersections on Mathilda Avenue at the SR 237 ramps and Moffett Park Drive would be removed. New signalized intersections would be constructed at realigned SR 237 ramp termini. Traffic on Mathilda Avenue would be shifted to the opposite side of the road between SR 237 ramp termini to facilitate left-turn movements. Moffett Park Drive access on the east side of Mathilda Avenue would be closed and traffic shifted to Bordeaux Drive and Innovation Way. West Moffett Park Drive would remain open for westbound traffic.

PRELIMINARY: SUBJECT TO CHANGE

US 101/ SR 237 Frwy TO Frwy CONNECTOR

MOFFETT PARK LIGHT RAIL STATION

SUNNYVALE WEST CHANNEL

St. JUDE MEDICAL

SUNNYVALE WEST CHANNEL

GOOGLE

LOCKHEED MARTIN LIGHT RAIL STATION

JUNIPER NETWORKS

MODIFY SIGNAL

RAMP METERING

CLASS 1 BIKEWAY

STAYBRIDGE SUITES

N MATHILDA Ave UNDERCROSSING
SCL PM 2.99
Br No. 37-0179

FOOTHILL-DE ANZA EDUCATION CENTER (UNDER CONSTRUCTION)

MODIFY SIGNAL

RAMP METERING

DAYS INN

CLASS 1 BIKEWAY (BY OTHERS)

MODIFY SIGNAL

REMOVE SIGNAL

CLOSE DRIVEWAY ACCESS

INNOVATION WAY EXTENSION (BY OTHERS)

MOFFETT PLACE

CLASS 1 BIKEWAY

SHERATON HOTEL

MODIFY SIGNAL

MODIFY SIGNAL

INSTALL NEW SIGN

REPLACE SOUNDWALL

Rem SIGN STRUCTURE (Br. MOUNTED w/ WALKWAY) 2ND SIGN Struct. TO REMAIN

MATHILDA Ave OVERCROSSING
SCL PM 45.68
Br No. 37-0177

RAMP METERING

INSTALL NEW SIGN

RELOCATE / REPLACE SIGN

MOFFETT PLACE

EXISTING POC RAMP

SOUTH BORREGAS Ave Ped OVERCROSSING
SCL PM 45.00
Br No. 37-0663

INSTALL NEW SIGN

NORTH BORREGAS Ave Ped OVERCROSSING
SCL PM R3.40
Br No. 37-0664

Mathilda Ave
Almanor Ave
San Aleso Ave
Hamlin Ct
Ross Dr
Garner Dr
Bradford Dr
Moffett Park Dr
11th Ave
Innovation Wy
Persian Dr
Plaza Dr
Bordeaux Dr
W Weddell Dr
W Arbeneje Ave
Borregas Ave
Weddell Ct
WB SR 237
EB SR 237
SB US 101
NB US 101
"M1" LINE
"M2" LINE
"M3" LINE
"M4" LINE
"M5" LINE
"D3" LINE
"D4" LINE
"D5" LINE
"D6" LINE

LEGEND:
- ALT 1 & ALT 2 COMMON IMPROVEMENTS
- ALT 1 UNIQUE IMPROVEMENTS
- IMPROVEMENTS BY OTHERS
- PAVEMENT REMOVAL
- VTA LIGHT RAIL TRANSIT
- NEW TRAFFIC SIGNAL (UNLESS OTHERWISE STATED)
- EXISTING/PROPOSED BUS STOP
- RIGHT OF WAY LIMITS
- PARCEL LINE

WMH

SCALE IN FEET
80 40 0 80 160 240

MATHILDA Ave IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2.7/3.3
SCL 101 - PM 45.4/45.8

ALTERNATIVE 1
SR 237 TIGHT DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 2a
FEB 24, 2016

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PRELIMINARY: SUBJECT TO CHANGE

US 101/ SR 237 Frwy TO Frwy CONNECTOR

MOFFETT PARK LIGHT RAIL STATION

SUNNYVALE WEST CHANNEL

St. JUDE MEDICAL

SUNNYVALE WEST CHANNEL

GOOGLE

11th Ave

Moffett Park Dr

Innovation Wy

LOCKHEED MARTIN LIGHT RAIL STATION

JUNIPER NETWORKS

MODIFY SIGNAL

RAMP METERING

CLASS 1 BIKEWAY

STAYBRIDGE SUITES

Hamlin Ct

Ross Dr

WB SR 237

EB SR 237

N MATHILDA Ave UNDERCROSSING
SCL PM 2.99
Br No. 37-0179

FOOTHILL-DE ANZA EDUCATION CENTER (UNDER CONSTRUCTION)

Mathilda Ave

MODIFY SIGNAL

CLASS 1 BIKEWAY (BY OTHERS)

INNOVATION WAY EXTENSION (BY OTHERS)

RAMP METERING

DAYS INN

SB US 101

NB US 101

Almanor Ave

Mathilda Ave

MODIFY SIGNAL

REMOVE SIGNAL

CLOSE DRIVEWAY ACCESS

MOFFETT PLACE

Bradford Dr

Ross Dr

INSTALL NEW SIGN

MODIFY SIGNAL

San Aleso Ave

MATHILDA Ave OVERCROSSING
SCL PM 45.68
Br No. 37-0177

Garner Dr

RAMP METERING

Rem SIGN STRUCTURE (Br. MOUNTED w/ WALKWAY) 2ND SIGN Struct. TO REMAIN

CLASS 1 BIKEWAY

SHERATON HOTEL

Bordeaux Dr

REPLACE SOUNDWALL

INSTALL NEW SIGN

W Weddell Dr

W Arbeneje Ave

RELOCATE / REPLACE SIGN

Persian Dr

Plaza Dr

Moffett Park Dr

MOFFETT PLACE

Borregas Ave

Borregas Ave

EXISTING POC RAMP

Borregas Ave

Borregas Ave

SOUTH BORREGAS Ave Ped OVERCROSSING
SCL PM 45.00
Br No. 37-0663

NORTH BORREGAS Ave Ped OVERCROSSING
SCL PM R3.40
Br No. 37-0664

Weddell Ct

INSTALL NEW SIGN

LEGEND:

- ALT 1 & ALT 2 COMMON IMPROVEMENTS
- ALT 2 UNIQUE IMPROVEMENTS
- IMPROVEMENTS BY OTHERS
- PAVEMENT REMOVAL
- VTA LIGHT RAIL TRANSIT
- NEW TRAFFIC SIGNAL (UNLESS OTHERWISE STATED)
- EXISTING/PROPOSED BUS STOP
- RIGHT OF WAY LIMITS
- PARCEL LINE

WMH

SCALE IN FEET
80 40 0 80 160 240

MATHILDA Ave IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2.7/3.3
SCL 101 - PM 45.4/45.8

ALTERNATIVE 2
SR 237 DDI
AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 2b
FEB 24, 2016

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APPENDIX J – TRAVEL DEMAND MODEL GROWTH RATE CALCULATIONS

VTA and City of Sunnyvale Models Trip Generation Growth Rates

VTA Model (AM)

AM	2015		2040		Amount Difference		Percent Difference	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
West Moffett Park	1831	246	2966	358	1136	113	62.0%	45.8%
East Moffett Park	1979	339	2843	422	863	83	43.6%	24.5%
Triangle	1217	1390	1344	1752	127	362	10.4%	26.0%
NW Maude	515	55	919	97	405	41	78.6%	74.7%
NE Maude	1535	2023	1509	2097	-25	75	-1.6%	3.7%
SW Maude	1277	1011	1351	1047	74	36	5.8%	3.6%
SE Maude	1223	1382	1699	2031	477	649	39.0%	47.0%
TOTAL	**9576**	**6445**	**12632**	**7804**	**3056**	**1358**	**31.9%**	**21.1%**

VTA Model (AM)

AM	Annual Growth Rate (Compounded)			Annual Growth Rate (Linear)		
	Inbound	Outbound	Total	Inbound	Outbound	Total
West Moffett Park	1.9%	1.5%	1.9%	2.5%	1.8%	2.4%
East Moffett Park	1.5%	0.9%	1.4%	1.7%	1.0%	1.6%
Triangle	0.4%	0.9%	0.7%	0.4%	1.0%	0.7%
NW Maude	2.3%	2.3%	2.3%	3.1%	3.0%	3.1%
NE Maude	-0.1%	0.1%	0.1%	-0.1%	0.1%	0.1%
SW Maude	0.2%	0.1%	0.2%	0.2%	0.1%	0.2%
SE Maude	1.3%	1.6%	1.4%	1.6%	1.9%	1.7%
TOTAL	**1.1%**	**0.8%**	**1.0%**	**1.3%**	**0.8%**	**1.1%**

Sunnyvale Model (AM)

AM	2015		2035		Amount Difference		Percent Difference	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
West Moffett Park	1945	320	2999	325	1054	6	54.2%	1.7%
East Moffett Park	2201	406	3688	438	1486	32	67.5%	7.9%
Triangle	1064	1225	1203	1767	139	542	13.1%	44.2%
NW Maude	813	126	1164	142	351	15	43.2%	12.2%
NE Maude	1018	1719	712	1240	-305	-479	-30.0%	-27.9%
SW Maude	1299	709	1484	540	185	-170	14.2%	-23.9%
SE Maude	480	955	331	805	-148	-150	-30.9%	-15.7%
TOTAL	**8820**	**5460**	**11581**	**5256**	**2762**	**-204**	**31.3%**	**-3.7%**

Sunnyvale Model (AM)

AM	Annual Growth Rate (Compounded)			Annual Growth Rate (Linear)		
	Inbound	Outbound	Total	Inbound	Outbound	Total
West Moffett Park	2.2%	0.1%	1.9%	2.7%	0.1%	2.3%
East Moffett Park	2.6%	0.4%	2.3%	3.4%	0.4%	2.9%
Triangle	0.6%	1.8%	1.3%	0.7%	2.2%	1.5%
NW Maude	1.8%	0.6%	1.7%	2.2%	0.6%	1.9%
NE Maude	-1.8%	-1.6%	-1.7%	-1.5%	-1.4%	-1.4%
SW Maude	0.7%	-1.4%	0.0%	0.7%	-1.2%	0.0%
SE Maude	-1.8%	-0.9%	-1.2%	-1.5%	-0.8%	-1.0%
TOTAL	**1.4%**	**-0.2%**	**0.8%**	**1.6%**	**-0.2%**	**0.9%**

VTA Model (PM)

PM	2015		2040		Amount Difference		Percent Difference	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
West Moffett Park	677	2243	980	3489	303	1247	44.7%	55.6%
East Moffett Park	661	2292	1162	3536	501	1243	75.7%	54.2%
Triangle	1270	1163	1639	1332	369	169	29.1%	14.6%
NW Maude	150	588	257	1035	108	447	71.8%	76.1%
NE Maude	1500	1128	1634	1177	134	49	8.9%	4.4%
SW Maude	1024	1317	1153	1490	129	174	12.6%	13.2%
SE Maude	1044	979	1718	1514	673	535	64.5%	54.6%
TOTAL	**6326**	**9709**	**8543**	**13573**	**2217**	**3864**	**35.0%**	**39.8%**

VTA Model (PM)

PM	Annual Growth Rate (Compounded)			Annual Growth Rate (Linear)		
	Inbound	Outbound	Total	Inbound	Outbound	Total
West Moffett Park	1.5%	1.8%	1.7%	1.8%	2.2%	2.1%
East Moffett Park	2.3%	1.7%	1.9%	3.0%	2.2%	2.4%
Triangle	1.0%	0.5%	0.8%	1.2%	0.6%	0.9%
NW Maude	2.2%	2.3%	2.3%	2.9%	3.0%	3.0%
NE Maude	0.3%	0.2%	0.3%	0.4%	0.2%	0.3%
SW Maude	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
SE Maude	2.0%	1.8%	1.9%	2.6%	2.2%	2.4%
TOTAL	**1.2%**	**1.3%**	**1.3%**	**1.4%**	**1.6%**	**1.5%**

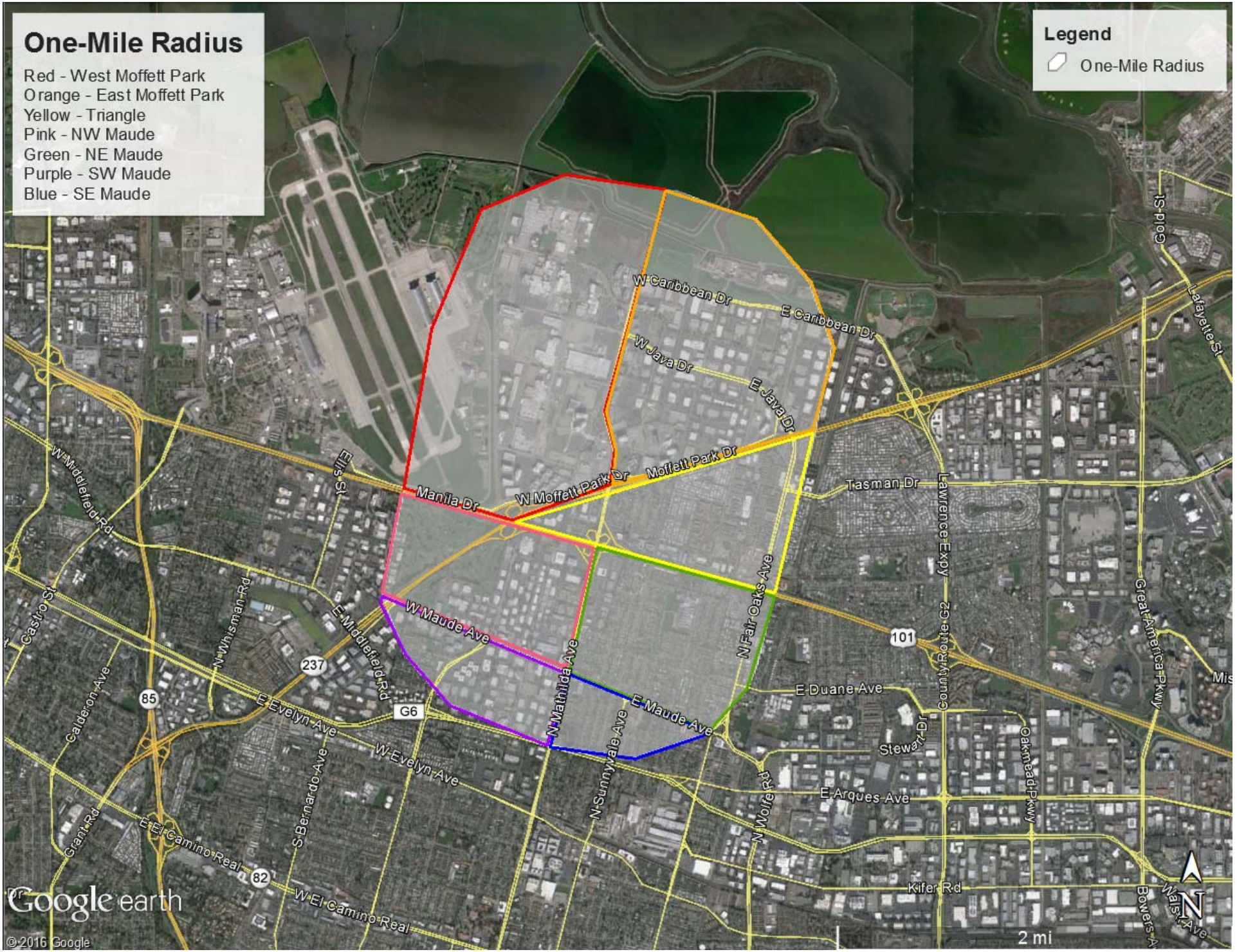
Sunnyvale Model (PM)

PM	2015		2035		Amount Difference		Percent Difference	
	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound	Inbound	Outbound
West Moffett Park	424	2045	660	3020	236	975	55.7%	47.6%
East Moffett Park	526	2370	858	3833	332	1464	63.0%	61.8%
Triangle	1183	1079	1907	1430	724	351	61.2%	32.5%
NW Maude	241	843	294	1220	53	377	21.8%	44.7%
NE Maude	1359	841	1275	871	-85	30	-6.2%	3.6%
SW Maude	836	1373	747	1584	-89	211	-10.7%	15.3%
SE Maude	700	325	845	452	145	127	20.7%	39.1%
TOTAL	**5270**	**8876**	**6586**	**12411**	**1316**	**3534**	**25.0%**	**39.8%**

Sunnyvale Model (PM)

PM	Annual Growth Rate (Compounded)			Annual Growth Rate (Linear)		
	Inbound	Outbound	Total	Inbound	Outbound	Total
West Moffett Park	2.2%	2.0%	2.0%	2.8%	2.4%	2.5%
East Moffett Park	2.5%	2.4%	2.4%	3.2%	3.1%	3.1%
Triangle	2.4%	1.4%	2.0%	3.1%	1.6%	2.4%
NW Maude	1.0%	1.9%	1.7%	1.1%	2.2%	2.0%
NE Maude	-0.3%	0.2%	-0.1%	-0.3%	0.2%	-0.1%
SW Maude	-0.6%	0.7%	0.3%	-0.5%	0.8%	0.3%
SE Maude	0.9%	1.7%	1.2%	1.0%	2.0%	1.3%
TOTAL	**1.1%**	**1.7%**	**1.5%**	**1.2%**	**2.0%**	**1.7%**

Dated: 12/18/2015


One-Mile Radius
Red - West Moffett Park
Orange - East Moffett Park
Yellow - Triangle
Pink - NW Maude
Green - NE Maude
Purple - SW Maude
Blue - SE Maude
Legend
One-Mile Radius
W Caribbean Dr
E Caribbean Dr
W Java Dr
E Java Dr
Moffett Park Dr
W Moffett Park Dr
Manila Dr
Tasman Dr
W Maude Ave
E Maude Ave
N Mathilda Ave
N Fair Oaks Ave
E Duane Ave
E Arques Ave
W Evelyn Ave
E Evelyn Ave
E Middlefield Rd
W Middlefield Rd
N Whisman Rd
S Bernardo Ave
N Sunnyvale Ave
N Wolfe Rd
Lawrence Expy
Great America Pkwy
Oakmead Pkwy
Stewart Dr
Kifer Rd
W El Camino Real
E El Camino Real
Grant Rd
Calderon Ave
Castro St
El Camino Real
Lafayette St
Bowers Ave
101
237
85
82
G6
2 mi
Google earth
©2016 Google

APPENDIX K – 2018 AND 2040 FREEWAY AND RAMP DEMAND VOLUMES

7:00 AM Volumes (8:00 AM Volumes)

* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 13A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2018 No Build - AM Peak Period

7:00 AM Volumes (8:00 AM Volumes)

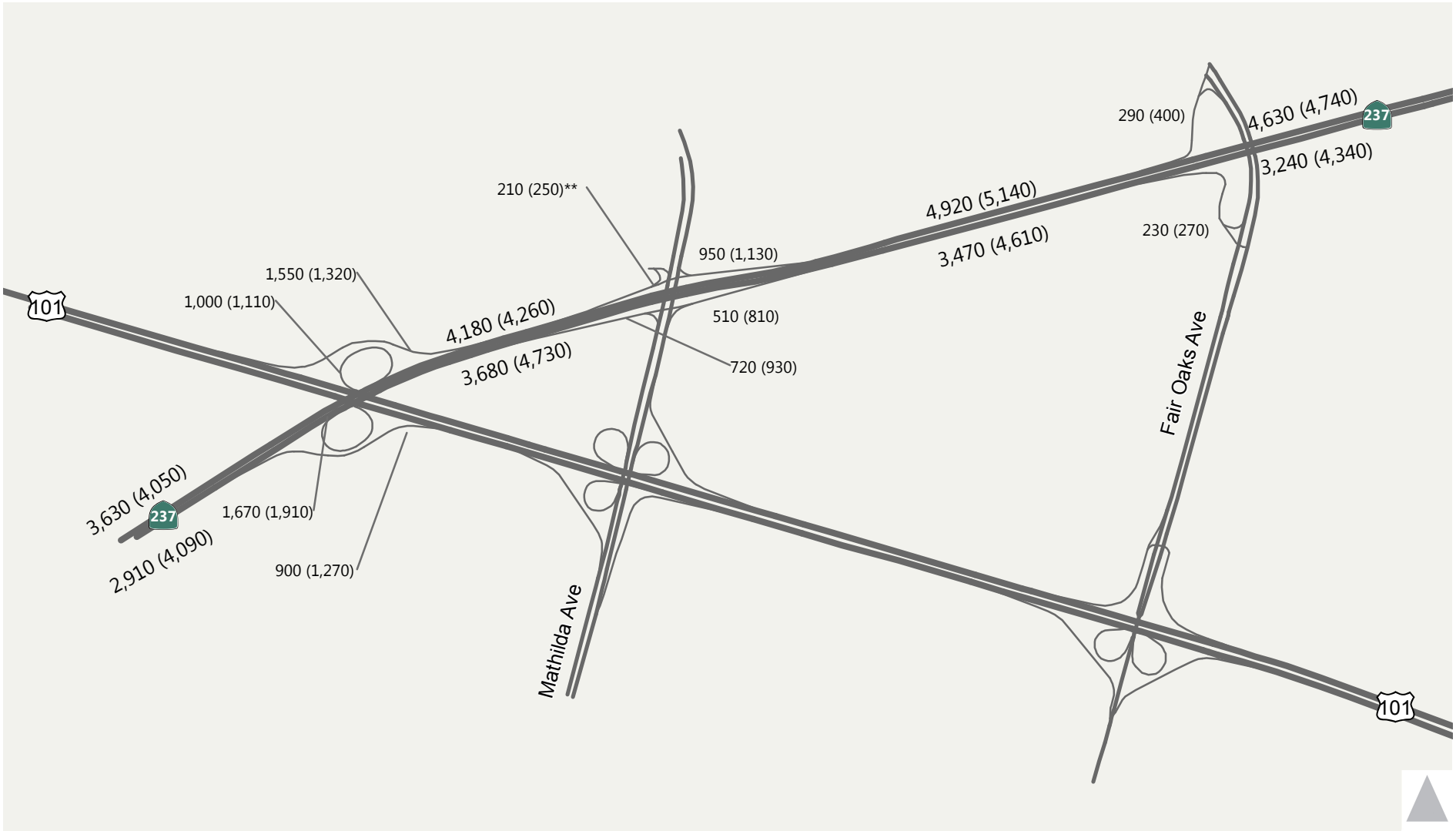
* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 13A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2020 No Build - AM Peak Period



7:00 AM Volumes (8:00 AM Volumes)

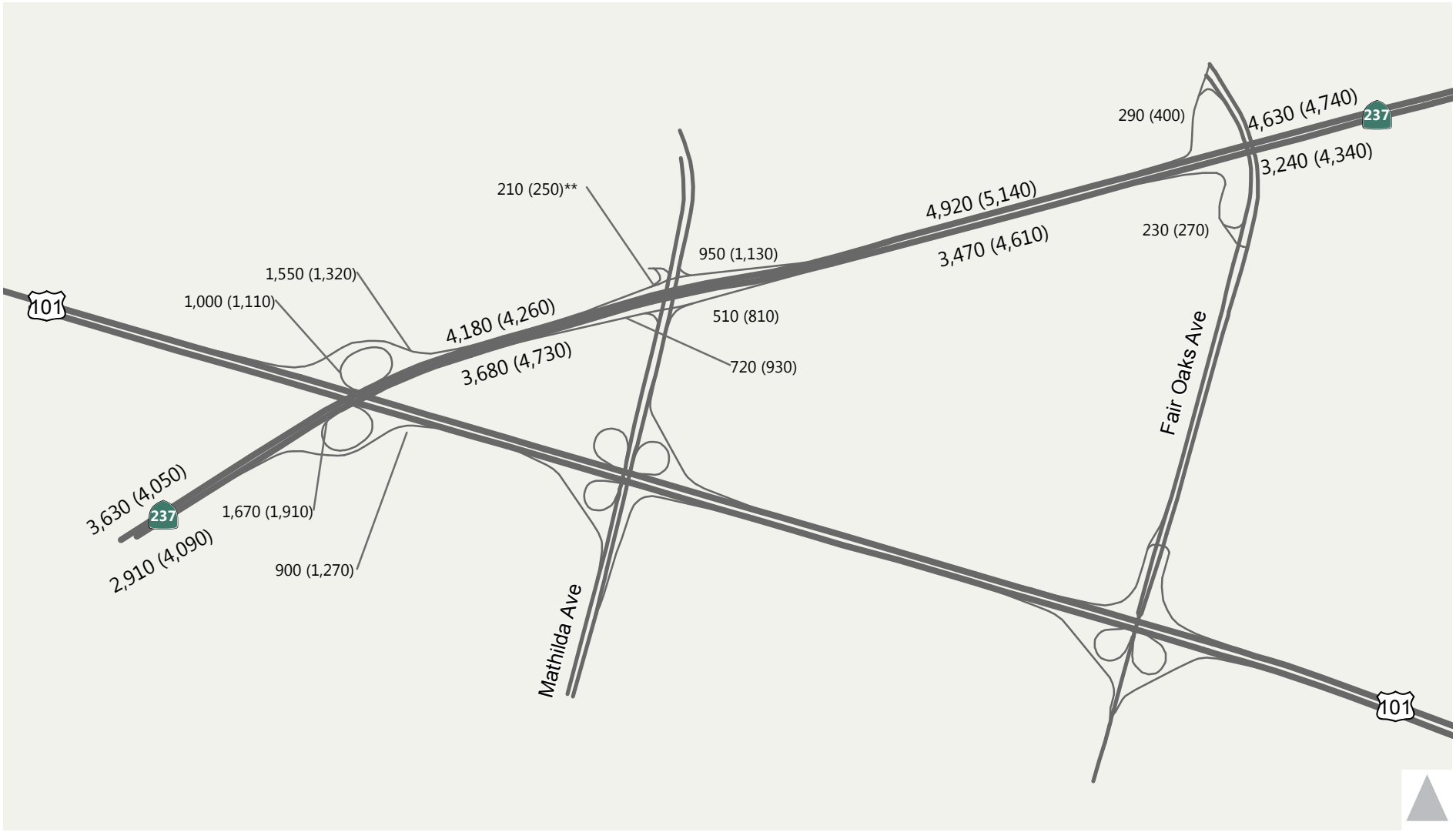
** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 13B

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - CA SR 237

2018 No Build - AM Peak Period



7:00 AM Volumes (8:00 AM Volumes)

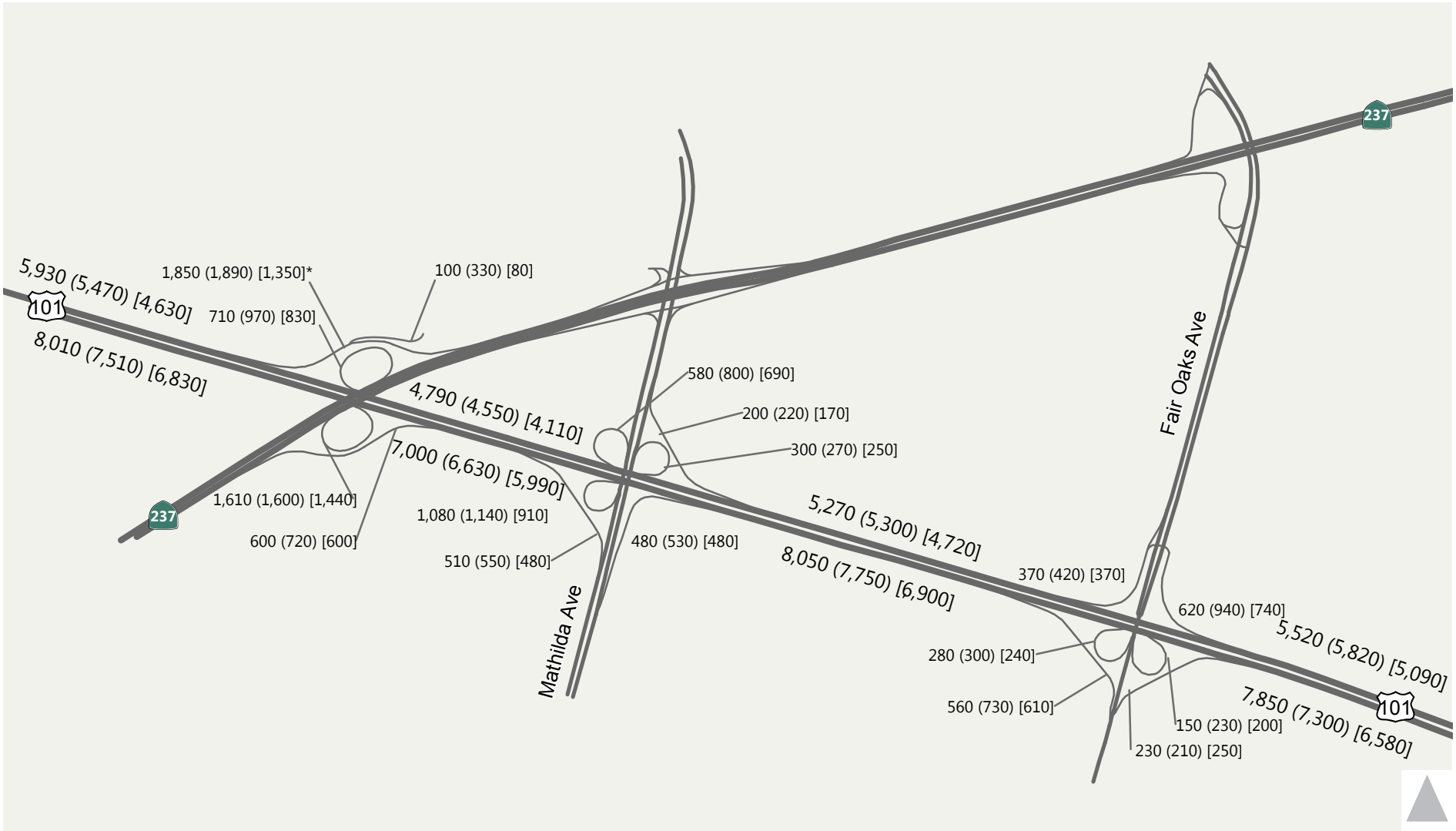
** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 13B

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - CA SR 237

2020 No Build - AM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

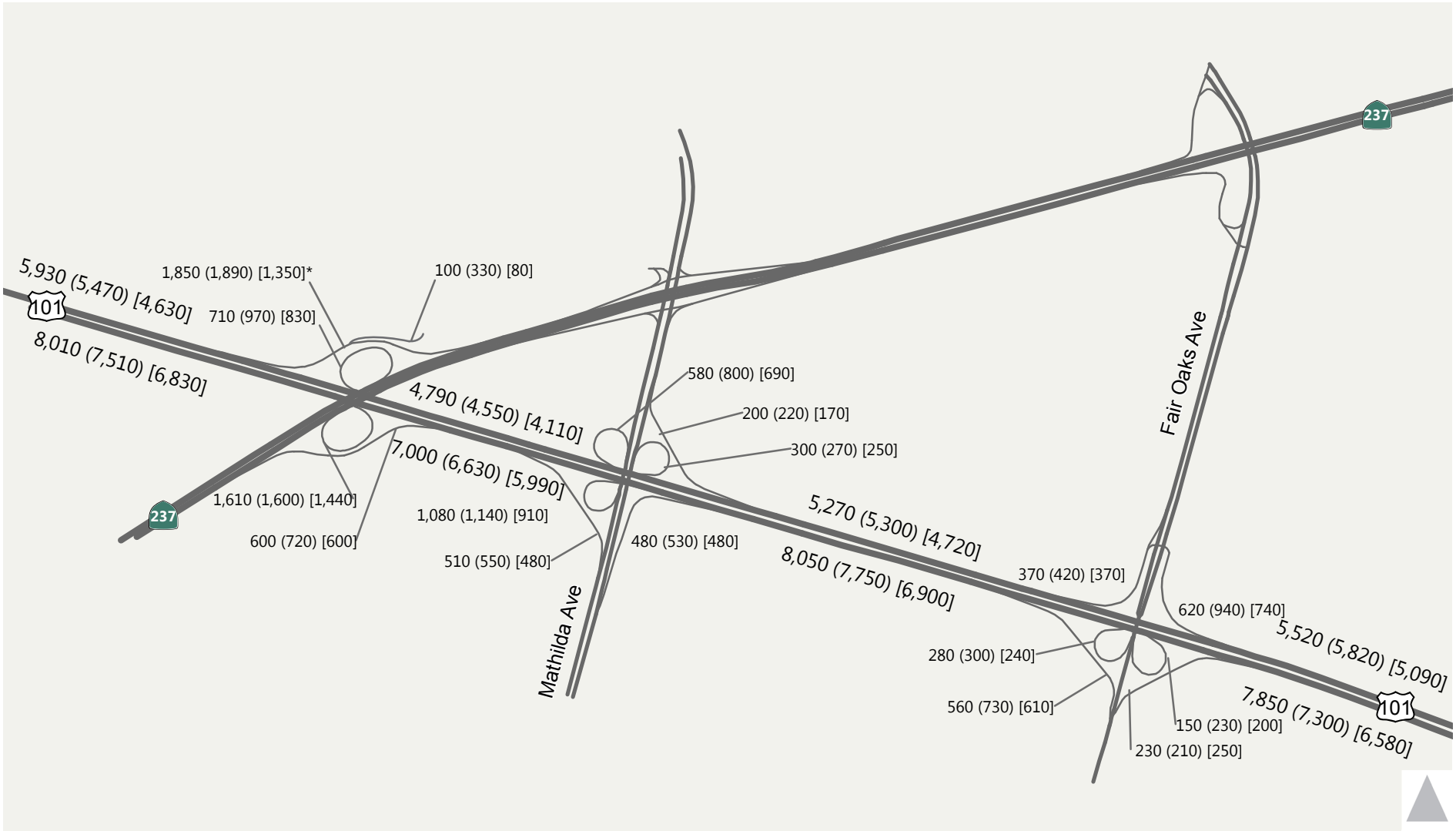
* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 14A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2018 No Build - PM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

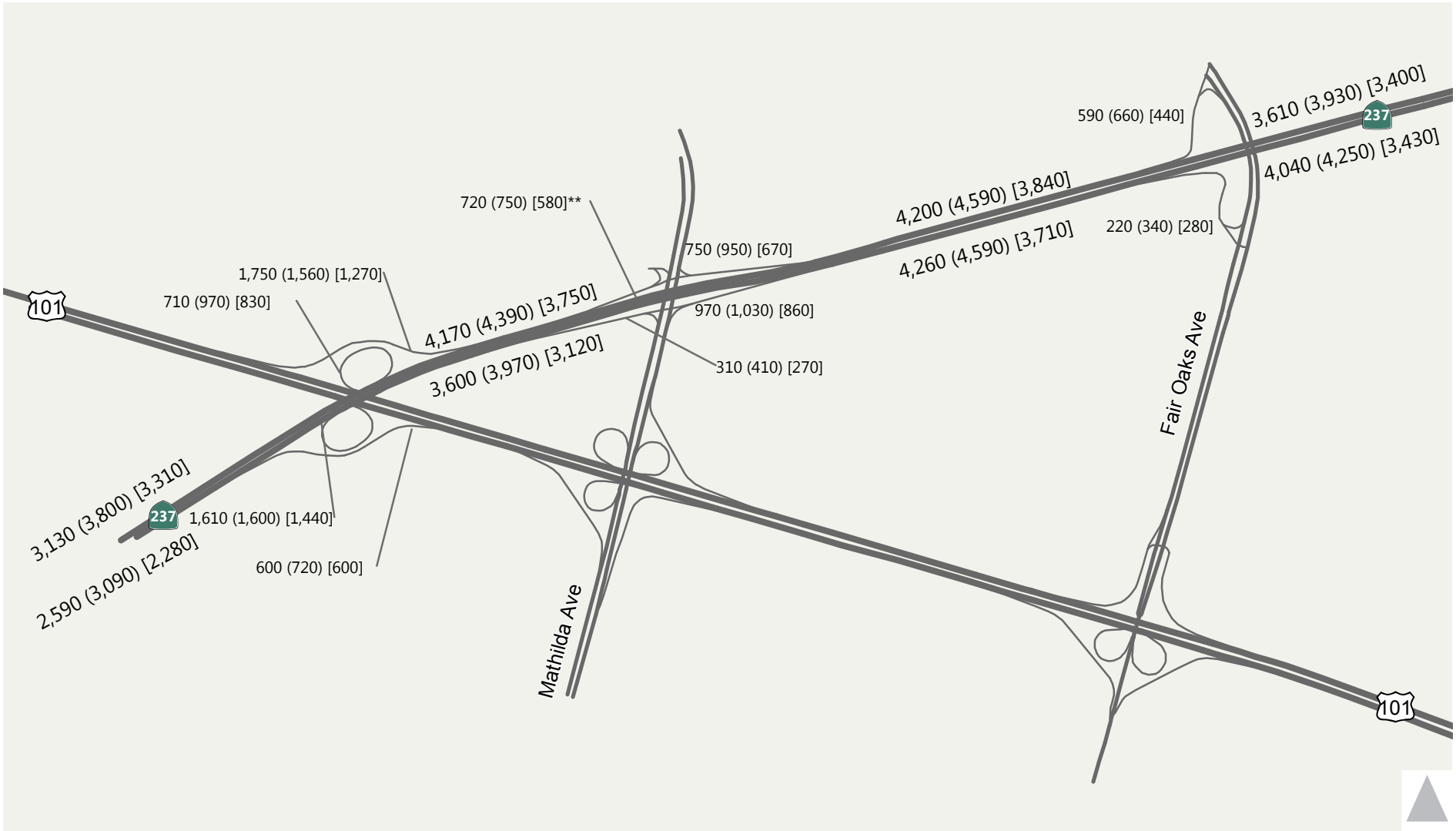
* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 14A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2020 No Build - PM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

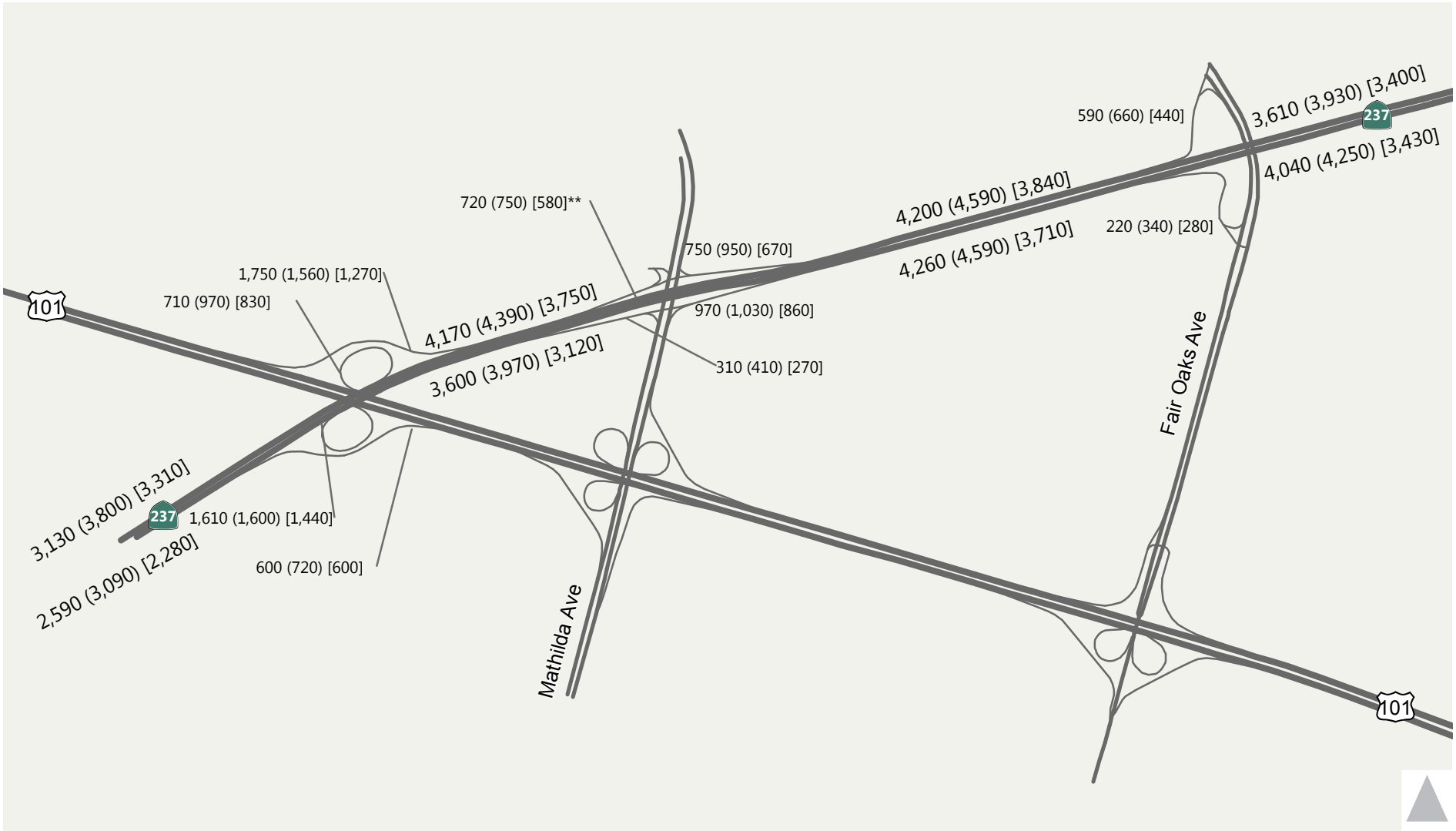
** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 14B

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - CA SR 237

2018 No Build - PM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 14B

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - CA SR 237

2018 No Build - PM Peak Period

7:00 AM Volumes (8:00 AM Volumes)

* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 15A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2018 Build- AM Peak Period

7:00 AM Volumes (8:00 AM Volumes)

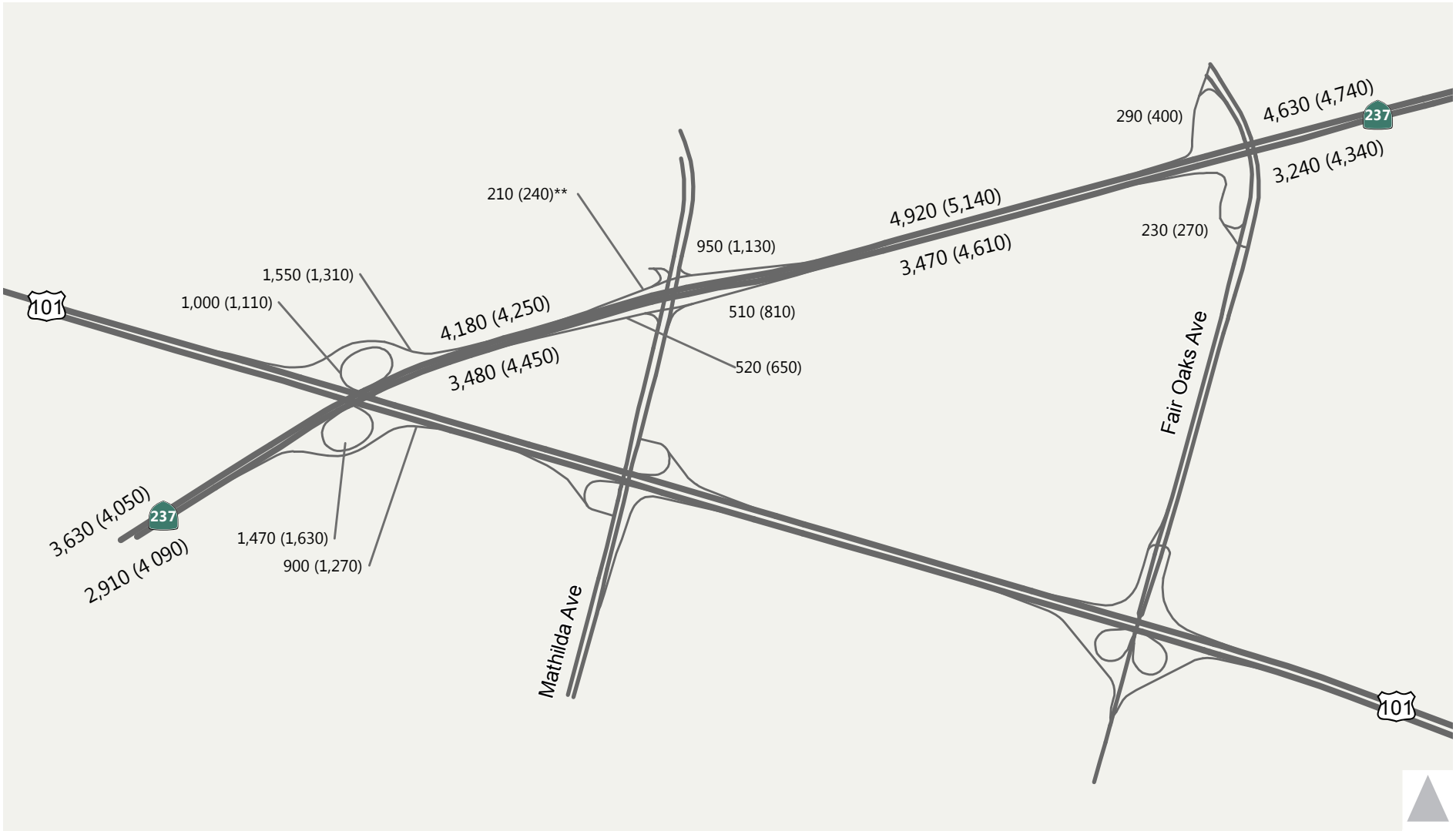
* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 15A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2020 Build- AM Peak Period



7:00 AM Volumes (8:00 AM Volumes)

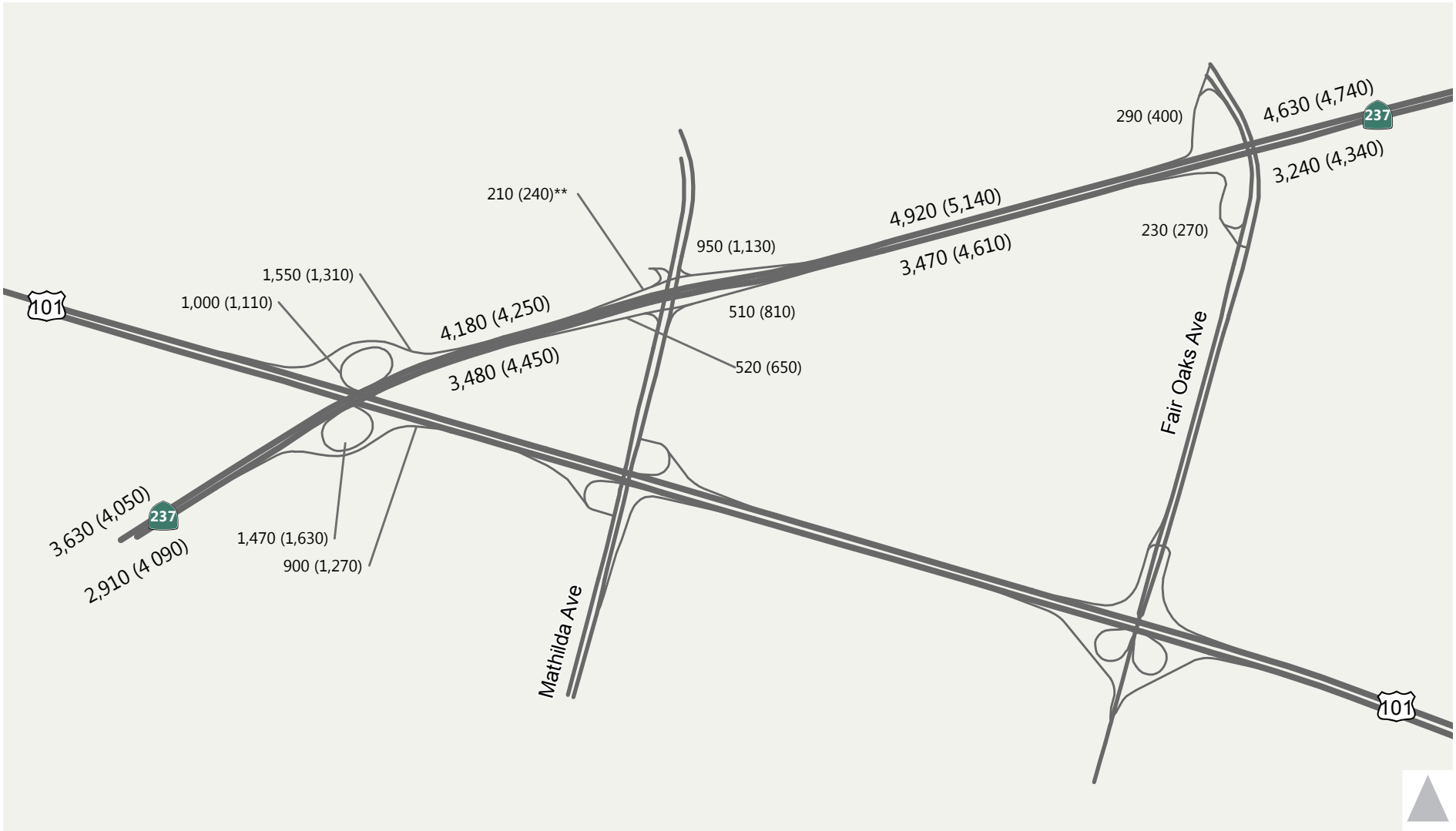
** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 15B

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - CA SR 237

2018 Build - AM Peak Period



7:00 AM Volumes (8:00 AM Volumes)

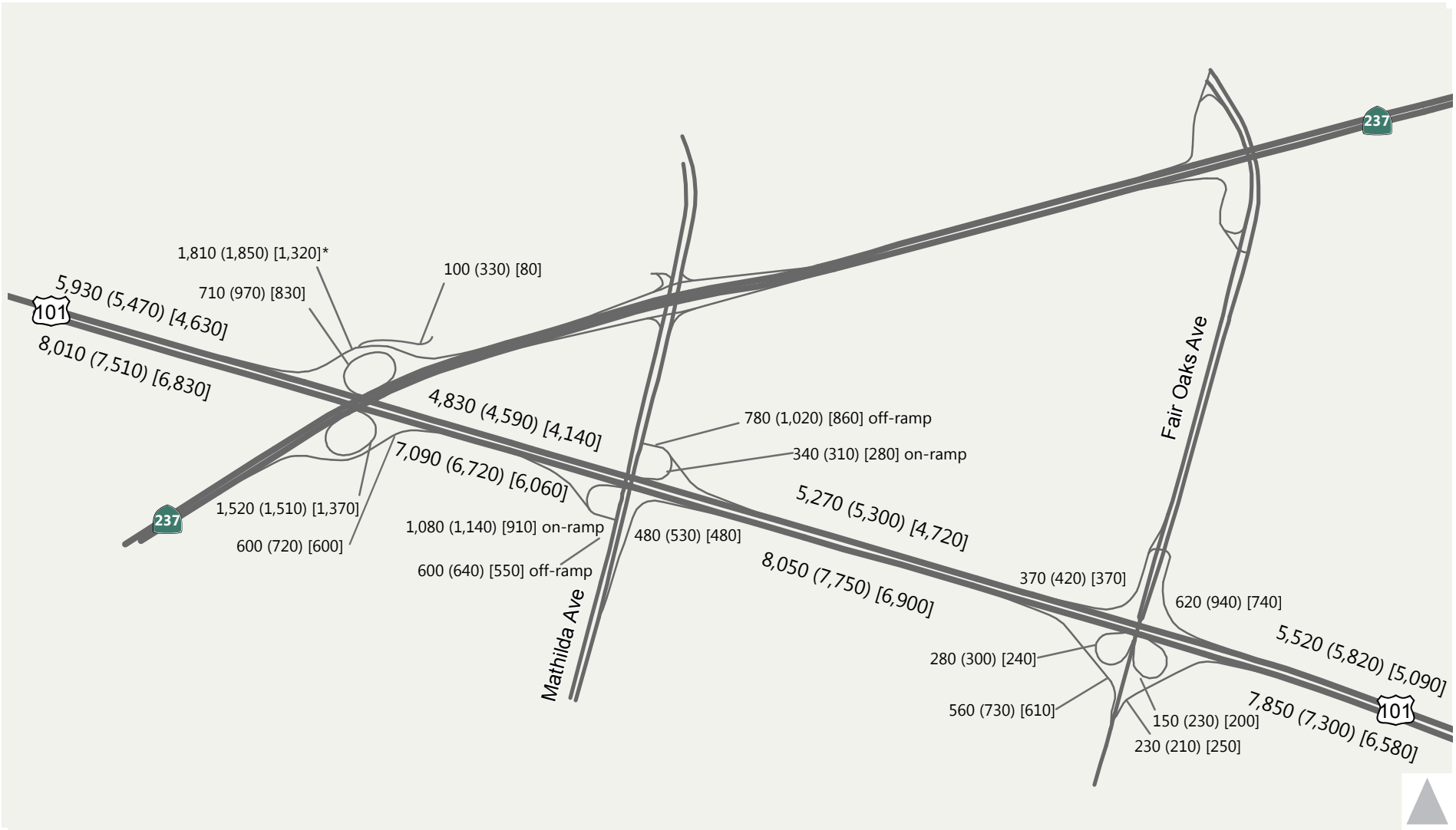
** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 15B

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - CA SR 237

2020 Build - AM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

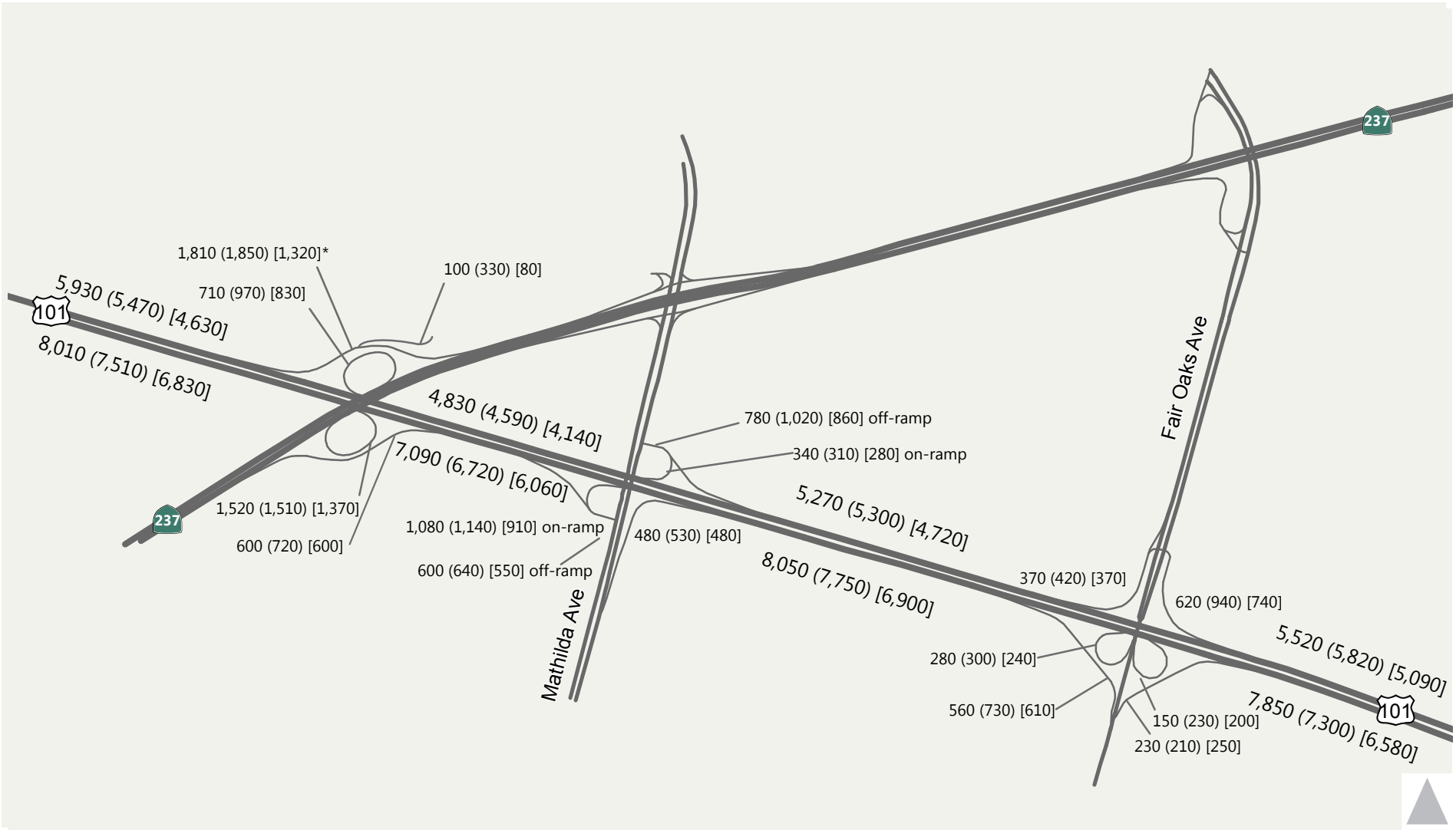
* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 16A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2018 Build - PM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 16A

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - US Route 101

2020 Build - PM Peak Period

4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 16B

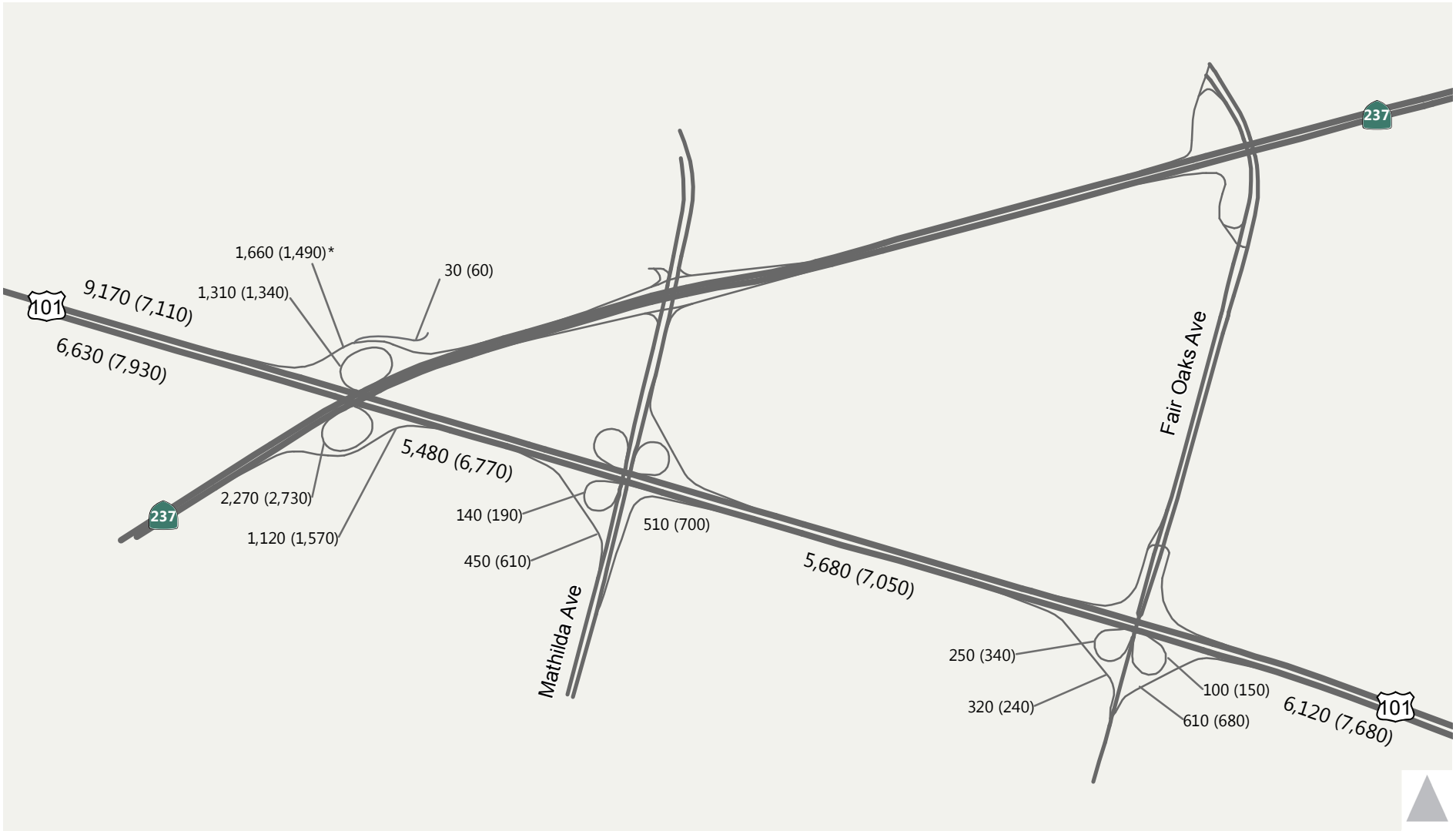
Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - CA SR 237
2018 Build - PM Peak Period

4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 16B

Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - CA SR 237
2020 Build - PM Peak Period

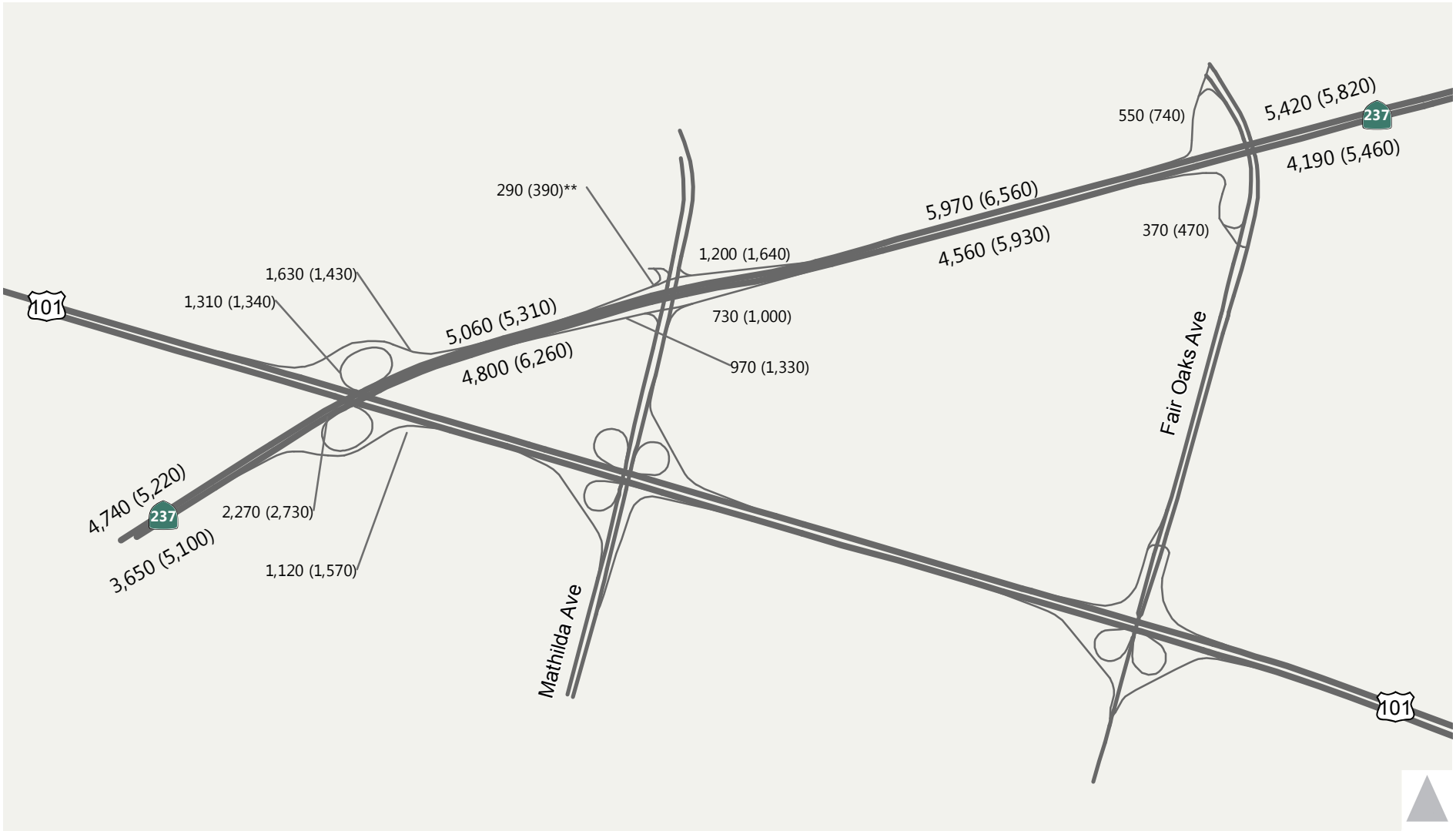


7:00 AM Volumes (8:00 AM Volumes)

* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 17A

Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - US Route 101
2040 No Build - AM Peak Period



7:00 AM Volumes (8:00 AM Volumes)

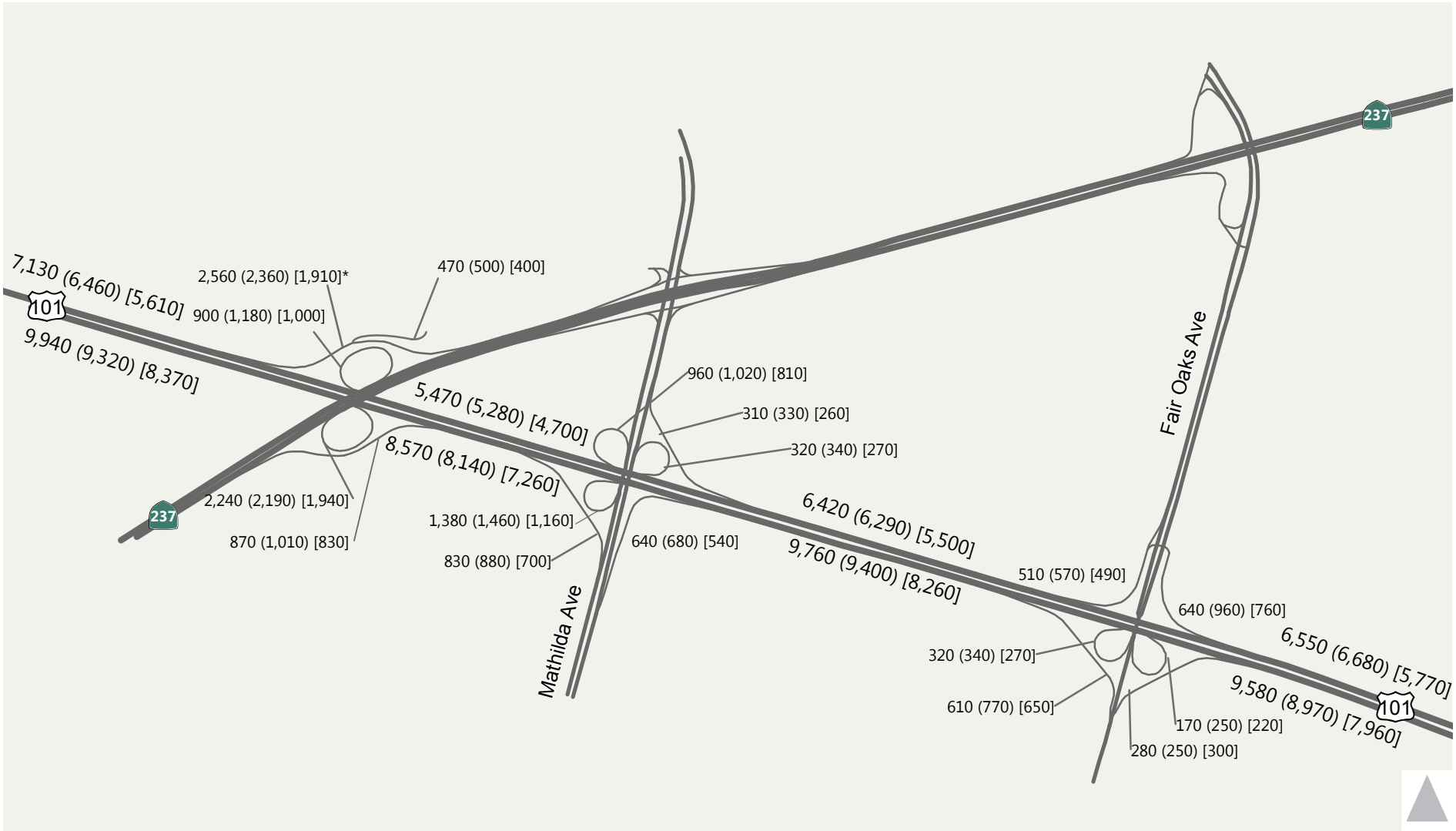
** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 17B

Mathilda Interchange Project

Freeway and Ramp Peak Hour Volumes - CA SR 237

2040 No Build - AM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 18A

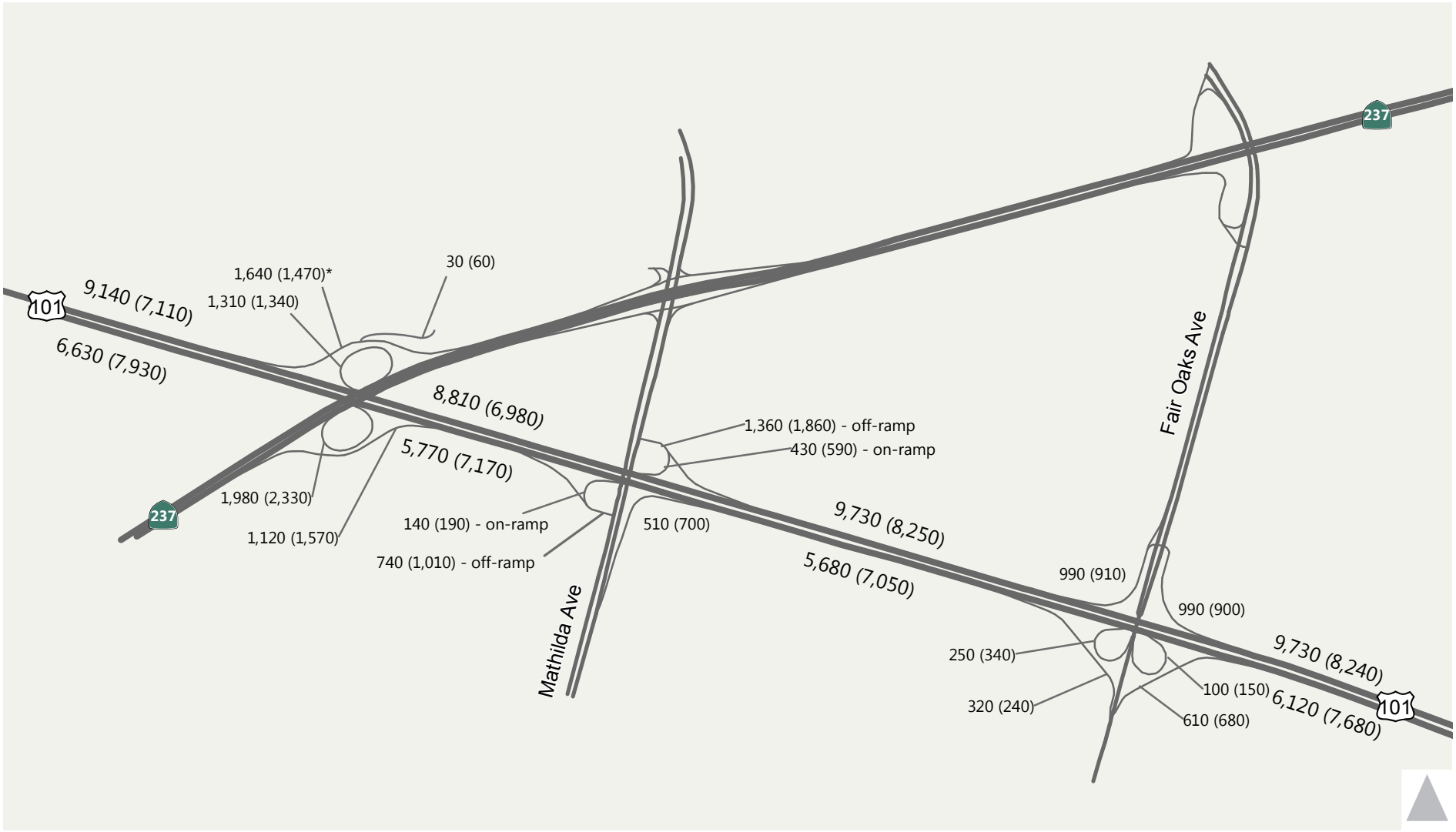
Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - US Route 101
2040 No Build - PM Peak Period

4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 18B

Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - CA SR 237
2040 No Build - PM Peak Period

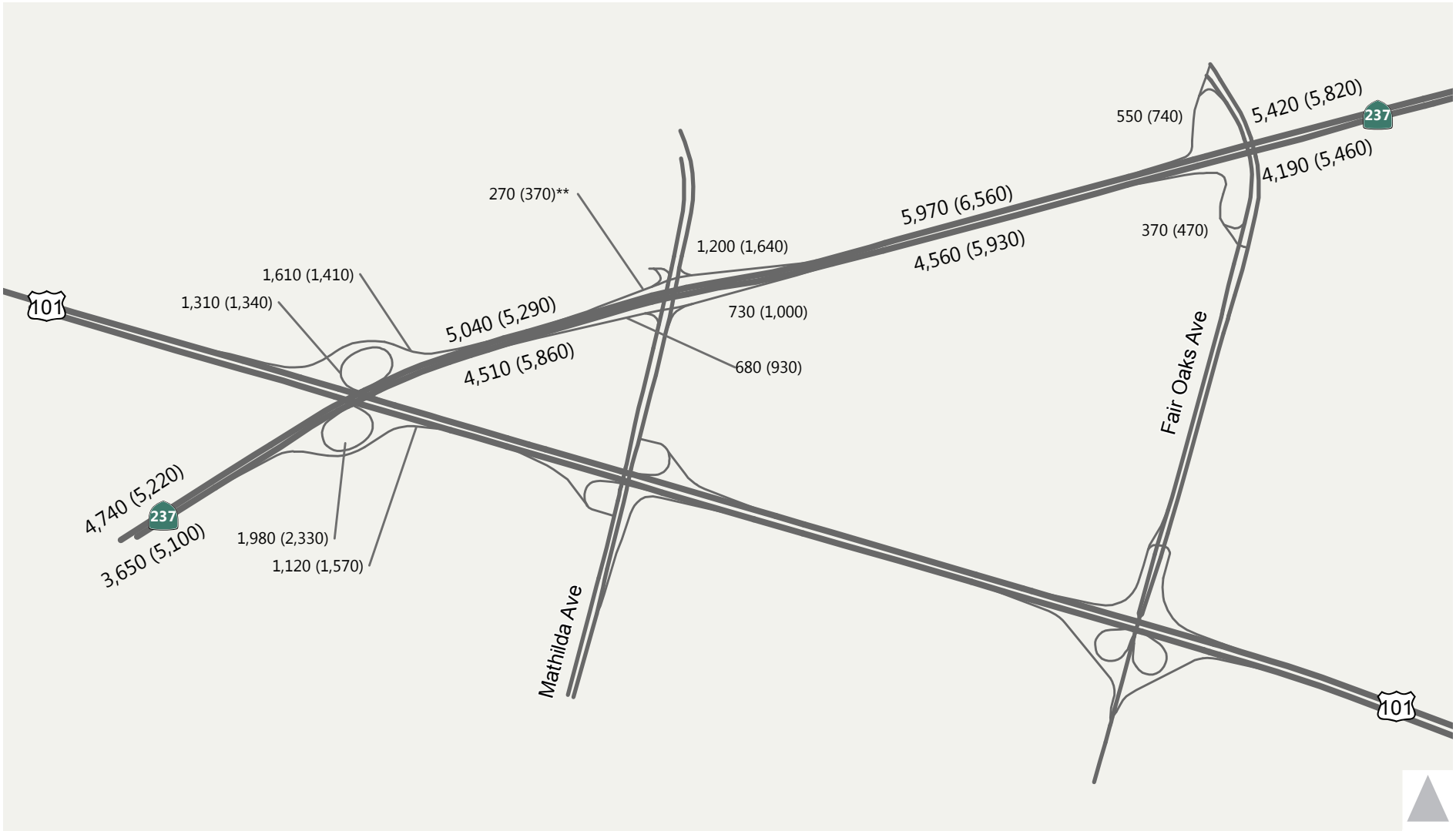


7:00 AM Volumes (8:00 AM Volumes)

* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 19A

Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - US Route 101
2040 Build- AM Peak Period

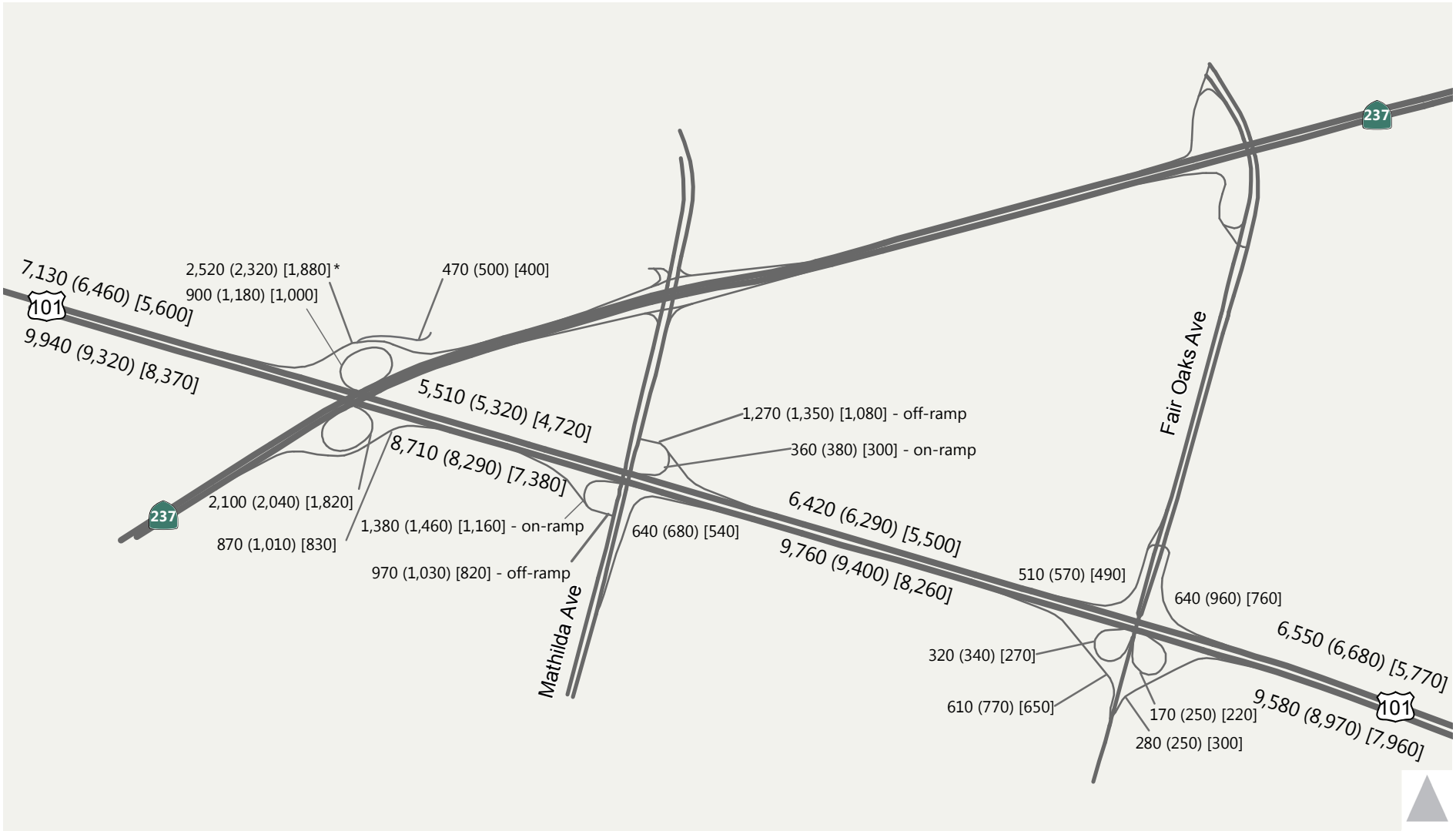


7:00 AM Volumes (8:00 AM Volumes)

** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 19B

Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - CA SR 237
2040 Build - AM Peak Period

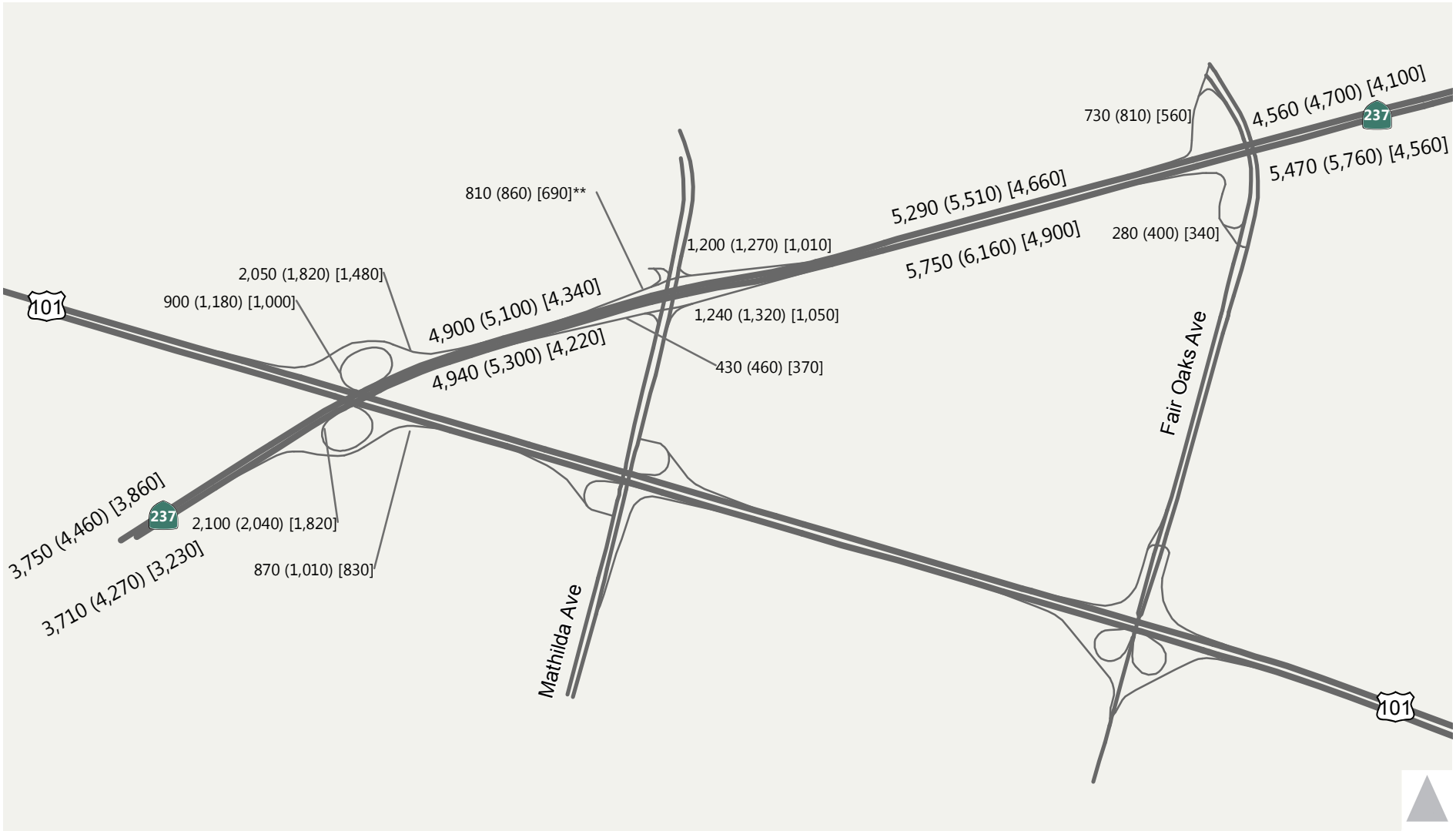


4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

* Ramp volume may differ from SR 237 ramp volume due to the slip ramp from Moffett Park Drive onto the SR 237 Off-Ramp/US 101 On-Ramp.

Figure 20A

Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - US Route 101
2040 Build - PM Peak Period



4:00 PM Volumes (5:00 PM Volumes) [6:00 PM Volumes]

** Ramp volume may not match ramp terminal intersection due to slip ramp from Moffett Park Drive.

Figure 20B

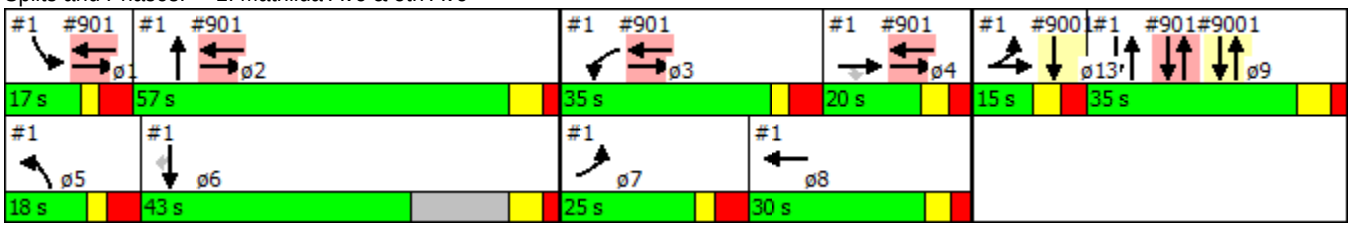
Mathilda Interchange Project
Freeway and Ramp Peak Hour Volumes - CA SR 237
2040 Build - PM Peak Period

APPENDIX L – YEAR 2018 INTERSECTION CALCULATION SHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	20	10	30	30	10	80	860	10	370	70		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	35.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		43.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		24.0%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		Min	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 84.7
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



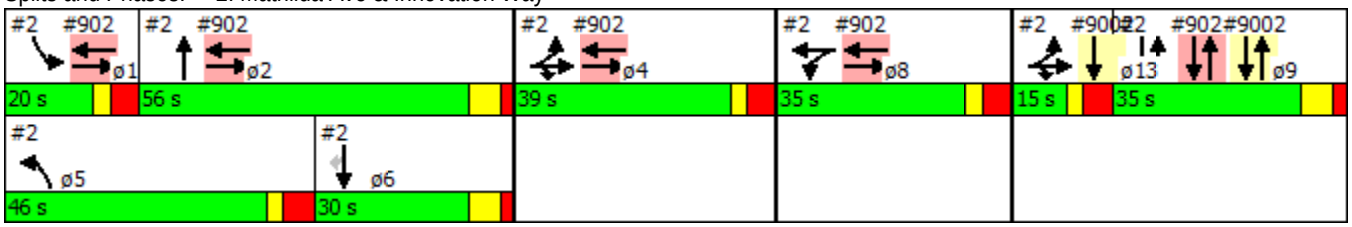
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	20	0	50	20	10	730	990	10	290	130		
Turn Type	Split	NA	Prot	Split	NA	Prot	NA	Prot	NA	custom		
Protected Phases	4 13	4 13	4 13	8	8	5	2 9	1	6 9		2	4
Permitted Phases										6		
Detector Phase	4	4	4	8	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)				10.0	10.0	13.0		10.0		12.0	12.0	14.0
Minimum Split (s)				35.0	35.0	20.0		16.8		30.0	19.0	39.0
Total Split (s)				35.0	35.0	46.0		20.0		30.0	56.0	39.0
Total Split (%)				17.5%	17.5%	23.0%		10.0%		15.0%	28%	20%
Yellow Time (s)				2.5	2.5	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)				4.5	4.5	4.5		4.3		2.3	2.3	4.5
Lost Time Adjust (s)				0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)				7.0	7.0	7.0		6.8		7.0		
Lead/Lag						Lead		Lead		Lag	Lag	
Lead-Lag Optimize?						Yes		Yes		Yes	Yes	
Recall Mode				None	None	None		None		Min	Min	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 112.3
Natural Cycle: 175
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



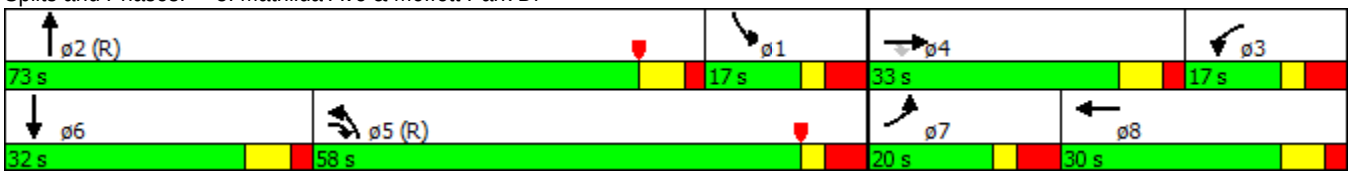
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	18%	8%
Yellow Time (s)	4.7	2.5
All-Red Time (s)	2.3	4.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	40	60	50	80	210	710	1720	10	240
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	4.0	8.0	8.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	11.0	15.0	30.0	11.0	32.9	11.0	10.9
Total Split (s)	20.0	33.0	58.0	17.0	30.0	58.0	73.0	17.0	32.0
Total Split (%)	14.3%	23.6%	41.4%	12.1%	21.4%	41.4%	52.1%	12.1%	22.9%
Yellow Time (s)	2.5	4.7	2.5	2.5	4.5	2.5	4.7	2.5	4.7
All-Red Time (s)	4.5	2.3	4.5	4.5	2.5	4.5	2.2	4.5	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	6.9
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	None	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated

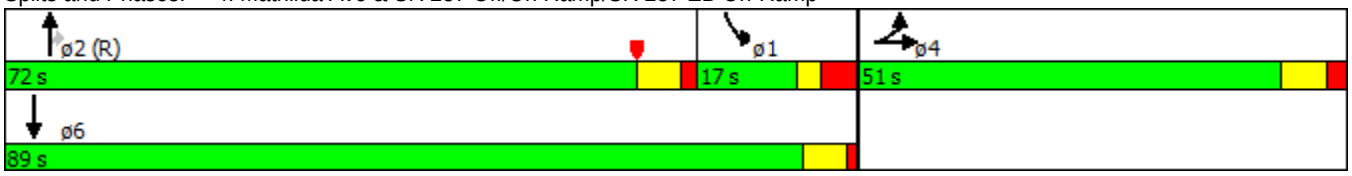
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	860	0	2110	760	50	900
Turn Type	Split	NA	NA	Perm	Prot	NA
Protected Phases	4	4	2		1	6
Permitted Phases				2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	12.0	20.7	20.7	10.4	10.7
Total Split (s)	51.0	51.0	72.0	72.0	17.0	89.0
Total Split (%)	36.4%	36.4%	51.4%	51.4%	12.1%	63.6%
Yellow Time (s)	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	1.5	1.5	3.9	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.4	5.9
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	Max	Max	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 134 (96%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

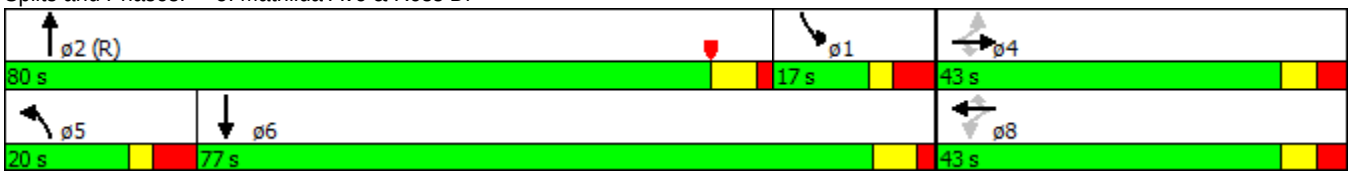
Splits and Phases: 4: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	80	60	20	110	30	250	50	2540	50	880
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	11.0	31.4	11.0	11.6
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	20.0	80.0	17.0	77.0
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%	30.7%	14.3%	57.1%	12.1%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow, Master Intersection
Natural Cycle: 85
Control Type: Actuated-Coordinated

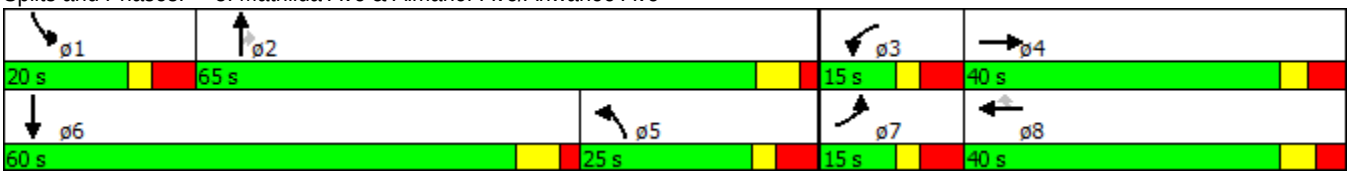
Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Volume (vph)	90	20	70	30	190	110	2650	50	160	1540
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	12.0	8.0	12.0
Minimum Split (s)	15.0	40.0	15.0	15.0	15.0	15.0	33.7	33.7	15.0	18.7
Total Split (s)	15.0	40.0	15.0	40.0	40.0	25.0	65.0	65.0	20.0	60.0
Total Split (%)	10.7%	28.6%	10.7%	28.6%	28.6%	17.9%	46.4%	46.4%	14.3%	42.9%
Yellow Time (s)	2.5	2.8	2.5	3.6	3.6	2.5	4.7	4.7	2.5	4.7
All-Red Time (s)	4.5	4.2	4.5	3.4	3.4	4.5	2.0	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	6.7	7.0	6.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 116
Natural Cycle: 135
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	180	10	20	920
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	62.0	62.0	13.0	75.0
Total Split (%)	82.7%	82.7%	17.3%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

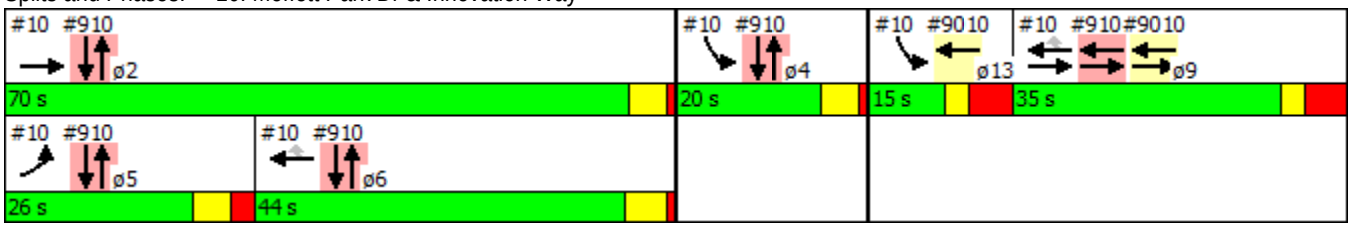
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 41
Natural Cycle: 40
Control Type: Semi Act-Uncoord

Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	WBR	SBL	ø2	ø4	ø6	ø9	ø13
Lane Configurations										
Volume (vph)	50	130	830	200	40					
Turn Type	Prot	NA	NA	Perm	Prot					
Protected Phases	5	2 9	6 9		4 13	2	4	6	9	13
Permitted Phases				6 9						
Detector Phase	5	2	6	6 9	4					
Switch Phase										
Minimum Initial (s)	8.0					10.0	10.0	10.0	28.0	8.0
Minimum Split (s)	14.5					14.9	15.0	15.5	35.0	15.0
Total Split (s)	26.0					70.0	20.0	44.0	35.0	15.0
Total Split (%)	18.6%					50%	14%	31%	25%	11%
Yellow Time (s)	4.0					3.9	4.0	4.5	2.5	2.5
All-Red Time (s)	2.5					1.0	1.0	1.0	4.5	4.5
Lost Time Adjust (s)	0.0									
Total Lost Time (s)	6.5									
Lead/Lag	Lead							Lag	Lag	Lead
Lead-Lag Optimize?	Yes							Yes	Yes	Yes
Recall Mode	None					Min	None	Min	None	None

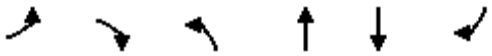
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 83.3
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way



Lane Group	EBL	EBT	EBR	NBL	NBT	SBT
Lane Configurations						
Volume (vph)	20	0	60	180	20	90
Sign Control		Stop			Stop	Stop

Intersection Summary
Control Type: Unsignalized



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	40	10	10	30	450	420
Sign Control	Stop			Stop	Stop	

Intersection Summary
Control Type: Unsignalized

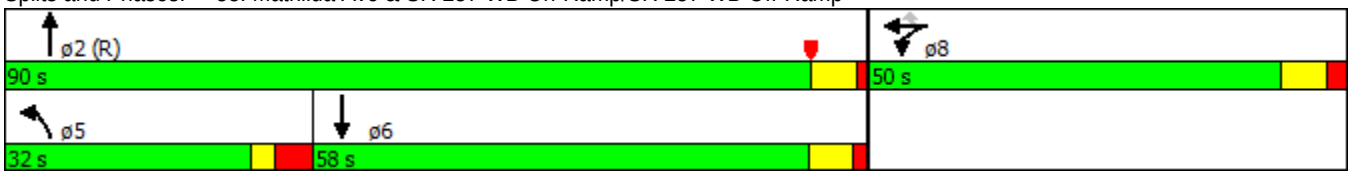
Lane Group	EBT	EBR	NBL	NBT	SBT
Lane Configurations					
Volume (vph)	0	30	10	110	50
Sign Control	Stop			Stop	Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Volume (vph)	670	0	410	140	2830	280
Turn Type	Split	NA	Perm	Prot	NA	NA
Protected Phases	8	8		5	2	6
Permitted Phases			8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	11.0	11.0	10.3	20.0	10.3
Total Split (s)	50.0	50.0	50.0	32.0	90.0	58.0
Total Split (%)	35.7%	35.7%	35.7%	22.9%	64.3%	41.4%
Yellow Time (s)	4.8	4.8	4.8	2.5	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	3.8	1.3	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.3	6.0	6.3
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	Max	Max	Max	None	C-Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 55
Control Type: Actuated-Coordinated

Splits and Phases: 33: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build AM Peak Hour**
Network Performance

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	445.9	36.5	379.6	481.4
Total Delay (hours)	1,319	113	1,112	1,446
Average Stopped Delay (seconds)	378.4	41.6	307.8	425.6
Total Stopped Delay (hours)	1120	127	902	1279
Total Stops	33,222	1,809	30,141	36,270
Average Stops	3.12	0.17	2.84	3.39
Total Distance Traveled (miles)	34,108	616	33,096	34,918
Average Speed (mph)	15.9	1.1	15.0	18.0
Total Travel Time (hours)	2,182.4	105.0	2,006.4	2,314.5
Vehicles Entered	8,945	65	8,866	9,080
Vehicles Exited	7,961	226	7,626	8,265
Percent Demand Served	89.0%	2.7%	85.6%	93.2%
Fuel Used (gallons)	1,152	17	1,128	1,179
HC Emissions (grams)	14,310	599	13,391	15,052
CO Emissions (grams)	422,519	11,819	406,443	437,804
NOx Emissions (grams)	52,287	1,560	50,273	54,184

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build AM Peak Hour**
Volume and Delay by Movement

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	66	82.3%	36.2	4.4	D
	Through	860	686	79.8%	13.5	2.3	B
	Right Turn	70	58	83.3%	12.5	3.1	B
	Subtotal	1,010	810	80.2%	15.3	2.2	B
SB	Left Turn	10	9	91.0%	53.0	7.0	D
	Through	370	374	101.1%	20.9	2.1	C
	Right Turn	70	71	101.4%	9.6	1.2	A
	Subtotal	450	454	100.9%	19.8	2.1	B
EB	Left Turn	20	18	91.5%	29.2	4.3	C
	Through	10	10	104.0%	26.6	6.1	C
	Right Turn	30	32	105.3%	5.6	1.5	A
	Subtotal	60	60	100.5%	16.4	3.2	B
WB	Left Turn	30	31	104.7%	39.5	5.9	D
	Through	10	11	110.0%	33.3	9.6	C
	Right Turn	10	11	107.0%	8.9	3.3	A
	Subtotal	50	53	106.2%	32.2	6.3	C
Total		1,570	1,378	87.8%	17.4	1.8	B

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	730	577	79.0%	101.0	175.1	F
	Through	990	789	79.7%	18.8	6.5	B
	Right Turn	70	58	82.3%	14.7	2.9	B
	Subtotal	1,790	1,424	79.5%	47.0	58.6	D
SB	Left Turn	10	10	100.0%	57.8	19.2	E
	Through	290	284	98.0%	43.0	41.7	D
	Right Turn	130	126	96.8%	24.1	22.7	C
	Subtotal	430	420	97.7%	37.6	35.1	D
EB	Left Turn	20	17	86.0%	45.3	18.9	D
	Through						
	Right Turn	50	48	96.4%	50.3	25.5	D
	Subtotal	70	65	93.4%	49.0	23.7	D
WB	Left Turn	20	17	87.0%	67.7	43.3	E
	Through	10	12	120.0%	49.4	11.0	D
	Right Turn						
	Subtotal	30	29	98.0%	59.8	22.9	E
Total		2,320	1,938	83.5%	42.1	37.3	D

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build AM Peak Hour**
Volume and Delay by Movement

Intersection 3 **Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn (Moffett Park)	710	538	75.8%	35.1	15.7	D
	Left Turn (SR 237 WB On-Ramp)	140	95	68.0%	65.2	4.7	E
	Through	2,830	2,181	77.1%	39.7	26.4	D
	Right Turn (Moffett Park)	810	627	77.4%	33.3	15.4	C
	Subtotal	4,490	3,441	76.7%	38.5	21.9	D
SB	Left Turn (Moffett Park)	10	8	84.0%	125.8	136.2	F
	Through	240	225	93.9%	180.4	176.1	F
	Right Turn (Moffett Park)	110	97	88.5%	189.3	203.9	F
	Right Turn (SR 237 WB On-Ramp)	90	84	93.2%	172.8	176.0	F
	Subtotal	450	415	92.3%	179.8	179.5	F
EB (Moffett Park)	Left Turn	40	34	85.0%	98.6	109.8	F
	Through	60	59	98.8%	59.9	6.4	E
	Right Turn	50	50	99.8%	24.5	7.3	C
	Subtotal	150	143	95.9%	56.7	22.1	E
WB (Moffett Park)	Left Turn	80	79	98.6%	139.1	105.0	F
	Through	210	207	98.3%	156.4	174.6	F
	Right Turn	30	27	90.0%	153.9	212.2	F
	Subtotal	320	312	97.7%	151.8	159.7	F
WB (SR 237 WB Off-Ramp)	Left Turn	670	567	84.6%	450.6	331.5	F
	Through						F
	Right Turn	410	349	85.1%	545.8	348.0	F
	Subtotal	1,080	916	84.8%	486.9	339.8	F
Total		6,490	5,227	80.5%	383.1	236.7	F

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,110	1,465	69.4%	75.2	45.3	E
	Right Turn	760	528	69.5%	8.1	9.5	A
	Subtotal	2,870	1,993	69.4%	57.8	36.9	E
SB	Left Turn	50	46	91.0%	67.7	12.0	E
	Through	900	785	87.2%	16.8	1.7	B
	Right Turn						
	Subtotal	950	830	87.4%	19.5	1.7	B
EB	Left Turn	860	818	95.1%	323.8	215.5	F
	Through						
	Right Turn	70	67	95.0%	354.5	192.9	F
	Subtotal	930	885	95.1%	326.2	213.7	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,750	3,708	78.1%	116.3	80.9	F

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	35	69.2%	70.5	12.2	E
	Through	2,540	1,706	67.2%	433.1	305.3	F
	Right Turn	100	64	63.5%	125.8	84.0	F
	Subtotal	2,690	1,804	67.1%	416.1	294.3	F
SB	Left Turn	50	42	84.4%	66.6	9.0	E
	Through	880	771	87.6%	22.9	2.0	C
	Right Turn	40	34	85.3%	18.1	4.4	B
	Subtotal	970	848	87.4%	24.8	2.3	C
EB	Left Turn	80	72	90.5%	231.8	362.3	F
	Through	60	59	97.5%	198.1	370.4	F
	Right Turn	20	19	96.5%	157.7	327.0	F
	Subtotal	160	150	93.9%	209.0	361.2	F
WB	Left Turn	110	96	87.3%	354.9	232.5	F
	Through	30	26	85.3%	371.2	338.8	F
	Right Turn	250	217	86.8%	349.4	250.6	F
	Subtotal	390	339	86.8%	352.0	249.4	F
Total		4,210	3,141	74.6%	285.7	191.3	F

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	79	71.7%	699.7	334.2	F
	Through	2,650	1,906	71.9%	741.6	363.6	F
	Right Turn	50	31	62.8%	815.4	413.6	F
	Subtotal	2,810	2,016	71.8%	741.1	363.1	F
SB	Left Turn	160	145	90.6%	174.7	88.7	F
	Through	1,540	1,458	94.6%	55.1	27.4	E
	Right Turn	300	289	96.4%	34.2	9.1	C
	Subtotal	2,000	1,892	94.6%	61.4	29.5	E
EB	Left Turn	90	80	89.0%	293.7	506.1	F
	Through	20	19	97.0%	167.9	326.7	F
	Right Turn	30	31	103.3%	120.3	278.6	F
	Subtotal	140	131	93.2%	227.6	402.9	F
WB	Left Turn	70	68	97.3%	146.5	126.0	F
	Through	30	26	85.7%	178.1	273.2	F
	Right Turn	190	182	95.8%	142.3	230.2	F
	Subtotal	290	276	95.1%	147.1	207.5	F
Total		5,240	4,314	82.3%	365.2	117.5	F

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	180	181	100.6%	2.1	0.3	A
	Right Turn	10	11	108.0%	1.5	0.6	A
	Subtotal	190	192	100.9%	2.0	0.3	A
WB	Left Turn	20	14	72.0%	7.8	0.7	A
	Through	920	775	84.2%	4.3	0.4	A
	Right Turn						
	Subtotal	940	789	84.0%	4.4	0.4	A
Total		1,130	981	86.8%	3.9	0.4	A

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build AM Peak Hour**
Volume and Delay by Movement

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	40	34	84.0%	31.6	6.2	C
	Through						
	Right Turn	110	101	92.0%	29.7	3.2	C
	Subtotal	150	135	89.9%	30.1	3.8	C
EB	Left Turn	50	52	103.0%	30.8	5.0	C
	Through	130	129	99.2%	4.1	0.7	A
	Right Turn						
	Subtotal	180	181	100.3%	11.7	1.9	B
WB	Left Turn						
	Through	830	690	83.1%	12.6	2.1	B
	Right Turn	200	161	80.3%	7.7	1.9	A
	Subtotal	1,030	851	82.6%	11.7	2.1	B
Total		1,360	1,166	85.7%	13.7	0.9	B

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	180	157	87.2%	11.0	0.8	B
	Through	20	18	90.0%	13.1	0.9	B
	Right Turn	40	35	87.3%	7.9	0.6	A
	Subtotal	240	210	87.5%	10.7	0.8	B
SB	Left Turn	10	7	67.0%	6.7	0.5	A
	Through	90	78	86.4%	13.6	0.6	B
	Right Turn	360	291	80.7%	10.5	1.0	B
	Subtotal	460	375	81.5%	11.1	0.9	B
EB	Left Turn	20	22	107.5%	10.0	1.9	A
	Through						
	Right Turn	60	57	94.3%	6.9	1.3	A
	Subtotal	80	78	97.6%	7.8	1.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		780	663	85.0%	10.5	0.8	B

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build AM Peak Hour**
Volume and Delay by Movement

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	11	109.0%	6.3	0.7	A
	Through	30	29	96.7%	8.1	0.3	A
	Right Turn						
	Subtotal	40	40	99.8%	7.6	0.3	A
SB	Left Turn						
	Through	450	366	81.2%	17.9	1.8	C
	Right Turn	420	346	82.5%	11.4	1.2	B
	Subtotal	870	712	81.8%	14.8	1.6	B
EB	Left Turn	40	38	95.5%	8.8	1.8	A
	Through						
	Right Turn	10	10	100.0%	6.2	2.8	A
	Subtotal	50	48	96.4%	8.4	1.7	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		960	800	83.3%	14.0	1.6	B

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	8	84.0%	4.5	0.4	A
	Through	110	275	249.5%	2.4	0.2	A
	Right Turn						
	Subtotal	120	283	235.8%	2.5	0.2	A
SB	Left Turn						
	Through	50	54	108.6%	6.5	0.5	A
	Right Turn	10	11	109.0%	4.2	0.6	A
	Subtotal	60	65	108.7%	6.1	0.5	A
EB	Left Turn	20	15	75.5%	4.6	0.1	A
	Through						
	Right Turn	30	27	90.3%	3.2	0.3	A
	Subtotal	50	42	84.4%	3.7	0.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		230	390	169.7%	3.2	0.3	A

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	25	3	50	5	50	6	0%	0%
	Through	625	25	5	50	9	75	9	0%	0%
	Right Turn	625	25	2	25	5	50	7	0%	0%
NB	Left Turn	425	50	9	100	11	100	24	0%	0%
	Through	1,125	75	22	175	39	225	36	0%	0%
	Through/Right	1,125	100	27	225	40	275	35	0%	0%
SB	Left Turn	250	25	4	50	7	50	11	0%	0%
	Through	1,325	75	9	125	15	150	34	0%	0%
	Right Turn	250	25	2	25	11	50	24	0%	0%
WB	Left Turn	925	50	5	75	10	100	28	5%	0%
	Through/Right	75	25	5	75	8	75	8	2%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	25	2	25	4	50	8	0%	4%
	Through/Right	225	25	2	50	4	50	15	0%	22%
	Right Turn	225	25	5	50	9	50	20	0%	7%
NB	Left Turn	400	225	59	375	107	400	67	7%	0%
	Through	975	150	172	325	389	325	261	0%	6%
	Through/Right	975	200	155	375	333	375	227	0%	5%
SB	Left Turn	75	25	3	25	8	50	41	0%	0%
	Through	975	75	42	175	142	275	261	10%	0%
	Right Turn	225	75	10	125	27	150	49	0%	0%
WB	Left Turn	425	25	3	25	8	50	19	0%	0%
	Shared	225	25	2	25	9	50	16	0%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft)		95th Queue (ft)		Maximum Queue (ft)		Block Time	
			Average	Std. Dev.	Average	Std. Dev.	Average	Std. Dev.	Pocket	Upstream
EB (Moffett Park)	Left Turn	525	25	14	75	36	100	32	0%	3%
	Through/Right	1,125	50	6	125	15	150	24	0%	2%
	Right Turn	1,125	50	6	100	14	125	22	0%	0%
NB	Left Turn (Moffett Park)	125	25	5	50	6	50	11	0%	15%
	Through	300	225	40	325	29	350	35	0%	55%
	Through/Right (Moffett Park)	300	275	35	350	20	350	26	0%	68%
	Left Turn (SR 237 WB On-Ramp)	175	100	21	175	25	200	24	0%	4%
SB	Left Turn (Moffett Park)	175	25	3	50	6	50	5	0%	0%
	Through	1,100	225	150	500	406	550	391	3%	12%
	Through/Right (Moffett Park)	975	275	139	500	337	550	299	0%	4%
	Through/Right (SR 237 WB On-Ramp)	1,100	225	151	500	407	575	396	3%	9%
WB (Moffett Park)	Left Turn	300	100	91	250	162	300	154	0%	0%
	Through/Right	675	250	67	400	129	425	100	10%	4%
WB (SR 237 WB Off-Ramp)	Left Turn	1,075	1,100	159	1,300	123	1,200	12	12%	47%
	Left/Through	325	425	23	475	35	450	0	18%	0%
	Right Turn	325	375	8	400	12	375	0	69%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	1,375	791	2,900	1,378	3,225	1,541	55%	0%
	Shared	1,025	475	63	650	36	575	0	52%	0%
NB	Through	275	250	20	325	30	325	48	0%	41%
	Right Turn	275	175	46	375	31	325	18	0%	22%
SB	Left Turn	175	50	9	100	15	125	23	0%	0%
	Through	175	125	19	225	23	200	13	0%	4%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	250	271	500	501	575	397	74%	0%
	Through	1,575	75	15	125	11	100	0	34%	0%
	Right Turn	50	25	7	75	13	75	6	2%	0%
NB	Left Turn	150	50	9	100	16	125	43	0%	0%
	Through	2,800	1,100	102	1,100	96	1,100	46	1%	46%
	Through/Right	450	550	2	550	6	575	0	0%	87%
SB	Left Turn	225	50	16	150	41	200	52	1%	0%
	Through	225	150	26	275	31	275	9	13%	3%
	Through/Right	225	150	27	275	25	275	13	0%	4%
WB	Left Turn	100	1,175	760	2,275	1,706	2,400	1,964	28%	0%
	Through	225	100	3	125	13	100	0	10%	0%
	Right Turn	100	75	2	100	7	100	0	70%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	125	72	250	136	300	111	26%	10%
	Through/Right	125	50	12	125	34	200	51	0%	0%
NB	Left Turn	425	125	38	350	68	375	0	0%	0%
	Through	750	5,350	38	8,325	75	9,150	15	70%	0%
	Right Turn	75	25	8	75	17	100	3	0%	0%
SB	Left Turn	125	150	15	200	12	175	0	57%	0%
	Through	2,225	650	117	725	128	800	100	15%	0%
	Through/Right	2,225	325	36	475	49	500	38	0%	0%
WB	Left Turn	250	100	36	225	92	275	104	2%	0%
	Through	1,025	225	170	600	357	700	309	3%	0%
	Right Turn	75	100	6	150	6	125	0	46%	0%

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	25	4	50	14	75	26	0%	0%
	Right Turn	150	25	0	25	5	25	14	0%	0%
WB	Left Turn	850	25	2	50	4	50	11	0%	0%
	Through	850	25	30	100	184	200	386	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	225	50	4	100	9	100	14	0%	0%
	Through	850	25	4	75	9	100	22	0%	0%
SB	Left Turn	575	25	3	50	6	50	10	0%	0%
	Shared	575	100	8	150	13	175	21	0%	0%
WB	Through	1,150	150	24	250	29	300	55	1%	0%
	Right Turn	1,150	50	12	125	40	225	55	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	25	4	50	7	75	20	0%	0%
	Through/Right	325	25	2	50	4	50	8	0%	0%
	Right Turn	325	50	3	75	9	75	22	0%	0%
NB	Left Turn	125	25	5	50	6	75	8	0%	0%
	Left/Through	575	50	2	50	6	75	7	0%	0%
	Through/Right	575	25	1	50	4	50	14	0%	0%
SB	Left/Through	1,000	25	4	50	4	50	8	0%	0%
	Through/Right	1,000	75	14	125	21	150	23	0%	0%
WB	Left Turn	325	25	0	25	0	25	0	0%	0%
	Through/Right	325	25	0	25	0	25	0	0%	0%

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	50	2	75	5	75	11	0%	0%
	Right Turn	200	25	2	50	4	50	0	0%	0%
NB	Left Turn	125	25	3	50	5	50	7	0%	0%
	Through	1,000	25	3	50	7	75	18	0%	0%
SB	Through/Right	300	225	34	250	32	275	27	0%	2%
	Right Turn	300	225	19	300	30	300	34	0%	0%

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	25	3	50	3	50	7	0%	0%
	Right Turn	125	25	3	50	4	50	17	0%	0%
NB	Left Turn	325	25	3	50	5	50	1	0%	0%
	Through/Right	2,025	50	5	75	8	75	14	0%	0%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	50	1	50	3	75	5	0%	0%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	124.4	135.1	0.1	4
US 101 SB Diag. On-R	702	31.8	38.4	0.1	8
US 101 SB Loop On-Ra	701	78.6	86.2	0.1	4
US 101 NB Loop On-Ra	602	70.0	75.6	0.1	3
US 101 NB Diag.Off-R	601	90.8	97.6	0.1	3
Ross Dr	5	97.0	104.5	0.1	3
SR 237 EB On-Ramp	4	64.7	70.2	0.1	3
SR 237 WB Off-Ramp	33	24.8	28.6	0.0	6
Moffett Park Dr	3	4.5	7.4	0.0	21
Innovation Way	2	17.9	34.6	0.2	22
5th Ave	1	13.7	33.0	0.2	26
	107	4.3	26.6	0.3	37
Total		622.5	737.8	1.5	7

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	13.3	35.6	0.3	28
Innovation Way	2	44.3	62.7	0.2	14
Moffett Park Dr	3	152.0	168.5	0.2	5
SR 237 WB On-Ramp	33	8.5	11.5	0.0	13
SR 237 Off/On Ramp	4	15.4	19.4	0.0	9
Ross Dr	5	23.8	28.8	0.1	8
US 101 NB Diag.Off-R	601	5.3	13.6	0.1	24
US 101 NB Loop Off-R	602	2.6	8.2	0.1	40
US 101 SB Loop On-Ra	701	2.8	8.9	0.1	27
US 101 SB Off-Ramp	702	6.8	13.5	0.1	28
Almanor Ave	8	38.8	46.9	0.1	6
San Aleso Ave	201	3.8	15.2	0.1	33
Total		317.3	432.8	1.5	12

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	5.7	7.7	0.0	11
	38	1.3	6.4	0.0	23
	11	7.3	14.4	0.1	18
	200	2.4	18.1	0.2	32
Juniper Driveway	12	6.7	12.5	0.1	16
Driveway	217	2.7	5.6	0.0	24
	902	18.8	21.6	0.0	4
Mathilda Ave	2	25.0	27.8	0.0	3
	53	0.5	15.1	0.1	23
Bordeaux Dr	13	4.2	16.4	0.1	17
Total		74.4	145.5	0.6	15

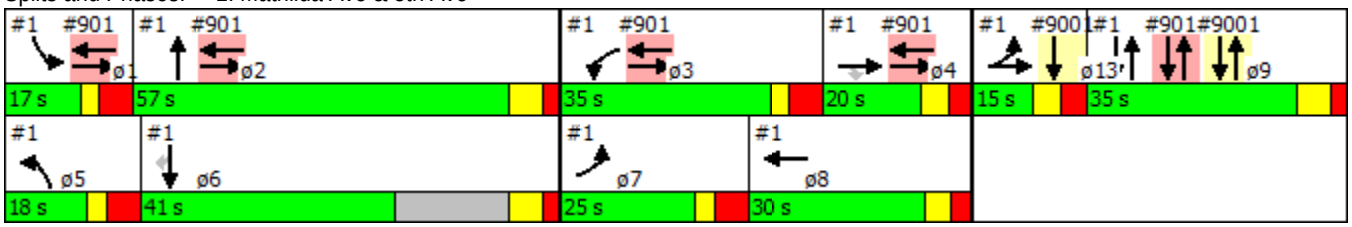
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	53	0.4	14.0	0.1	20
Mathilda Ave	2	48.8	60.8	0.1	6
	902	1.4	5.6	0.0	16
Driveway	217	1.5	3.5	0.0	23
Juniper Driveway	12	15.0	19.0	0.0	7
	200	3.0	9.5	0.1	21
11th Ave	11	10.7	26.3	0.2	22
	38	3.2	11.0	0.1	24
	910	16.3	20.7	0.0	7
Moffett Park Dr	10	13.8	17.1	0.0	5
Total		114.1	187.5	0.6	12

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	70	20	70	240	10	110	370	10	1110	10		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	35.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		41.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		22.9%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		Min	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 107.1
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



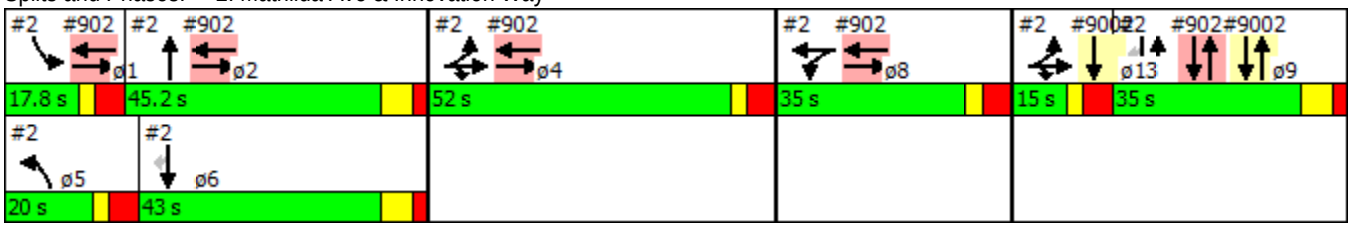
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR	ø1	ø2	ø4
Lane Configurations												
Volume (vph)	140	10	680	40	0	90	380	1370	50			
Turn Type	Split	NA	Prot	Split	NA	Prot	NA	NA	Perm			
Protected Phases	4 13	4 13	4 13	8	8	5	2 9	6 9		1	2	4
Permitted Phases									6 9			
Detector Phase	4	4	4	8	8	5	2	6	6			
Switch Phase												
Minimum Initial (s)				10.0	10.0	13.0				10.0	12.0	14.0
Minimum Split (s)				35.0	35.0	20.0				16.8	19.0	39.0
Total Split (s)				35.0	35.0	20.0				17.8	45.2	52.0
Total Split (%)				17.5%	17.5%	10.0%				9%	23%	26%
Yellow Time (s)				2.5	2.5	2.5				2.5	4.7	2.5
All-Red Time (s)				4.5	4.5	4.5				4.3	2.3	4.5
Lost Time Adjust (s)				0.0	0.0	0.0						
Total Lost Time (s)				7.0	7.0	7.0						
Lead/Lag						Lead				Lead	Lag	
Lead-Lag Optimize?						Yes				Yes	Yes	
Recall Mode				None	None	None				None	Min	Max

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 152.3
Natural Cycle: 175
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



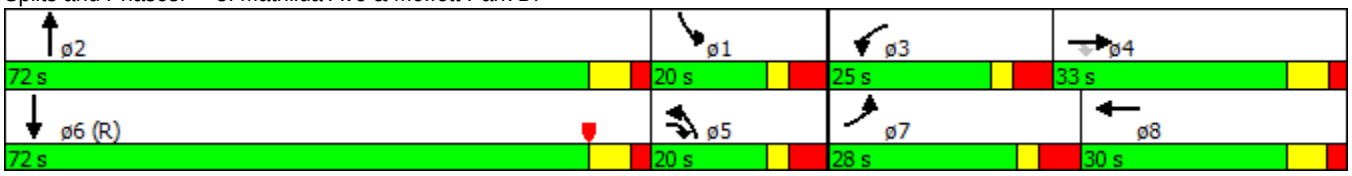
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	43.0	35.0	15.0
Total Split (%)	22%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	Min	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	70	190	450	310	260	100	420	50	1940
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	4.0	8.0	8.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	11.0	15.0	30.0	11.0	34.9	11.0	10.9
Total Split (s)	28.0	33.0	20.0	25.0	30.0	20.0	72.0	20.0	72.0
Total Split (%)	18.7%	22.0%	13.3%	16.7%	20.0%	13.3%	48.0%	13.3%	48.0%
Yellow Time (s)	2.5	4.7	2.5	2.5	4.5	2.5	4.7	2.5	4.7
All-Red Time (s)	4.5	2.3	4.5	4.5	2.5	4.5	2.2	4.5	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	Max	None	Max	Max	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 95
Control Type: Actuated-Coordinated

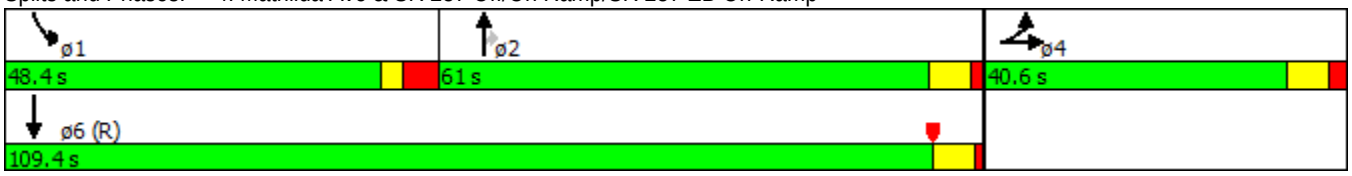
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	170	0	410	670	360	2670
Turn Type	Split	NA	NA	Perm	Prot	NA
Protected Phases	4	4	2		1	6
Permitted Phases				2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	12.0	20.7	20.7	10.4	10.7
Total Split (s)	40.6	40.6	61.0	61.0	48.4	109.4
Total Split (%)	27.1%	27.1%	40.7%	40.7%	32.3%	72.9%
Yellow Time (s)	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	1.5	1.5	3.9	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.4	5.9
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	Max	Max	None	None	Max	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 50 (33%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

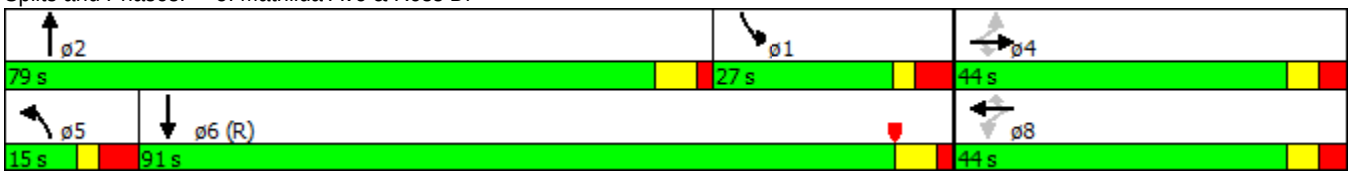
Splits and Phases: 4: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	40	150	40	230	50	100	90	940	140	2620
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	44.0	44.0	44.0	13.0	13.0	13.0	11.0	33.4	11.0	11.6
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	15.0	79.0	27.0	91.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	29.3%	29.3%	10.0%	52.7%	18.0%	60.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 35 (23%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

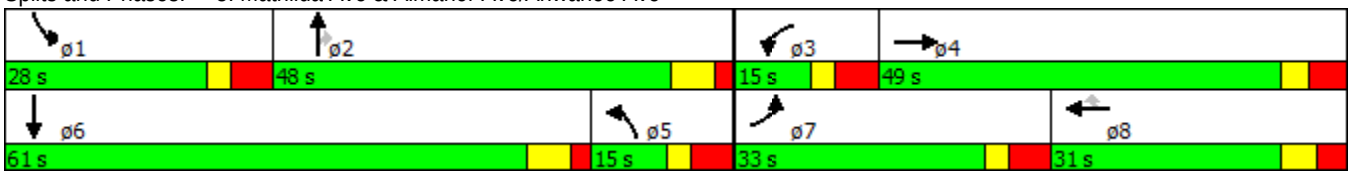
Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Volume (vph)	310	30	50	10	190	60	1380	40	180	2800
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	12.0	8.0	12.0
Minimum Split (s)	15.0	49.0	15.0	15.0	15.0	15.0	36.7	36.7	15.0	27.7
Total Split (s)	33.0	49.0	15.0	31.0	31.0	15.0	48.0	48.0	28.0	61.0
Total Split (%)	23.6%	35.0%	10.7%	22.1%	22.1%	10.7%	34.3%	34.3%	20.0%	43.6%
Yellow Time (s)	2.5	2.8	2.5	3.6	3.6	2.5	4.7	4.7	2.5	4.7
All-Red Time (s)	4.5	4.2	4.5	3.4	3.4	4.5	2.0	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	6.7	7.0	6.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 111.4
Natural Cycle: 150
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	790	90	230	320
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	52.0	52.0	23.0	75.0
Total Split (%)	69.3%	69.3%	30.7%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	Max	Min

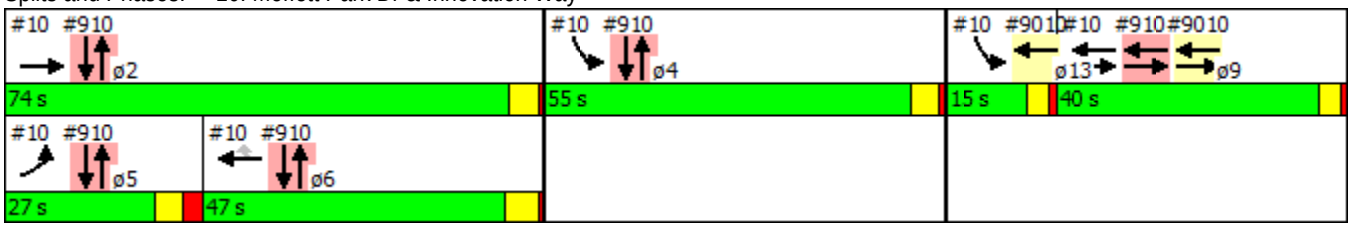
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 60.1
Natural Cycle: 50
Control Type: Semi Act-Uncoord

Splits and Phases: 9: US 101 On Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	WBR	SBL	ø2	ø4	ø9	ø13
Lane Configurations									
Volume (vph)	50	740	400	60	200				
Turn Type	Prot	NA	NA	custom	Prot				
Protected Phases	5	2 9	6 9		4 13	2	4	9	13
Permitted Phases				6					
Detector Phase	5	2	6	6	4				
Switch Phase									
Minimum Initial (s)	8.0			10.0		10.0	10.0	46.0	10.0
Minimum Split (s)	14.5			15.5		14.9	15.0	50.0	14.0
Total Split (s)	27.0			47.0		74.0	55.0	40.0	15.0
Total Split (%)	14.7%			25.5%		40%	30%	22%	8%
Yellow Time (s)	4.0			4.5		3.9	4.0	3.0	3.0
All-Red Time (s)	2.5			1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	6.5			5.5					
Lead/Lag	Lead			Lag				Lag	Lead
Lead-Lag Optimize?	Yes			Yes				Yes	Yes
Recall Mode	None			Min		Min	None	None	None

Intersection Summary
Cycle Length: 184
Actuated Cycle Length: 64.3
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way



Lane Group	EBL	EBT	EBR	WBL	NBL	NBT	SBT
Lane Configurations							
Volume (vph)	390	0	270	10	30	70	60
Sign Control		Stop				Stop	Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBT	SBT	SBR
Lane Configurations					
Volume (vph)	370	30	460	60	80
Sign Control	Stop		Stop	Stop	

Intersection Summary
Control Type: Unsignalized

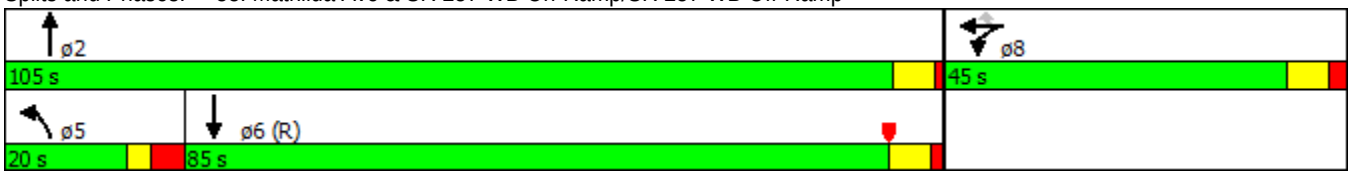
Lane Group	EBT	EBR	NBL	NBT	SBT
Lane Configurations					
Volume (vph)	10	10	10	30	140
Sign Control	Stop			Stop	Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Volume (vph)	760	0	190	90	490	2270
Turn Type	Split	NA	Perm	Prot	NA	NA
Protected Phases	8	8		5	2	6
Permitted Phases			8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	11.0	11.0	10.3	19.0	10.3
Total Split (s)	45.0	45.0	45.0	20.0	105.0	85.0
Total Split (%)	30.0%	30.0%	30.0%	13.3%	70.0%	56.7%
Yellow Time (s)	4.8	4.8	4.8	2.5	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	3.8	1.3	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.3	6.0	6.3
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	Max	Max	Max	Max	Max	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 33 (22%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 33: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build PM Peak Hour**
Network Performance

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	465.2	14.0	442.6	487.1
Total Delay (hours)	1,504	51	1,417	1,571
Average Stopped Delay (seconds)	400.5	14.3	378.4	425.8
Total Stopped Delay (hours)	1295	50	1212	1374
Total Stops	40,164	1,462	37,811	43,027
Average Stops	3.45	0.10	3.30	3.63
Total Distance Traveled (miles)	37,384	413	36,832	38,078
Average Speed (mph)	15.1	0.3	15.0	16.0
Total Travel Time (hours)	2,481.2	53.0	2,400.8	2,547.7
Vehicles Entered	9,858	131	9,720	10,047
Vehicles Exited	8,456	73	8,353	8,569
Percent Demand Served	85.8%	0.7%	84.9%	87.3%
Fuel Used (gallons)	1,275	15	1,252	1,301
HC Emissions (grams)	15,551	419	14,836	16,042
CO Emissions (grams)	432,243	5,149	423,246	440,545
NOx Emissions (grams)	55,081	1,066	53,393	56,321

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build PM Peak Hour**
Volume and Delay by Movement

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	94	85.4%	53.4	5.6	D
	Through	370	320	86.4%	20.7	3.1	C
	Right Turn	40	34	84.3%	14.3	6.2	B
	Subtotal	520	447	86.0%	27.1	3.8	C
SB	Left Turn	10	8	83.0%	366.1	122.8	F
	Through	1,110	921	83.0%	373.1	139.4	F
	Right Turn	10	8	80.0%	351.4	196.1	F
	Subtotal	1,130	938	83.0%	372.8	139.5	F
EB	Left Turn	70	73	103.7%	32.1	3.5	C
	Through	20	22	107.5%	47.8	8.1	D
	Right Turn	70	69	98.7%	15.9	4.5	B
	Subtotal	160	163	102.0%	27.2	4.2	C
WB	Left Turn	240	213	88.9%	190.1	104.7	F
	Through	10	9	93.0%	185.7	64.6	F
	Right Turn	30	21	71.0%	161.3	80.5	F
	Subtotal	280	244	87.1%	187.2	100.1	F
Total		2,090	1,792	85.7%	227.0	73.8	F

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	90	77	86.0%	66.7	5.5	E
	Through	380	352	92.7%	26.5	3.8	C
	Right Turn	40	36	90.8%	20.9	7.3	C
	Subtotal	510	466	91.4%	32.6	3.5	C
SB	Left Turn						
	Through	1,370	1,112	81.2%	327.2	25.7	F
	Right Turn	50	45	90.0%	289.6	27.2	F
	Subtotal	1,420	1,157	81.5%	325.7	25.4	F
EB	Left Turn	140	94	67.4%	115.6	36.2	F
	Through	10	6	60.0%	112.3	33.7	F
	Right Turn	680	475	69.8%	119.6	42.1	F
	Subtotal	830	575	69.3%	118.9	41.1	F
WB	Left Turn	40	39	96.3%	123.7	57.0	F
	Through						
	Right Turn						
	Subtotal	40	39	96.3%	123.7	57.0	F
Total		2,800	2,237	79.9%	206.1	12.1	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build PM Peak Hour**
Volume and Delay by Movement

Intersection 3 **Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn (Moffett Park)	100	92	91.7%	45.6	6.4	D
	Left Turn (SR 237 WB On-Ramp)	90	78	86.3%	79.4	2.3	E
	Through	490	450	91.8%	41.4	4.3	D
	Right Turn (Moffett Park)	160	145	90.3%	26.1	3.1	C
	Subtotal	840	764	90.9%	42.9	3.3	D
SB	Left Turn (Moffett Park)	50	38	76.0%	182.8	13.9	F
	Through	1,940	1,509	77.8%	229.6	6.8	F
	Right Turn (Moffett Park)	100	82	82.1%	244.3	7.9	F
	Right Turn (SR 237 WB On-Ramp)	430	333	77.5%	223.2	7.4	F
	Subtotal	2,520	1,962	77.9%	228.2	6.9	F
EB (Moffett Park)	Left Turn	70	55	78.4%	292.4	31.9	F
	Through	190	145	76.3%	282.5	46.0	F
	Right Turn	450	332	73.8%	304.3	32.4	F
	Subtotal	710	532	74.9%	297.1	35.7	F
WB (Moffett Park)	Left Turn	310	287	92.5%	392.9	105.3	F
	Through	260	233	89.7%	130.3	45.9	F
	Right Turn	20	20	100.5%	121.2	47.4	F
	Subtotal	590	540	91.6%	269.4	79.5	F
WB (SR 237 WB Off-Ramp)	Left Turn	760	675	88.8%	465.4	130.2	F
	Through						F
	Right Turn	190	177	92.9%	414.8	130.3	F
	Subtotal	950	851	89.6%	454.9	130.4	F
Total		5,610	4,649	82.9%	301.1	30.4	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build PM Peak Hour**
Volume and Delay by Movement

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	410	362	88.3%	37.0	1.9	D
	Right Turn	670	586	87.4%	9.8	0.3	A
	Subtotal	1,080	948	87.8%	20.2	1.0	C
SB	Left Turn	360	295	82.1%	35.8	1.8	D
	Through	2,670	2,173	81.4%	13.9	0.2	B
	Right Turn						
	Subtotal	3,030	2,469	81.5%	16.6	0.4	B
EB	Left Turn	170	167	98.4%	54.8	3.3	D
	Through						
	Right Turn	180	179	99.2%	20.4	2.6	C
	Subtotal	350	346	98.8%	37.0	2.6	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,460	3,762	84.3%	19.4	0.5	B

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	90	75	83.2%	85.2	23.6	F
	Through	940	826	87.9%	375.4	49.2	F
	Right Turn	270	245	90.6%	91.2	2.4	F
	Subtotal	1,300	1,146	88.1%	295.7	36.4	F
SB	Left Turn	140	117	83.3%	40.7	3.3	D
	Through	2,620	2,154	82.2%	11.6	0.5	B
	Right Turn	90	79	88.1%	7.5	1.0	A
	Subtotal	2,850	2,350	82.4%	12.9	0.6	B
EB	Left Turn	40	39	98.5%	49.7	9.0	D
	Through	150	147	98.1%	47.2	3.8	D
	Right Turn	40	36	89.5%	36.0	6.5	D
	Subtotal	230	222	96.7%	45.8	3.2	D
WB	Left Turn	230	177	77.1%	641.9	105.9	F
	Through	50	39	77.0%	652.8	111.2	F
	Right Turn	100	80	79.8%	633.3	125.5	F
	Subtotal	380	296	77.8%	641.5	110.8	F
Total		4,760	4,013	84.3%	141.4	11.0	F

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	52	86.7%	222.0	94.3	F
	Through	1,380	1,174	85.1%	253.9	115.2	F
	Right Turn	40	29	73.5%	305.0	151.8	F
	Subtotal	1,480	1,255	84.8%	253.8	114.9	F
SB	Left Turn	180	152	84.3%	101.3	15.1	F
	Through	2,800	2,438	87.1%	83.4	18.4	F
	Right Turn	70	61	87.6%	34.9	12.7	C
	Subtotal	3,050	2,651	86.9%	83.3	17.9	F
EB	Left Turn	310	288	92.8%	221.8	147.4	F
	Through	30	25	83.7%	211.4	142.3	F
	Right Turn	70	64	91.6%	172.8	137.7	F
	Subtotal	410	377	91.9%	212.8	144.7	F
WB	Left Turn	50	48	96.0%	68.0	14.6	E
	Through	10	12	115.0%	99.2	35.7	F
	Right Turn	190	188	99.1%	79.8	34.2	E
	Subtotal	250	248	99.1%	78.8	30.4	E
Total		5,190	4,531	87.3%	139.9	45.0	F

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	790	587	74.3%	104.6	25.8	F
	Right Turn	90	74	82.0%	53.7	15.0	D
	Subtotal	880	660	75.0%	98.9	24.3	F
WB	Left Turn	230	201	87.3%	33.2	10.9	C
	Through	320	283	88.3%	1.9	0.3	A
	Right Turn						
	Subtotal	550	483	87.9%	14.9	4.6	B
Total		1,430	1,144	80.0%	63.0	14.1	E

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build PM Peak Hour**
Volume and Delay by Movement

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	200	176	88.0%	229.7	97.8	F
	Through						
	Right Turn	150	130	86.3%	213.8	91.5	F
	Subtotal	350	305	87.3%	223.0	95.7	F
EB	Left Turn	50	36	71.0%	224.0	42.5	F
	Through	740	509	68.8%	314.0	64.7	F
	Right Turn						
	Subtotal	790	545	68.9%	308.0	62.4	F
WB	Left Turn						
	Through	400	354	88.4%	20.2	3.6	C
	Right Turn	60	51	84.5%	4.8	0.4	A
	Subtotal	460	404	87.9%	18.2	3.1	B
Total		1,600	1,254	78.4%	190.5	30.0	F

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	23	77.0%	34.1	24.5	D
	Through	70	54	76.7%	35.5	22.3	E
	Right Turn						
	Subtotal	100	77	76.8%	35.6	21.4	E
SB	Left Turn	10	9	85.0%	19.1	16.9	C
	Through	60	58	96.3%	73.7	79.2	F
	Right Turn	20	18	92.0%	83.2	116.1	F
	Subtotal	90	85	94.1%	71.5	81.9	F
EB	Left Turn	390	356	91.3%	184.7	155.3	F
	Through						
	Right Turn	270	246	91.0%	165.5	160.6	F
	Subtotal	660	602	91.2%	172.7	134.6	F
WB	Left Turn	10	9	90.0%	105.6	82.2	F
	Through						
	Right Turn						
	Subtotal	10	9	90.0%	105.6	82.2	F
Total		860	772	89.8%	144.4	107.3	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build PM Peak Hour**
Volume and Delay by Movement

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	460	361	78.5%	454.4	257.2	F
	Right Turn						
	Subtotal	460	361	78.5%	454.4	257.2	F
SB	Left Turn						
	Through	60	52	86.5%	69.7	29.4	F
	Right Turn	80	68	85.3%	35.6	11.5	E
	Subtotal	140	120	85.8%	50.4	18.4	F
EB	Left Turn	370	212	57.4%	813.5	254.5	F
	Through						
	Right Turn	30	34	113.3%	78.5	36.7	F
	Subtotal	400	246	61.6%	709.0	217.2	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,000	728	72.8%	463.4	160.0	F

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	8	84.0%	4.6	0.3	A
	Through	30	64	212.0%	2.7	0.4	A
	Right Turn						
	Subtotal	40	72	180.0%	2.9	0.4	A
SB	Left Turn						
	Through	140	133	94.6%	21.1	19.4	C
	Right Turn	10	12	115.0%	17.4	19.0	C
	Subtotal	150	144	96.0%	20.8	19.2	C
EB	Left Turn	10	6	57.0%	5.0	0.6	A
	Through	10	10	95.0%	6.1	1.2	A
	Right Turn	10	10	97.0%	3.4	0.7	A
	Subtotal	30	25	83.0%	4.7	0.8	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		220	241	109.5%	13.5	10.5	B

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build**
Queue Length **PM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	50	17	100	25	150	29	5%	0%
	Through	625	25	5	50	7	75	7	0%	0%
	Right Turn	625	25	7	75	12	100	16	0%	0%
NB	Left Turn	425	75	6	125	9	125	18	0%	0%
	Through	1,125	75	8	125	16	175	32	0%	0%
	Through/Right	1,125	75	11	175	20	200	32	0%	0%
SB	Left Turn	250	50	22	175	54	300	1	0%	0%
	Through	1,325	1,100	288	1,925	423	2,050	342	74%	0%
	Right Turn	250	50	21	200	57	300	0	0%	0%
WB	Left Turn	925	325	127	700	276	975	316	77%	0%
	Through/Right	75	50	7	100	9	100	0	5%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	50	14	125	21	150	18	0%	20%
	Through/Right	225	25	1	50	6	50	12	0%	64%
	Right Turn	225	275	11	325	13	325	18	0%	63%
NB	Left Turn	400	50	7	75	15	100	22	0%	0%
	Through	975	75	13	150	19	175	27	0%	0%
	Through/Right	975	100	10	175	19	200	20	0%	0%
SB	Left Turn	75	25	0	25	0	25	0	0%	0%
	Through	975	1,125	58	1,275	84	1,200	16	85%	38%
	Right Turn	225	150	20	350	21	275	0	0%	0%
WB	Left Turn	425	25	13	75	36	100	57	0%	0%
	Shared	225	25	11	75	28	100	40	0%	0%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 No Build**
Queue Length **PM Peak Hour**

Intersection 3 **Mathilda Avenue/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft)		95th Queue (ft)		Maximum Queue (ft)		Block Time	
			Average	Std. Dev.	Average	Std. Dev.	Average	Std. Dev.	Pocket	Upstream
EB (Moffett Park)	Left Turn	525	300	394	475	386	525	373	0%	2%
	Through/Right	1,125	1,075	96	1,325	108	1,175	41	0%	33%
	Right Turn	1,125	925	404	975	421	950	412	0%	43%
NB	Left Turn (Moffett Park)	125	25	3	50	7	50	11	0%	1%
	Through	300	100	11	200	22	225	44	0%	27%
	Through/Right (Moffett Park)	300	100	11	200	19	225	43	0%	19%
	Left Turn (SR 237 WB On-Ramp)	175	100	8	150	14	175	18	0%	1%
SB	Left Turn (Moffett Park)	175	50	11	125	29	175	48	0%	0%
	Through	1,100	1,125	19	1,200	21	1,175	19	70%	65%
	Through/Right (Moffett Park)	975	1,075	3	1,100	13	1,125	12	0%	41%
	Through/Right (SR 237 WB On-Ramp)	1,100	1,125	15	1,175	21	1,175	22	70%	67%
WB (Moffett Park)	Left Turn	300	800	204	1,275	271	1,400	258	78%	0%
	Through/Right	675	475	144	675	121	650	13	4%	22%
WB (SR 237 WB Off-Ramp)	Left Turn	1,075	3,150	1,106	4,675	1,360	4,675	1,320	67%	0%
	Left/Through	325	450	1	450	3	450	0	67%	0%
	Right Turn	325	325	27	500	14	375	0	3%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	1,025	75	9	125	23	150	47	0%	0%
	Shared	1,025	100	12	200	22	250	27	0%	0%
NB	Through	275	50	8	100	19	125	27	0%	0%
	Right Turn	275	75	9	200	22	250	46	0%	0%
SB	Left Turn	175	100	14	175	16	200	16	0%	6%
	Through	175	200	4	225	7	225	13	0%	17%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	250	150	18	275	24	325	30	28%	0%
	Through	1,575	100	3	125	3	100	0	57%	0%
	Right Turn	50	50	8	75	8	75	3	11%	0%
NB	Left Turn	150	100	15	175	33	175	36	7%	0%
	Through	2,200	975	50	1,100	71	1,100	139	0%	34%
	Through/Right	450	525	4	550	5	550	12	0%	76%
SB	Left Turn	225	100	10	175	17	200	31	8%	0%
	Through	225	125	13	200	22	250	27	3%	0%
	Through/Right	225	125	11	200	23	275	40	0%	1%
WB	Left Turn	100	2,150	404	3,225	747	3,350	773	85%	0%
	Through	225	75	6	125	4	100	0	5%	0%
	Right Turn	100	50	4	100	5	100	0	7%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	275	41	350	43	350	8	59%	30%
	Through/Right	125	125	14	250	24	225	0	5%	0%
NB	Left Turn	425	125	39	300	84	375	66	0%	0%
	Through	750	975	110	1,900	134	2,175	17	71%	0%
	Right Turn	75	25	4	100	9	100	0	0%	0%
SB	Left Turn	125	150	6	225	7	175	0	34%	0%
	Through	2,225	1,075	61	1,500	48	1,700	18	39%	0%
	Through/Right	2,225	350	52	500	37	525	13	0%	0%
WB	Left Turn	250	75	15	225	61	325	73	0%	0%
	Through	1,025	175	70	425	158	550	220	2%	0%
	Right Turn	75	100	8	150	5	125	0	49%	0%

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	650	97	1,100	56	900	4	57%	12%
	Right Turn	150	150	39	425	55	375	0	0%	0%
WB	Left Turn	850	125	22	250	59	325	90	0%	0%
	Through	850	25	0	25	0	25	0	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	225	150	28	400	53	350	0	0%	0%
	Through	850	800	122	1,100	67	950	7	54%	29%
SB	Left Turn	575	250	35	525	39	525	33	0%	8%
	Shared	575	425	34	625	26	550	21	0%	43%
WB	Through	1,150	100	11	175	20	225	35	0%	0%
	Right Turn	1,150	25	3	50	33	100	95	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	125	9	175	11	150	0	44%	0%
	Through/Right	325	650	503	1,575	1,119	1,800	1,211	2%	0%
	Right Turn	325	450	329	1,100	758	1,400	876	0%	0%
NB	Left Turn	125	25	3	25	10	50	18	0%	0%
	Left/Through	575	75	7	150	17	200	32	0%	0%
	Through/Right	575	25	7	50	23	100	43	0%	0%
SB	Left/Through	1,000	25	7	75	24	100	67	0%	0%
	Through/Right	1,000	75	43	175	111	200	119	0%	0%
WB	Left Turn	325	25	6	50	14	75	20	0%	0%
	Through/Right	325	25	0	25	0	25	0	0%	0%

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	2,350	789	4,125	1,268	4,225	1,252	0%	0%
	Right Turn	200	475	151	1,075	182	1,025	165	0%	0%
NB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through	1,000	675	212	1,075	241	1,000	177	90%	18%
SB	Through/Right	300	175	53	225	92	225	91	0%	0%
	Right Turn	300	75	48	175	86	200	96	0%	0%

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	25	3	50	4	50	0	0%	0%
	Right Turn	125	25	2	50	5	50	7	0%	0%
NB	Left Turn	325	25	2	50	5	50	0	0%	0%
	Through/Right	2,025	25	3	50	5	50	16	0%	0%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	50	4	75	6	75	13	0%	0%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	119.4	130.2	0.1	4
US 101 SB Diag. On-R	702	17.5	24.1	0.1	12
US 101 SB Loop On-Ra	701	79.5	87.3	0.1	4
US 101 NB Loop On-Ra	602	70.3	76.0	0.1	3
US 101 NB Diag.Off-R	601	125.5	132.3	0.1	2
Ross Dr	5	76.8	84.4	0.1	4
SR 237 EB On-Ramp	4	34.4	39.7	0.1	6
SR 237 WB Off-Ramp	33	11.5	15.3	0.0	11
Moffett Park Dr	3	33.9	36.6	0.0	4
Innovation Way	2	26.6	43.7	0.2	18
5th Ave	1	21.5	40.4	0.2	21
	107	3.9	26.1	0.3	38
Total		620.9	736.2	1.5	7

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	311.7	332.7	0.3	3
Innovation Way	2	314.1	330.8	0.2	3
Moffett Park Dr	3	210.9	227.5	0.2	3
SR 237 WB On-Ramp	33	3.4	6.4	0.0	23
SR 237 Off/On Ramp	4	4.1	8.2	0.0	21
Ross Dr	5	9.6	14.6	0.1	16
US 101 NB Diag.Off-R	601	21.0	29.2	0.1	11
US 101 NB Loop Off-R	602	10.3	16.0	0.1	20
US 101 SB Loop On-Ra	701	4.3	10.4	0.1	23
US 101 SB Off-Ramp	702	4.9	11.5	0.1	33
Almanor Ave	8	42.6	50.7	0.1	6
San Aleso Ave	201	6.7	18.1	0.1	28
Total		943.6	1056.0	1.5	5

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	6.5	8.5	0.0	10
	38	1.0	7.2	0.0	21
	11	30.6	40.4	0.1	6
	200	154.0	166.9	0.2	3
Juniper Driveway	12	188.2	195.8	0.1	1
Driveway	217	39.0	43.1	0.0	3
	902	58.8	62.5	0.0	1
Mathilda Ave	2	10.5	12.7	0.0	7
	53	2.6	17.1	0.1	20
Bordeaux Dr	13	4.9	13.4	0.1	21
Total		496.3	567.6	0.6	4

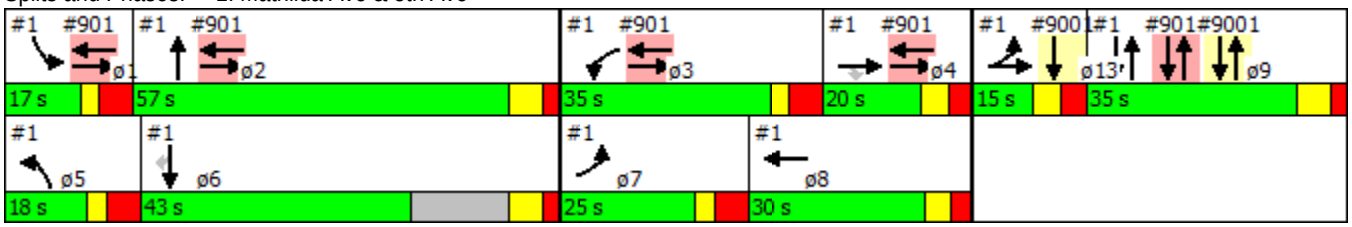
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	53	0.3	13.7	0.1	21
Mathilda Ave	2	115.6	127.5	0.1	3
	902	0.9	6.1	0.0	15
Driveway	217	0.3	2.8	0.0	27
Juniper Driveway	12	71.2	76.5	0.0	2
	200	1.9	10.9	0.1	19
11th Ave	11	70.9	92.4	0.2	6
	38	81.1	94.1	0.1	3
	910	91.3	96.5	0.0	2
Moffett Park Dr	10	22.3	25.5	0.0	3
Total		455.8	546.1	0.6	4

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	20	10	30	30	10	80	870	10	370	70		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	37.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		43.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		24.0%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 84.6
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



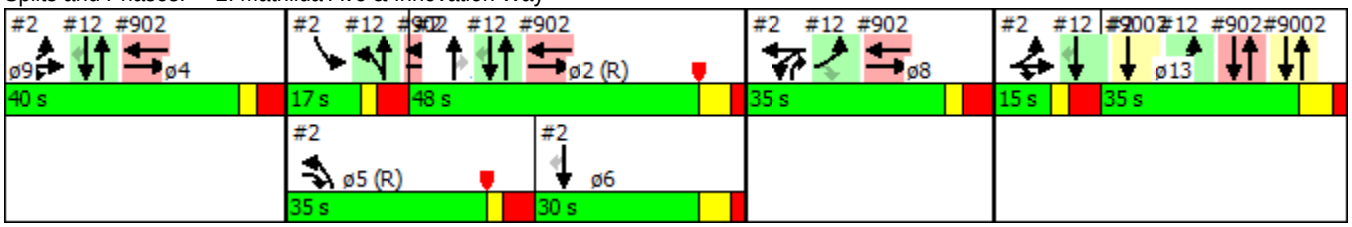
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	60	50	210	110	520	970	880	20	280	130		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	2	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	13.0		10.0	10.0			12.0	14.0
Minimum Split (s)			35.0	35.0	20.0		35.0	16.8			19.0	39.0
Total Split (s)			35.0	35.0	35.0		35.0	17.0			48.0	40.0
Total Split (%)			18.4%	18.4%	18.4%		18.4%	8.9%			25%	21%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			4.7	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lead			Lag	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	C-Max		None	None			C-Max	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 133 (70%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



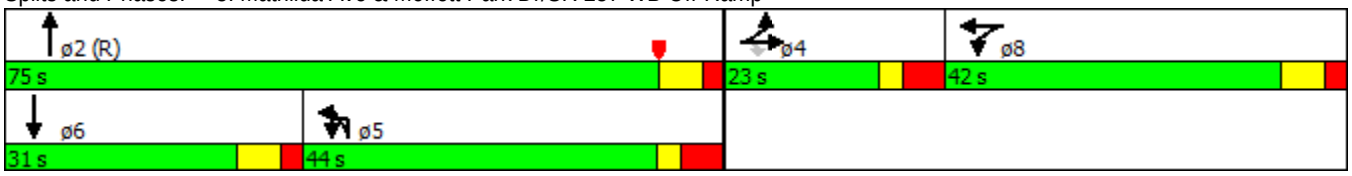
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	30.0	35.0	15.0
Total Split (%)	16%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	Min	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations							
Volume (vph)	0	70	670	200	710	2120	320
Turn Type	NA	Perm	Split	NA	Prot	NA	NA
Protected Phases	4		8	8	5	2	6
Permitted Phases		4					
Detector Phase	4	4	8	8	5	2	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	8.0	8.0
Minimum Split (s)	23.0	23.0	40.0	40.0	11.0	34.9	14.9
Total Split (s)	23.0	23.0	42.0	42.0	44.0	75.0	31.0
Total Split (%)	16.4%	16.4%	30.0%	30.0%	31.4%	53.6%	22.1%
Yellow Time (s)	2.5	2.5	4.5	4.5	2.5	4.7	4.7
All-Red Time (s)	4.5	4.5	2.5	2.5	4.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Recall Mode	Max	Max	Max	Max	None	C-Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 114 (81%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

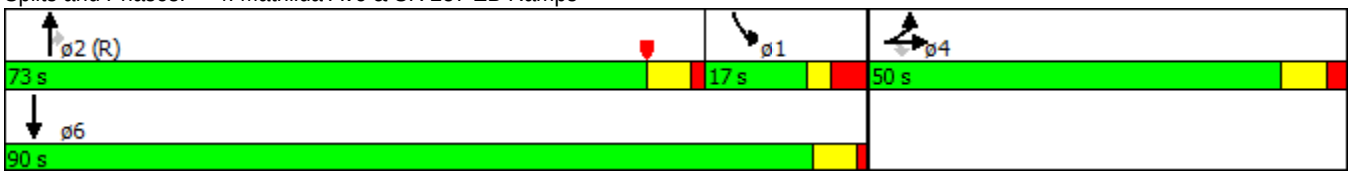
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr/SR 237 WB Off-Ramp



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	590	0	60	2380	760	50	910
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	8.0	8.0	4.0	8.0
Minimum Split (s)	12.0	12.0	12.0	20.7	20.7	10.4	13.9
Total Split (s)	50.0	50.0	50.0	73.0	73.0	17.0	90.0
Total Split (%)	35.7%	35.7%	35.7%	52.1%	52.1%	12.1%	64.3%
Yellow Time (s)	4.8	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	2.2	1.5	1.5	3.9	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.2	6.2	6.4	5.9
Lead/Lag				Lead	Lead	Lag	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	Max	Max	Max	C-Max	C-Max	None	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 135 (96%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

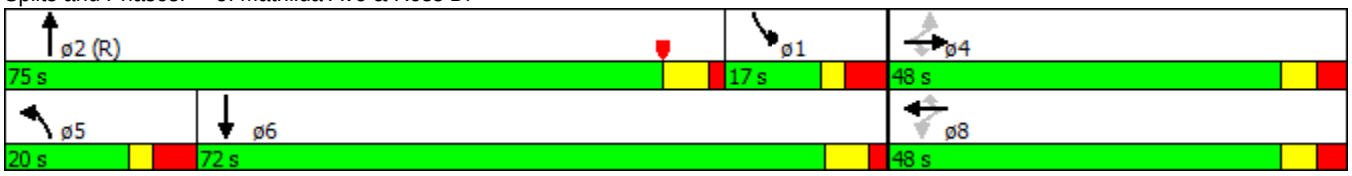
Splits and Phases: 4: Mathilda Ave & SR 237 EB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	80	60	20	110	30	250	60	2810	50	890
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	20.0	75.0	17.0	72.0
Total Split (%)	34.3%	34.3%	34.3%	34.3%	34.3%	34.3%	14.3%	53.6%	12.1%	51.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	720	700	2270	360	10	1010
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	44.0	16.0	80.0	80.0	16.0	96.0
Total Split (%)	31.4%	11.4%	57.1%	57.1%	11.4%	68.6%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 118 (84%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	280	410	2350	580	1590
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	8.0	8.0	8.0
Minimum Split (s)	10.9	10.9	14.9	14.9	14.9
Total Split (s)	40.0	40.0	100.0	100.0	100.0
Total Split (%)	28.6%	28.6%	71.4%	71.4%	71.4%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	None

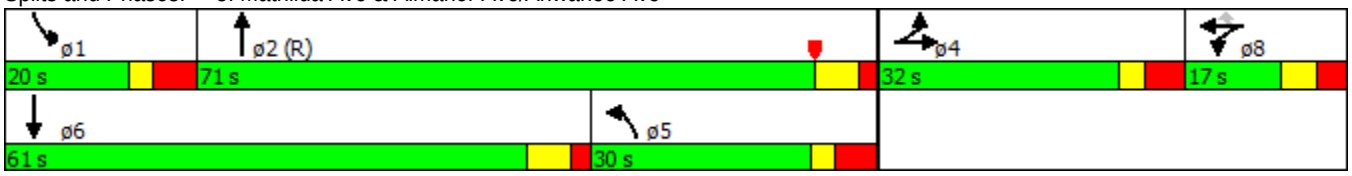
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 117 (84%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	90	20	70	30	190	110	2650	160	1540
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	32.0	32.0	15.0	15.0	15.0	15.0	36.7	15.0	27.7
Total Split (s)	32.0	32.0	17.0	17.0	17.0	30.0	71.0	20.0	61.0
Total Split (%)	22.9%	22.9%	12.1%	12.1%	12.1%	21.4%	50.7%	14.3%	43.6%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	180	10	20	880
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	62.0	62.0	13.0	75.0
Total Split (%)	82.7%	82.7%	17.3%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

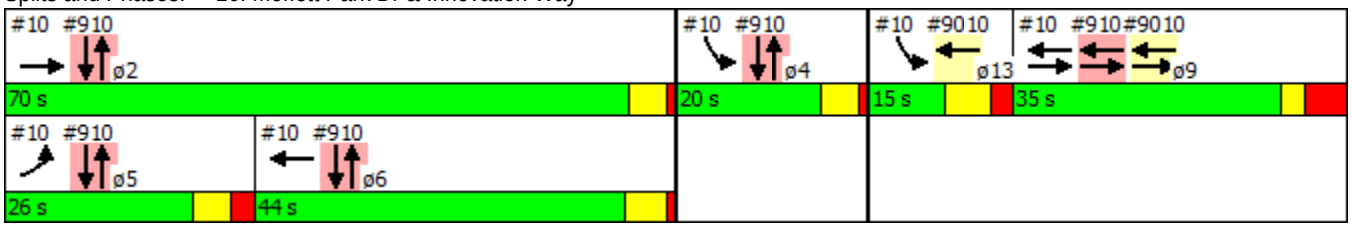
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 39.7
Natural Cycle: 40
Control Type: Semi Act-Uncoord

Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	SBL	ø2	ø4	ø6	ø9	ø13
Lane Configurations									
Volume (vph)	110	70	790	40					
Turn Type	Prot	NA	NA	Prot					
Protected Phases	5	2 9	6 9	4 13	2	4	6	9	13
Permitted Phases									
Detector Phase	5	2	6	4					
Switch Phase									
Minimum Initial (s)	8.0				10.0	10.0	10.0	28.0	8.0
Minimum Split (s)	14.5				14.9	15.0	27.5	35.0	15.0
Total Split (s)	26.0				70.0	20.0	44.0	35.0	15.0
Total Split (%)	18.6%				50%	14%	31%	25%	11%
Yellow Time (s)	4.0				3.9	4.0	4.5	2.5	4.7
All-Red Time (s)	2.5				1.0	1.0	1.0	4.5	2.3
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.5								
Lead/Lag	Lead						Lag	Lag	Lead
Lead-Lag Optimize?	Yes						Yes	Yes	Yes
Recall Mode	None				Min	None	Min	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 79.8
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way



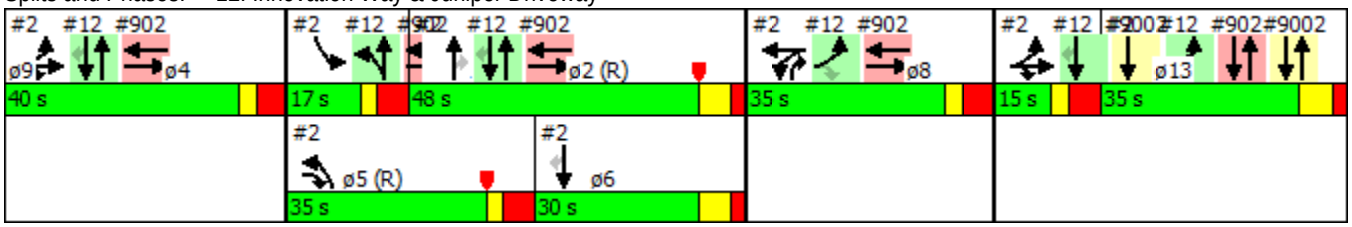
Lane Group	EBL	EBT	EBR	NBL	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	20	0	60	230	130	60	80
Sign Control		Stop			Stop		Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø4	ø5	ø6	ø8	ø9
Lane Configurations												
Volume (vph)	40	10	60	90	390	370						
Turn Type	Prot	Perm	Prot	NA	NA	Perm						
Protected Phases	8 9		1	1 2 4	2 4 13		2	4	5	6	8	9
Permitted Phases		8 9				2 4 13						
Detector Phase	8	8	1	1 2 4	2 4	2 4						
Switch Phase												
Minimum Initial (s)			10.0				12.0	14.0	13.0	12.0	10.0	28.0
Minimum Split (s)			16.8				19.0	39.0	20.0	30.0	35.0	35.0
Total Split (s)			17.0				48.0	40.0	35.0	30.0	35.0	35.0
Total Split (%)			8.9%				25%	21%	18%	16%	18%	18%
Yellow Time (s)			2.5				4.7	2.5	2.5	4.7	2.5	4.7
All-Red Time (s)			4.3				2.3	4.5	4.5	2.3	4.5	2.3
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lead				Lag		Lead	Lag		Lag
Lead-Lag Optimize?			Yes				Yes		Yes	Yes		Yes
Recall Mode			None				C-Max	None	C-Max	Min	None	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 133 (70%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 12: Innovation Way & Juniper Driveway



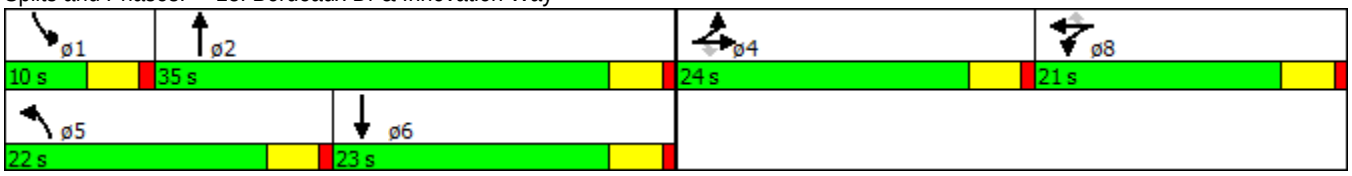
Lane Group	ø13
Lane Configurations	
Volume (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	8%
Yellow Time (s)	2.5
All-Red Time (s)	4.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None

Intersection Summary

Lane Group	EBT	EBR	NBL	NBT	SBT	ø1	ø8
Lane Configurations							
Volume (vph)	0	540	250	110	50		
Turn Type	NA	Perm	Prot	NA	NA		
Protected Phases	4		5	2	6	1	8
Permitted Phases		4					
Detector Phase	4	4	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.5	20.5	8.5	20.5	20.5	8.5	20.5
Total Split (s)	24.0	24.0	22.0	35.0	23.0	10.0	21.0
Total Split (%)	26.7%	26.7%	24.4%	38.9%	25.6%	11%	23%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		
Lead/Lag			Lead	Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 49.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor
Average Results from 10 Runs
Network Performance

Mathilda Avenue Improvements
Build 1 Year 2018
AM Peak Hour

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	168.7	9.2	159.1	188.7
Total Delay (hours)	493	26	461	542
Average Stopped Delay (seconds)	92.5	6.5	86.0	108.2
Total Stopped Delay (hours)	270	18	250	311
Total Stops	27,909	1,228	26,348	30,219
Average Stops	2.65	0.12	2.52	2.92
Total Distance Traveled (miles)	44,272	554	43,149	44,968
Average Speed (mph)	28.2	0.6	27.0	29.0
Total Travel Time (hours)	1,573.9	22.9	1,538.4	1,596.4
Vehicles Entered	8,974	88	8,847	9,114
Vehicles Exited	8,909	94	8,716	9,024
Percent Demand Served	99.3%	0.8%	97.9%	100.4%
Fuel Used (gallons)	1,237	12	1,219	1,253
HC Emissions (grams)	18,762	1,059	16,996	20,383
CO Emissions (grams)	533,677	19,496	502,096	561,324
NOx Emissions (grams)	73,035	2,795	67,784	77,047

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Volume and Delay by Movement **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	75	93.4%	37.6	4.5	D
	Through	870	842	96.7%	13.4	1.9	B
	Right Turn	70	69	98.0%	11.3	2.0	B
	Subtotal	1,020	985	96.6%	15.1	1.8	B
SB	Left Turn	10	10	98.0%	52.7	6.5	D
	Through	370	371	100.3%	20.7	1.8	C
	Right Turn	70	67	95.9%	9.0	0.5	A
	Subtotal	450	448	99.5%	19.6	1.5	B
EB	Left Turn	20	20	100.0%	30.6	5.4	C
	Through	10	8	83.0%	33.6	8.7	C
	Right Turn	30	30	99.3%	7.1	2.8	A
	Subtotal	60	58	96.8%	19.0	3.6	B
WB	Left Turn	30	31	101.7%	37.9	6.7	D
	Through	10	10	102.0%	35.4	9.9	D
	Right Turn	10	10	95.0%	8.9	3.9	A
	Subtotal	50	50	100.4%	31.9	5.4	C
Total		1,580	1,541	97.5%	17.1	1.6	B

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	520	520	100.0%	51.7	3.6	D
	Through	970	943	97.2%	32.4	3.1	C
	Right Turn	880	867	98.5%	31.8	4.4	C
	Subtotal	2,370	2,330	98.3%	36.5	2.5	D
SB	Left Turn	20	18	89.5%	99.0	15.1	F
	Through	280	281	100.3%	57.6	3.2	E
	Right Turn	130	127	97.7%	20.9	3.7	C
	Subtotal	430	426	99.0%	48.4	2.9	D
EB	Left Turn	20	18	88.0%	57.3	17.1	E
	Through	60	63	105.3%	53.3	4.7	D
	Right Turn	50	53	105.2%	40.6	5.5	D
	Subtotal	130	133	102.6%	48.6	5.5	D
WB	Left Turn	210	210	100.1%	85.5	8.8	F
	Through	110	109	99.4%	95.6	12.1	F
	Right Turn	30	30	101.0%	78.0	12.9	E
	Subtotal	350	350	99.9%	88.0	9.8	F
Total		3,280	3,238	98.7%	44.1	2.1	D

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	850	823	96.9%	55.0	5.8	D
	Through	2,120	2,046	96.5%	36.1	2.8	D
	Right Turn						
	Subtotal	2,970	2,869	96.6%	41.5	3.6	D
SB	Left Turn						
	Through	320	324	101.3%	62.7	3.3	E
	Right Turn	220	218	99.2%	70.0	12.8	E
	Subtotal	540	543	100.5%	65.7	6.5	E
EB	Left Turn	40	41	102.8%	52.2	6.0	D
	Through						
	Right Turn	70	74	105.7%	5.1	1.4	A
	Subtotal	110	115	104.6%	21.9	3.4	C
WB	Left Turn	670	663	98.9%	81.8	3.3	F
	Through	200	207	103.5%	81.6	4.4	F
	Right Turn	210	220	104.5%	75.0	3.1	E
	Subtotal	1,080	1,089	100.9%	80.4	3.2	F
Total		4,700	4,616	98.2%	53.1	2.9	D

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,380	2,318	97.4%	15.6	1.9	B
	Right Turn	760	751	98.8%	2.6	0.1	A
	Subtotal	3,140	3,069	97.7%	12.4	1.5	B
SB	Left Turn	50	46	92.6%	94.5	6.8	F
	Through	910	871	95.7%	40.8	2.2	D
	Right Turn						
	Subtotal	960	917	95.6%	43.5	2.0	D
EB	Left Turn	590	574	97.3%	91.8	26.8	F
	Through						
	Right Turn	60	58	96.7%	31.9	13.8	C
	Subtotal	650	632	97.2%	86.4	25.9	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,750	4,618	97.2%	28.7	4.1	C

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	59	99.0%	87.2	5.9	F
	Through	2,810	2,733	97.3%	28.5	3.2	C
	Right Turn	100	100	99.6%	33.6	9.9	C
	Subtotal	2,970	2,892	97.4%	29.9	3.4	C
SB	Left Turn	50	49	98.2%	59.5	2.5	E
	Through	890	867	97.5%	22.8	4.7	C
	Right Turn	30	30	98.3%	11.0	3.6	B
	Subtotal	970	946	97.5%	24.3	4.3	C
EB	Left Turn	80	81	101.3%	53.0	5.0	D
	Through	60	62	103.3%	47.1	6.2	D
	Right Turn	20	18	87.5%	17.4	1.8	B
	Subtotal	160	161	100.3%	46.9	4.2	D
WB	Left Turn	110	107	96.9%	64.9	4.7	E
	Through	30	29	96.0%	60.1	8.5	E
	Right Turn	250	253	101.2%	50.8	3.1	D
	Subtotal	390	389	99.6%	55.2	2.2	E
Total		4,490	4,387	97.7%	31.6	2.4	C

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,270	2,201	97.0%	25.0	2.9	C
	Right Turn	360	357	99.2%	6.4	0.5	A
	Subtotal	2,630	2,558	97.3%	22.4	2.7	C
SB	Left Turn	10	7	68.0%	53.5	21.8	D
	Through	1,010	992	98.2%	23.0	2.6	C
	Right Turn						
	Subtotal	1,020	999	97.9%	23.2	2.6	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	720	719	99.9%	116.0	32.9	F
	Through						
	Right Turn	700	705	100.6%	100.6	32.7	F
	Subtotal	1,420	1,424	100.3%	108.3	32.7	F
Total		5,070	4,981	98.2%	47.2	9.7	D

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,350	2,280	97.0%	19.2	1.2	B
	Right Turn	580	566	97.6%	15.4	0.5	B
	Subtotal	2,930	2,846	97.1%	18.4	1.0	B
SB	Left Turn						
	Through	1,590	1,575	99.1%	12.9	3.6	B
	Right Turn	140	133	95.0%	12.0	3.3	B
	Subtotal	1,730	1,708	98.7%	12.8	3.5	B
EB	Left Turn	280	284	101.3%	80.3	12.5	F
	Through						
	Right Turn	410	397	96.8%	28.0	4.1	C
	Subtotal	690	681	98.6%	49.7	6.8	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,350	5,234	97.8%	20.7	1.9	C

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	102	92.3%	108.7	33.5	F
	Through	2,650	2,564	96.8%	111.7	31.2	F
	Right Turn	50	50	99.8%	107.6	29.4	F
	Subtotal	2,810	2,716	96.6%	111.5	31.2	F
SB	Left Turn	160	154	96.1%	202.9	92.5	F
	Through	1,540	1,515	98.4%	38.9	8.2	D
	Right Turn	300	295	98.4%	41.9	8.8	D
	Subtotal	2,000	1,964	98.2%	52.5	13.9	D
EB	Left Turn	90	90	100.3%	68.2	7.0	E
	Through	20	19	94.0%	69.7	8.9	E
	Right Turn	30	31	104.7%	32.9	5.2	C
	Subtotal	140	141	100.4%	60.6	6.1	E
WB	Left Turn	70	71	100.7%	62.5	5.6	E
	Through	30	31	102.3%	60.2	7.5	E
	Right Turn	190	191	100.7%	21.8	1.6	C
	Subtotal	290	293	100.9%	35.8	2.4	D
Total		5,240	5,113	97.6%	83.1	19.9	F

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	180	178	98.6%	1.8	0.2	A
	Right Turn	10	10	95.0%	1.2	0.5	A
	Subtotal	190	187	98.4%	1.7	0.2	A
WB	Left Turn	20	21	106.0%	9.6	1.2	A
	Through	880	869	98.7%	6.5	0.6	A
	Right Turn						
	Subtotal	900	890	98.9%	6.6	0.6	A
Total		1,090	1,077	98.8%	5.7	0.6	A

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	40	42	105.3%	33.5	4.1	C
	Through						
	Right Turn	110	107	97.1%	29.0	2.4	C
	Subtotal	150	149	99.3%	30.2	2.6	C
EB	Left Turn	110	105	95.1%	34.0	1.4	C
	Through	70	74	105.9%	4.3	0.7	A
	Right Turn						
	Subtotal	180	179	99.3%	21.7	1.2	C
WB	Left Turn						
	Through	790	787	99.6%	16.9	1.2	B
	Right Turn	340	338	99.5%	18.6	1.8	B
	Subtotal	1,130	1,126	99.6%	17.4	1.3	B
Total		1,460	1,453	99.5%	19.2	1.1	B

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Volume and Delay by Movement **AM Peak Hour**

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	230	228	99.0%	11.3	1.0	B
	Through	130	130	99.8%	10.5	0.6	B
	Right Turn	90	84	93.8%	5.5	0.4	A
	Subtotal	450	442	98.2%	10.0	0.7	A
SB	Left Turn	60	56	93.2%	6.6	0.6	A
	Through	80	79	98.5%	16.0	1.8	C
	Right Turn	260	258	99.3%	15.3	1.8	C
	Subtotal	400	393	98.2%	14.2	1.5	B
EB	Left Turn	20	21	105.0%	10.6	2.9	B
	Through						
	Right Turn	60	61	101.3%	9.5	1.8	A
	Subtotal	80	82	102.3%	9.8	1.5	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		930	917	98.5%	11.8	0.9	B

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	57	94.8%	101.2	15.5	F
	Through	90	93	103.0%	12.6	3.0	B
	Right Turn						
	Subtotal	150	150	99.7%	46.3	6.9	D
SB	Left Turn						
	Through	390	386	99.1%	7.1	0.5	A
	Right Turn	370	377	101.8%	5.8	0.4	A
	Subtotal	760	763	100.4%	6.4	0.3	A
EB	Left Turn	40	39	97.5%	56.5	10.6	E
	Through						
	Right Turn	10	10	96.0%	7.1	3.9	A
	Subtotal	50	49	97.2%	46.4	9.5	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		960	961	100.1%	14.7	1.4	B

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Volume and Delay by Movement **AM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	250	244	97.4%	21.4	1.3	C
	Through	110	109	99.4%	10.3	0.9	B
	Right Turn						
	Subtotal	360	353	98.0%	18.0	0.9	B
SB	Left Turn						
	Through	50	50	99.8%	20.6	1.9	C
	Right Turn	90	95	105.9%	10.1	1.3	B
	Subtotal	140	145	103.7%	13.8	1.7	B
EB	Left Turn	270	272	100.7%	14.2	1.2	B
	Through						
	Right Turn	540	528	97.8%	8.2	0.9	A
	Subtotal	810	800	98.7%	10.2	0.8	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,310	1,298	99.1%	12.7	0.8	B

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	25	3	50	6	50	7	0%	0%
	Through	625	25	3	25	6	50	4	0%	0%
	Right Turn	625	25	3	25	9	50	20	0%	0%
NB	Left Turn	425	50	5	100	10	125	20	0%	0%
	Through	1,125	100	15	200	30	275	36	0%	0%
	Through/Right	1,125	100	18	250	37	300	40	0%	0%
SB	Left Turn	250	25	3	50	5	50	10	0%	0%
	Through	1,325	75	7	125	11	150	24	0%	0%
	Right Turn	250	25	2	25	11	50	29	0%	0%
WB	Left Turn	925	50	5	75	9	100	16	5%	0%
	Through/Right	75	25	4	75	9	75	10	2%	0%

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	125	10	150	18	175	27	0%	0%
	Right Turn	225	25	2	25	7	50	21	0%	2%
NB	Left Turn	725	200	26	325	49	375	58	0%	0%
	Through	975	275	45	525	129	725	281	0%	0%
	Right Turn	975	325	61	650	122	800	182	0%	0%
SB	Left Turn	75	25	5	75	11	125	33	1%	0%
	Through	975	100	8	150	16	200	38	16%	0%
	Right Turn	225	75	5	125	15	150	45	0%	0%
WB	Left Turn	425	300	31	500	54	600	48	15%	0%
	Shared	225	200	12	275	11	250	0	11%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Shared	1,125	50	7	100	19	150	34	0%	0%
	Right Turn	1,125	25	3	50	10	75	17	0%	0%
NB	Left Turn	350	300	29	425	35	425	34	0%	8%
	Through	350	325	25	450	30	475	32	0%	6%
	Right Diagonal	350	175	6	225	9	200	12	0%	58%
SB	Through	975	150	24	325	65	450	97	0%	0%
	Through/Right	975	250	36	425	59	525	78	0%	0%
WB	Left Turn	525	275	20	375	25	400	46	0%	0%
	Left/Through	1,225	300	17	375	25	425	34	0%	0%
	Through/Right	1,225	275	14	375	28	425	44	0%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	1,025	350	67	550	192	700	233	0%	0%
	Left/Through	1,025	250	66	475	207	625	255	5%	0%
	Right Turn	450	25	31	125	154	300	280	0%	0%
NB	Through	275	75	17	150	31	200	47	0%	0%
	Right Turn	275	25	8	50	24	50	32	0%	0%
SB	Left Turn	325	150	22	275	34	325	32	2%	0%
	Through	350	300	21	375	32	400	38	0%	2%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	250	75	7	125	9	125	0	11%	0%
	Through	1,575	75	8	150	17	225	40	34%	0%
	Right Turn	50	25	4	50	13	75	25	2%	0%
NB	Left Turn	250	100	23	225	53	300	14	0%	0%
	Through	700	400	85	725	103	725	154	7%	2%
	Through/Right	225	250	11	300	17	275	0	24%	0%
SB	Left Turn	225	50	4	125	6	125	13	0%	0%
	Through	225	150	16	275	19	250	15	0%	9%
	Through/Right	225	175	12	300	14	275	5	0%	12%
WB	Left Turn	100	75	5	125	4	100	1	13%	0%
	Through	225	175	24	350	40	400	36	1%	0%
	Right Turn	100	100	3	125	5	125	0	34%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
NB	Through	575	375	35	525	61	575	102	0%	1%
	Right Turn	575	50	29	175	148	325	272	0%	0%
SB	Left Turn	375	25	4	50	11	50	18	0%	0%
	Through	700	175	30	325	64	425	141	0%	0%
WB	Left Turn	1,025	250	163	400	258	450	275	0%	0%
	Right Turn	1,025	150	7	175	12	175	14	0%	51%
0										

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	150	18	225	38	275	50	4%	0%
	Right Turn	1,050	25	0	25	0	25	0	0%	0%
NB	Through	750	375	63	775	117	775	247	0%	1%
	Right Turn	750	200	67	700	130	775	24	0%	0%
SB	Through	575	125	29	250	60	300	127	0%	0%
	Through/Right	575	150	31	300	60	350	104	0%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	75	7	125	17	150	35	2%	0%
	Through/Right	125	50	5	100	12	125	24	0%	0%
NB	Left Turn	425	175	26	425	39	425	1	0%	0%
	Through	750	900	253	1,225	305	1,275	290	63%	0%
	Through/Right	750	325	2	325	10	325	0	36%	0%
SB	Left Turn	275	250	57	350	38	325	12	34%	0%
	Through	750	275	149	525	219	625	173	7%	3%
	Through/Right	750	275	62	500	112	575	109	0%	0%
WB	Left Turn	250	75	8	150	16	150	22	0%	0%
	Through	1,025	75	10	175	18	225	39	14%	0%
	Right Turn	75	100	3	125	5	125	0	32%	0%

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Through	850	25	3	50	12	75	19	0%	0%
	Right Turn	150	25	0	25	5	25	14	0%	0%
WB	Left Turn	850	25	2	50	2	50	12	0%	0%
	Through	850	25	9	75	88	225	256	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	225	75	6	150	11	175	24	0%	0%
	Through	850	25	3	50	8	75	15	0%	0%
SB	Left Turn	575	25	3	50	6	75	17	0%	0%
	Shared	575	125	6	175	10	200	18	0%	0%
WB	Through	1,150	150	18	275	27	350	38	0%	0%
	Through/Right	1,150	200	18	350	30	400	38	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	25	3	50	4	50	11	0%	0%
	Left/Through	325	25	1	25	5	50	7	0%	0%
	Right Turn	325	50	4	75	7	75	16	0%	0%
NB	Left Turn	125	75	4	100	9	150	19	1%	0%
	Through	575	50	6	125	28	150	59	0%	0%
	Through/Right	575	25	2	50	5	75	17	0%	0%
SB	Left Turn	175	50	2	75	8	75	17	0%	0%
	Through	1,000	25	3	50	11	75	37	0%	0%
	Through/Right	1,000	125	10	225	27	250	43	0%	0%
WB	Left Turn	325	25	0	25	0	25	0	0%	0%
	Through/Right	325	25	0	25	0	25	0	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	200	50	10	100	18	125	22	0%	0%
	Right Turn	200	25	3	50	6	50	8	0%	0%
NB	Left Turn	125	75	8	150	14	150	18	14%	0%
	Through	1,000	25	10	100	36	150	65	0%	0%
SB	Through	300	75	6	125	17	175	23	0%	2%
	Right Turn	300	100	3	150	8	175	17	0%	0%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Queue Length **AM Peak Hour**
Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	150	16	275	33	325	51	6%	0%
	Right Turn	125	125	7	150	3	150	0	6%	0%
NB	Left Turn	325	125	8	175	16	200	29	0%	0%
	Through/Right	2,025	50	4	75	9	100	22	0%	0%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	75	6	125	13	125	27	1%	0%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	68.6	79.7	0.1	6
	7	18.6	31.4	0.2	18
US 101 NB Ramps	6	22.3	32.3	0.1	15
Ross Dr	5	22.6	34.3	0.1	15
SR 237 EB Ramps	4	13.4	18.7	0.1	12
SR 237 WB On-Ramp	33	9.3	12.8	0.0	13
SR 237 WB Off-Ramp	3	25.2	28.4	0.0	5
Innovation Way	2	33.3	49.9	0.2	16
5th Ave	1	13.6	32.8	0.2	26
	107	4.4	26.5	0.3	37
Total		231.3	346.7	1.4	15

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	13.8	36.0	0.3	27
Innovation Way	2	57.0	75.5	0.2	11
Moffett Park Dr	3	64.9	82.5	0.2	9
SR 237 WB On-Ramp	33	9.9	13.0	0.0	10
SR 237 EB Ramps	4	36.0	39.9	0.0	4
Ross Dr	5	22.3	27.1	0.1	9
US 101 NB Ramps	6	25.5	37.1	0.1	14
US 101 SB Ramps	7	13.7	24.5	0.1	20
Almanor Ave	8	35.9	48.5	0.2	11
San Aleso Ave	201	3.8	15.2	0.1	33
Total		282.9	399.2	1.4	13

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	2.3	6.4	0.0	13
	43	0.9	5.9	0.0	25
	11	7.6	15.1	0.1	17
	200	2.8	19.7	0.2	29
Juniper Driveway	12	10.0	15.8	0.1	13
Driveway	217	1.5	4.7	0.0	29
	902	28.0	30.3	0.0	2
Mathilda Ave	2	22.6	25.1	0.0	4
	52	2.0	15.7	0.1	21
Bordeaux Dr	13	14.2	26.4	0.1	11
Total		92.0	165.1	0.6	13

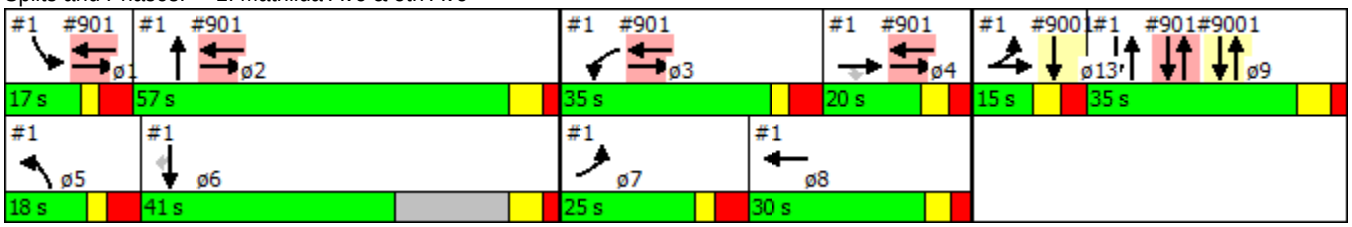
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	52	-	-	0.1	-
Mathilda Ave	2	92.9	105.0	0.1	3
	902	6.0	10.9	0.0	9
Driveway	217	0.5	2.7	0.0	27
Juniper Driveway	12	4.6	8.7	0.0	15
	200	1.4	7.9	0.1	26
11th Ave	11	14.6	30.4	0.2	19
	43	3.1	10.6	0.1	25
	910	14.6	19.0	0.0	8
Moffett Park Dr	10	16.5	20.1	0.0	4
Total		154.2	215.5	0.6	10

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	70	20	70	240	10	110	340	10	1110	10		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	35.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		41.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		22.9%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 107.1
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



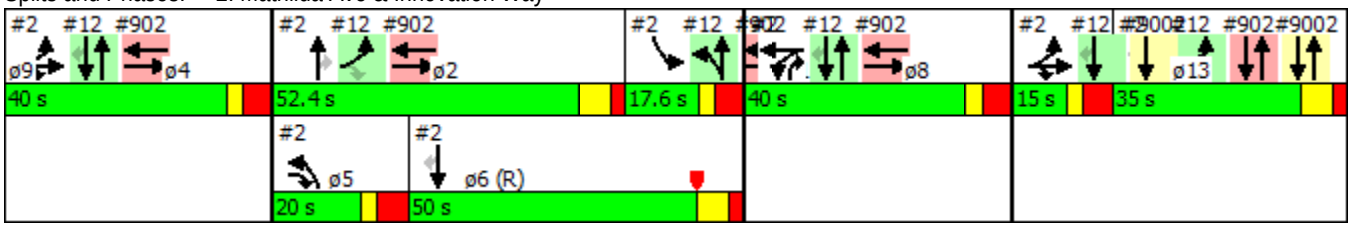
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	200	680	480	120	10	330	200	50	1320	50		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	2	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	13.0		10.0	10.0			12.0	14.0
Minimum Split (s)			35.0	35.0	20.0		35.0	16.8			19.0	39.0
Total Split (s)			40.0	40.0	20.0		40.0	17.6			52.4	40.0
Total Split (%)			20.0%	20.0%	10.0%		20.0%	8.8%			26%	20%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			4.7	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lag			Lead	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	None		None	None			Max	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



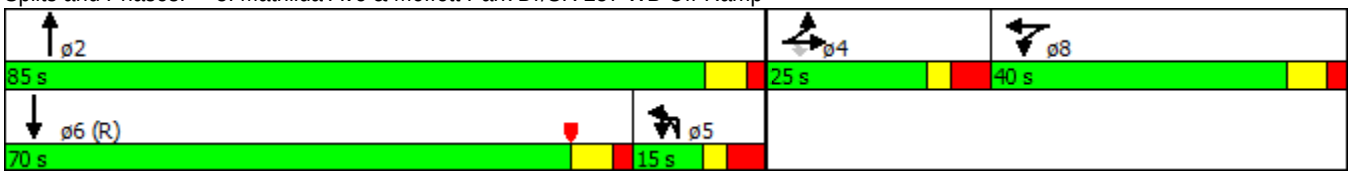
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	50.0	35.0	15.0
Total Split (%)	25%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	C-Min	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations							
Volume (vph)	0	680	760	110	100	390	2250
Turn Type	NA	Perm	Split	NA	Prot	NA	NA
Protected Phases	4		8	8	5	2	6
Permitted Phases		4					
Detector Phase	4	4	8	8	5	2	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	8.0	8.0
Minimum Split (s)	11.0	11.0	40.0	40.0	11.0	26.9	14.9
Total Split (s)	25.0	25.0	40.0	40.0	15.0	85.0	70.0
Total Split (%)	16.7%	16.7%	26.7%	26.7%	10.0%	56.7%	46.7%
Yellow Time (s)	2.5	2.5	4.5	4.5	2.5	4.7	4.7
All-Red Time (s)	4.5	4.5	2.5	2.5	4.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Recall Mode	Max	Max	Max	Max	Max	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated

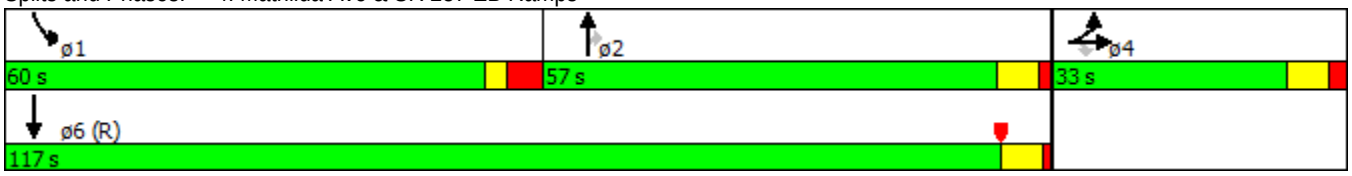
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr/SR 237 WB Off-Ramp



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	120	0	150	460	670	360	2710
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	8.0	8.0	4.0	8.0
Minimum Split (s)	11.0	11.0	11.0	18.2	18.2	10.4	13.9
Total Split (s)	33.0	33.0	33.0	57.0	57.0	60.0	117.0
Total Split (%)	22.0%	22.0%	22.0%	38.0%	38.0%	40.0%	78.0%
Yellow Time (s)	4.8	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	2.2	1.5	1.5	3.9	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.2	6.2	6.4	5.9
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	Max	Max	Max	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 6 (4%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

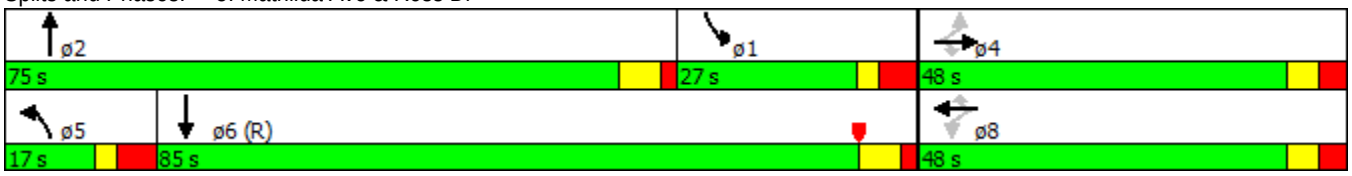
Splits and Phases: 4: Mathilda Ave & SR 237 EB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	40	150	40	230	50	100	120	990	140	2660
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	17.0	75.0	27.0	85.0
Total Split (%)	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	11.3%	50.0%	18.0%	56.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 11 (7%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	800	220	1160	270	40	2890
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	48.0	18.0	84.0	84.0	18.0	102.0
Total Split (%)	32.0%	12.0%	56.0%	56.0%	12.0%	68.0%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 6 (4%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	80	500	1350	530	2550
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	8.0	8.0	8.0
Minimum Split (s)	10.9	10.9	14.9	14.9	14.9
Total Split (s)	35.0	35.0	115.0	115.0	115.0
Total Split (%)	23.3%	23.3%	76.7%	76.7%	76.7%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	C-Max

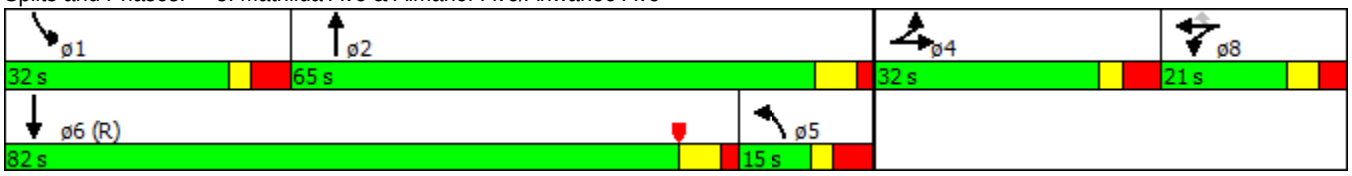
Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 7 (5%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	310	30	50	10	190	60	1380	180	2800
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	32.0	32.0	15.0	15.0	15.0	15.0	36.7	15.0	18.7
Total Split (s)	32.0	32.0	21.0	21.0	21.0	15.0	65.0	32.0	82.0
Total Split (%)	21.3%	21.3%	14.0%	14.0%	14.0%	10.0%	43.3%	21.3%	54.7%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 148 (99%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	790	90	230	210
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	52.0	52.0	23.0	75.0
Total Split (%)	69.3%	69.3%	30.7%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

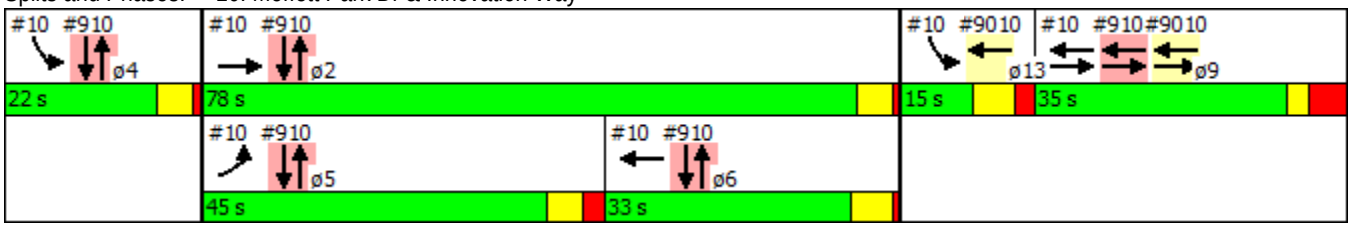
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 52.7
Natural Cycle: 50
Control Type: Actuated-Uncoordinated

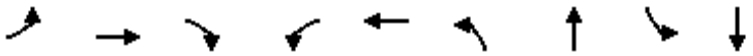
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	SBL	ø2	ø4	ø6	ø9	ø13
Lane Configurations									
Volume (vph)	240	550	290	200					
Turn Type	Prot	NA	NA	Prot					
Protected Phases	5	2 9	6 9	4 13	2	4	6	9	13
Permitted Phases									
Detector Phase	5	2	6	4					
Switch Phase									
Minimum Initial (s)	8.0				10.0	10.0	10.0	28.0	8.0
Minimum Split (s)	14.5				14.9	15.0	27.5	35.0	15.0
Total Split (s)	45.0				78.0	22.0	33.0	35.0	15.0
Total Split (%)	30.0%				52%	15%	22%	23%	10%
Yellow Time (s)	4.0				3.9	4.0	4.5	2.5	4.7
All-Red Time (s)	2.5				1.0	1.0	1.0	4.5	2.3
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.5								
Lead/Lag	Lead						Lag	Lag	Lead
Lead-Lag Optimize?	Yes						Yes	Yes	Yes
Recall Mode	Max				Min	None	Min	None	None

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 101
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 10: Moffett Park Dr & Innovation Way





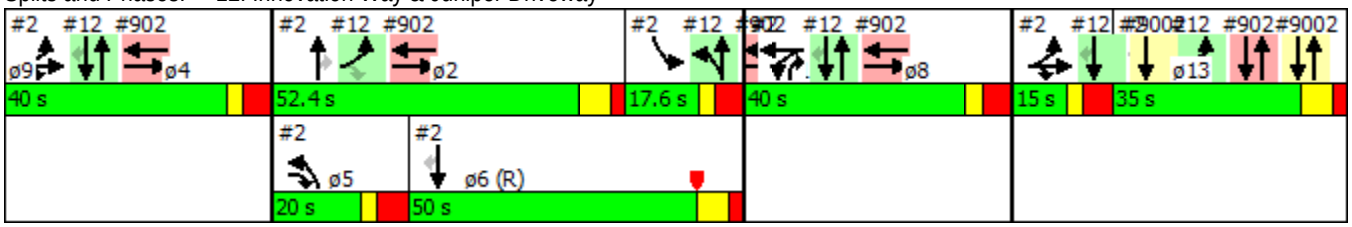
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	390	0	270	10	0	60	290	80	60
Sign Control		Stop			Stop		Stop		Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø4	ø5	ø6	ø8	ø9
Lane Configurations												
Volume (vph)	370	30	40	650	110	70						
Turn Type	Prot	Perm	Prot	NA	NA	Perm						
Protected Phases	2 9		1	1 4 8	4 8 13		2	4	5	6	8	9
Permitted Phases		2 9				4 8 13						
Detector Phase	2	2	1	1 4 8	4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				12.0	14.0	13.0	12.0	10.0	28.0
Minimum Split (s)			16.8				19.0	39.0	20.0	30.0	35.0	35.0
Total Split (s)			17.6				52.4	40.0	20.0	50.0	40.0	35.0
Total Split (%)			8.8%				26%	20%	10%	25%	20%	18%
Yellow Time (s)			2.5				4.7	2.5	2.5	4.7	2.5	4.7
All-Red Time (s)			4.3				2.3	4.5	4.5	2.3	4.5	2.3
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lag				Lead		Lead	Lag		Lag
Lead-Lag Optimize?			Yes				Yes		Yes	Yes		Yes
Recall Mode			None				Max	None	None	C-Min	None	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 12: Innovation Way & Juniper Driveway



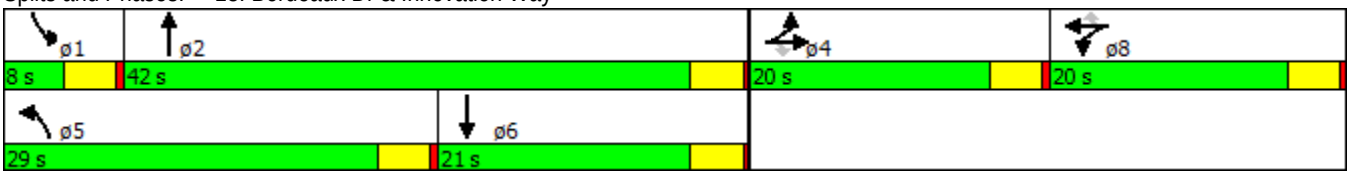
Lane Group	ø13
Lane Configurations	
Volume (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	8%
Yellow Time (s)	2.5
All-Red Time (s)	4.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None

Intersection Summary

Lane Group	EBT	EBR	NBL	NBT	SBT	ø1	ø8
Lane Configurations							
Volume (vph)	10	140	450	30	140		
Turn Type	NA	Perm	Prot	NA	NA		
Protected Phases	4		5	2	6	1	8
Permitted Phases		4					
Detector Phase	4	4	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	20.0
Total Split (s)	20.0	20.0	29.0	42.0	21.0	8.0	20.0
Total Split (%)	22.2%	22.2%	32.2%	46.7%	23.3%	9%	22%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		
Lead/Lag			Lead	Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 52.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Network Performance **PM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	399.9	22.9	350.9	425.1
Total Delay (hours)	1,293	84	1,112	1,401
Average Stopped Delay (seconds)	342.8	22.8	294.0	368.7
Total Stopped Delay (hours)	1108	82	931	1215
Total Stops	34,553	912	32,896	36,205
Average Stops	2.97	0.06	2.88	3.09
Total Distance Traveled (miles)	37,231	389	36,624	37,855
Average Speed (mph)	16.5	0.7	16.0	18.0
Total Travel Time (hours)	2,269.2	84.7	2,095.5	2,390.1
Vehicles Entered	9,863	139	9,605	10,063
Vehicles Exited	8,864	108	8,698	9,076
Percent Demand Served	89.9%	1.3%	87.2%	91.9%
Fuel Used (gallons)	1,241	24	1,201	1,279
HC Emissions (grams)	16,118	1,199	14,168	17,651
CO Emissions (grams)	454,835	20,618	418,517	481,637
NOx Emissions (grams)	60,315	2,803	55,524	64,177

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	95	86.4%	54.4	10.3	D
	Through	340	311	91.4%	18.4	2.7	B
	Right Turn	40	37	91.8%	12.2	2.1	B
	Subtotal	490	442	90.3%	25.7	3.0	C
SB	Left Turn	10	9	90.0%	391.1	141.5	F
	Through	1,110	820	73.8%	444.1	163.5	F
	Right Turn	10	6	63.0%	362.1	199.1	F
	Subtotal	1,130	835	73.9%	442.7	163.0	F
EB	Left Turn	70	67	96.3%	35.2	3.8	D
	Through	20	21	103.5%	58.2	12.4	E
	Right Turn	70	74	105.6%	20.8	4.8	C
	Subtotal	160	162	101.3%	31.4	5.1	C
WB	Left Turn	240	174	72.7%	63.3	16.4	E
	Through	10	7	69.0%	54.5	12.5	D
	Right Turn	30	23	75.7%	32.2	14.5	C
	Subtotal	280	204	72.9%	59.7	16.1	E
Total		2,060	1,643	79.8%	238.1	78.9	F

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	10	8	83.0%	111.7	26.4	F
	Through	330	310	93.8%	46.4	6.8	D
	Right Turn	200	194	97.0%	10.6	1.0	B
	Subtotal	540	512	94.8%	33.9	4.7	C
SB	Left Turn	50	37	74.4%	361.3	25.0	F
	Through	1,320	943	71.5%	390.5	33.1	F
	Right Turn	50	37	73.0%	332.6	45.6	F
	Subtotal	1,420	1,017	71.6%	387.3	32.5	F
EB	Left Turn	140	122	87.1%	84.1	6.2	F
	Through	200	176	88.0%	83.6	6.2	F
	Right Turn	680	628	92.4%	85.4	6.1	F
	Subtotal	1,020	926	90.8%	84.9	6.1	F
WB	Left Turn	480	244	50.9%	365.9	26.5	F
	Through	120	64	53.7%	392.3	39.2	F
	Right Turn	20	10	48.0%	382.1	91.4	F
	Subtotal	620	318	51.3%	371.4	30.0	F
Total		3,600	2,773	77.0%	218.4	8.7	F

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	190	179	94.4%	219.2	50.9	F
	Through	390	380	97.4%	34.4	12.6	C
	Right Turn						
	Subtotal	580	559	96.4%	93.6	24.3	F
SB	Left Turn						
	Through	2,250	1,661	73.8%	178.8	6.9	F
	Right Turn	230	152	65.9%	203.9	10.6	F
	Subtotal	2,480	1,812	73.1%	180.9	7.1	F
EB	Left Turn	70	61	87.6%	416.3	51.6	F
	Through						
	Right Turn	680	567	83.3%	353.3	46.1	F
	Subtotal	750	628	83.7%	359.6	46.2	F
WB	Left Turn	760	704	92.7%	218.5	29.8	F
	Through	110	112	101.7%	65.2	13.4	E
	Right Turn	80	75	93.6%	43.4	13.7	D
	Subtotal	950	891	93.8%	184.6	23.1	F
Total		4,760	3,890	81.7%	197.8	11.6	F

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	460	447	97.2%	22.6	11.6	C
	Right Turn	670	668	99.7%	9.5	3.5	A
	Subtotal	1,130	1,115	98.7%	14.7	6.0	B
SB	Left Turn	360	299	83.1%	70.7	8.8	E
	Through	2,710	2,153	79.4%	27.0	3.5	C
	Right Turn						
	Subtotal	3,070	2,452	79.9%	32.3	2.6	C
EB	Left Turn	120	121	100.8%	68.6	12.4	E
	Through						
	Right Turn	150	150	100.3%	50.1	25.4	D
	Subtotal	270	271	100.5%	58.2	12.3	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,470	3,838	85.9%	29.0	2.2	C

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Volume and Delay by Movement **PM Peak Hour**

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	115	95.5%	118.2	19.0	F
	Through	990	988	99.8%	41.1	4.4	D
	Right Turn	270	266	98.4%	42.9	5.1	D
	Subtotal	1,380	1,369	99.2%	48.0	5.0	D
SB	Left Turn	140	115	81.9%	40.0	3.9	D
	Through	2,660	2,136	80.3%	27.4	3.1	C
	Right Turn	60	50	82.5%	25.8	7.1	C
	Subtotal	2,860	2,300	80.4%	28.0	3.0	C
EB	Left Turn	40	37	92.8%	46.0	3.2	D
	Through	150	150	99.7%	44.7	4.8	D
	Right Turn	40	42	103.8%	27.8	6.3	C
	Subtotal	230	228	99.2%	41.8	3.8	D
WB	Left Turn	230	231	100.6%	174.1	50.2	F
	Through	50	49	98.0%	159.3	50.6	F
	Right Turn	100	98	97.9%	134.9	46.2	F
	Subtotal	380	378	99.6%	162.1	49.6	F
Total		4,850	4,275	88.2%	46.9	3.8	D

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,160	1,147	98.9%	18.3	1.6	B
	Right Turn	270	275	101.7%	4.9	0.3	A
	Subtotal	1,430	1,422	99.4%	15.7	1.3	B
SB	Left Turn	40	33	82.5%	81.0	6.4	F
	Through	2,890	2,379	82.3%	52.9	4.1	D
	Right Turn						
	Subtotal	2,930	2,412	82.3%	53.3	4.0	D
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	800	805	100.6%	84.1	5.1	F
	Through						
	Right Turn	220	219	99.5%	61.2	4.3	E
	Subtotal	1,020	1,024	100.4%	79.2	4.9	E
Total		5,380	4,858	90.3%	47.8	1.4	D

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,350	1,339	99.2%	6.6	0.6	A
	Right Turn	530	532	100.5%	7.8	0.5	A
	Subtotal	1,880	1,871	99.5%	6.9	0.5	A
SB	Left Turn						
	Through	2,550	2,256	88.5%	6.7	0.3	A
	Right Turn	1,140	929	81.5%	14.5	2.4	B
	Subtotal	3,690	3,184	86.3%	9.0	0.8	A
EB	Left Turn	80	82	102.8%	90.6	4.7	F
	Through						
	Right Turn	500	504	100.7%	27.3	1.3	C
	Subtotal	580	586	101.0%	36.2	1.3	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		6,150	5,641	91.7%	11.1	0.6	B

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	60	100.0%	91.2	15.8	F
	Through	1,380	1,366	99.0%	39.3	1.9	D
	Right Turn	40	45	111.5%	27.3	3.4	C
	Subtotal	1,480	1,471	99.4%	41.1	1.5	D
SB	Left Turn	180	169	94.1%	78.1	5.5	E
	Through	2,800	2,524	90.1%	22.8	0.9	C
	Right Turn	70	65	93.4%	18.2	2.7	B
	Subtotal	3,050	2,759	90.5%	26.1	0.8	C
EB	Left Turn	310	310	100.1%	84.9	3.2	F
	Through	30	31	102.3%	85.4	9.2	F
	Right Turn	70	72	103.1%	55.5	7.0	E
	Subtotal	410	413	100.8%	79.8	3.3	E
WB	Left Turn	50	48	95.4%	63.4	8.3	E
	Through	10	8	84.0%	65.9	14.8	E
	Right Turn	190	194	102.2%	9.5	1.1	A
	Subtotal	250	250	100.1%	21.6	2.0	C
Total		5,190	4,893	94.3%	34.9	0.8	C

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	790	789	99.9%	8.0	4.7	A
	Right Turn	90	93	103.7%	3.0	1.0	A
	Subtotal	880	883	100.3%	7.5	4.3	A
WB	Left Turn	230	182	79.1%	19.9	2.3	B
	Through	210	167	79.3%	2.8	0.3	A
	Right Turn						
	Subtotal	440	349	79.2%	11.7	1.2	B
Total		1,320	1,231	93.3%	8.7	3.2	A

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	200	149	74.3%	274.0	94.0	F
	Through						
	Right Turn	150	113	75.1%	257.3	87.8	F
	Subtotal	350	261	74.6%	267.0	91.8	F
EB	Left Turn	240	237	98.8%	42.3	23.2	D
	Through	550	525	95.5%	72.7	56.7	E
	Right Turn						
	Subtotal	790	762	96.5%	63.4	46.5	E
WB	Left Turn						
	Through	290	235	81.1%	30.2	2.1	C
	Right Turn	150	125	83.3%	19.9	3.1	B
	Subtotal	440	360	81.9%	26.6	2.1	C
Total		1,580	1,384	87.6%	90.7	37.8	F

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	56	93.7%	12.4	7.1	B
	Through	290	267	91.9%	20.7	20.2	C
	Right Turn	30	28	92.0%	13.7	19.5	B
	Subtotal	380	350	92.2%	18.9	18.2	C
SB	Left Turn	80	56	69.4%	10.8	3.2	B
	Through	60	45	74.3%	35.5	18.1	E
	Right Turn						
	Subtotal	140	100	71.5%	21.3	7.2	C
EB	Left Turn	390	368	94.3%	60.6	30.2	F
	Through						
	Right Turn	270	221	82.0%	166.7	131.0	F
	Subtotal	660	589	89.3%	96.9	56.4	F
WB	Left Turn	10	9	92.0%	33.0	38.6	D
	Through						
	Right Turn	10	11	112.0%	10.9	14.3	B
	Subtotal	20	20	102.0%	21.2	22.6	C
Total		1,200	1,060	88.3%	61.7	28.8	F

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	40	38	95.0%	337.7	152.9	F
	Through	650	609	93.8%	149.3	75.4	F
	Right Turn						
	Subtotal	690	647	93.8%	159.9	78.7	F
SB	Left Turn						
	Through	110	71	64.9%	31.1	8.6	C
	Right Turn	70	39	56.1%	5.9	1.7	A
	Subtotal	180	111	61.5%	22.1	5.6	C
EB	Left Turn	370	317	85.6%	453.6	154.1	F
	Through						
	Right Turn	30	30	100.0%	32.3	16.5	C
	Subtotal	400	347	86.7%	416.8	141.1	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,270	1,105	87.0%	227.0	50.7	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Volume and Delay by Movement **PM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	450	210	46.7%	1139.8	74.8	F
	Through	30	15	49.3%	957.0	81.1	F
	Right Turn						
	Subtotal	480	225	46.9%	1127.8	75.3	F
SB	Left Turn						
	Through	140	94	66.9%	916.1	199.0	F
	Right Turn	160	102	63.9%	923.4	207.9	F
	Subtotal	300	196	65.3%	919.8	203.3	F
EB	Left Turn	30	27	89.0%	25.8	4.4	C
	Through	10	9	87.0%	25.4	7.9	C
	Right Turn	140	130	92.6%	5.6	0.3	A
	Subtotal	180	165	91.7%	9.9	1.0	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		960	586	61.1%	740.9	76.3	F

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	50	14	100	22	150	22	4%	0%
	Through	625	25	5	50	7	50	7	0%	0%
	Right Turn	625	50	7	75	11	125	12	0%	0%
NB	Left Turn	425	75	8	125	18	150	37	0%	0%
	Through	1,125	75	5	125	12	175	22	0%	0%
	Through/Right	1,125	75	6	150	16	200	23	0%	0%
SB	Left Turn	250	50	24	175	75	275	73	0%	0%
	Through	1,325	1,050	299	2,125	523	2,475	427	66%	0%
	Right Turn	250	50	10	175	36	300	1	0%	0%
WB	Left Turn	925	125	30	225	46	300	54	37%	0%
	Through/Right	75	50	7	100	10	100	0	2%	0%

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	225	15	325	17	325	19	0%	24%
	Right Turn	225	275	9	350	17	325	17	0%	54%
NB	Left Turn	725	25	2	25	9	25	21	0%	0%
	Through	975	125	9	225	16	275	35	0%	0%
	Right Turn	975	75	6	150	19	225	48	0%	0%
SB	Left Turn	75	75	9	150	13	150	0	6%	0%
	Through	975	1,150	47	1,300	65	1,225	18	88%	43%
	Right Turn	225	150	17	350	15	275	0	0%	0%
WB	Left Turn	425	750	1	775	2	775	6	76%	65%
	Shared	225	225	2	250	3	250	0	71%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	1,125	1,050	85	1,350	36	1,200	15	0%	54%
	Right Turn	1,125	1,025	85	1,350	38	1,200	16	0%	51%
NB	Left Turn	350	250	55	325	62	375	52	0%	12%
	Through	350	100	8	150	26	200	51	0%	0%
	Right Diagonal	350	175	15	225	12	200	16	0%	80%
SB	Through	975	1,050	3	1,075	7	1,075	9	0%	32%
	Through/Right	975	1,075	9	1,125	13	1,150	15	0%	44%
WB	Left Turn	525	575	45	650	37	600	0	52%	0%
	Left/Through	1,225	925	181	1,300	132	1,200	16	57%	23%
	Through/Right	1,225	175	23	275	41	350	69	0%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	75	17	150	59	200	86	0%	0%
	Left/Through	1,025	50	20	125	69	150	102	0%	0%
	Right Turn	450	100	51	275	94	300	82	0%	0%
NB	Through	275	50	34	100	69	125	63	0%	2%
	Right Turn	275	50	31	125	69	225	71	1%	1%
SB	Left Turn	325	300	20	350	17	350	14	19%	3%
	Through	350	350	44	475	36	500	29	0%	13%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	250	50	6	100	12	125	3	1%	0%
	Through	1,575	150	16	275	29	325	47	53%	0%
	Right Turn	50	50	8	100	13	100	0	11%	0%
NB	Left Turn	250	150	19	250	33	275	40	3%	0%
	Through	700	275	33	475	72	550	155	10%	0%
	Through/Right	225	225	7	300	13	275	0	33%	0%
SB	Left Turn	225	75	11	150	15	200	26	0%	0%
	Through	225	225	20	275	18	275	13	0%	18%
	Through/Right	225	275	21	325	15	300	12	0%	60%
WB	Left Turn	100	100	1	125	3	125	0	74%	0%
	Through	225	575	224	900	291	975	323	5%	0%
	Right Turn	100	50	6	100	8	100	2	5%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
NB	Through	575	200	14	275	23	325	41	0%	0%
	Right Turn	575	25	5	50	23	100	46	0%	0%
SB	Left Turn	375	75	17	225	71	400	125	0%	0%
	Through	700	550	73	700	45	725	29	21%	0%
WB	Left Turn	1,025	150	1	150	7	175	15	0%	64%
	Right Turn	1,025	75	7	125	13	125	15	0%	6%
0										

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	75	5	100	9	125	18	0%	12%
	Right Turn	1,050	25	0	25	0	25	0	0%	0%
NB	Through	750	75	17	175	87	400	303	0%	0%
	Right Turn	750	25	11	75	109	225	318	0%	0%
SB	Through	575	100	10	150	20	175	34	0%	0%
	Through/Right	575	200	35	325	88	375	133	0%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	175	8	300	32	375	81	34%	1%
	Through/Right	125	100	11	225	20	225	0	3%	0%
NB	Left Turn	425	75	17	150	41	175	99	0%	0%
	Through	750	250	14	350	38	425	84	19%	0%
	Through/Right	750	200	18	325	21	325	4	3%	0%
SB	Left Turn	275	175	8	300	25	325	18	2%	0%
	Through	750	275	21	425	49	450	88	5%	0%
	Through/Right	750	200	12	350	27	375	41	0%	0%
SB	Left Turn	250	50	6	100	12	150	19	0%	0%
	Through	1,025	25	5	75	18	125	45	2%	0%
	Right Turn	75	75	4	100	7	125	6	13%	0%

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	175	62	300	127	375	98	10%	0%
	Right Turn	150	50	28	125	109	175	140	0%	0%
WB	Left Turn	850	100	8	175	14	200	24	0%	0%
	Through	850	25	1	25	10	25	26	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	225	175	45	350	94	325	47	2%	0%
	Through	850	300	166	625	351	650	268	32%	3%
SB	Left Turn	575	300	27	525	31	500	24	0%	6%
	Shared	575	375	20	600	24	550	17	0%	33%
WB	Through	1,150	75	8	150	14	175	30	0%	0%
	Through/Right	1,150	125	9	200	11	225	24	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	75	14	125	22	125	9	6%	0%
	Left/Through	325	300	205	900	668	1,300	866	8%	0%
	Right Turn	325	400	290	1,050	743	1,300	828	0%	0%
NB	Left Turn	125	50	7	75	27	100	45	0%	0%
	Through	575	125	30	200	77	275	93	4%	0%
	Through/Right	575	50	28	125	72	150	80	0%	0%
SB	Left Turn	175	50	5	75	11	100	21	0%	0%
	Through	1,000	25	3	50	7	75	21	0%	0%
	Through/Right	1,000	50	6	75	10	100	26	0%	0%
WB	Left Turn	325	25	5	50	12	50	22	0%	0%
	Through/Right	325	25	3	50	5	50	10	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	200	1,450	457	2,325	743	2,375	677	0%	0%
	Right Turn	200	300	249	1,000	595	1,275	482	0%	0%
NB	Left Turn	125	100	18	200	9	175	0	32%	0%
	Through	1,000	525	220	825	251	875	229	64%	6%
SB	Through	300	150	22	225	48	225	75	0%	0%
	Right Turn	300	25	22	100	41	125	59	0%	0%
0										

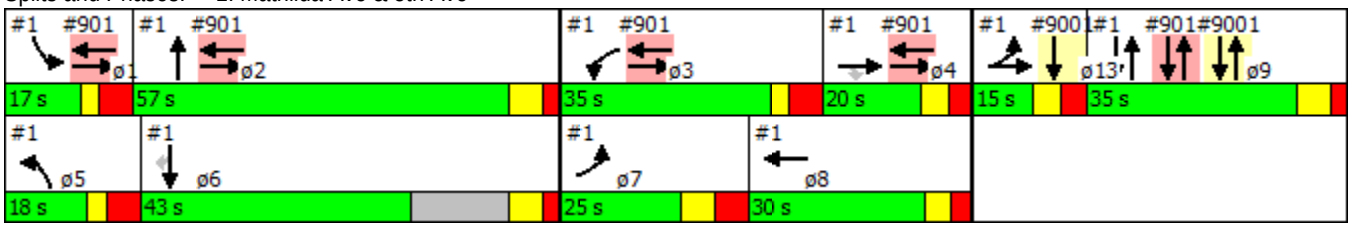
SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Build 1 Year 2018**
Queue Length **PM Peak Hour**
Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	50	3	75	12	100	30	0%	0%
	Right Turn	125	50	5	100	10	100	21	0%	0%
NB	Left Turn	325	850	22	925	39	900	0	93%	0%
	Through/Right	2,025	775	3	800	17	800	1	2%	73%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	2,750	616	4,875	707	4,475	530	91%	20%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	20	10	30	30	10	80	870	10	370	70		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	34.8	21.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		43.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		24.0%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.5	4.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 84.7
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



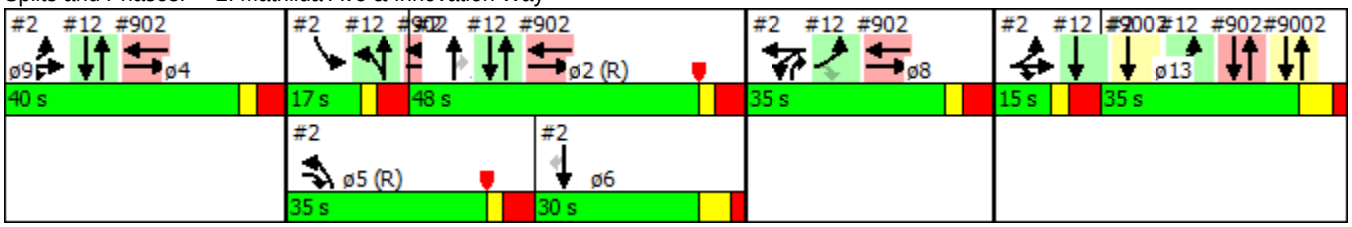
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	60	70	210	110	720	930	880	20	280	130		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	2	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	13.0		10.0	10.0			12.0	14.0
Minimum Split (s)			35.0	35.0	20.0		35.0	16.8			19.0	39.0
Total Split (s)			35.0	35.0	35.0		35.0	17.0			48.0	40.0
Total Split (%)			18.4%	18.4%	18.4%		18.4%	8.9%			25%	21%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			2.5	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			4.5	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lead			Lag	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	C-Max		None	None			C-Max	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 0 (0%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



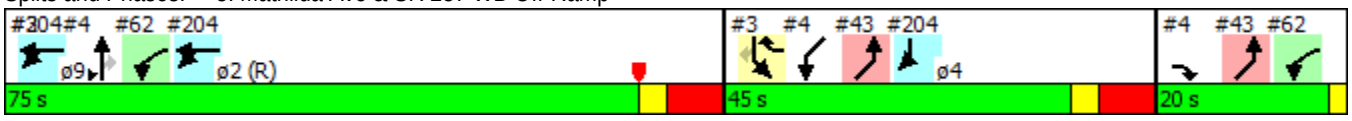
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	30.0	35.0	15.0
Total Split (%)	16%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	None	None

Intersection Summary

Lane Group	WBR	SBL	SBR2	NEL	ø9
Lane Configurations					
Volume (vph)	410	240	320	2120	
Turn Type	Prot	Prot	Perm	Prot	
Protected Phases	4	4		2	9
Permitted Phases			4		
Detector Phase	4	4	4	2	
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.7	26.7	26.7	26.7	18.0
Total Split (s)	45.0	45.0	45.0	75.0	20.0
Total Split (%)	32.1%	32.1%	32.1%	53.6%	14%
Yellow Time (s)	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	6.0	6.0	6.0	6.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	C-Max	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:NEL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

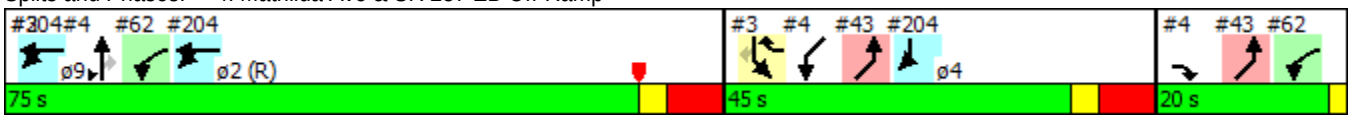
Splits and Phases: 3: Mathilda Ave & SR 237 WB Off-Ramp



Lane Group	EBR	NBT	NBR2	SWL	ø9
Lane Configurations					
Volume (vph)	60	2380	760	860	
Turn Type	custom	NA	Perm	Prot	
Protected Phases	2 9	2		4	9
Permitted Phases			2		
Detector Phase	2	2	2	4	
Switch Phase					
Minimum Initial (s)		4.0	4.0	4.0	4.0
Minimum Split (s)		26.7	26.7	26.7	18.0
Total Split (s)		75.0	75.0	45.0	20.0
Total Split (%)		53.6%	53.6%	32.1%	14%
Yellow Time (s)		3.0	3.0	3.0	2.0
All-Red Time (s)		6.0	6.0	6.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode		C-Max	C-Max	Max	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:NEL, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated

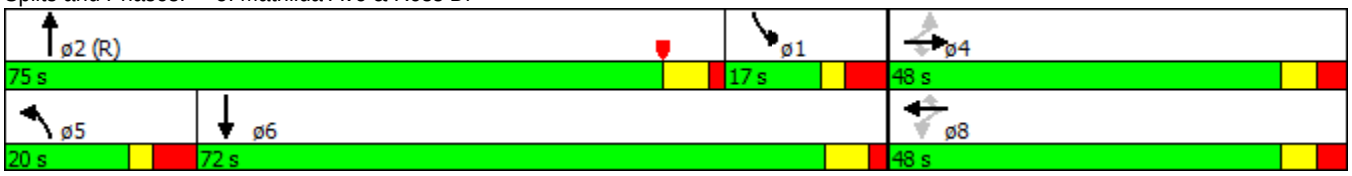
Splits and Phases: 4: Mathilda Ave & SR 237 EB Off-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	80	60	20	110	30	250	60	2810	50	840
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	20.0	75.0	17.0	72.0
Total Split (%)	34.3%	34.3%	34.3%	34.3%	34.3%	34.3%	14.3%	53.6%	12.1%	51.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Min	Min	Min	Min	Min	Min	None	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	720	700	2270	360	10	960
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	44.0	16.0	80.0	80.0	16.0	96.0
Total Split (%)	31.4%	11.4%	57.1%	57.1%	11.4%	68.6%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 110 (79%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	280	410	2350	580	1540
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	8.0	8.0	8.0
Minimum Split (s)	10.9	10.9	14.9	14.9	14.9
Total Split (s)	40.0	40.0	100.0	100.0	100.0
Total Split (%)	28.6%	28.6%	71.4%	71.4%	71.4%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	None

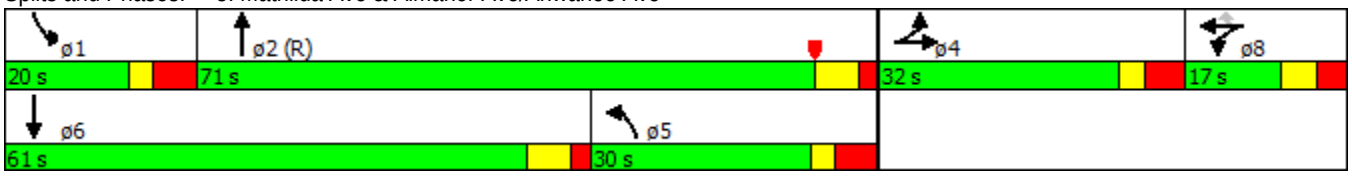
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	90	20	70	30	190	110	2650	160	1490
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	32.0	32.0	15.0	15.0	15.0	15.0	36.7	15.0	18.7
Total Split (s)	32.0	32.0	17.0	17.0	17.0	30.0	71.0	20.0	61.0
Total Split (%)	22.9%	22.9%	12.1%	12.1%	12.1%	21.4%	50.7%	14.3%	43.6%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 98 (70%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

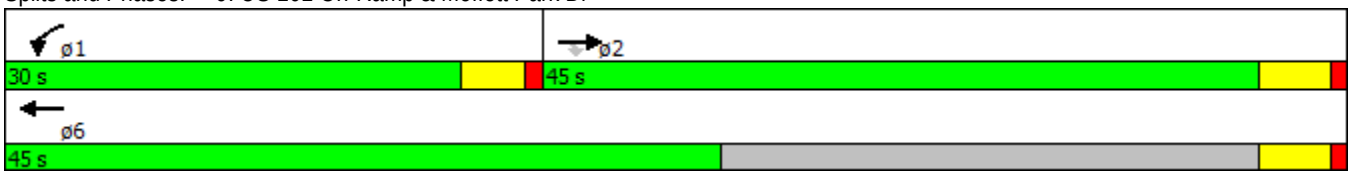
Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	180	10	20	890
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	45.0	45.0	30.0	45.0
Total Split (%)	60.0%	60.0%	40.0%	60.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 40.1
Natural Cycle: 40
Control Type: Semi Act-Uncoord

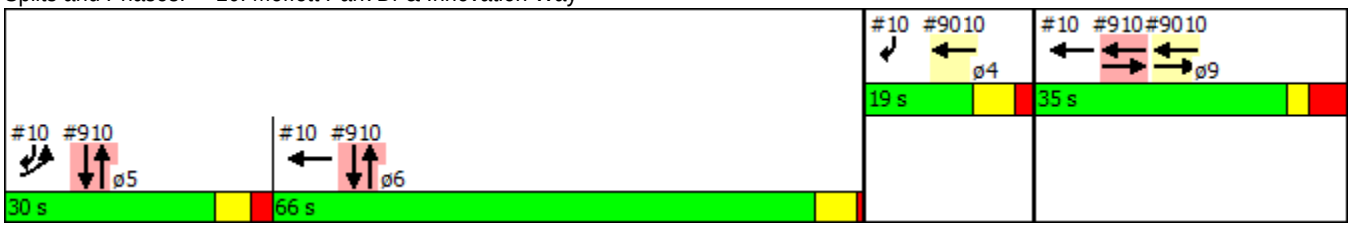
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr



Lane Group	EBL	WBT	SBR	ø4	ø6	ø9
Lane Configurations						
Volume (vph)	180	690	220			
Turn Type	Prot	NA	pt+ov			
Protected Phases	5	6 9	4 5	4	6	9
Permitted Phases						
Detector Phase	5	6	5			
Switch Phase						
Minimum Initial (s)	8.0			8.0	10.0	28.0
Minimum Split (s)	14.5			15.0	27.5	35.0
Total Split (s)	30.0			19.0	66.0	35.0
Total Split (%)	20.0%			13%	44%	23%
Yellow Time (s)	4.0			4.7	4.5	2.5
All-Red Time (s)	2.5			2.3	1.0	4.5
Lost Time Adjust (s)	0.0					
Total Lost Time (s)	6.5					
Lead/Lag	Lead				Lag	
Lead-Lag Optimize?	Yes				Yes	
Recall Mode	None			None	Min	None

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 73.5
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way



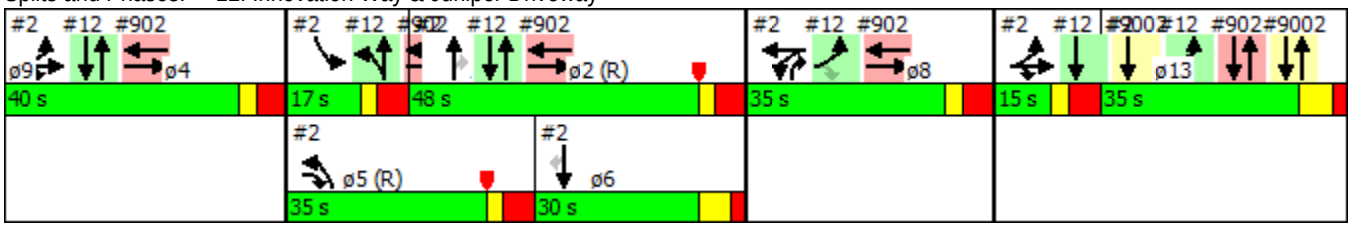
Lane Group	EBL	EBT	EBR	NBL	NBT	SBL	SBT
Lane Configurations							
Volume (vph)	20	0	30	130	190	60	190
Sign Control		Stop			Stop		Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	ø2	ø4	ø5	ø6	ø8	ø9	ø13
Lane Configurations												
Volume (vph)	40	20	60	150	600							
Turn Type	Prot	Perm	Prot	NA	NA							
Protected Phases	8 9		1	1 4 2	4 2 13	2	4	5	6	8	9	13
Permitted Phases		8 9										
Detector Phase	2	2	1	1 4 2	4 8							
Switch Phase												
Minimum Initial (s)			10.0			12.0	14.0	13.0	12.0	10.0	28.0	8.0
Minimum Split (s)			16.8			19.0	39.0	20.0	30.0	35.0	35.0	15.0
Total Split (s)			17.0			48.0	40.0	35.0	30.0	35.0	35.0	15.0
Total Split (%)			8.9%			25%	21%	18%	16%	18%	18%	8%
Yellow Time (s)			2.5			2.5	2.5	2.5	4.7	2.5	4.7	2.5
All-Red Time (s)			4.3			4.5	4.5	4.5	2.3	4.5	2.3	4.5
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lead			Lag		Lead	Lag		Lag	Lead
Lead-Lag Optimize?			Yes			Yes		Yes	Yes		Yes	Yes
Recall Mode			None			C-Max	None	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 0 (0%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

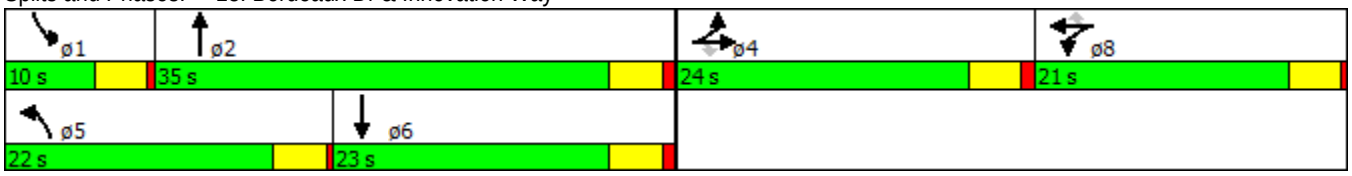
Splits and Phases: 12: Innovation Way & Juniper Driveway



Lane Group	EBT	EBR	NBL	NBT	SBT	ø1	ø8
Lane Configurations							
Volume (vph)	0	580	250	110	50		
Turn Type	NA	Perm	Prot	NA	NA		
Protected Phases	4		5	2	6	1	8
Permitted Phases		4					
Detector Phase	4	4	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.5	20.5	8.0	20.5	20.5	8.0	20.0
Total Split (s)	24.0	24.0	22.0	35.0	23.0	10.0	21.0
Total Split (%)	26.7%	26.7%	24.4%	38.9%	25.6%	11%	23%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	0.5	1.0	1.0	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.0	4.5	4.5		
Lead/Lag			Lead	Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	Min	Min	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 49.2
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Network Performance **AM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	266.2	12.1	248.1	287.6
Total Delay (hours)	776	34	730	841
Average Stopped Delay (seconds)	183.9	11.4	164.9	203.2
Total Stopped Delay (hours)	536	32	485	595
Total Stops	36,256	842	34,974	37,891
Average Stops	3.45	0.08	3.31	3.60
Total Distance Traveled (miles)	43,270	321	42,714	43,853
Average Speed (mph)	23.8	0.6	23.0	25.0
Total Travel Time (hours)	1,816.1	30.8	1,777.7	1,880.3
Vehicles Entered	8,906	97	8,755	9,069
Vehicles Exited	8,442	95	8,312	8,603
Percent Demand Served	94.8%	1.0%	93.2%	96.8%
Fuel Used (gallons)	1,263	9	1,251	1,277
HC Emissions (grams)	18,817	1,165	16,991	20,486
CO Emissions (grams)	522,476	20,773	491,038	551,360
NOx Emissions (grams)	72,901	2,766	68,447	76,781

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Volume and Delay by Movement **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	70	87.5%	39.7	6.1	D
	Through	870	821	94.4%	14.3	1.1	B
	Right Turn	70	64	91.4%	12.1	1.7	B
	Subtotal	1,020	955	93.6%	16.1	1.0	B
SB	Left Turn	10	10	104.0%	46.5	8.0	D
	Through	370	372	100.4%	14.6	1.3	B
	Right Turn	70	73	104.0%	1.7	0.5	A
	Subtotal	450	455	101.1%	13.3	1.1	B
EB	Left Turn	20	20	100.0%	32.0	3.4	C
	Through	10	10	100.0%	29.5	8.9	C
	Right Turn	30	29	95.3%	8.3	2.5	A
	Subtotal	60	59	97.7%	20.3	3.8	C
WB	Left Turn	30	27	89.3%	38.1	4.0	D
	Through	10	10	96.0%	31.4	12.7	C
	Right Turn	10	9	87.0%	6.2	2.9	A
	Subtotal	50	45	90.2%	30.8	4.7	C
Total		1,580	1,514	95.8%	15.8	0.9	B

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	720	679	94.3%	67.6	6.3	E
	Through	930	866	93.1%	34.8	1.5	C
	Right Turn	880	831	94.5%	31.3	1.7	C
	Subtotal	2,530	2,376	93.9%	43.0	1.5	D
SB	Left Turn	20	21	104.0%	94.5	19.6	F
	Through	280	271	96.8%	63.1	6.5	E
	Right Turn	130	131	100.4%	28.7	4.0	C
	Subtotal	430	422	98.2%	54.3	5.0	D
EB	Left Turn	60	59	98.0%	52.5	8.9	D
	Through	60	61	101.5%	54.3	7.9	D
	Right Turn	70	73	104.6%	42.7	5.1	D
	Subtotal	190	193	101.5%	49.3	6.1	D
WB	Left Turn	210	191	90.7%	290.9	39.4	F
	Through	110	104	94.8%	315.9	40.4	F
	Right Turn	30	27	88.3%	303.1	47.2	F
	Subtotal	350	321	91.8%	300.2	39.9	F
Total		3,500	3,312	94.6%	69.7	4.0	E

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	850	790	93.0%	7.3	1.3	A
	Through	2,120	1,948	91.9%	29.9	1.2	C
	Right Turn						
	Subtotal	2,970	2,738	92.2%	23.4	1.2	C
SB	Left Turn						
	Through	240	240	99.8%	40.0	2.5	D
	Right Turn	320	305	95.4%	29.9	5.2	C
	Subtotal	560	545	97.3%	34.4	4.0	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	670	669	99.8%	42.2	2.0	D
	Through						
	Right Turn	410	413	100.8%	74.7	14.1	E
	Subtotal	1,080	1,082	100.2%	54.6	6.6	D
Total		4,610	4,365	94.8%	32.5	2.9	C

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,380	2,155	90.5%	33.5	0.7	C
	Right Turn	760	694	91.4%	3.0	0.2	A
	Subtotal	3,140	2,849	90.7%	26.1	0.6	C
SB	Left Turn	50	43	86.8%	4.1	0.3	A
	Through	860	869	101.0%	55.3	1.8	E
	Right Turn						
	Subtotal	910	912	100.4%	52.8	1.7	D
EB	Left Turn	590	599	101.5%	63.2	8.0	E
	Through						
	Right Turn	60	59	98.0%	24.5	1.0	C
	Subtotal	650	658	101.2%	59.7	7.4	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,700	4,420	94.3%	36.6	1.8	D

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	54	89.3%	118.1	6.8	F
	Through	2,810	2,596	92.4%	61.5	5.0	E
	Right Turn	100	97	96.7%	39.0	6.6	D
	Subtotal	2,970	2,747	92.5%	61.9	4.8	E
SB	Left Turn	50	51	101.6%	40.4	6.9	D
	Through	840	842	100.2%	18.2	3.2	B
	Right Turn	30	31	103.3%	17.0	5.8	B
	Subtotal	920	924	100.4%	19.3	3.0	B
EB	Left Turn	80	78	97.8%	230.3	136.0	F
	Through	60	59	99.0%	132.5	119.6	F
	Right Turn	20	20	101.5%	105.7	126.6	F
	Subtotal	160	158	98.7%	177.3	131.0	F
WB	Left Turn	110	76	69.1%	678.6	159.2	F
	Through	30	24	79.0%	683.6	229.3	F
	Right Turn	250	178	71.4%	693.8	163.1	F
	Subtotal	390	278	71.3%	689.4	164.3	F
Total		4,440	4,106	92.5%	98.6	9.5	F

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,270	2,060	90.7%	78.4	8.9	E
	Right Turn	360	326	90.6%	11.4	1.3	B
	Subtotal	2,630	2,386	90.7%	69.2	7.8	E
SB	Left Turn	10	11	105.0%	31.3	7.4	C
	Through	960	927	96.5%	15.3	0.7	B
	Right Turn						
	Subtotal	970	937	96.6%	15.5	0.7	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	720	716	99.4%	98.6	6.6	F
	Through						
	Right Turn	700	705	100.7%	82.4	6.7	F
	Subtotal	1,420	1,420	100.0%	90.5	6.6	F
Total		5,020	4,743	94.5%	65.0	5.4	E

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Volume and Delay by Movement **AM Peak Hour**

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,350	2,128	90.6%	53.5	17.1	D
	Right Turn	580	545	94.0%	15.7	2.9	B
	Subtotal	2,930	2,673	91.2%	45.8	14.3	D
SB	Left Turn						
	Through	1,540	1,515	98.4%	7.9	3.1	A
	Right Turn	140	124	88.4%	7.7	1.4	A
	Subtotal	1,680	1,639	97.6%	7.9	2.9	A
EB	Left Turn	280	275	98.0%	81.6	11.8	F
	Through						
	Right Turn	410	416	101.4%	27.3	3.7	C
	Subtotal	690	690	100.0%	48.7	5.4	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,300	5,003	94.4%	33.7	7.4	C

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Aven** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	102	92.7%	240.7	33.2	F
	Through	2,650	2,423	91.4%	251.7	35.9	F
	Right Turn	50	48	95.2%	242.2	34.3	F
	Subtotal	2,810	2,573	91.6%	251.0	35.8	F
SB	Left Turn	160	150	93.8%	175.0	100.8	F
	Through	1,490	1,481	99.4%	35.6	6.4	D
	Right Turn	300	299	99.5%	35.7	6.3	D
	Subtotal	1,950	1,930	99.0%	46.9	13.5	D
EB	Left Turn	90	94	104.9%	56.5	3.1	E
	Through	20	21	104.5%	59.3	8.6	E
	Right Turn	30	29	96.0%	20.6	4.9	C
	Subtotal	140	144	102.9%	49.8	3.1	D
WB	Left Turn	70	68	97.0%	61.1	7.1	E
	Through	30	30	101.0%	61.4	6.2	E
	Right Turn	190	193	101.7%	12.8	2.2	B
	Subtotal	290	292	100.5%	29.1	2.7	C
Total		5,190	4,938	95.1%	152.1	15.7	F

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	180	183	101.4%	2.7	0.3	A
	Right Turn	10	11	110.0%	1.7	0.5	A
	Subtotal	190	194	101.8%	2.7	0.3	A
WB	Left Turn	20	19	93.5%	9.2	0.5	A
	Through	890	835	93.8%	4.8	0.4	A
	Right Turn						
	Subtotal	910	854	93.8%	4.9	0.4	A
Total		1,100	1,047	95.2%	4.5	0.4	A

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	220	206	93.5%	26.8	2.8	C
	Subtotal	220	206	93.5%	26.8	2.8	C
EB	Left Turn	180	184	102.0%	27.6	3.4	C
	Through						
	Right Turn						
	Subtotal	180	184	102.0%	27.6	3.4	C
WB	Left Turn						
	Through	690	644	93.3%	11.8	1.2	B
	Right Turn	240	228	95.0%	11.6	1.6	B
	Subtotal	930	872	93.8%	11.7	1.3	B
Total		1,330	1,261	94.8%	16.5	1.6	B

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	130	125	96.2%	9.2	0.4	A
	Through	190	187	98.6%	10.1	0.4	B
	Right Turn	80	82	102.5%	5.3	0.4	A
	Subtotal	400	395	98.6%	8.8	0.3	A
SB	Left Turn	60	58	96.5%	8.0	0.6	A
	Through	190	177	92.9%	11.8	0.4	B
	Right Turn	370	352	95.2%	17.1	1.4	C
	Subtotal	620	587	94.6%	14.6	1.0	B
EB	Left Turn	20	21	104.0%	7.9	2.5	A
	Through						
	Right Turn	30	29	97.0%	7.4	2.0	A
	Subtotal	50	50	99.8%	7.6	1.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,070	1,031	96.4%	12.1	0.6	B

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	57	95.3%	99.2	13.3	F
	Through	150	151	100.4%	12.7	2.0	B
	Right Turn						
	Subtotal	210	208	99.0%	36.6	5.3	D
SB	Left Turn						
	Through	600	571	95.1%	9.5	0.7	A
	Right Turn	360	348	96.6%	8.3	0.7	A
	Subtotal	960	918	95.6%	9.1	0.7	A
EB	Left Turn	40	41	102.8%	58.8	8.4	E
	Through						
	Right Turn	20	20	98.0%	10.2	2.8	B
	Subtotal	60	61	101.2%	42.9	5.3	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,230	1,187	96.5%	15.6	1.1	B

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Volume and Delay by Movement **AM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	250	235	94.2%	198.5	167.8	F
	Through	110	102	92.4%	111.3	126.7	F
	Right Turn						
	Subtotal	360	337	93.6%	172.7	155.5	F
SB	Left Turn						
	Through	50	48	96.6%	34.3	8.3	C
	Right Turn	90	86	95.6%	31.1	11.3	C
	Subtotal	140	134	95.9%	32.3	10.0	C
EB	Left Turn	270	256	94.6%	21.0	2.8	C
	Through						
	Right Turn	580	552	95.1%	12.5	1.6	B
	Subtotal	850	807	94.9%	15.2	1.9	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,350	1,278	94.7%	57.4	40.1	E

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Queue Length **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	25	4	75	6	100	8	0%	0%
	Through	625	25	4	50	8	75	7	0%	0%
	Right Turn	625	25	3	25	5	50	8	0%	0%
NB	Left Turn	425	50	8	100	13	100	16	0%	0%
	Through	1,125	100	10	200	25	275	63	0%	0%
	Through/Right	1,125	125	13	250	30	300	52	0%	0%
SB	Left Turn	250	25	3	50	6	50	11	0%	0%
	Through	1,325	75	8	125	18	150	30	0%	0%
	Right Turn	250	25	2	25	11	25	27	0%	0%
WB	Left Turn	925	25	4	75	9	75	18	4%	0%
	Through/Right	75	25	5	50	9	75	17	1%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	150	8	200	15	250	22	0%	1%
	Right Turn	225	25	3	25	6	50	14	0%	2%
NB	Left Turn	725	350	33	575	72	600	91	0%	0%
	Through	975	225	20	425	79	550	286	0%	0%
	Right Turn	975	275	34	550	66	650	150	0%	0%
SB	Left Turn	75	25	7	75	20	100	41	1%	0%
	Through	975	125	13	200	21	250	40	9%	0%
	Right Turn	225	100	15	150	28	200	48	0%	0%
WB	Left Turn	425	725	60	850	60	800	22	10%	31%
	Shared	225	225	4	250	15	250	0	80%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
	Left Turn	150	75	11	150	26	175	32	0%	1%
	Through	400	375	17	450	25	450	25	0%	1%
NB										
	Through	975	200	27	375	66	475	106	29%	0%
SB										
	Left Turn	1,075	200	33	250	66	325	81	0%	0%
	Right Turn	550	350	51	500	71	550	66	2%	0%
WB										
0										

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
	Left Turn	1,050	225	24	325	36	400	40	0%	0%
	Right Turn	450	25	2	25	22	50	63	0%	0%
EB										
	Through	150	225	6	275	10	275	23	0%	46%
	Right Turn	150	25	5	25	44	75	127	0%	0%
NB										
	Left Turn	175	0	0	0	0	0	0	0%	0%
	Through	400	275	11	325	16	350	24	0%	0%
SB										

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	100	14	150	6	125	1	53%	0%
	Through	1,575	250	182	475	281	525	254	36%	0%
	Right Turn	50	25	3	50	10	100	6	2%	0%
NB	Left Turn	250	125	8	275	17	275	1	0%	0%
	Through	700	625	45	825	33	750	16	58%	9%
	Through/Right	700	525	43	800	25	725	17	0%	1%
SB	Left Turn	225	50	6	125	13	150	24	0%	0%
	Through	225	75	14	175	25	200	11	0%	3%
	Through/Right	225	100	14	225	18	250	23	0%	6%
WB	Left Turn	100	75	12	125	13	100	1	20%	0%
	Through	225	2,300	616	3,925	976	4,025	926	2%	0%
	Right Turn	100	100	1	125	3	125	0	90%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Through	575	625	38	750	50	700	20	0%	27%
	Right Turn	575	300	75	725	74	625	59	0%	0%
SB	Left Turn	375	25	2	50	6	75	13	0%	0%
	Through	700	200	20	325	24	325	55	0%	0%
WB	Left Turn	1,025	425	46	675	72	775	90	5%	0%
	Right Turn	1,025	375	12	450	16	400	15	0%	0%
0										

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	150	14	200	25	275	40	5%	0%
	Right Turn	1,050	50	2	50	16	50	46	0%	0%
NB	Through	750	500	119	875	160	825	76	0%	4%
	Right Turn	750	325	149	850	210	800	189	0%	4%
SB	Through	575	50	24	125	67	175	81	0%	0%
	Through/Right	575	75	20	175	56	250	84	0%	0%

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	75	5	125	8	125	10	1%	0%
	Through/Right	125	50	5	100	12	100	27	0%	0%
NB	Left Turn	425	250	31	600	38	500	0	0%	0%
	Through	725	2,000	296	3,150	406	3,375	416	65%	0%
	Through/Right	725	300	0	300	2	300	0	24%	0%
SB	Left Turn	275	225	54	325	40	325	1	26%	0%
	Through	750	300	139	550	206	575	175	6%	3%
	Through/Right	750	300	52	525	91	575	97	0%	0%
WB	Left Turn	250	75	10	150	27	175	66	0%	0%
	Through	1,025	50	15	150	39	225	90	12%	0%
	Right Turn	75	75	6	125	9	125	3	17%	0%

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	25	4	50	16	100	28	0%	0%
	Right Turn	150	25	1	25	6	25	16	0%	0%
WB	Left Turn	850	25	2	50	2	50	11	0%	0%
	Through	850	25	33	200	220	500	516	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	850	75	5	125	12	150	25	0%	0%
SB	Right Turn	575	50	6	75	9	100	16	0%	0%
WB	Through	1,150	100	10	200	38	250	83	0%	0%
	Through/Right	1,150	150	11	250	34	325	69	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	25	3	50	6	50	12	0%	0%
	Left/Through	325	25	1	50	4	50	8	0%	0%
	Right Turn	325	25	2	50	4	75	4	0%	0%
NB	Left Turn	125	50	2	75	8	100	14	0%	0%
	Through	575	50	4	125	8	200	12	0%	0%
	Through/Right	575	50	2	75	7	75	13	0%	0%
SB	Left Turn	175	50	3	75	7	75	14	0%	0%
	Through	1,000	50	6	100	21	125	51	0%	0%
	Through/Right	1,000	150	13	250	24	300	51	0%	0%
WB	Left Turn	325	25	0	25	0	25	0	0%	0%
	Through/Right	325	25	0	25	0	25	0	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	50	6	100	11	125	20	0%	0%
	Right Turn	200	25	3	50	5	50	13	0%	0%
NB	Left Turn	125	75	5	150	7	150	12	14%	0%
	Through	1,000	50	11	100	30	175	63	1%	0%
SB	Through	300	150	8	225	14	275	17	0%	0%
	Through/Right	300	150	8	175	18	175	29	0%	4%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Queue Length **AM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	175	19	325	31	375	8	9%	0%
	Right Turn	125	125	4	150	4	150	0	10%	0%
NB	Left Turn	325	350	83	525	91	550	60	35%	0%
	Through/Right	2,025	350	336	675	507	700	351	0%	9%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	100	14	175	27	225	44	9%	0%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	85.3	96.2	0.1	5
	7	52.7	65.1	0.2	8
US 101 NB Ramps	6	77.9	88.1	0.1	5
Ross Dr	5	59.2	70.7	0.1	8
	4	35.0	39.6	0.0	4
SR 237 EB Off-Ramp	43	1.5	5.8	0.0	20
Mathilda Ave	57	3.1	8.0	0.0	16
Mathilda Ave	3	19.2	23.3	0.0	6
Innovation Way	2	31.7	50.4	0.2	16
5th Ave	1	14.8	34.0	0.2	25
	107	4.6	26.9	0.3	36
Total		384.9	508.2	1.5	10

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	14.6	35.9	0.3	27
Innovation Way	2	62.8	81.3	0.2	10
	3	38.8	68.8	0.2	11
Ross Dr	5	16.3	22.0	0.0	8
US 101 NB Ramps	6	16.7	28.2	0.1	19
US 101 SB Ramps	7	9.7	20.6	0.1	23
Almanor Ave	8	33.6	45.8	0.2	12
San Aleso Ave	201	4.3	15.7	0.1	32
Total		196.7	318.4	1.4	15

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	2.5	7.3	0.0	11
	53	0.6	5.4	0.0	27
	11	7.8	15.3	0.1	17
	200	3.0	19.8	0.2	29
Juniper Driveway	12	9.8	15.5	0.1	13
Driveway	217	2.3	5.5	0.0	24
	902	30.5	32.8	0.0	2
Mathilda Ave	2	20.9	22.6	0.0	4
	16	2.3	15.9	0.1	20
Bordeaux Dr	13	19.0	31.8	0.1	9
Total		98.8	172.0	0.6	13

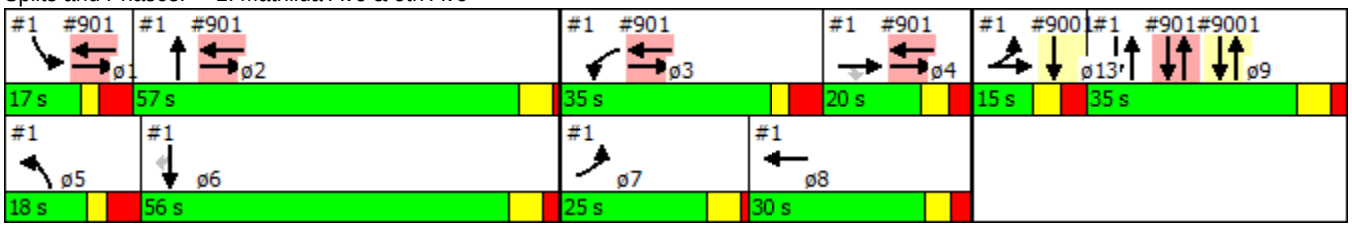
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	16	-	-	0.1	-
Mathilda Ave	2	217.8	229.3	0.1	1
	902	6.9	12.0	0.0	8
Driveway	217	1.1	3.0	0.0	24
Juniper Driveway	12	6.4	10.4	0.0	13
	200	2.0	8.5	0.1	24
11th Ave	11	9.9	26.0	0.2	22
	53	2.9	10.4	0.1	25
	910	13.0	17.4	0.0	9
Moffett Park Dr	10	11.3	16.1	0.0	5
Total		271.4	333.1	0.6	7

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	70	20	70	240	10	110	340	10	1110	10		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	33.5	17.5
Total Split (s)			20.0	35.0	30.0	18.0		17.0		56.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		31.3%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.5	4.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	1.0	1.0
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 107
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



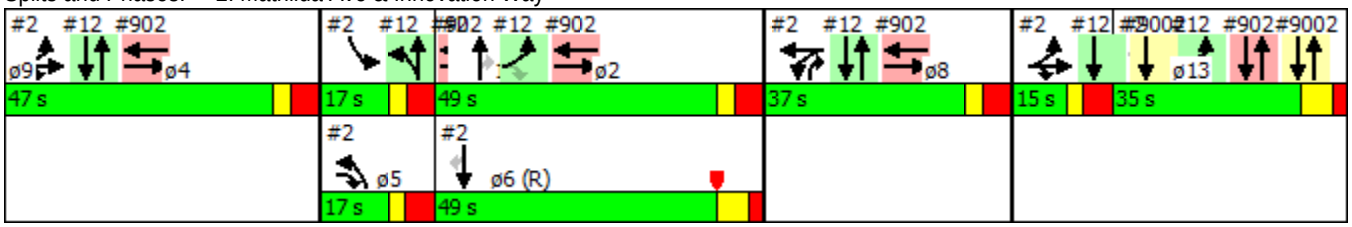
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	200	1160	480	120	120	260	200	50	1320	50		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	8	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0		10.0	7.0			12.0	14.0
Minimum Split (s)			35.0	35.0	17.0		35.0	13.8			19.0	39.0
Total Split (s)			37.0	37.0	17.0		37.0	17.0			49.0	47.0
Total Split (%)			18.5%	18.5%	8.5%		18.5%	8.5%			25%	24%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			2.5	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			4.5	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lead			Lag	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	None		None	None			None	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	49.0	35.0	15.0
Total Split (%)	25%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	C-Max	None	None

Intersection Summary

Lane Group	WBR	SBL	SBR2	NEL	ø9
Lane Configurations					
Volume (vph)	190	2110	850	390	
Turn Type	Prot	Prot	Perm	Prot	
Protected Phases	4	4		2	9
Permitted Phases			4		
Detector Phase	4	4	4	2	
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.7	26.7	26.7	26.7	18.0
Total Split (s)	95.0	95.0	95.0	35.0	20.0
Total Split (%)	63.3%	63.3%	63.3%	23.3%	13%
Yellow Time (s)	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	6.0	6.0	6.0	6.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 4:SBL, Start of Yellow, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 3: Mathilda Ave & SR 237 WB Off-Ramp

Lane Group	EBR	NBT	NBR2	SWL	ø9
Lane Configurations					
Volume (vph)	150	460	670	2510	
Turn Type	custom	NA	Perm	Prot	
Protected Phases	2 9	2		4	9
Permitted Phases			2		
Detector Phase	2	2	2	4	
Switch Phase					
Minimum Initial (s)		4.0	4.0	4.0	4.0
Minimum Split (s)		26.7	26.7	26.7	18.0
Total Split (s)		35.0	35.0	95.0	20.0
Total Split (%)		23.3%	23.3%	63.3%	13%
Yellow Time (s)		3.0	3.0	3.0	2.0
All-Red Time (s)		6.0	6.0	6.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode		None	None	C-Max	Max

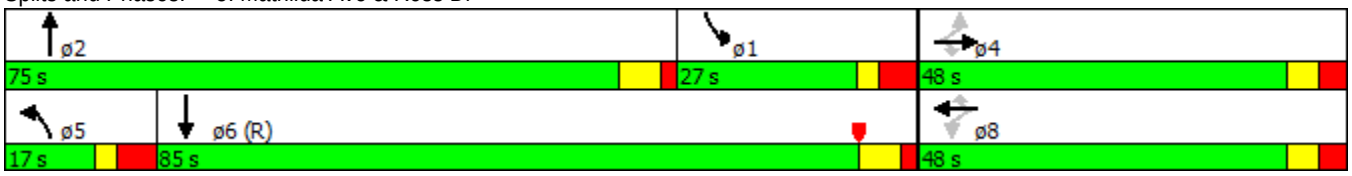
Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 4:SBL, Start of Yellow, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated

Splits and Phases: 4: Mathilda Ave & SR 237 EB Off-Ramp

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	40	150	40	230	50	100	120	990	140	2460
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	17.0	75.0	27.0	85.0
Total Split (%)	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	11.3%	50.0%	18.0%	56.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 140 (93%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 135
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	800	220	1160	270	40	2690
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	48.0	18.0	84.0	84.0	18.0	102.0
Total Split (%)	32.0%	12.0%	56.0%	56.0%	12.0%	68.0%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 120 (80%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	80	500	1350	530	2350
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.9	10.9	22.9	22.9	22.9
Total Split (s)	35.0	35.0	115.0	115.0	115.0
Total Split (%)	23.3%	23.3%	76.7%	76.7%	76.7%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	C-Max

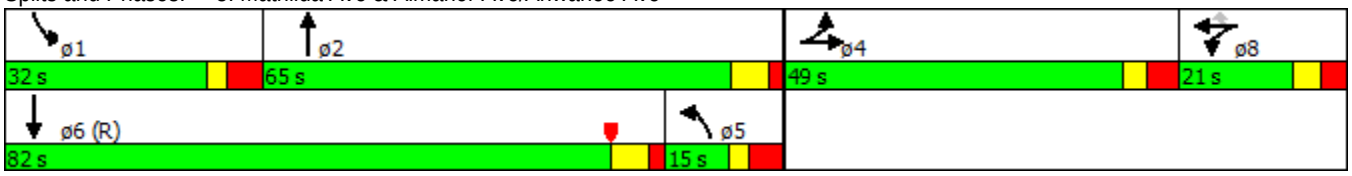
Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 122 (81%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 120
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	310	30	50	10	190	60	1380	180	2600
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	49.0	49.0	15.0	15.0	15.0	15.0	36.7	15.0	27.7
Total Split (s)	49.0	49.0	21.0	21.0	21.0	15.0	65.0	32.0	82.0
Total Split (%)	29.3%	29.3%	12.6%	12.6%	12.6%	9.0%	38.9%	19.2%	49.1%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 167
Actuated Cycle Length: 167
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	790	90	230	220
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	52.0	52.0	23.0	75.0
Total Split (%)	69.3%	69.3%	30.7%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

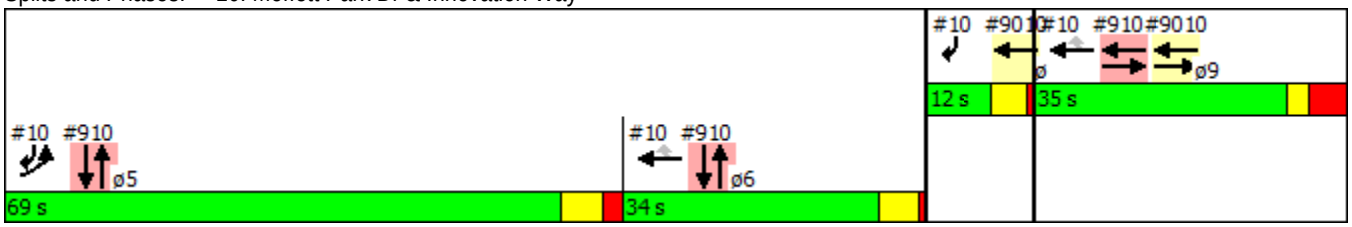
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 52.2
Natural Cycle: 50
Control Type: Semi Act-Uncoord

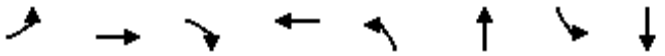
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	WBT	WBR	SBR	ø4	ø6	ø9
Lane Configurations							
Volume (vph)	790	240	90	210			
Turn Type	Prot	NA	Perm	pt+ov			
Protected Phases	5	6 9		4 5	4	6	9
Permitted Phases			6 9				
Detector Phase	5	6	6 9	5			
Switch Phase							
Minimum Initial (s)	8.0				4.0	10.0	28.0
Minimum Split (s)	15.0				9.0	27.5	35.0
Total Split (s)	69.0				12.0	34.0	35.0
Total Split (%)	46.0%				8%	23%	23%
Yellow Time (s)	4.7				4.0	4.5	2.5
All-Red Time (s)	2.3				1.0	1.0	4.5
Lost Time Adjust (s)	0.0						
Total Lost Time (s)	7.0						
Lead/Lag	Lead					Lag	
Lead-Lag Optimize?	Yes					Yes	
Recall Mode	Max				None	Min	None

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 132.7
Natural Cycle: 100
Control Type: Semi Act-Uncoord

Splits and Phases: 10: Moffett Park Dr & Innovation Way





Lane Group	EBL	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Configurations								
Volume (vph)	390	0	130	0	10	840	80	60
Sign Control		Stop		Stop		Stop		Stop

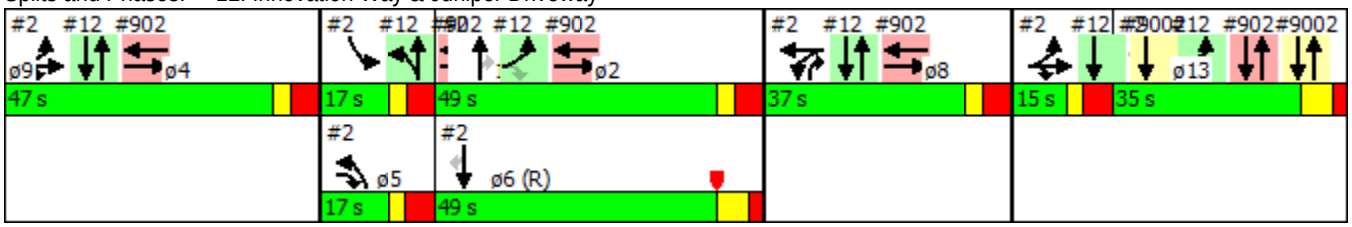
Intersection Summary

Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	ø2	ø4	ø5	ø6	ø8	ø9	ø13
Lane Configurations												
Volume (vph)	370	40	40	1200	220							
Turn Type	Prot	Perm	Prot	NA	NA							
Protected Phases	2 9		1	1 4 8	4 8 13	2	4	5	6	8	9	13
Permitted Phases		2 9										
Detector Phase	2	2	1	1 4 8	4 8							
Switch Phase												
Minimum Initial (s)			7.0			12.0	14.0	10.0	12.0	10.0	28.0	8.0
Minimum Split (s)			13.8			19.0	39.0	17.0	30.0	35.0	35.0	15.0
Total Split (s)			17.0			49.0	47.0	17.0	49.0	37.0	35.0	15.0
Total Split (%)			8.5%			25%	24%	9%	25%	19%	18%	8%
Yellow Time (s)			2.5			2.5	2.5	2.5	4.7	2.5	4.7	2.5
All-Red Time (s)			4.3			4.5	4.5	4.5	2.3	4.5	2.3	4.5
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lead			Lag		Lead	Lag		Lag	Lead
Lead-Lag Optimize?			Yes			Yes		Yes	Yes		Yes	Yes
Recall Mode			None			None	None	None	C-Max	None	None	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

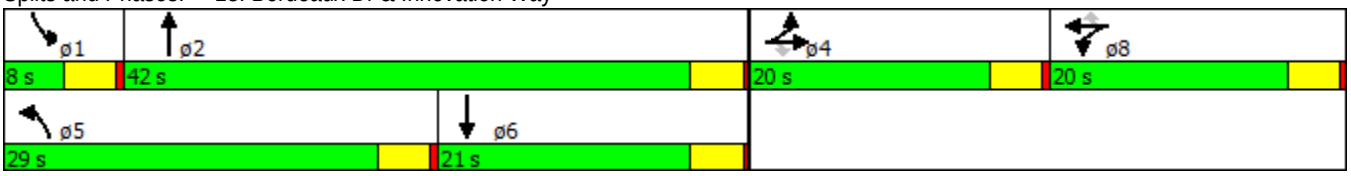
Splits and Phases: 12: Innovation Way & Juniper Driveway



Lane Group	EBT	EBR	NBL	NBT	SBT	ø1	ø8
Lane Configurations							
Volume (vph)	10	140	450	30	140		
Turn Type	NA	Perm	Prot	NA	NA		
Protected Phases	4		5	2	6	1	8
Permitted Phases		4					
Detector Phase	4	4	5	2	6		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	20.0
Total Split (s)	20.0	20.0	29.0	42.0	21.0	8.0	20.0
Total Split (%)	22.2%	22.2%	32.2%	46.7%	23.3%	9%	22%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0		
Lead/Lag			Lead	Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 52.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor
Average Results from 10 Runs
Network Performance

Mathilda Avenue Improvements
2018 Build Alternative 2
PM Peak Hour

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	347.1	14.6	319.7	363.0
Total Delay (hours)	1,107	56	1,002	1,181
Average Stopped Delay (seconds)	287.0	15.0	260.4	303.6
Total Stopped Delay (hours)	915	55	816	984
Total Stops	36,976	945	34,617	38,164
Average Stops	3.22	0.07	3.07	3.30
Total Distance Traveled (miles)	40,585	357	40,187	41,345
Average Speed (mph)	19.2	0.4	19.0	20.0
Total Travel Time (hours)	2,139.3	61.6	2,025.7	2,229.0
Vehicles Entered	9,739	120	9,569	9,974
Vehicles Exited	8,936	54	8,827	8,988
Percent Demand Served	91.8%	1.0%	90.1%	93.0%
Fuel Used (gallons)	1,268	20	1,234	1,303
HC Emissions (grams)	16,875	840	15,847	18,120
CO Emissions (grams)	463,624	14,946	446,547	485,264
NOx Emissions (grams)	64,966	2,137	62,528	67,888

SimTraffic Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Mathilda Avenue Improvements
2018 Build Alternative 2
PM Peak Hour

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	95	86.7%	60.1	8.8	E
	Through	340	306	89.9%	15.2	2.6	B
	Right Turn	40	35	88.5%	8.3	2.8	A
	Subtotal	490	437	89.1%	24.5	3.4	C
SB	Left Turn	10	8	79.0%	230.8	101.6	F
	Through	1,110	929	83.7%	269.3	107.1	F
	Right Turn	10	10	100.0%	210.0	105.1	F
	Subtotal	1,130	947	83.8%	268.6	106.5	F
EB	Left Turn	70	74	106.3%	35.5	2.7	D
	Through	20	23	116.5%	56.0	9.6	E
	Right Turn	70	66	94.7%	19.7	2.7	B
	Subtotal	160	164	102.5%	32.0	3.1	C
WB	Left Turn	240	217	90.5%	205.2	111.2	F
	Through	10	10	100.0%	211.5	112.5	F
	Right Turn	30	27	88.3%	164.9	104.3	F
	Subtotal	280	254	90.6%	200.7	109.4	F
Total		2,060	1,801	87.4%	177.3	62.2	F

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	111	92.1%	85.4	9.0	F
	Through	260	256	98.3%	37.1	5.9	D
	Right Turn	200	194	97.0%	13.8	2.0	B
	Subtotal	580	560	96.6%	38.7	3.2	D
SB	Left Turn	50	43	85.0%	260.2	36.8	F
	Through	1,320	1,083	82.0%	285.7	27.1	F
	Right Turn	50	47	93.4%	320.7	25.3	F
	Subtotal	1,420	1,172	82.5%	286.2	26.7	F
EB	Left Turn	210	165	78.5%	60.0	3.5	E
	Through	200	160	80.0%	61.4	5.5	E
	Right Turn	1,160	923	79.6%	58.0	3.7	E
	Subtotal	1,570	1,248	79.5%	58.7	3.9	E
WB	Left Turn	480	388	80.8%	197.3	12.9	F
	Through	120	94	78.1%	214.2	20.1	F
	Right Turn	20	16	80.5%	202.8	22.0	F
	Subtotal	620	498	80.3%	200.8	14.1	F
Total		4,190	3,478	83.0%	152.2	8.1	F

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	190	180	94.5%	1.9	0.6	A
	Through	390	373	95.7%	38.1	2.1	D
	Right Turn						
	Subtotal	580	553	95.3%	26.3	1.6	C
SB	Left Turn						
	Through	2,110	1,697	80.4%	50.9	6.5	D
	Right Turn	850	692	81.4%	97.4	7.3	F
	Subtotal	2,960	2,389	80.7%	64.4	6.7	E
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	760	740	97.4%	176.0	48.4	F
	Through						
	Right Turn	190	187	98.3%	38.0	17.6	D
	Subtotal	950	927	97.6%	148.2	42.2	F
Total		4,490	3,869	86.8%	79.0	14.5	E

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	460	456	99.1%	74.9	2.5	E
	Right Turn	670	671	100.2%	4.5	0.4	A
	Subtotal	1,130	1,127	99.8%	33.0	1.2	C
SB	Left Turn	360	294	81.8%	5.2	0.2	A
	Through	2,510	2,141	85.3%	28.1	1.2	C
	Right Turn						
	Subtotal	2,870	2,435	84.9%	25.3	1.1	C
EB	Left Turn	120	97	80.6%	171.0	127.9	F
	Through						
	Right Turn	150	92	61.6%	1042.9	334.5	F
	Subtotal	270	189	71.3%	597.0	228.9	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		4,270	3,752	88.7%	56.4	12.6	E

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	120	100.3%	168.8	43.2	F
	Through	990	993	100.3%	50.8	14.6	D
	Right Turn	270	269	99.4%	80.6	27.7	F
	Subtotal	1,380	1,382	100.1%	66.9	17.8	E
SB	Left Turn	140	125	89.2%	55.0	5.6	D
	Through	2,460	2,053	83.5%	25.8	1.5	C
	Right Turn	60	51	85.5%	22.6	4.6	C
	Subtotal	2,660	2,230	83.8%	27.4	1.5	C
EB	Left Turn	40	38	94.3%	47.6	6.5	D
	Through	150	153	102.0%	46.4	4.2	D
	Right Turn	40	42	103.8%	27.4	5.3	C
	Subtotal	230	232	101.0%	43.1	4.0	D
WB	Left Turn	230	208	90.6%	260.1	144.3	F
	Through	50	44	87.2%	241.4	143.7	F
	Right Turn	100	92	92.0%	231.0	152.3	F
	Subtotal	380	344	90.5%	250.0	146.2	F
Total		4,650	4,188	90.1%	59.5	13.2	E

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,160	1,168	100.7%	18.4	4.3	B
	Right Turn	270	271	100.2%	5.2	0.7	A
	Subtotal	1,430	1,438	100.6%	15.9	3.6	B
SB	Left Turn	40	32	80.0%	75.5	6.6	E
	Through	2,690	2,265	84.2%	54.9	4.2	D
	Right Turn						
	Subtotal	2,730	2,297	84.1%	55.2	4.1	E
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	800	806	100.8%	99.7	20.2	F
	Through						
	Right Turn	220	218	98.9%	85.2	20.2	F
	Subtotal	1,020	1,024	100.4%	96.6	20.3	F
Total		5,180	4,759	91.9%	52.3	6.1	D

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,350	1,352	100.1%	7.6	1.7	A
	Right Turn	530	551	103.9%	8.2	0.5	A
	Subtotal	1,880	1,903	101.2%	7.8	1.3	A
SB	Left Turn						
	Through	2,350	2,110	89.8%	8.2	0.5	A
	Right Turn	1,140	957	83.9%	17.1	2.7	B
	Subtotal	3,490	3,067	87.9%	10.9	1.1	B
EB	Left Turn	80	81	101.6%	82.0	4.8	F
	Through						
	Right Turn	500	499	99.9%	23.2	0.9	C
	Subtotal	580	581	100.1%	31.5	1.3	C
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,950	5,550	93.3%	12.0	0.8	B

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Aven** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	65	108.3%	95.5	10.2	F
	Through	1,380	1,394	101.0%	45.5	1.6	D
	Right Turn	40	40	99.3%	33.8	2.5	C
	Subtotal	1,480	1,499	101.3%	47.3	1.7	D
SB	Left Turn	180	167	92.9%	82.6	3.8	F
	Through	2,600	2,375	91.4%	29.6	2.6	C
	Right Turn	70	64	91.7%	23.5	3.2	C
	Subtotal	2,850	2,607	91.5%	32.9	2.4	C
EB	Left Turn	310	320	103.1%	72.2	2.5	E
	Through	30	35	115.0%	72.1	6.9	E
	Right Turn	70	73	103.6%	47.8	4.1	D
	Subtotal	410	427	104.0%	68.0	2.4	E
WB	Left Turn	50	50	99.4%	61.3	7.3	E
	Through	10	11	114.0%	61.5	7.8	E
	Right Turn	190	189	99.4%	8.6	0.7	A
	Subtotal	250	250	100.0%	21.5	2.5	C
Total		4,990	4,782	95.8%	40.0	1.6	D

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	790	718	90.9%	49.6	26.8	D
	Right Turn	90	85	94.9%	24.6	12.8	C
	Subtotal	880	804	91.3%	47.0	25.3	D
WB	Left Turn	230	221	96.1%	26.6	5.5	C
	Through	220	218	99.0%	2.4	0.3	A
	Right Turn						
	Subtotal	450	439	97.5%	14.6	3.0	B
Total		1,330	1,242	93.4%	35.2	17.1	D

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	210	201	95.8%	11.7	2.4	B
	Subtotal	210	201	95.8%	11.7	2.4	B
EB	Left Turn	790	665	84.1%	165.7	81.8	F
	Through						
	Right Turn						
	Subtotal	790	665	84.1%	165.7	81.8	F
WB	Left Turn						
	Through	240	239	99.6%	29.6	3.3	C
	Right Turn	90	44	48.9%	67.3	26.7	E
	Subtotal	330	283	85.8%	35.5	5.4	D
Total		1,330	1,149	86.4%	105.7	48.0	F

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	840	650	77.4%	131.5	38.5	F
	Right Turn	20	17	86.0%	127.3	37.0	F
	Subtotal	860	668	77.6%	131.3	38.4	F
SB	Left Turn	80	71	88.1%	27.4	4.4	D
	Through	60	56	92.5%	18.0	4.4	C
	Right Turn	120	106	88.2%	14.6	3.2	B
	Subtotal	260	232	89.2%	19.3	3.2	C
EB	Left Turn	390	387	99.1%	66.5	11.7	F
	Through						
	Right Turn	130	126	97.2%	24.5	2.9	C
	Subtotal	520	513	98.6%	56.2	9.5	F
WB	Left Turn						
	Through						
	Right Turn	10	9	92.0%	37.2	13.6	E
	Subtotal	10	9	92.0%	37.2	13.6	E
Total		1,650	1,422	86.2%	85.0	19.3	F

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	40	35	88.0%	254.1	23.4	F
	Through	1,200	996	83.0%	231.4	22.1	F
	Right Turn						
	Subtotal	1,240	1,031	83.2%	232.2	22.0	F
SB	Left Turn						
	Through	220	193	87.7%	56.9	5.1	E
	Right Turn	70	58	83.1%	43.3	6.4	D
	Subtotal	290	251	86.6%	53.7	5.2	D
EB	Left Turn	370	251	67.7%	809.8	308.3	F
	Through						
	Right Turn	40	41	103.3%	108.1	45.8	F
	Subtotal	410	292	71.2%	707.8	266.4	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,940	1,574	81.1%	288.3	46.6	F

SimTraffic Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Mathilda Avenue Improvements
2018 Build Alternative 2
PM Peak Hour

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	450	340	75.4%	777.1	291.4	F
	Through	30	23	77.0%	664.0	284.1	F
	Right Turn						
	Subtotal	480	363	75.5%	769.8	290.7	F
SB	Left Turn						
	Through	140	131	93.3%	219.0	79.6	F
	Right Turn	160	148	92.4%	220.7	77.2	F
	Subtotal	300	279	92.8%	219.8	78.0	F
EB	Left Turn	30	27	91.0%	26.9	5.0	C
	Through	10	10	100.0%	27.9	3.8	C
	Right Turn	140	120	85.5%	8.5	0.7	A
	Subtotal	180	157	87.2%	13.0	2.0	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		960	798	83.1%	427.3	141.5	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Queue Length **PM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	75	14	125	22	175	20	6%	0%
	Through	625	50	4	75	6	75	12	0%	0%
	Right Turn	625	50	7	75	13	100	14	0%	0%
NB	Left Turn	425	75	6	125	10	125	24	0%	0%
	Through	1,125	50	6	125	11	150	25	0%	0%
	Through/Right	1,125	50	8	125	13	150	17	0%	0%
SB	Left Turn	250	50	18	150	65	300	1	0%	0%
	Through	1,325	800	247	1,450	352	1,350	224	67%	13%
	Right Turn	250	50	29	200	92	275	89	0%	0%
WB	Left Turn	925	350	167	675	362	700	254	75%	6%
	Through/Right	75	50	6	100	6	100	0	7%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	250	5	350	10	350	15	0%	45%
	Right Turn	225	275	6	350	9	325	21	0%	33%
NB	Left Turn	725	75	9	125	21	150	34	0%	0%
	Through	975	100	11	175	19	200	39	0%	0%
	Right Turn	975	75	14	150	27	200	32	0%	0%
SB	Left Turn	75	75	12	150	22	150	0	14%	0%
	Through	975	1,125	82	1,275	90	1,200	16	82%	37%
	Right Turn	225	175	24	375	19	275	0	0%	0%
WB	Left Turn	425	775	3	800	6	800	5	25%	48%
	Shared	225	250	1	250	3	250	0	73%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Left Turn	350	25	2	25	16	25	36	0%	0%
	Through	400	125	6	175	10	175	19	0%	0%
SB	Through	975	950	72	1,200	98	1,125	151	19%	5%
WB	Left Turn	1,075	650	154	975	232	1,025	240	13%	0%
	Right Turn	550	275	117	650	175	700	151	0%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	1,025	324	1,975	429	2,200	376	0%	0%
	Right Turn	450	950	105	1,575	98	1,775	59	75%	0%
NB	Through	150	125	7	200	13	200	33	0%	2%
	Right Turn	150	25	11	75	62	175	115	0%	0%
SB	Left/Through	400	25	2	50	15	75	45	0%	0%
	Through	400	350	11	400	12	375	19	0%	6%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	50	10	125	15	125	0	1%	0%
	Through	1,575	150	20	275	50	325	94	57%	0%
	Right Turn	50	50	5	100	8	100	0	15%	0%
NB	Left Turn	250	150	26	250	36	250	21	13%	0%
	Through	700	350	118	600	256	625	249	10%	1%
	Through/Right	700	400	89	625	86	650	69	0%	1%
SB	Left Turn	225	125	8	200	13	225	10	0%	1%
	Through	225	175	11	225	13	250	20	0%	6%
	Through/Right	225	250	8	275	15	275	18	0%	95%
WB	Left Turn	100	100	1	125	2	100	0	78%	0%
	Through	225	875	509	1,400	827	1,400	670	3%	0%
	Right Turn	100	50	6	100	9	100	0	4%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Through	575	200	46	325	81	375	103	0%	0%
	Right Turn	575	25	4	50	25	75	57	0%	0%
SB	Left Turn	375	75	23	250	67	450	1	0%	0%
	Through	700	575	33	700	35	725	32	24%	1%
WB	Left Turn	1,025	400	92	575	118	625	110	14%	0%
	Right Turn	1,025	200	53	425	63	400	21	0%	0%

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	100	5	125	8	125	17	0%	0%
	Right Turn	1,050	25	3	25	23	50	62	0%	0%
NB	Through	750	75	32	200	111	375	277	0%	0%
	Right Turn	750	25	11	100	107	250	314	0%	0%
SB	Through	575	100	23	250	65	350	121	0%	0%
	Through/Right	575	250	36	400	80	500	125	0%	0%

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	175	12	275	26	325	62	32%	0%
	Through/Right	125	100	14	200	21	225	2	5%	0%
NB	Left Turn	425	75	11	150	20	175	31	0%	0%
	Through	750	300	14	425	33	475	68	23%	0%
	Through/Right	750	225	11	350	10	300	0	3%	0%
SB	Left Turn	275	200	15	325	18	325	1	2%	0%
	Through	750	300	34	450	49	525	75	11%	0%
	Through/Right	750	250	23	375	32	425	49	0%	0%
WB	Left Turn	250	50	8	100	15	125	26	0%	0%
	Through	1,025	25	5	75	20	100	42	2%	0%
	Right Turn	75	75	3	100	6	125	5	11%	0%

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	375	160	850	327	825	198	29%	7%
	Right Turn	150	100	38	300	107	350	96	0%	0%
WB	Left Turn	850	125	15	225	32	300	66	0%	0%
	Through	850	25	3	25	33	50	96	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	850	525	216	1,000	322	875	203	0%	17%
SB	Right Turn	575	25	5	50	11	100	20	0%	0%
WB	Through	1,150	100	8	150	20	175	33	0%	0%
	Right Turn	1,150	50	12	125	27	150	43	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	125	9	175	6	150	0	9%	0%
	Left/Through	325	175	33	375	73	475	97	31%	0%
	Right Turn	325	75	4	100	20	150	63	0%	0%
NB	Left Turn	125	50	15	150	37	175	0	0%	0%
	Through	575	400	58	475	50	475	30	82%	27%
	Through/Right	575	300	40	400	33	375	6	0%	59%
SB	Left Turn	175	75	6	125	12	150	23	0%	0%
	Through	1,000	25	5	75	13	100	27	0%	0%
	Through/Right	1,000	75	11	150	20	175	25	0%	0%
WB	Left Turn	325	25	0	25	0	25	0	0%	0%
	Through/Right	325	25	3	50	6	50	15	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	2,575	988	3,875	1,341	3,850	1,169	0%	0%
	Right Turn	200	875	428	1,800	689	1,575	528	0%	0%
NB	Left Turn	125	75	10	150	20	175	1	0%	0%
	Through	1,000	1,100	50	1,225	61	1,175	34	72%	39%
SB	Through	300	200	11	225	23	250	36	0%	0%
	Through/Right	300	100	17	125	28	150	34	0%	6%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2018 Build Alternative 2**
Queue Length **PM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left/Through	375	50	5	75	9	100	23	0%	0%
	Right Turn	125	50	3	100	6	100	16	0%	0%
NB	Left Turn	325	1,275	179	2,300	237	2,525	220	84%	0%
	Through/Right	2,025	925	98	1,150	154	1,025	1	0%	44%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	500	132	775	100	725	37	75%	15%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	32.6	43.7	0.1	12
	7	8.3	20.8	0.2	26
US 101 NB Ramps	6	16.6	27.0	0.1	18
Ross Dr	5	48.9	60.6	0.1	9
	4	79.8	84.3	0.0	2
SR 237 EB Off-Ramp	43	1.1	5.4	0.0	22
Mathilda Ave	57	0.5	5.4	0.0	24
Mathilda Ave	3	36.4	40.5	0.0	4
Innovation Way	2	32.7	56.8	0.2	14
5th Ave	1	16.4	36.1	0.2	24
	107	3.3	25.4	0.3	39
Total		276.7	406.1	1.5	13

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	266.9	287.1	0.3	3
Innovation Way	2	276.4	298.1	0.2	3
	3	50.7	81.9	0.2	10
Ross Dr	5	20.6	27.4	0.0	6
US 101 NB Ramps	6	56.2	67.4	0.1	8
US 101 SB Ramps	7	7.0	17.8	0.1	27
Almanor Ave	8	27.6	40.0	0.2	14
San Aleso Ave	201	5.4	16.8	0.1	30
Total		710.8	836.4	1.4	6

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	9.5	13.7	0.0	7
	53	24.3	28.9	0.0	5
	11	101.7	109.0	0.1	2
	200	155.5	171.1	0.2	3
Juniper Driveway	12	70.1	75.8	0.1	3
Driveway	217	10.7	13.9	0.0	10
	902	29.0	31.0	0.0	2
Mathilda Ave	2	10.9	13.5	0.0	7
	16	3.3	17.6	0.1	18
Bordeaux Dr	13	25.6	37.6	0.1	8
Total		440.7	512.1	0.6	4

Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	16	-	-	0.1	-
Mathilda Ave	2	136.2	147.7	0.1	2
	902	5.8	10.9	0.0	9
Driveway	217	0.5	2.5	0.0	27
Juniper Driveway	12	53.3	58.5	0.0	2
	200	2.4	8.8	0.1	23
11th Ave	11	16.1	31.9	0.2	18
	53	3.2	10.6	0.1	24
	910	5.7	9.9	0.0	14
Moffett Park Dr	10	4.3	8.9	0.0	10
Total		227.5	289.8	0.6	8

APPENDIX M – YEAR 2018 FREQ MAINLINE CALCULATION SHEETS

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4430.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	3	4430.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4430.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4930.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4930.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4930.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	4810.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4270.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4270.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	10000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.80	21.36	21.91	22.31	22.84	23.12	25.09
2	0.18	0.74	1.29	1.69	2.23	2.50	4.47
3	0.00	0.38	0.93	1.34	1.87	2.14	4.11
4	0.00	0.00	0.13	0.53	1.06	1.34	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2660.	0.	2660.	2660.	0.	2660.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
2	3	99999.	0.	0.	2660.	0.	0.	2660.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
3	2	12000.	0.	0.	2660.	0.	0.	2660.	4000.	0.	0.	0.	.67	62.	21.5	C	20.3	13.0
4	3	350.	250.	0.	2910.	250.	0.	2910.	4430.	0.	0.	0.	.66	62.	15.6	B	20.3	13.0
5	3	300.	0.	0.	2910.	0.	0.	2910.	4430.	0.	0.	0.	.66	62.	15.6	B	20.3	13.0
6	3	350.	0.	900.	2910.	0.	900.	2910.	4430.	0.	0.	0.	.66	62.	15.6	B	20.3	13.0
7	2	940.	0.	0.	2010.	0.	0.	2010.	4000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
8	3	700.	1670.	0.	3680.	1670.	0.	3680.	4930.	0.	0.	0.	.75	62.	19.8	C	20.3	13.0
9	3	700.	0.	0.	3680.	0.	0.	3680.	4930.	0.	0.	0.	.75	62.	19.8	C	20.3	13.0
10	3	700.	0.	720.	3680.	0.	720.	3680.	4930.	0.	0.	0.	.75	62.	19.8	C	20.3	13.0
11	2	2300.	0.	0.	2960.	0.	0.	2960.	4000.	0.	0.	0.	.74	62.	23.9	C	20.3	13.0
12	3	700.	360.	722.	3320.	360.	722.	3320.	4810.	0.	0.	0.	.69	62.	17.8	B	20.3	13.0
13	3	800.	0.	0.	2598.	0.	0.	2598.	4270.	0.	0.	0.	.61	62.	14.0	B	20.3	13.0
14	3	1400.	0.	230.	2598.	0.	230.	2598.	4270.	0.	0.	0.	.61	62.	14.0	B	20.3	13.0
15	2	1400.	0.	0.	2368.	0.	0.	2368.	4000.	0.	0.	0.	.59	62.	19.1	C	20.3	13.0
16	2	1500.	0.	200.	2368.	0.	200.	2368.	4000.	0.	0.	0.	.59	62.	19.1	C	20.3	13.0
17	2	1500.	0.	0.	2168.	0.	0.	2168.	4000.	0.	0.	0.	.54	62.	17.5	B	20.3	13.0
18	2	10000.	0.	0.	2168.	0.	0.	2168.	4000.	0.	0.	0.	.54	62.	17.5	B	20.3	13.0
19	3	750.	722.	2890.	2890.	722.	2890.	2890.	5600.	0.	0.	0.	.52	62.	15.5	B	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 0.75		LOWEST LOS = C		AVG = 62.	15.6			20.3	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1102. VEH-HRS	1349. PASS-HRS	1102. VEH-HRS	1349. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1102. VEH-HRS	1349. PASS-HRS	1102. VEH-HRS	1349. PASS-HRS
TOTAL TRAV DISTANCE =	68293. VEH-MI.	83661. PASS-MI.	68293. VEH-MI.	83661. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	16. VPMPL		16. VPMPL	
TOTAL FUEL =	3357. GALLONS		3357. GALLONS	
TOTAL EMISSIONS =	891. KILOGRAMS		891. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.19	2	37.50	3	4.50	4	0.14	5	0.12
6	0.14	7	0.27	8	0.36	9	0.36	10	0.36
11	0.96	12	0.33	13	0.29	14	0.51	15	0.47
16	0.50	17	0.46	18	3.06	19	0.31		

***** TOTAL DELAY = 50.8 VEH-HRS ***** AVERAGE DELAY = 1.16 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.99	21.60	22.20	22.61	23.14	23.42	25.39
2	0.18	0.79	1.40	1.80	2.34	2.61	4.58
3	0.00	0.44	1.04	1.44	1.98	2.26	4.23
4	0.00	0.00	0.13	0.53	1.07	1.34	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3659.	0.	3659.	3659.	0.	3659.	6000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
2	3	99999.	0.	0.	3659.	0.	0.	3659.	6000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
3	2	12000.	0.	0.	3659.	0.	0.	3659.	4000.	0.	0.	0.	.91	57.	32.0	D	22.2	11.8
4	3	350.	431.	0.	4090.	431.	0.	4090.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
5	3	300.	0.	0.	4090.	0.	0.	4090.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
6	3	350.	0.	1270.	4090.	0.	1270.	4090.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
7	2	940.	0.	0.	2820.	0.	0.	2820.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
8	3	700.	1911.	0.	4731.	1911.	0.	4731.	4930.	0.	0.	0.	.96	55.	28.9	D	23.0	11.4
9	3	700.	0.	0.	4731.	0.	0.	4731.	4930.	0.	0.	0.	.96	55.	28.9	D	23.0	11.4
10	3	700.	0.	930.	4731.	0.	930.	4731.	4930.	0.	0.	0.	.96	55.	28.9	D	23.0	11.4
11	2	2300.	0.	0.	3801.	0.	0.	3801.	4000.	0.	0.	0.	.95	55.	34.5	D	22.8	11.4
12	3	700.	574.	958.	4375.	574.	958.	4375.	4810.	0.	0.	0.	.91	62.	23.5	C	20.3	13.0
13	3	800.	0.	0.	3417.	0.	0.	3417.	4270.	0.	0.	0.	.80	62.	18.4	C	20.3	13.0
14	3	1400.	0.	270.	3417.	0.	270.	3417.	4270.	0.	0.	0.	.80	62.	18.4	C	20.3	13.0
15	2	1400.	0.	0.	3147.	0.	0.	3147.	4000.	0.	0.	0.	.79	61.	25.7	C	20.7	12.8
16	2	1500.	0.	270.	3147.	0.	270.	3147.	4000.	0.	0.	0.	.79	61.	25.7	C	20.7	12.8
17	2	1500.	0.	0.	2877.	0.	0.	2877.	4000.	0.	0.	0.	.72	62.	23.2	C	20.3	13.0
18	2	10000.	0.	0.	2877.	0.	0.	2877.	4000.	0.	0.	0.	.72	62.	23.2	C	20.3	13.0
19	3	750.	959.	3836.	3836.	959.	3836.	3836.	5600.	0.	0.	0.	.69	62.	20.6	C	20.3	13.0
TOTAL		136889. = 25.9 MILES							MAX(V/C) = 0.96		LOWEST LOS = D		AVG = 61.		21.6		20.6	12.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1524. VEH-HRS	1869. PASS-HRS	2626. VEH-HRS	3218. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1524. VEH-HRS	1869. PASS-HRS	2626. VEH-HRS	3218. PASS-HRS
TOTAL TRAV DISTANCE =	93318. VEH-MI.	114387. PASS-MI.	161612. VEH-MI.	198048. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	

AVERAGE DENSITY =	22. VPMPL	19. VPMPL
TOTAL FUEL =	4532. GALLONS	7890. GALLONS
TOTAL EMISSIONS =	1201. KILOGRAMS	2092. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.26	2	51.59	3	17.66	4	0.20	5	0.17
6	0.20	7	0.37	8	1.86	9	1.86	10	1.86
11	4.57	12	0.43	13	0.39	14	0.67	15	0.79
16	0.85	17	0.61	18	4.06	19	0.41		

***** TOTAL DELAY = 88.8 VEH-HRS ***** AVERAGE DELAY = 1.46 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 13 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

19

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	722.	0.	722.	722.	0.	722.	1650.	0.	0.	0.	.44	62.	11.6	B	21.6	12.8
14	1	1400.	0.	0.	722.	0.	0.	722.	1650.	0.	0.	0.	.44	62.	11.6	B	21.6	12.8
15	1	1400.	0.	0.	722.	0.	0.	722.	1650.	0.	0.	0.	.44	62.	11.6	B	21.6	12.8
16	1	1500.	0.	0.	722.	0.	0.	722.	1650.	0.	0.	0.	.44	62.	11.6	B	21.6	12.8
17	1	1500.	0.	0.	722.	0.	0.	722.	1650.	0.	0.	0.	.44	62.	11.6	B	21.6	12.8
18	1	10000.	0.	722.	722.	0.	722.	722.	1650.	0.	0.	0.	.44	62.	11.6	B	21.6	12.8
19																		
TOTAL		16600. = 3.1 MILES							MAX(V/C) = 0.44		LOWEST LOS = B			AVG = 62.	11.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	37. VEH-HRS	73. PASS-HRS	37. VEH-HRS	73. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	37. VEH-HRS	73. PASS-HRS	37. VEH-HRS	73. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2271. VEH-MI.	4541. PASS-MI.	2271. VEH-MI.	4541. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		12. VPMPL	
TOTAL FUEL =	105. GALLONS		105. GALLONS	
TOTAL EMISSIONS =	29. KILOGRAMS		29. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.08	14	0.14	15	0.14
16	0.15	17	0.15	18	1.02	19	0.00		

***** TOTAL DELAY = 1.7 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	959.	0.	959.	959.	0.	959.	1650.	0.	0.	0.	.58	62.	15.5	B	21.6	12.8
14	1	1400.	0.	0.	959.	0.	0.	959.	1650.	0.	0.	0.	.58	62.	15.5	B	21.6	12.8
15	1	1400.	0.	0.	959.	0.	0.	959.	1650.	0.	0.	0.	.58	62.	15.5	B	21.6	12.8
16	1	1500.	0.	0.	959.	0.	0.	959.	1650.	0.	0.	0.	.58	62.	15.5	B	21.6	12.8
17	1	1500.	0.	0.	959.	0.	0.	959.	1650.	0.	0.	0.	.58	62.	15.5	B	21.6	12.8
18	1	10000.	0.	959.	959.	0.	959.	959.	1650.	0.	0.	0.	.58	62.	15.5	B	21.6	12.8
19																		
TOTAL		16600. = 3.1 MILES							MAX(V/C) = 0.58		LOWEST LOS = B			AVG = 62.	15.5		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	49. VEH-HRS	97. PASS-HRS	85. VEH-HRS	170. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	49. VEH-HRS	97. PASS-HRS	85. VEH-HRS	170. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3014. VEH-MI.	6029. PASS-MI.	5285. VEH-MI.	10570. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	15. VPMPL		14. VPMPL	
TOTAL FUEL =	140. GALLONS		245. GALLONS	

TOTAL EMISSIONS = 38. KILOGRAMS 67. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.11	14	0.19	15	0.19
16	0.20	17	0.20	18	1.35	19	0.00		

***** TOTAL DELAY = 2.2 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222     PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222      PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222        PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4430.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	3	4430.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4430.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4650.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4650.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4650.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	4810.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4270.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4270.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	10000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.80	21.36	21.91	22.31	22.84	23.12	25.09
2	0.18	0.74	1.29	1.69	2.23	2.50	4.47
3	0.00	0.38	0.93	1.34	1.87	2.14	4.11
4	0.00	0.00	0.13	0.53	1.06	1.34	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2661.	0.	2661.	2661.	0.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
2	3	99999.	0.	0.	2661.	0.	0.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
3	2	12000.	0.	0.	2661.	0.	0.	2661.	4000.	0.	0.	0.	.67	62.	21.5	C	20.3	13.0
4	3	350.	250.	0.	2911.	250.	0.	2911.	4430.	0.	0.	0.	.66	62.	15.7	B	20.3	13.0
5	3	300.	0.	0.	2911.	0.	0.	2911.	4430.	0.	0.	0.	.66	62.	15.7	B	20.3	13.0
6	3	350.	0.	900.	2911.	0.	900.	2911.	4430.	0.	0.	0.	.66	62.	15.7	B	20.3	13.0
7	2	940.	0.	0.	2011.	0.	0.	2011.	4000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
8	3	700.	1470.	0.	3481.	1470.	0.	3481.	4650.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
9	3	700.	0.	0.	3481.	0.	0.	3481.	4650.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
10	3	700.	0.	521.	3481.	0.	521.	3481.	4650.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
11	2	2300.	0.	0.	2960.	0.	0.	2960.	4000.	0.	0.	0.	.74	62.	23.9	C	20.3	13.0
12	3	700.	501.	758.	3461.	501.	758.	3461.	4810.	0.	0.	0.	.72	62.	18.6	C	20.3	13.0
13	3	800.	0.	0.	2703.	0.	0.	2703.	4270.	0.	0.	0.	.63	62.	14.5	B	20.3	13.0
14	3	1400.	0.	230.	2703.	0.	230.	2703.	4270.	0.	0.	0.	.63	62.	14.5	B	20.3	13.0
15	2	1400.	0.	0.	2473.	0.	0.	2473.	4000.	0.	0.	0.	.62	62.	19.9	C	20.3	13.0
16	2	1500.	0.	199.	2473.	0.	199.	2473.	4000.	0.	0.	0.	.62	62.	19.9	C	20.3	13.0
17	2	1500.	0.	0.	2274.	0.	0.	2274.	4000.	0.	0.	0.	.57	62.	18.3	C	20.3	13.0
18	2	10000.	0.	0.	2274.	0.	0.	2274.	4000.	0.	0.	0.	.57	62.	18.3	C	20.3	13.0
19	3	750.	758.	3032.	3032.	758.	3032.	3032.	5600.	0.	0.	0.	.54	62.	16.3	B	20.3	13.0
TOTAL	136889. =	25.9 MILES									MAX(V/C) = 0.75		LOWEST LOS = C	AVG = 62.	15.7		20.3	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1107. VEH-HRS	1354. PASS-HRS	1107. VEH-HRS	1354. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1107. VEH-HRS	1354. PASS-HRS	1107. VEH-HRS	1354. PASS-HRS
TOTAL TRAV DISTANCE =	68607. VEH-MI.	83969. PASS-MI.	68607. VEH-MI.	83969. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	16. VPMPL		16. VPMPL	
TOTAL FUEL =	3373. GALLONS		3373. GALLONS	
TOTAL EMISSIONS =	895. KILOGRAMS		895. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.19	2	37.52	3	4.50	4	0.14	5	0.12
6	0.14	7	0.27	8	0.34	9	0.34	10	0.34
11	0.96	12	0.34	13	0.30	14	0.53	15	0.49
16	0.52	17	0.48	18	3.21	19	0.32		

***** TOTAL DELAY = 51.1 VEH-HRS ***** AVERAGE DELAY = 1.16 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.99	21.55	22.15	22.56	23.10	23.38	25.35
2	0.18	0.74	1.34	1.75	2.29	2.57	4.54
3	0.00	0.38	0.99	1.39	1.94	2.21	4.18
4	0.00	0.00	0.13	0.53	1.08	1.35	3.32
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3662.	0.	3662.	3662.	0.	3662.	6000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
2	3	99999.	0.	0.	3662.	0.	0.	3662.	6000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
3	2	12000.	0.	0.	3662.	0.	0.	3662.	4000.	0.	0.	0.	.92	57.	32.1	D	22.2	11.8
4	3	350.	430.	0.	4092.	430.	0.	4092.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
5	3	300.	0.	0.	4092.	0.	0.	4092.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
6	3	350.	0.	1270.	4092.	0.	1270.	4092.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
7	2	940.	0.	0.	2822.	0.	0.	2822.	4000.	0.	0.	0.	.71	62.	22.8	C	20.3	13.0
8	3	700.	1630.	0.	4452.	1630.	0.	4452.	4650.	0.	0.	0.	.96	62.	23.9	C	20.3	13.0
9	3	700.	0.	0.	4452.	0.	0.	4452.	4650.	0.	0.	0.	.96	62.	23.9	C	20.3	13.0
10	3	700.	0.	650.	4452.	0.	650.	4452.	4650.	0.	0.	0.	.96	62.	23.9	C	20.3	13.0
11	2	2300.	0.	0.	3802.	0.	0.	3802.	4000.	0.	0.	0.	.95	55.	34.5	D	22.8	11.4
12	3	700.	798.	1015.	4600.	798.	1015.	4600.	4810.	0.	0.	0.	.96	62.	24.7	C	20.3	13.0
13	3	800.	0.	0.	3585.	0.	0.	3585.	4270.	0.	0.	0.	.84	62.	19.3	C	20.3	13.0
14	3	1400.	0.	271.	3585.	0.	271.	3585.	4270.	0.	0.	0.	.84	62.	19.3	C	20.3	13.0
15	2	1400.	0.	0.	3314.	0.	0.	3314.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
16	2	1500.	0.	271.	3314.	0.	271.	3314.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
17	2	1500.	0.	0.	3043.	0.	0.	3043.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
18	2	10000.	0.	0.	3043.	0.	0.	3043.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
19	3	750.	1014.	4057.	4057.	1014.	4057.	4057.	5600.	0.	0.	0.	.72	62.	21.8	C	20.3	13.0
TOTAL		136889. = 25.9 MILES									MAX(V/C) = 0.96		LOWEST LOS = D	AVG = 61.	21.7		20.6	12.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1530. VEH-HRS	1873. PASS-HRS	2636. VEH-HRS	3227. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1530. VEH-HRS	1873. PASS-HRS	2636. VEH-HRS	3227. PASS-HRS
TOTAL TRAV DISTANCE =	93857. VEH-MI.	114929. PASS-MI.	162464. VEH-MI.	198898. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	

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AVERAGE DENSITY =	22. VPMPL	19. VPMPL
TOTAL FUEL =	4567. GALLONS	7940. GALLONS
TOTAL EMISSIONS =	1211. KILOGRAMS	2106. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.26	2	51.63	3	17.77	4	0.20	5	0.17
6	0.20	7	0.37	8	0.44	9	0.44	10	0.44
11	4.58	12	0.45	13	0.40	14	0.71	15	1.04
16	1.11	17	0.64	18	4.29	19	0.43		

***** TOTAL DELAY = 85.6 VEH-HRS ***** AVERAGE DELAY = 1.41 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 13 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	758.	0.	758.	758.	0.	758.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
14	1	1400.	0.	0.	758.	0.	0.	758.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
15	1	1400.	0.	0.	758.	0.	0.	758.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
16	1	1500.	0.	0.	758.	0.	0.	758.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
17	1	1500.	0.	0.	758.	0.	0.	758.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
18	1	10000.	0.	758.	758.	0.	758.	758.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
19																		
TOTAL		16600. = 3.1 MILES							MAX(V/C) = 0.46		LOWEST LOS = B			AVG = 62.	12.2		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	38. VEH-HRS	77. PASS-HRS	38. VEH-HRS	77. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	38. VEH-HRS	77. PASS-HRS	38. VEH-HRS	77. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2382. VEH-MI.	4765. PASS-MI.	2382. VEH-MI.	4765. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		12. VPMPL	
TOTAL FUEL =	111. GALLONS		111. GALLONS	
TOTAL EMISSIONS =	30. KILOGRAMS		30. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.09	14	0.15	15	0.15
16	0.16	17	0.16	18	1.07	19	0.00		

***** TOTAL DELAY = 1.8 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	1014.	0.	1014.	1014.	0.	1014.	1650.	0.	0.	0.	.61	62.	16.4	B	21.6	12.8
14	1	1400.	0.	0.	1014.	0.	0.	1014.	1650.	0.	0.	0.	.61	62.	16.4	B	21.6	12.8
15	1	1400.	0.	0.	1014.	0.	0.	1014.	1650.	0.	0.	0.	.61	62.	16.4	B	21.6	12.8
16	1	1500.	0.	0.	1014.	0.	0.	1014.	1650.	0.	0.	0.	.61	62.	16.4	B	21.6	12.8
17	1	1500.	0.	0.	1014.	0.	0.	1014.	1650.	0.	0.	0.	.61	62.	16.4	B	21.6	12.8
18	1	10000.	0.	1014.	1014.	0.	1014.	1014.	1650.	0.	0.	0.	.61	62.	16.4	B	21.6	12.8
19																		
TOTAL		16600. = 3.1 MILES							MAX(V/C) = 0.61		LOWEST LOS = B			AVG = 62.	16.4		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	51. VEH-HRS	103. PASS-HRS	90. VEH-HRS	180. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	51. VEH-HRS	103. PASS-HRS	90. VEH-HRS	180. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3189. VEH-MI.	6377. PASS-MI.	5571. VEH-MI.	11142. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	16. VPMPL		14. VPMPL	
TOTAL FUEL =	148. GALLONS		258. GALLONS	

TOTAL EMISSIONS = 41. KILOGRAMS 71. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.11	14	0.20	15	0.20
16	0.21	17	0.21	18	1.43	19	0.00		

***** TOTAL DELAY = 2.4 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4430.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	3	4430.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4430.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4650.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4650.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4650.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	4810.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4270.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4270.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	10000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.80	21.36	21.91	22.31	22.84	23.12	25.09
2	0.18	0.74	1.29	1.69	2.23	2.50	4.47
3	0.00	0.38	0.93	1.34	1.87	2.14	4.11
4	0.00	0.00	0.13	0.53	1.06	1.34	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2661.	0.	2661.	2661.	0.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
2	3	99999.	0.	0.	2661.	0.	0.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
3	2	12000.	0.	0.	2661.	0.	0.	2661.	4000.	0.	0.	0.	.67	62.	21.5	C	20.3	13.0
4	3	350.	250.	0.	2911.	250.	0.	2911.	4430.	0.	0.	0.	.66	62.	15.7	B	20.3	13.0
5	3	300.	0.	0.	2911.	0.	0.	2911.	4430.	0.	0.	0.	.66	62.	15.7	B	20.3	13.0
6	3	350.	0.	900.	2911.	0.	900.	2911.	4430.	0.	0.	0.	.66	62.	15.7	B	20.3	13.0
7	2	940.	0.	0.	2011.	0.	0.	2011.	4000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
8	3	700.	1472.	0.	3483.	1472.	0.	3483.	4650.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
9	3	700.	0.	0.	3483.	0.	0.	3483.	4650.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
10	3	700.	0.	521.	3483.	0.	521.	3483.	4650.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
11	2	2300.	0.	0.	2962.	0.	0.	2962.	4000.	0.	0.	0.	.74	62.	23.9	C	20.3	13.0
12	3	700.	470.	751.	3432.	470.	751.	3432.	4810.	0.	0.	0.	.71	62.	18.5	C	20.3	13.0
13	3	800.	0.	0.	2681.	0.	0.	2681.	4270.	0.	0.	0.	.63	62.	14.4	B	20.3	13.0
14	3	1400.	0.	231.	2681.	0.	231.	2681.	4270.	0.	0.	0.	.63	62.	14.4	B	20.3	13.0
15	2	1400.	0.	0.	2450.	0.	0.	2450.	4000.	0.	0.	0.	.61	62.	19.8	C	20.3	13.0
16	2	1500.	0.	200.	2450.	0.	200.	2450.	4000.	0.	0.	0.	.61	62.	19.8	C	20.3	13.0
17	2	1500.	0.	0.	2250.	0.	0.	2250.	4000.	0.	0.	0.	.56	62.	18.1	C	20.3	13.0
18	2	10000.	0.	0.	2250.	0.	0.	2250.	4000.	0.	0.	0.	.56	62.	18.1	C	20.3	13.0
19	3	750.	750.	3000.	3000.	750.	3000.	3000.	5600.	0.	0.	0.	.54	62.	16.1	B	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 0.75		LOWEST LOS = C		AVG = 62.		15.7		20.3	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1105. VEH-HRS	1353. PASS-HRS	1105. VEH-HRS	1353. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1105. VEH-HRS	1353. PASS-HRS	1105. VEH-HRS	1353. PASS-HRS
TOTAL TRAV DISTANCE =	68526. VEH-MI.	83888. PASS-MI.	68526. VEH-MI.	83888. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	16. VPMPL		16. VPMPL	
TOTAL FUEL =	3369. GALLONS		3369. GALLONS	
TOTAL EMISSIONS =	894. KILOGRAMS		894. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.19	2	37.52	3	4.50	4	0.14	5	0.12
6	0.14	7	0.27	8	0.34	9	0.34	10	0.34
11	0.96	12	0.34	13	0.30	14	0.53	15	0.48
16	0.52	17	0.48	18	3.17	19	0.32		

***** TOTAL DELAY = 51.0 VEH-HRS ***** AVERAGE DELAY = 1.16 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.99	21.55	22.15	22.55	23.10	23.37	25.34
2	0.18	0.74	1.34	1.75	2.29	2.56	4.54
3	0.00	0.38	0.99	1.39	1.93	2.21	4.18
4	0.00	0.00	0.13	0.53	1.08	1.35	3.32
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3660.	0.	3660.	3660.	0.	3660.	6000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
2	3	99999.	0.	0.	3660.	0.	0.	3660.	6000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
3	2	12000.	0.	0.	3660.	0.	0.	3660.	4000.	0.	0.	0.	.92	57.	32.0	D	22.2	11.8
4	3	350.	430.	0.	4090.	430.	0.	4090.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
5	3	300.	0.	0.	4090.	0.	0.	4090.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
6	3	350.	0.	1270.	4090.	0.	1270.	4090.	4430.	0.	0.	0.	.92	62.	22.0	C	20.3	13.0
7	2	940.	0.	0.	2820.	0.	0.	2820.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
8	3	700.	1631.	0.	4451.	1631.	0.	4451.	4650.	0.	0.	0.	.96	62.	23.9	C	20.3	13.0
9	3	700.	0.	0.	4451.	0.	0.	4451.	4650.	0.	0.	0.	.96	62.	23.9	C	20.3	13.0
10	3	700.	0.	650.	4451.	0.	650.	4451.	4650.	0.	0.	0.	.96	62.	23.9	C	20.3	13.0
11	2	2300.	0.	0.	3801.	0.	0.	3801.	4000.	0.	0.	0.	.95	55.	34.5	D	22.8	11.4
12	3	700.	744.	1002.	4545.	744.	1002.	4545.	4810.	0.	0.	0.	.94	62.	24.4	C	20.3	13.0
13	3	800.	0.	0.	3543.	0.	0.	3543.	4270.	0.	0.	0.	.83	62.	19.0	C	20.3	13.0
14	3	1400.	0.	270.	3543.	0.	270.	3543.	4270.	0.	0.	0.	.83	62.	19.0	C	20.3	13.0
15	2	1400.	0.	0.	3273.	0.	0.	3273.	4000.	0.	0.	0.	.82	61.	27.0	D	21.0	12.6
16	2	1500.	0.	270.	3273.	0.	270.	3273.	4000.	0.	0.	0.	.82	61.	27.0	D	21.0	12.6
17	2	1500.	0.	0.	3003.	0.	0.	3003.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
18	2	10000.	0.	0.	3003.	0.	0.	3003.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
19	3	750.	1001.	4004.	4004.	1001.	4004.	4004.	5600.	0.	0.	0.	.71	62.	21.5	C	20.3	13.0
TOTAL		136889. = 25.9 MILES									MAX(V/C) = 0.96		LOWEST LOS = D	AVG = 61.	21.7		20.5	12.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1526. VEH-HRS	1870. PASS-HRS	2632. VEH-HRS	3223. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1526. VEH-HRS	1870. PASS-HRS	2632. VEH-HRS	3223. PASS-HRS
TOTAL TRAV DISTANCE =	93671. VEH-MI.	114729. PASS-MI.	162197. VEH-MI.	198616. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	

AVERAGE DENSITY =	22. VPMPL	19. VPMPL
TOTAL FUEL =	4559. GALLONS	7928. GALLONS
TOTAL EMISSIONS =	1209. KILOGRAMS	2103. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.26	2	51.60	3	17.69	4	0.20	5	0.17
6	0.20	7	0.37	8	0.44	9	0.44	10	0.44
11	4.57	12	0.45	13	0.40	14	0.70	15	0.97
16	1.03	17	0.64	18	4.23	19	0.42		

***** TOTAL DELAY = 85.2 VEH-HRS ***** AVERAGE DELAY = 1.41 MIN/VEH *****

INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/31/2016 15:17 PAGE 1
UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 13 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/31/2016 15:17 PAGE 2
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

19

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	750.	0.	750.	750.	0.	750.	1650.	0.	0.	0.	.45	62.	12.1	B	21.6	12.8
14	1	1400.	0.	0.	750.	0.	0.	750.	1650.	0.	0.	0.	.45	62.	12.1	B	21.6	12.8
15	1	1400.	0.	0.	750.	0.	0.	750.	1650.	0.	0.	0.	.45	62.	12.1	B	21.6	12.8
16	1	1500.	0.	0.	750.	0.	0.	750.	1650.	0.	0.	0.	.45	62.	12.1	B	21.6	12.8
17	1	1500.	0.	0.	750.	0.	0.	750.	1650.	0.	0.	0.	.45	62.	12.1	B	21.6	12.8
18	1	10000.	0.	750.	750.	0.	750.	750.	1650.	0.	0.	0.	.45	62.	12.1	B	21.6	12.8
19																		
TOTAL		16600. = 3.1 MILES							MAX(V/C) = 0.45		LOWEST LOS = B			AVG = 62.	12.1		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	38. VEH-HRS	76. PASS-HRS	38. VEH-HRS	76. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	38. VEH-HRS	76. PASS-HRS	38. VEH-HRS	76. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2358. VEH-MI.	4716. PASS-MI.	2358. VEH-MI.	4716. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		12. VPMPL	
TOTAL FUEL =	109. GALLONS		109. GALLONS	
TOTAL EMISSIONS =	30. KILOGRAMS		30. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.08	14	0.15	15	0.15
16	0.16	17	0.16	18	1.06	19	0.00		

***** TOTAL DELAY = 1.8 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.04	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	1001.	0.	1001.	1001.	0.	1001.	1650.	0.	0.	0.	.61	62.	16.1	B	21.6	12.8
14	1	1400.	0.	0.	1001.	0.	0.	1001.	1650.	0.	0.	0.	.61	62.	16.1	B	21.6	12.8
15	1	1400.	0.	0.	1001.	0.	0.	1001.	1650.	0.	0.	0.	.61	62.	16.1	B	21.6	12.8
16	1	1500.	0.	0.	1001.	0.	0.	1001.	1650.	0.	0.	0.	.61	62.	16.1	B	21.6	12.8
17	1	1500.	0.	0.	1001.	0.	0.	1001.	1650.	0.	0.	0.	.61	62.	16.1	B	21.6	12.8
18	1	10000.	0.	1001.	1001.	0.	1001.	1001.	1650.	0.	0.	0.	.61	62.	16.1	B	21.6	12.8
19																		
TOTAL		16600. = 3.1 MILES							MAX(V/C) = 0.61		LOWEST LOS = B		AVG = 62.		16.1		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	51. VEH-HRS	102. PASS-HRS	89. VEH-HRS	178. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	51. VEH-HRS	102. PASS-HRS	89. VEH-HRS	178. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3147. VEH-MI.	6294. PASS-MI.	5505. VEH-MI.	11010. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	16. VPMPL		14. VPMPL	
TOTAL FUEL =	146. GALLONS		255. GALLONS	

TOTAL EMISSIONS = 40. KILOGRAMS 70. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.11	14	0.20	15	0.20
16	0.21	17	0.21	18	1.41	19	0.00		

***** TOTAL DELAY = 2.3 VEH-HRS ***** AVERAGE DELAY = 0.14 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ   1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ         QQQQ   1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ         QQQQ   1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ   1111      2222      PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ    1111     222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4720.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	3	4720.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4720.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4410.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4410.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4410.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	5030.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4340.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4340.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	5000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	2	4000.	5000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Buffer
20	3	2500.	750.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Dummy Queue Spillback

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.80	21.36	22.04	23.28	26.33	29.45	66.21
2	0.18	0.74	1.42	2.66	5.71	8.83	45.59
3	0.00	0.38	1.07	2.31	5.36	8.47	45.23
4	0.00	0.00	0.22	1.45	4.51	7.62	44.38
5	0.00	0.00	0.00	0.00	0.00	0.00	17.72
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	1939.	0.	1939.	1939.	0.	1939.	6000.	0.	0.	0.	.32	62.	10.4	A	20.3	13.0
2	3	99999.	0.	0.	1939.	0.	0.	1939.	6000.	0.	0.	0.	.32	62.	10.4	A	20.3	13.0
3	2	12000.	0.	0.	1939.	0.	0.	1939.	4000.	0.	0.	0.	.48	62.	15.6	B	20.3	13.0
4	3	350.	650.	0.	2589.	550.	0.	2489.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
5	3	300.	0.	0.	2589.	0.	0.	2489.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
6	3	350.	0.	600.	2589.	0.	577.	2489.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
7	2	940.	0.	0.	1989.	0.	0.	1912.	4000.	0.	0.	0.	.48	62.	15.4	B	20.3	13.0
8	3	700.	857.	0.	2846.	857.	0.	2769.	4410.	0.	0.	0.	.63	62.	14.9	B	20.3	13.0
9	3	700.	0.	0.	2846.	0.	0.	2769.	4410.	0.	0.	0.	.63	62.	14.9	B	20.3	13.0
10	3	700.	0.	309.	2846.	0.	301.	2769.	4410.	0.	0.	0.	.63	62.	14.9	B	20.3	13.0
11	2	2300.	0.	0.	2537.	0.	0.	887.	4000.	0. *	905.	1582.	.22	56.	7.9	F	20.2	13.1
12	3	700.	830.	725.	3367.	730.	689.	1617.	5030.	0. **	700.	1582.	.32	37.	14.7	F	19.4	13.6
13	3	800.	0.	0.	2642.	0.	0.	928.	4340.	0. **	800.	1582.	.21	25.	12.3	F	19.1	13.7
14	3	1400.	0.	220.	2642.	0.	209.	928.	4340.	0. **	1400.	1582.	.21	18.	17.0	F	18.4	14.2
15	2	1400.	0.	0.	2422.	0.	0.	719.	4000.	0. **	1400.	1582.	.18	13.	28.5	F	17.9	14.5
16	2	1500.	0.	361.	2422.	0.	343.	719.	4000.	0. **	1500.	1582.	.18	10.	37.7	F	17.1	15.2
17	2	1500.	0.	0.	2061.	0.	0.	376.	4000.	0. **	1500.	1582.	.09	5.	34.3	F	17.3	14.9
18	2	5000.	0.	0.	2061.	0.	0.	376.	4000.	0. **	5000.	1582.	.09	3.	63.0	F	15.3	16.7
19	2	5000.	724.	0.	2785.	724.	0.	1100.	4000.	0. **	5000.	1582.	.28	3.	170.2	F	9.8	24.9
20	3	750.	1400.	4185.	4185.	1400.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. = 25.9 MILES							MAX(V/C) = 1.00 LOWEST LOS = F				AVG = 30.		19.6		19.6	13.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1635. VEH-HRS	1941. PASS-HRS	1635. VEH-HRS	1941. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	100. PASS-HRS	100. VEH-HRS	100. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1735. VEH-HRS	2041. PASS-HRS	1735. VEH-HRS	2041. PASS-HRS
TOTAL TRAV DISTANCE =	49554. VEH-MI.	61792. PASS-MI.	49554. VEH-MI.	61792. PASS-MI.
AVERAGE SYSTEM SPEED =	29. MPH.		30. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2569. GALLONS		2569. GALLONS	
TOTAL EMISSIONS =	683. KILOGRAMS		683. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.14	2	27.34	3	3.28	4	0.12	5	0.11
6	0.12	7	0.25	8	0.27	9	0.27	10	0.27
11	2.63	12	4.89	13	8.66	14	23.47	15	32.28
16	45.28	17	61.85	18	301.45	19	359.87	20	0.26

***** TOTAL DELAY = 872.8 VEH-HRS ***** AVERAGE DELAY = 87.50 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	4.62	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.62	18.03	1.11	5.83	0.31	7.25
ON-RAMP	4	RAMP	100.	50.00	3.61	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.61	18.03	1.11	5.83	0.31	7.25

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	24.62	27.98	31.10	33.79	37.65	40.26	60.07
2	1.13	4.50	7.62	10.30	14.16	16.77	36.59
3	0.00	1.78	4.90	7.58	11.44	14.05	33.87
4	0.00	0.00	0.69	3.37	7.23	9.84	29.65
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2249.	0.	2249.	2249.	0.	2249.	6000.	0.	0.	0.	.37	62.	12.1	B	20.3	13.0
2	3	99999.	0.	0.	2249.	0.	0.	2249.	6000.	0.	0.	0.	.37	62.	12.1	B	20.3	13.0
3	2	12000.	0.	0.	2249.	0.	0.	1625.	4000.	0. *	5264.	624.	.41	27.	30.2	F	17.9	14.5
4	3	350.	841.	0.	3090.	841.	0.	2466.	4720.	0. **	350.	624.	.52	11.	77.6	F	12.2	20.7
5	3	300.	0.	0.	3090.	0.	0.	2466.	4720.	0. **	300.	624.	.52	10.	81.9	F	11.9	21.3
6	3	350.	0.	720.	3090.	0.	720.	2466.	4720.	0. **	350.	624.	.52	10.	86.4	F	11.6	21.8
7	2	940.	0.	0.	2370.	0.	0.	1746.	4000.	0. **	940.	624.	.44	7.	129.6	F	10.4	23.5
8	3	700.	1445.	0.	3815.	1445.	0.	3191.	4410.	0. **	700.	624.	.72	14.	75.4	F	14.9	19.7
9	3	700.	0.	0.	3815.	0.	0.	3191.	4410.	0. **	700.	624.	.72	13.	79.3	F	14.6	20.2
10	3	700.	0.	409.	3815.	0.	409.	3191.	4410.	0. **	700.	624.	.72	13.	83.3	F	14.3	20.7
11	2	2300.	0.	0.	3406.	0.	0.	2782.	4000.	0. **	2300.	624.	.70	11.	129.4	F	13.4	22.2
12	3	700.	885.	808.	4291.	885.	812.	3667.	5030.	0. **	700.	624.	.73	12.	105.4	F	13.8	21.6
13	3	800.	0.	0.	3483.	0.	0.	2855.	4340.	0. **	800.	624.	.66	9.	102.2	F	12.1	23.7
14	3	1400.	0.	340.	3483.	0.	338.	2855.	4340.	0. **	1400.	624.	.66	9.	102.2	F	12.1	23.7
15	2	1400.	0.	0.	3143.	0.	0.	2517.	4000.	0. **	1400.	624.	.63	9.	147.5	F	11.2	24.7
16	2	1500.	0.	340.	3143.	0.	344.	2517.	4000.	0. **	1500.	624.	.63	9.	147.5	F	11.2	24.7
17	2	1500.	0.	499.	2803.	0.	481.	2172.	4000.	0. **	1500.	624.	.54	7.	166.2	F	9.4	27.0
18	2	5000.	0.	0.	2304.	0.	0.	1691.	4000.	0. **	5000.	624.	.42	4.	192.4	F	8.3	28.9
19	2	5000.	809.	0.	3113.	809.	0.	2500.	4000.	0. **	5000.	624.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	3113.	3113.	0.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0

TOTAL	136889. =	25.9 MILES	MAX(V/C) = 1.00	LOWEST LOS = F	AVG = 26.	36.0	17.5	15.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2264. VEH-HRS	2690. PASS-HRS	3899. VEH-HRS	4631. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	200. VEH-HRS	200. PASS-HRS	300. VEH-HRS	300. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2464. VEH-HRS	2890. PASS-HRS	4199. VEH-HRS	4931. PASS-HRS
TOTAL TRAV DISTANCE =	59121. VEH-MI.	73522. PASS-MI.	108675. VEH-MI.	135313. PASS-MI.
AVERAGE SYSTEM SPEED =	24. MPH.		28. MPH.	
AVERAGE DENSITY =	36. VPMPL		28. VPMPL	
TOTAL FUEL =	3455. GALLONS		6024. GALLONS	
TOTAL EMISSIONS =	931. KILOGRAMS		1613. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.16	2	31.71	3	107.32	4	14.26	5	12.94
6	15.94	7	45.46	8	24.41	9	25.82	10	27.22
11	94.70	12	34.44	13	39.78	14	69.62	15	67.93
16	72.78	17	84.94	18	339.81	19	244.57	20	0.26

***** TOTAL DELAY = 1354.1 VEH-HRS ***** AVERAGE DELAY = 37.42 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	6.38	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.38	36.06	2.23	11.66	0.62	14.51
ON-RAMP	4	RAMP	100.	100.00	6.09	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.09	36.06	2.23	11.66	0.62	14.51

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	32.53	36.87	39.89	42.30	45.59	47.81	65.65
2	1.93	6.27	9.29	11.70	14.99	17.21	35.06
3	0.00	2.15	5.16	7.57	10.86	13.08	30.93
4	0.00	0.00	0.70	3.12	6.41	8.63	26.47
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1	3	500.	1650.	0.	1650.	1650.	0.	1650.	6000.	0.		0.	0.	.28	62.	8.9	A	20.3	13.0
2	3	99999.	0.	0.	1650.	0.	0.	1650.	6000.	0.		0.	0.	.28	62.	8.9	A	20.3	13.0
3	2	12000.	0.	0.	1650.	0.	0.	1778.	4000.	0.	*	3325.	-128.	.44	11.	79.4	F	13.2	19.0
4	3	350.	629.	0.	2279.	629.	0.	2407.	4720.	0.	**	350.	-128.	.51	6.	136.4	F	8.9	27.8
5	3	300.	0.	0.	2279.	0.	0.	2407.	4720.	0.	**	300.	-128.	.51	6.	136.4	F	8.9	27.8
6	3	350.	0.	600.	2279.	0.	597.	2407.	4720.	0.	**	350.	-128.	.51	6.	136.4	F	8.9	27.8
7	2	940.	0.	0.	1679.	0.	0.	1810.	4000.	0.	**	940.	-128.	.45	5.	186.0	F	8.3	28.9
8	3	700.	1345.	0.	3024.	1345.	0.	3155.	4410.	0.	**	700.	-128.	.72	11.	94.6	F	13.6	22.0
9	3	700.	0.	0.	3024.	0.	0.	3155.	4410.	0.	**	700.	-128.	.72	11.	94.6	F	13.6	22.0
10	3	700.	0.	270.	3024.	0.	271.	3155.	4410.	0.	**	700.	-128.	.72	11.	94.6	F	13.6	22.0
11	2	2300.	0.	0.	2754.	0.	0.	2883.	4000.	0.	**	2300.	-128.	.72	11.	127.5	F	13.7	21.9
12	3	700.	740.	615.	3494.	740.	617.	3623.	5030.	0.	**	700.	-128.	.72	11.	107.0	F	13.7	21.9
13	3	800.	0.	0.	2879.	0.	0.	3006.	4340.	0.	**	800.	-128.	.69	10.	96.7	F	13.2	22.6
14	3	1400.	0.	280.	2879.	0.	280.	3006.	4340.	0.	**	1400.	-128.	.69	10.	96.7	F	13.2	22.6
15	2	1400.	0.	0.	2599.	0.	0.	2726.	4000.	0.	**	1400.	-128.	.68	10.	136.1	F	13.0	22.9
16	2	1500.	0.	350.	2599.	0.	348.	2726.	4000.	0.	**	1500.	-128.	.68	10.	136.1	F	13.0	22.9
17	2	1500.	0.	499.	2249.	0.	494.	2379.	4000.	0.	**	1500.	-128.	.59	8.	155.0	F	10.3	25.7
18	2	5000.	0.	0.	1750.	0.	0.	1885.	4000.	0.	**	5000.	-128.	.47	5.	181.9	F	8.5	28.6
19	2	5000.	615.	0.	2365.	615.	0.	2500.	4000.	0.	**	5000.	-128.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	2365.	2365.	0.	2500.	2500.	2500.	0.		0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 21.	38.2				16.4	16.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2250. VEH-HRS	2683. PASS-HRS	6149. VEH-HRS	7314. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	200. VEH-HRS	200. PASS-HRS	500. VEH-HRS	500. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2450. VEH-HRS	2883. PASS-HRS	6649. VEH-HRS	7814. PASS-HRS
TOTAL TRAV DISTANCE =	46962. VEH-MI.	58112. PASS-MI.	155637. VEH-MI.	193425. PASS-MI.
AVERAGE SYSTEM SPEED =	19. MPH.		25. MPH.	
AVERAGE DENSITY =	38. VPMPL		31. VPMPL	
TOTAL FUEL =	2936. GALLONS		8960. GALLONS	
TOTAL EMISSIONS =	794. KILOGRAMS		2408. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.12	2	23.26	3	284.85	4	24.68	5	21.15
6	24.68	7	61.26	8	31.18	9	31.18	10	31.18
11	91.75	12	35.15	13	36.93	14	64.63	15	61.03
16	65.39	17	77.66	18	316.97	19	244.57	20	0.26

***** TOTAL DELAY = 1527.9 VEH-HRS ***** AVERAGE DELAY = 41.25 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	8.23	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.23	36.06	2.23	11.66	0.62	14.51
ON-RAMP	4	RAMP	100.	100.00	7.14	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.14	36.06	2.23	11.66	0.62	14.51

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 13 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB NO. SEC	LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	5000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
19															

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**                                                                                                                                                                                                  **
**  20                                                                                                                                                                                              **
**                                                                                                                                                                                                  **
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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	724.	0.	724.	724.	0.	724.	1650.	0.	0.	0.	.44	62.	11.7	B	21.6	12.8
14	1	1400.	0.	0.	724.	0.	0.	724.	1650.	0.	0.	0.	.44	62.	11.7	B	21.6	12.8
15	1	1400.	0.	0.	724.	0.	0.	724.	1650.	0.	0.	0.	.44	62.	11.7	B	21.6	12.8
16	1	1500.	0.	0.	724.	0.	0.	724.	1650.	0.	0.	0.	.44	62.	11.7	B	21.6	12.8
17	1	1500.	0.	0.	724.	0.	0.	724.	1650.	0.	0.	0.	.44	62.	11.7	B	21.6	12.8
18	1	5000.	0.	724.	724.	0.	724.	724.	1650.	0.	0.	0.	.44	62.	11.7	B	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES							MAX(V/C) = 0.44		LOWEST LOS = B			AVG = 62.	11.7		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	26. VEH-HRS	51. PASS-HRS	26. VEH-HRS	51. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	26. VEH-HRS	51. PASS-HRS	26. VEH-HRS	51. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1591. VEH-MI.	3183. PASS-MI.	1591. VEH-MI.	3183. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		12. VPMPL	
TOTAL FUEL =	74. GALLONS		74. GALLONS	
TOTAL EMISSIONS =	20. KILOGRAMS		20. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.08	14	0.14	15	0.14
16	0.15	17	0.15	18	0.51	19	0.00	20	0.00

***** TOTAL DELAY = 1.2 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS

	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	809.	0.	809.	809.	0.	809.	1650.	0.	0.	0.	.49	62.	13.1	B	21.6	12.8
14	1	1400.	0.	0.	809.	0.	0.	809.	1650.	0.	0.	0.	.49	62.	13.1	B	21.6	12.8
15	1	1400.	0.	0.	809.	0.	0.	809.	1650.	0.	0.	0.	.49	62.	13.1	B	21.6	12.8
16	1	1500.	0.	0.	809.	0.	0.	809.	1650.	0.	0.	0.	.49	62.	13.1	B	21.6	12.8
17	1	1500.	0.	0.	809.	0.	0.	809.	1650.	0.	0.	0.	.49	62.	13.1	B	21.6	12.8
18	1	5000.	0.	809.	809.	0.	809.	809.	1650.	0.	0.	0.	.49	62.	13.1	B	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES									MAX(V/C) = 0.49		LOWEST LOS = B	AVG = 62.	13.1		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	29. VEH-HRS	57. PASS-HRS	54. VEH-HRS	109. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	29. VEH-HRS	57. PASS-HRS	54. VEH-HRS	109. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1778. VEH-MI.	3555. PASS-MI.	3369. VEH-MI.	6738. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	

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          AVERAGE DENSITY =      13. VPMPL                              12. VPMPL
               TOTAL FUEL =      82. GALLONS                           156. GALLONS
          TOTAL EMISSIONS =      23. KILOGRAMS                          43. KILOGRAMS
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***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.09	14	0.16	15	0.16
16	0.17	17	0.17	18	0.57	19	0.00	20	0.00

***** TOTAL DELAY = 1.3 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	615.	0.	615.	615.	0.	615.	1650.	0.	0.	0.	.37	62.	9.9	A	21.6	12.8
14	1	1400.	0.	0.	615.	0.	0.	615.	1650.	0.	0.	0.	.37	62.	9.9	A	21.6	12.8
15	1	1400.	0.	0.	615.	0.	0.	615.	1650.	0.	0.	0.	.37	62.	9.9	A	21.6	12.8
16	1	1500.	0.	0.	615.	0.	0.	615.	1650.	0.	0.	0.	.37	62.	9.9	A	21.6	12.8
17	1	1500.	0.	0.	615.	0.	0.	615.	1650.	0.	0.	0.	.37	62.	9.9	A	21.6	12.8
18	1	5000.	0.	615.	615.	0.	615.	615.	1650.	0.	0.	0.	.37	62.	9.9	A	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES							MAX(V/C) = 0.37	LOWEST LOS = A			AVG = 62.		9.9		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	22. VEH-HRS	44. PASS-HRS	76. VEH-HRS	152. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	22. VEH-HRS	44. PASS-HRS	76. VEH-HRS	152. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1351. VEH-MI.	2702. PASS-MI.	4720. VEH-MI.	9440. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		12. VPMPL	
TOTAL FUEL =	63. GALLONS		219. GALLONS	
TOTAL EMISSIONS =	17. KILOGRAMS		60. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.07	14	0.12	15	0.12
16	0.13	17	0.13	18	0.43	19	0.00	20	0.00

***** TOTAL DELAY = 1.0 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222   PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ   1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ   1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ   1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ   1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ    1111    222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111 2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4720.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	3	4720.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4720.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4410.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4410.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4410.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	5030.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4340.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4340.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	5000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	2	4000.	5000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Buffer
20	3	2500.	750.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	End of the network

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***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 2/29/2016 15:51 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.80	21.36	22.38	23.97	27.53	31.03	69.66
2	0.18	0.74	1.76	3.35	6.91	10.42	49.04
3	0.00	0.38	1.40	2.99	6.55	10.06	48.69
4	0.00	0.00	0.30	1.90	5.46	8.96	47.59
5	0.00	0.00	0.00	0.00	0.00	0.00	17.91
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 2/29/2016 15:51 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	1940.	0.	1940.	1940.	0.	1940.	6000.	0.	0.	0.	.32	62.	10.4	A	20.3	13.0
2	3	99999.	0.	0.	1940.	0.	0.	1940.	6000.	0.	0.	0.	.32	62.	10.4	A	20.3	13.0
3	2	12000.	0.	0.	1940.	0.	0.	1940.	4000.	0.	0.	0.	.49	62.	15.6	B	20.3	13.0
4	3	350.	650.	0.	2590.	550.	0.	2490.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
5	3	300.	0.	0.	2590.	0.	0.	2490.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
6	3	350.	0.	600.	2590.	0.	577.	2490.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
7	2	940.	0.	0.	1990.	0.	0.	1913.	4000.	0.	0.	0.	.48	62.	15.4	B	20.3	13.0
8	3	700.	810.	0.	2800.	810.	0.	2723.	4410.	0.	0.	0.	.62	62.	14.6	B	20.3	13.0
9	3	700.	0.	0.	2800.	0.	0.	2723.	4410.	0.	0.	0.	.62	62.	14.6	B	20.3	13.0
10	3	700.	0.	220.	2800.	0.	214.	2723.	4410.	0.	0.	0.	.62	62.	14.6	B	20.3	13.0
11	2	2300.	0.	0.	2580.	0.	0.	805.	4000.	0. **	2300.	1705.	.20	37.	11.0	F	19.8	13.4
12	3	700.	910.	757.	3490.	810.	720.	1615.	5030.	0. **	700.	1705.	.32	26.	20.5	F	18.5	14.1
13	3	800.	0.	0.	2733.	0.	0.	895.	4340.	0. **	800.	1705.	.21	18.	16.1	F	18.5	14.1
14	3	1400.	0.	220.	2733.	0.	209.	895.	4340.	0. **	1400.	1705.	.21	14.	20.6	F	17.9	14.5
15	2	1400.	0.	0.	2513.	0.	0.	685.	4000.	0. **	1400.	1705.	.17	11.	32.4	F	17.5	14.8
16	2	1500.	0.	360.	2513.	0.	342.	685.	4000.	0. **	1500.	1705.	.17	8.	41.3	F	16.8	15.4
17	2	1500.	0.	0.	2153.	0.	0.	343.	4000.	0. **	1500.	1705.	.09	5.	35.3	F	17.3	15.0
18	2	5000.	0.	0.	2153.	0.	0.	343.	4000.	0. **	5000.	1705.	.09	3.	62.5	F	15.3	16.6
19	2	5000.	757.	0.	2910.	757.	0.	1100.	4000.	0. **	5000.	1705.	.28	3.	172.0	F	9.7	25.0
20	3	750.	1400.	4310.	4310.	1400.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. =	25.9 MILES			MAX(V/C) = 1.00			LOWEST LOS = F		AVG = 29.				19.9		19.5	13.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1702. VEH-HRS	2022. PASS-HRS	1702. VEH-HRS	2022. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	100. PASS-HRS	100. VEH-HRS	100. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1802. VEH-HRS	2122. PASS-HRS	1802. VEH-HRS	2122. PASS-HRS

TOTAL TRAV DISTANCE =	49466. VEH-MI.	61761. PASS-MI.	49466. VEH-MI.	61761. PASS-MI.
AVERAGE SYSTEM SPEED =	27. MPH.		29. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2569. GALLONS		2569. GALLONS	
TOTAL EMISSIONS =	683. KILOGRAMS		683. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.14	2	27.35	3	3.28	4	0.12	5	0.11
6	0.12	7	0.25	8	0.27	9	0.27	10	0.27
11	12.52	12	9.35	13	13.50	14	31.44	15	39.33
16	52.19	17	68.57	18	318.09	19	363.67	20	0.26

***** TOTAL DELAY = 941.1 VEH-HRS ***** AVERAGE DELAY = 100.77 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	4.62	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.62	18.03	1.11	5.83	0.31	7.25
ON-RAMP	4	RAMP	100.	50.00	3.30	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.30	18.03	1.11	5.83	0.31	7.25

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	21.07	23.32	25.60	27.39	29.87	31.54	50.22
2	0.43	2.69	4.97	6.76	9.24	10.91	29.58
3	0.00	1.39	3.67	5.46	7.94	9.61	28.28
4	0.00	0.00	0.51	2.30	4.78	6.45	25.13
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2251.	0.	2251.	2251.	0.	2251.	6000.	0.	0.	0.	.38	62.	12.1	B	20.3	13.0
2	3	99999.	0.	0.	2251.	0.	0.	2251.	6000.	0.	0.	0.	.38	62.	12.1	B	20.3	13.0
3	2	12000.	0.	0.	2251.	0.	0.	2055.	4000.	0. *	231.	196.	.51	62.	16.7	F	20.3	13.1
4	3	350.	841.	0.	3092.	841.	0.	2896.	4720.	0. **	350.	196.	.61	35.	27.3	F	18.5	14.4
5	3	300.	0.	0.	3092.	0.	0.	2896.	4720.	0. **	300.	196.	.61	26.	36.8	F	17.2	15.5
6	3	350.	0.	720.	3092.	0.	720.	2896.	4720.	0. **	350.	196.	.61	21.	46.4	F	16.1	16.7
7	2	940.	0.	0.	2372.	0.	0.	2176.	4000.	0. **	940.	196.	.54	12.	88.4	F	13.1	19.7
8	3	700.	1366.	0.	3738.	1366.	0.	3542.	4410.	0. **	700.	196.	.80	19.	61.0	F	17.0	17.2
9	3	700.	0.	0.	3738.	0.	0.	3542.	4410.	0. **	700.	196.	.80	17.	68.7	F	16.5	18.0
10	3	700.	0.	320.	3738.	0.	320.	3542.	4410.	0. **	700.	196.	.80	15.	76.5	F	16.0	18.8
11	2	2300.	0.	0.	3418.	0.	0.	3223.	4000.	0. **	2300.	196.	.81	15.	109.0	F	15.9	19.1
12	3	700.	964.	701.	4382.	900.	699.	4123.	5030.	0. **	700.	196.	.82	15.	88.8	F	16.2	18.7
13	3	800.	0.	0.	3681.	0.	0.	3423.	4340.	0. **	800.	196.	.79	14.	81.5	F	15.3	19.7

*14	3	1400.	0.	341.	3681.	0.	334.	3423.	4340.	0.	**	1400.	196.	.79	14.	81.5	F	15.3	19.7 *
* 15	2	1400.	0.	0.	3340.	0.	0.	3089.	4000.	0.	**	1400.	196.	.77	13.	116.3	F	14.9	20.3 *
* 16	2	1500.	0.	341.	3340.	0.	340.	3089.	4000.	0.	**	1500.	196.	.77	13.	116.3	F	14.9	20.3 *
* 17	2	1500.	0.	1000.	2999.	0.	952.	2750.	4000.	0.	**	1500.	196.	.69	10.	134.8	F	13.1	22.8 *
* 18	2	5000.	0.	0.	1999.	0.	0.	1798.	4000.	0.	**	5000.	196.	.45	5.	186.6	F	8.3	28.9 *
* 19	2	5000.	702.	0.	2701.	702.	0.	2500.	4000.	0.	**	5000.	196.	.63	8.	148.4	F	11.0	24.8 *
* 20	3	750.	0.	2701.	2701.	0.	2500.	2500.	2500.	0.		0.	0.	1.00	62.	13.4	E	20.3	13.0 *
*																			*

* TOTAL	136889. =	25.9 MILES	MAX(V/C) = 1.00 LOWEST LOS = F	AVG = 31. 32.1	18.2	14.8 *

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1988. VEH-HRS	2368. PASS-HRS	3690. VEH-HRS	4391. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	232. VEH-HRS	232. PASS-HRS	332. VEH-HRS	332. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2220. VEH-HRS	2600. PASS-HRS	4022. VEH-HRS	4723. PASS-HRS
TOTAL TRAV DISTANCE =	60647. VEH-MI.	75404. PASS-MI.	110113. VEH-MI.	137165. PASS-MI.
AVERAGE SYSTEM SPEED =	27. MPH.		30. MPH.	
AVERAGE DENSITY =	32. VPMPL		26. VPMPL	
TOTAL FUEL =	3417. GALLONS		5986. GALLONS	
TOTAL EMISSIONS =	932. KILOGRAMS		1615. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.16	2	31.74	3	4.28	4	2.63	5	3.94
6	6.57	7	26.65	8	17.31	9	20.30	10	23.30
11	73.37	12	26.92	13	29.07	14	50.87	15	49.05
16	52.55	17	64.55	18	327.22	19	244.57	20	0.26

***** TOTAL DELAY = 1055.3 VEH-HRS ***** AVERAGE DELAY = 26.35 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	6.38	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.38	36.06	2.23	11.66	0.62	14.51
ON-RAMP	4	RAMP	164.	132.00	7.44	47.60	2.94	15.39	0.82	19.15
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	164.	132.00	7.44	47.60	2.94	15.39	0.82	19.15

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	21.01	22.83	24.77	26.46	28.78	30.37	47.57
2	0.38	2.20	4.14	5.83	8.16	9.74	26.94
3	0.00	1.12	3.07	4.75	7.08	8.66	25.86
4	0.00	0.00	0.48	2.17	4.50	6.08	23.28
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	1649.	0.	1649.	1649.	0.	1649.	6000.	0.	0.	0.	.27	62.	8.9	A	20.3	13.0
2	3	99999.	0.	0.	1649.	0.	0.	1649.	6000.	0.	0.	0.	.27	62.	8.9	A	20.3	13.0
3	2	12000.	0.	0.	1649.	0.	0.	1649.	4000.	0.	0.	0.	.41	62.	13.4	B	20.3	13.1
4	3	350.	630.	0.	2279.	630.	0.	2279.	4720.	0.	0.	0.	.48	39.	19.7	C	18.8	14.1
5	3	300.	0.	0.	2279.	0.	0.	2279.	4720.	0.	0.	0.	.48	30.	25.7	C	17.7	14.9
6	3	350.	0.	600.	2279.	0.	597.	2279.	4720.	0.	0.	0.	.48	24.	31.7	D	16.7	15.8
7	2	940.	0.	0.	1679.	0.	0.	1682.	4000.	0.	0.	0.	.42	15.	54.5	F	14.4	17.8
8	3	700.	1279.	0.	2958.	1279.	0.	2961.	4410.	0.	0.	0.	.67	24.	41.9	E	17.4	16.3
9	3	700.	0.	0.	2958.	0.	0.	2961.	4410.	0.	0.	0.	.67	21.	46.5	F	16.9	16.9
10	3	700.	0.	199.	2958.	0.	200.	2961.	4410.	0.	0.	0.	.67	19.	51.1	F	16.5	17.4
11	2	2300.	0.	0.	2759.	0.	0.	2760.	4000.	0.	0.	0.	.69	18.	77.0	F	16.5	17.8
12	3	700.	800.	540.	3559.	864.	553.	3624.	5030.	0.	0.	0.	.72	16.	73.5	F	16.2	18.4
13	3	800.	0.	0.	3019.	0.	0.	3072.	4340.	0.	0.	0.	.71	15.	66.4	F	15.9	18.9
14	3	1400.	0.	280.	3019.	0.	285.	3455.	4340.	0. *	724.	-384.	.80	14.	79.5	F	15.6	19.4
15	2	1400.	0.	0.	2739.	0.	0.	3170.	4000.	0. **	1400.	-384.	.79	14.	111.8	F	15.5	19.6
16	2	1500.	0.	350.	2739.	0.	353.	3170.	4000.	0. **	1500.	-384.	.79	14.	111.8	F	15.5	19.6
17	2	1500.	0.	850.	2389.	0.	859.	2818.	4000.	0. **	1500.	-384.	.70	11.	131.1	F	13.4	22.3
18	2	5000.	0.	0.	1539.	0.	0.	1959.	4000.	0. **	5000.	-384.	.49	6.	177.8	F	8.7	28.3
19	2	5000.	541.	0.	2080.	541.	0.	2500.	4000.	0. **	5000.	-384.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	2080.	2080.	0.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 28.		27.6		17.8	15.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1684. VEH-HRS	1991. PASS-HRS	5375. VEH-HRS	6382. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	232. VEH-HRS	232. PASS-HRS	564. VEH-HRS	564. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1916. VEH-HRS	2223. PASS-HRS	5939. VEH-HRS	6946. PASS-HRS
TOTAL TRAV DISTANCE =	47533. VEH-MI.	58830. PASS-MI.	157645. VEH-MI.	195995. PASS-MI.
AVERAGE SYSTEM SPEED =	25. MPH.		29. MPH.	
AVERAGE DENSITY =	28. VPMPL		27. VPMPL	
TOTAL FUEL =	2754. GALLONS		8740. GALLONS	
TOTAL EMISSIONS =	754. KILOGRAMS		2368. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 3 OF 3

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.12	2	23.25	3	3.04	4	1.60	5	2.44
6	4.09	7	15.75	8	11.16	9	13.22	10	15.29
11	53.14	12	23.76	13	25.61	14	49.06	15	46.38
16	49.69	17	62.15	18	308.26	19	244.57	20	0.26

***** TOTAL DELAY = 952.9 VEH-HRS ***** AVERAGE DELAY = 23.90 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	8.22	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.22	36.06	2.23	11.66	0.62	14.51
ON-RAMP	4	RAMP	100.	132.00	8.22	47.60	2.94	15.39	0.82	19.15
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	132.00	8.22	47.60	2.94	15.39	0.82	19.15

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 13 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB NO. SEC	LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	5000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
19															

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**                                                                                                                                                                                                **
**  20                                                                                                                                                                                            **
**                                                                                                                                                                                                **
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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	757.	0.	757.	757.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
14	1	1400.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
15	1	1400.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
16	1	1500.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
17	1	1500.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
18	1	5000.	0.	757.	757.	0.	757.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES								MAX(V/C) = 0.46	LOWEST LOS = B			AVG = 62.	12.2		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	27. VEH-HRS	54. PASS-HRS	27. VEH-HRS	54. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	27. VEH-HRS	54. PASS-HRS	27. VEH-HRS	54. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1662. VEH-MI.	3324. PASS-MI.	1662. VEH-MI.	3324. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		12. VPMPL	
TOTAL FUEL =	77. GALLONS		77. GALLONS	
TOTAL EMISSIONS =	21. KILOGRAMS		21. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.09	14	0.15	15	0.15
16	0.16	17	0.16	18	0.53	19	0.00	20	0.00

***** TOTAL DELAY = 1.2 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS

ORIGINS DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	702.	0.	702.	702.	0.	702.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
14	1	1400.	0.	0.	702.	0.	0.	702.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
15	1	1400.	0.	0.	702.	0.	0.	702.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
16	1	1500.	0.	0.	702.	0.	0.	702.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
17	1	1500.	0.	0.	702.	0.	0.	702.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
18	1	5000.	0.	702.	702.	0.	702.	702.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES									MAX(V/C) = 0.43		LOWEST LOS = B		AVG = 62.		11.3	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	25. VEH-HRS	50. PASS-HRS	52. VEH-HRS	103. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	25. VEH-HRS	50. PASS-HRS	52. VEH-HRS	103. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1542. VEH-MI.	3085. PASS-MI.	3204. VEH-MI.	6409. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	

AVERAGE DENSITY =	11. VPMPL	12. VPMPL
TOTAL FUEL =	72. GALLONS	149. GALLONS
TOTAL EMISSIONS =	20. KILOGRAMS	41. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.08	14	0.14	15	0.14
16	0.15	17	0.15	18	0.49	19	0.00	20	0.00

***** TOTAL DELAY = 1.1 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	541.	0.	541.	541.	0.	541.	1650.	0.	0.	0.	.33	62.	8.7	A	21.6	12.8
14	1	1400.	0.	0.	541.	0.	0.	541.	1650.	0.	0.	0.	.33	62.	8.7	A	21.6	12.8
15	1	1400.	0.	0.	541.	0.	0.	541.	1650.	0.	0.	0.	.33	62.	8.7	A	21.6	12.8
16	1	1500.	0.	0.	541.	0.	0.	541.	1650.	0.	0.	0.	.33	62.	8.7	A	21.6	12.8
17	1	1500.	0.	0.	541.	0.	0.	541.	1650.	0.	0.	0.	.33	62.	8.7	A	21.6	12.8
18	1	5000.	0.	541.	541.	0.	541.	541.	1650.	0.	0.	0.	.33	62.	8.7	A	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES							MAX(V/C) = 0.33		LOWEST LOS = A			AVG = 62.	8.7		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	19. VEH-HRS	38. PASS-HRS	71. VEH-HRS	142. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	19. VEH-HRS	38. PASS-HRS	71. VEH-HRS	142. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1188. VEH-MI.	2375. PASS-MI.	4392. VEH-MI.	8784. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		11. VPMPL	
TOTAL FUEL =	55. GALLONS		204. GALLONS	
TOTAL EMISSIONS =	15. KILOGRAMS		56. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.06	14	0.11	15	0.11
16	0.11	17	0.11	18	0.38	19	0.00	20	0.00

***** TOTAL DELAY = 0.9 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222   PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ   1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ         QQQQ   1111         222   PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ         QQQQ   1111       2222    PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ   1111      2222     PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ    1111     222       PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222        PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4720.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	3	4720.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4720.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4410.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4410.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4410.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	5030.	700.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4340.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4340.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	5000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	2	4000.	5000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Buffer
20	3	2500.	750.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	End of the network

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***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 2/29/2016 16:34 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.80	21.36	22.38	23.97	27.53	31.03	69.66
2	0.18	0.74	1.76	3.35	6.91	10.42	49.04
3	0.00	0.38	1.40	2.99	6.55	10.06	48.69
4	0.00	0.00	0.30	1.90	5.46	8.96	47.59
5	0.00	0.00	0.00	0.00	0.00	0.00	17.91
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 2/29/2016 16:34 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	1940.	0.	1940.	1940.	0.	1940.	6000.	0.	0.	0.	.32	62.	10.4	A	20.3	13.0
2	3	99999.	0.	0.	1940.	0.	0.	1940.	6000.	0.	0.	0.	.32	62.	10.4	A	20.3	13.0
3	2	12000.	0.	0.	1940.	0.	0.	1940.	4000.	0.	0.	0.	.49	62.	15.6	B	20.3	13.0
4	3	350.	650.	0.	2590.	550.	0.	2490.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
5	3	300.	0.	0.	2590.	0.	0.	2490.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
6	3	350.	0.	600.	2590.	0.	577.	2490.	4720.	0.	0.	0.	.53	62.	13.4	B	20.3	13.0
7	2	940.	0.	0.	1990.	0.	0.	1913.	4000.	0.	0.	0.	.48	62.	15.4	B	20.3	13.0
8	3	700.	810.	0.	2800.	810.	0.	2723.	4410.	0.	0.	0.	.62	62.	14.6	B	20.3	13.0
9	3	700.	0.	0.	2800.	0.	0.	2723.	4410.	0.	0.	0.	.62	62.	14.6	B	20.3	13.0
10	3	700.	0.	220.	2800.	0.	214.	2723.	4410.	0.	0.	0.	.62	62.	14.6	B	20.3	13.0
11	2	2300.	0.	0.	2580.	0.	0.	805.	4000.	0. **	2300.	1705.	.20	37.	11.0	F	19.8	13.4
12	3	700.	910.	757.	3490.	810.	720.	1615.	5030.	0. **	700.	1705.	.32	26.	20.5	F	18.5	14.1
13	3	800.	0.	0.	2733.	0.	0.	895.	4340.	0. **	800.	1705.	.21	18.	16.1	F	18.5	14.1
14	3	1400.	0.	220.	2733.	0.	209.	895.	4340.	0. **	1400.	1705.	.21	14.	20.6	F	17.9	14.5
15	2	1400.	0.	0.	2513.	0.	0.	685.	4000.	0. **	1400.	1705.	.17	11.	32.4	F	17.5	14.8
16	2	1500.	0.	360.	2513.	0.	342.	685.	4000.	0. **	1500.	1705.	.17	8.	41.3	F	16.8	15.4
17	2	1500.	0.	0.	2153.	0.	0.	343.	4000.	0. **	1500.	1705.	.09	5.	35.3	F	17.3	15.0
18	2	5000.	0.	0.	2153.	0.	0.	343.	4000.	0. **	5000.	1705.	.09	3.	62.5	F	15.3	16.6
19	2	5000.	757.	0.	2910.	757.	0.	1100.	4000.	0. **	5000.	1705.	.28	3.	172.0	F	9.7	25.0
20	3	750.	1400.	4310.	4310.	1400.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. =	25.9 MILES			MAX(V/C) = 1.00			LOWEST LOS = F		AVG = 29.				19.9		19.5	13.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1702. VEH-HRS	2022. PASS-HRS	1702. VEH-HRS	2022. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	100. PASS-HRS	100. VEH-HRS	100. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1802. VEH-HRS	2122. PASS-HRS	1802. VEH-HRS	2122. PASS-HRS

TOTAL TRAV DISTANCE =	49466. VEH-MI.	61761. PASS-MI.	49466. VEH-MI.	61761. PASS-MI.
AVERAGE SYSTEM SPEED =	27. MPH.		29. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2569. GALLONS		2569. GALLONS	
TOTAL EMISSIONS =	683. KILOGRAMS		683. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.14	2	27.35	3	3.28	4	0.12	5	0.11
6	0.12	7	0.25	8	0.27	9	0.27	10	0.27
11	12.52	12	9.35	13	13.50	14	31.44	15	39.33
16	52.19	17	68.57	18	318.09	19	363.67	20	0.26

***** TOTAL DELAY = 941.1 VEH-HRS ***** AVERAGE DELAY = 100.77 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	4.62	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.62	18.03	1.11	5.83	0.31	7.25
ON-RAMP	4	RAMP	100.	50.00	3.30	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.30	18.03	1.11	5.83	0.31	7.25

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	21.09	23.38	25.67	27.46	29.95	31.62	50.32
2	0.45	2.74	5.03	6.82	9.31	10.98	29.68
3	0.00	1.40	3.69	5.48	7.97	9.65	28.34
4	0.00	0.00	0.52	2.31	4.80	6.47	25.17
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2250.	0.	2250.	2250.	0.	2250.	6000.	0.	0.	0.	.38	62.	12.1	B	20.3	13.0
2	3	99999.	0.	0.	2250.	0.	0.	2250.	6000.	0.	0.	0.	.38	62.	12.1	B	20.3	13.0
3	2	12000.	0.	0.	2250.	0.	0.	2050.	4000.	0. *	299.	200.	.51	61.	16.7	F	20.3	13.1
4	3	350.	840.	0.	3090.	840.	0.	2890.	4720.	0. **	350.	200.	.61	33.	29.0	F	18.2	14.6
5	3	300.	0.	0.	3090.	0.	0.	2890.	4720.	0. **	300.	200.	.61	25.	38.3	F	17.0	15.7
6	3	350.	0.	720.	3090.	0.	720.	2890.	4720.	0. **	350.	200.	.61	20.	47.8	F	15.9	16.8
7	2	940.	0.	0.	2370.	0.	0.	2170.	4000.	0. **	940.	200.	.54	12.	89.9	F	13.0	19.9
8	3	700.	1367.	0.	3737.	1367.	0.	3537.	4410.	0. **	700.	200.	.80	19.	61.4	F	17.0	17.3
9	3	700.	0.	0.	3737.	0.	0.	3537.	4410.	0. **	700.	200.	.80	17.	69.1	F	16.5	18.1
10	3	700.	0.	320.	3737.	0.	320.	3537.	4410.	0. **	700.	200.	.80	15.	76.8	F	16.0	18.8
11	2	2300.	0.	0.	3417.	0.	0.	3217.	4000.	0. **	2300.	200.	.80	15.	109.3	F	15.9	19.1
12	3	700.	969.	702.	4386.	900.	699.	4117.	5030.	0. **	700.	200.	.82	15.	89.0	F	16.2	18.7
13	3	800.	0.	0.	3684.	0.	0.	3418.	4340.	0. **	800.	200.	.79	14.	81.7	F	15.3	19.8

*	14	3	1400.	0.	340.	3684.	0.	333.	3418.	4340.	0.	**	1400.	200.	.79	14.	81.7	F	15.3	19.8	*
*	15	2	1400.	0.	0.	3344.	0.	0.	3085.	4000.	0.	**	1400.	200.	.77	13.	116.5	F	14.8	20.3	*
*	16	2	1500.	0.	340.	3344.	0.	338.	3085.	4000.	0.	**	1500.	200.	.77	13.	116.5	F	14.8	20.3	*
*	17	2	1500.	0.	1000.	3004.	0.	951.	2747.	4000.	0.	**	1500.	200.	.69	10.	134.9	F	13.1	22.8	*
*	18	2	5000.	0.	0.	2004.	0.	0.	1796.	4000.	0.	**	5000.	200.	.45	5.	186.7	F	8.3	28.9	*
*	19	2	5000.	704.	0.	2708.	704.	0.	2500.	4000.	0.	**	5000.	200.	.63	8.	148.4	F	11.0	24.8	*
*	20	3	750.	0.	2708.	2708.	0.	2500.	2500.	2500.	0.		0.	0.	1.00	62.	13.4	E	20.3	13.0	*
*																					*
*																					*
*	TOTAL	136889. =	25.9 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 30.		32.2			18.2	14.8	*
*																					*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1991. VEH-HRS	2372. PASS-HRS	3694. VEH-HRS	4394. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	235. VEH-HRS	235. PASS-HRS	335. VEH-HRS	335. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2226. VEH-HRS	2607. PASS-HRS	4028. VEH-HRS	4729. PASS-HRS
TOTAL TRAV DISTANCE =	60610. VEH-MI.	75359. PASS-MI.	110076. VEH-MI.	137119. PASS-MI.
AVERAGE SYSTEM SPEED =	27. MPH.		30. MPH.	
AVERAGE DENSITY =	32. VPMPL		26. VPMPL	
TOTAL FUEL =	3418. GALLONS		5987. GALLONS	
TOTAL EMISSIONS =	932. KILOGRAMS		1615. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.16	2	31.72	3	4.58	4	2.99	5	4.22
6	6.86	7	27.24	8	17.51	9	20.46	10	23.41
11	73.67	12	27.01	13	29.17	14	51.06	15	49.19
16	52.70	17	64.66	18	327.45	19	244.57	20	0.26

***** TOTAL DELAY = 1058.9 VEH-HRS ***** AVERAGE DELAY = 26.46 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	6.38	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.38	36.06	2.23	11.66	0.62	14.51
ON-RAMP	4	RAMP	169.	134.50	7.55	48.50	3.00	15.68	0.83	19.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	169.	134.50	7.55	48.50	3.00	15.68	0.83	19.51

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	21.05	22.95	24.97	26.68	29.01	30.60	47.81
2	0.41	2.31	4.33	6.05	8.38	9.96	27.18
3	0.00	1.17	3.19	4.91	7.23	8.82	26.03
4	0.00	0.00	0.50	2.22	4.54	6.13	23.34
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	1650.	0.	1650.	1650.	0.	1650.	6000.	0.	0.	0.	.28	62.	8.9	A	20.3	13.0
2	3	99999.	0.	0.	1650.	0.	0.	1650.	6000.	0.	0.	0.	.28	62.	8.9	A	20.3	13.0
3	2	12000.	0.	0.	1650.	0.	0.	1650.	4000.	0.	0.	0.	.41	62.	13.4	B	20.3	13.1
4	3	350.	629.	0.	2279.	629.	0.	2279.	4720.	0.	0.	0.	.48	36.	21.2	C	18.5	14.3
5	3	300.	0.	0.	2279.	0.	0.	2279.	4720.	0.	0.	0.	.48	28.	27.4	D	17.4	15.2
6	3	350.	0.	600.	2279.	0.	597.	2279.	4720.	0.	0.	0.	.48	23.	33.6	D	16.4	16.0
7	2	940.	0.	0.	1679.	0.	0.	1682.	4000.	0.	0.	0.	.42	15.	57.6	F	14.1	18.1
8	3	700.	1279.	0.	2958.	1279.	0.	2961.	4410.	0.	0.	0.	.67	23.	43.7	E	17.2	16.5
9	3	700.	0.	0.	2958.	0.	0.	2961.	4410.	0.	0.	0.	.67	20.	48.5	F	16.8	17.1
10	3	700.	0.	199.	2958.	0.	200.	2961.	4410.	0.	0.	0.	.67	19.	53.3	F	16.3	17.7
11	2	2300.	0.	0.	2759.	0.	0.	2760.	4000.	0.	0.	0.	.69	17.	80.2	F	16.2	18.1
12	3	700.	810.	543.	3569.	879.	556.	3639.	5030.	0.	0.	0.	.72	16.	76.1	F	16.1	18.6
13	3	800.	0.	0.	3026.	0.	0.	3083.	4340.	0.	0.	0.	.71	15.	68.8	F	15.8	19.1
14	3	1400.	0.	281.	3026.	0.	286.	3455.	4340.	0. *	1190.	-372.	.80	14.	80.3	F	15.6	19.4
15	2	1400.	0.	0.	2745.	0.	0.	3169.	4000.	0. **	1400.	-372.	.79	14.	111.9	F	15.4	19.6
16	2	1500.	0.	349.	2745.	0.	352.	3169.	4000.	0. **	1500.	-372.	.79	14.	111.9	F	15.4	19.6
17	2	1500.	0.	850.	2396.	0.	860.	2817.	4000.	0. **	1500.	-372.	.70	11.	131.1	F	13.4	22.3
18	2	5000.	0.	0.	1546.	0.	0.	1957.	4000.	0. **	5000.	-372.	.49	5.	177.9	F	8.6	28.3
19	2	5000.	543.	0.	2089.	543.	0.	2500.	4000.	0. **	5000.	-372.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	2089.	2089.	0.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. = 25.9 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 28.		27.8		17.8	15.2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1696. VEH-HRS	2006. PASS-HRS	5390. VEH-HRS	6400. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	235. VEH-HRS	235. PASS-HRS	569. VEH-HRS	569. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1931. VEH-HRS	2240. PASS-HRS	5959. VEH-HRS	6969. PASS-HRS
TOTAL TRAV DISTANCE =	47564. VEH-MI.	58869. PASS-MI.	157640. VEH-MI.	195988. PASS-MI.
AVERAGE SYSTEM SPEED =	25. MPH.		29. MPH.	
AVERAGE DENSITY =	28. VPMPL		27. VPMPL	
TOTAL FUEL =	2760. GALLONS		8747. GALLONS	
TOTAL EMISSIONS =	756. KILOGRAMS		2371. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.12	2	23.26	3	3.23	4	1.91	5	2.74
6	4.49	7	16.98	8	11.92	9	14.07	10	16.23
11	56.29	12	24.85	13	26.80	14	49.75	15	46.43
16	49.75	17	62.18	18	308.50	19	244.57	20	0.26

***** TOTAL DELAY = 964.3 VEH-HRS ***** AVERAGE DELAY = 24.17 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	8.23	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.23	36.06	2.23	11.66	0.62	14.51
ON-RAMP	4	RAMP	100.	134.50	8.24	48.50	3.00	15.68	0.83	19.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	134.50	8.24	48.50	3.00	15.68	0.83	19.51

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
```

FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 13 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB NO. SEC	LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13	1	1650.	800.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	5000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
19															

** 20

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	757.	0.	757.	757.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
14	1	1400.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
15	1	1400.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
16	1	1500.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
17	1	1500.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
18	1	5000.	0.	757.	757.	0.	757.	757.	1650.	0.	0.	0.	.46	62.	12.2	B	21.6	12.8
19																		
20																		

TOTAL 11600. = 2.2 MILES MAX(V/C) = 0.46 LOWEST LOS = B AVG = 62. 12.2 21.6 12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	27. VEH-HRS	54. PASS-HRS	27. VEH-HRS	54. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	27. VEH-HRS	54. PASS-HRS	27. VEH-HRS	54. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1662. VEH-MI.	3324. PASS-MI.	1662. VEH-MI.	3324. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		12. VPMPL	
TOTAL FUEL =	77. GALLONS		77. GALLONS	
TOTAL EMISSIONS =	21. KILOGRAMS		21. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.09	14	0.15	15	0.15
16	0.16	17	0.16	18	0.53	19	0.00	20	0.00

***** TOTAL DELAY = 1.2 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS

ORIGINS DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	704.	0.	704.	704.	0.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
14	1	1400.	0.	0.	704.	0.	0.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
15	1	1400.	0.	0.	704.	0.	0.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
16	1	1500.	0.	0.	704.	0.	0.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
17	1	1500.	0.	0.	704.	0.	0.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
18	1	5000.	0.	704.	704.	0.	704.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES									MAX(V/C) = 0.43		LOWEST LOS = B		AVG = 62.		11.3	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	25. VEH-HRS	50. PASS-HRS	52. VEH-HRS	103. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	25. VEH-HRS	50. PASS-HRS	52. VEH-HRS	103. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1546. VEH-MI.	3091. PASS-MI.	3208. VEH-MI.	6416. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	

AVERAGE DENSITY =	11. VPMPL	12. VPMPL
TOTAL FUEL =	72. GALLONS	149. GALLONS
TOTAL EMISSIONS =	20. KILOGRAMS	41. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.08	14	0.14	15	0.14
16	0.15	17	0.15	18	0.50	19	0.00	20	0.00

***** TOTAL DELAY = 1.2 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.13	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13	1	800.	543.	0.	543.	543.	0.	543.	1650.	0.	0.	0.	.33	62.	8.8	A	21.6	12.8
14	1	1400.	0.	0.	543.	0.	0.	543.	1650.	0.	0.	0.	.33	62.	8.8	A	21.6	12.8
15	1	1400.	0.	0.	543.	0.	0.	543.	1650.	0.	0.	0.	.33	62.	8.8	A	21.6	12.8
16	1	1500.	0.	0.	543.	0.	0.	543.	1650.	0.	0.	0.	.33	62.	8.8	A	21.6	12.8
17	1	1500.	0.	0.	543.	0.	0.	543.	1650.	0.	0.	0.	.33	62.	8.8	A	21.6	12.8
18	1	5000.	0.	543.	543.	0.	543.	543.	1650.	0.	0.	0.	.33	62.	8.8	A	21.6	12.8
19																		
20																		
TOTAL		11600. = 2.2 MILES							MAX(V/C) = 0.33 LOWEST LOS = A					AVG = 62.	8.8		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	19. VEH-HRS	38. PASS-HRS	71. VEH-HRS	142. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	19. VEH-HRS	38. PASS-HRS	71. VEH-HRS	142. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1193. VEH-MI.	2387. PASS-MI.	4401. VEH-MI.	8802. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		11. VPMPL	
TOTAL FUEL =	55. GALLONS		204. GALLONS	
TOTAL EMISSIONS =	15. KILOGRAMS		56. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.06	14	0.11	15	0.11
16	0.11	17	0.11	18	0.38	19	0.00	20	0.00

***** TOTAL DELAY = 0.9 VEH-HRS ***** AVERAGE DELAY = 0.10 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 7 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

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ON-RAMP CAPACITY LIMITS

1	2	3	4	5	6	7	8
6000.******	1500.	1500.******	2000.	1500.	1500.		

OFF-RAMP CAPACITY LIMITS

1	2	3	4	5	6	7	8
**********	2000.	2000.	1500.	1500.	1500.	6000.	

ON-RAMP 1 IS THE MAINLINE ORIGIN
OFF-RAMP 8 IS THE MAINLINE DESTINATION

***** ON-RAMPS 2 AND 5 ARE SYNTHETIC ORIGINS USED TO ENTER AND LEAVE THE PL LANE(S)
***** OFF-RAMPS 1 AND 2 ARE SYNTHETIC DESTINATIONS USED TO ENTER AND LEAVE THE PL LANE(S)

INPUT HAS BEEN COMPLETED

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 13:42 PAGE 3
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1650.	1300.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda

```
**                                                                                                                              **
**   8                                                                                                                          **
**                                                                                                                              **
**   9                                                                                                                          **
**                                                                                                                              **
**  10                                                                                                                          **
**                                                                                                                              **
**  11                                                                                                                          **
**                                                                                                                              **
**  12                                                                                                                          **
**                                                                                                                              **
**  13                                                                                                                          **
**                                                                                                                              **
**  14                                                                                                                          **
**                                                                                                                              **
**  15                                                                                                                          **
**                                                                                                                              **
**  16                                                                                                                          **
**                                                                                                                              **
**  17                                                                                                                          **
**                                                                                                                              **
**  18                                                                                                                          **
**                                                                                                                              **
**  19                                                                                                                          **
**                                                                                                                              **
**  20                                                                                                                          **
**                                                                                                                              **
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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1198.	0.	1198.	1198.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
4	1	1500.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
5	1	1400.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
6	1	1500.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
7	1	1300.	0.	1198.	1198.	0.	1198.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

```
*  20                                                                                                                          *
*                                                                                                                              *
********************************************************************************************************************************
*                                                                                                                              *
*   TOTAL   16700. =    3.2 MILES                   MAX(V/C) = 0.73  LOWEST LOS = C   AVG = 62.   19.3         21.6    12.8   *
*                                                                                                                              *
********************************************************************************************************************************
```

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	61. PASS-HRS	31. VEH-HRS	61. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	61. PASS-HRS	31. VEH-HRS	61. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1895. VEH-MI.	3790. PASS-MI.	1895. VEH-MI.	3790. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	88. GALLONS		88. GALLONS	
TOTAL EMISSIONS =	24. KILOGRAMS		24. KILOGRAMS	

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TIME SLICE 1 OF 4

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.93	4	0.13	5	0.12
6	0.13	7	0.11	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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TIME SLICE 2 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1198.	0.	1198.	1198.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
4	1	1500.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
5	1	1400.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
6	1	1500.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
7	1	1300.	0.	1198.	1198.	0.	1198.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
8																		
9																		

```
*  10                                                                                                                                  *
*  11                                                                                                                                  *
*  12                                                                                                                                  *
*  13                                                                                                                                  *
*  14                                                                                                                                  *
*  15                                                                                                                                  *
*  16                                                                                                                                  *
*  17                                                                                                                                  *
*  18                                                                                                                                  *
*  19                                                                                                                                  *
*  20                                                                                                                                  *
*                                                                                                                                      *
****************************************************************************************************************************************
*                                                                                                                                      *
*   TOTAL   16700. =    3.2 MILES                          MAX(V/C) = 0.73  LOWEST LOS = C   AVG = 62.   19.3          21.6    12.8  *
*                                                                                                                                      *
****************************************************************************************************************************************


                              CURRENT TIME SLICE                             CUMULATIVE VALUES
      FREEWAY TRAVEL TIME =     31. VEH-HRS       61. PASS-HRS                61. VEH-HRS      122. PASS-HRS
      FREEWAY MERGE DELAY =      0. VEH-HRS        0. PASS-HRS                 0. VEH-HRS        0. PASS-HRS
    ON-RAMP MRG/CAP DELAY =      0. VEH-HRS        0. PASS-HRS                 0. VEH-HRS        0. PASS-HRS
          OFF-RAMP DELAY =      0. VEH-HRS        0. PASS-HRS                 0. VEH-HRS        0. PASS-HRS
  TOTAL SYSTEM TRAVEL TIME =     31. VEH-HRS       61. PASS-HRS                61. VEH-HRS      122. PASS-HRS
 TOTAL FRWAY TRAV DISTANCE =   1895. VEH-MI.    3790. PASS-MI.              3790. VEH-MI.    7580. PASS-MI.
     AVERAGE SYSTEM SPEED =     62. MPH.                                     62. MPH.
          AVERAGE DENSITY =     19. VPMPL                                    19. VPMPL
               TOTAL FUEL =     88. GALLONS                                 176. GALLONS
          TOTAL EMISSIONS =     24. KILOGRAMS                                48. KILOGRAMS


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                                                   TIME SLICE  2 OF  4


    ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY

         1          0.00         2          0.00         3          0.93         4          0.13         5          0.12
         6          0.13         7          0.11         8          0.00         9          0.00        10          0.00
        11          0.00        12          0.00        13          0.00        14          0.00        15          0.00
        16          0.00        17          0.00        18          0.00        19          0.00        20          0.00

    ***** TOTAL DELAY =      1.4  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****


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                                                   TIME SLICE  3 OF  4

                                        **************************************************
                                        **                                              **
                                        **          FREEWAY TRAVEL TIME (MINUTES)       **
                                        **                                              **
                                        **************************************************


                               *********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                 *
                               * DOWN                                                              *
                               *          1     2     3     4     5     6     7     8
+                                                                                                  *
                               *    ****************************************************************
                               *    *                                                              *
+                                                                                                  *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *    *                                                              *
                               *********************************************************************


1 INSTITUTE OF TRANSPORTATION STUDIES                       FREQ12PL   REL 3.01            2/29/2016   13:42              PAGE  11
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  3 OF  4


****************************************************************************************************************************************
*                                                                                                                                      *
*                                               TIME SLICE FREEWAY PERFORMANCE TABLE                                                   *
*                                                                                                                                      *
****************************************************************************************************************************************
* SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS     FUEL   EMISS  *
* SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE RATIO  MPH   VPMPL  LEVEL     MPG   GS/VM  *
****************************************************************************************************************************************
```

1																		
2																		
3	1	11000.	1227.	0.	1227.	1227.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
4	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
5	1	1400.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
6	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
7	1	1300.	0.	1227.	1227.	0.	1227.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		

TOTAL	16700. =	3.2 MILES	MAX(V/C) = 0.74	LOWEST LOS = C	AVG = 62.	19.8	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	92. VEH-HRS	185. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	92. VEH-HRS	185. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1941. VEH-MI.	3881. PASS-MI.	5731. VEH-MI.	11462. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	90. GALLONS		266. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		73. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.95	4	0.13	5	0.12
6	0.13	7	0.11	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1227.	0.	1227.	1227.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
4	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
5	1	1400.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
6	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
7	1	1300.	0.	1227.	1227.	0.	1227.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. =	3.2 MILES					MAX(V/C) = 0.74		LOWEST LOS = C		AVG = 62.		19.8		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	124. VEH-HRS	247. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	124. VEH-HRS	247. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1941. VEH-MI.	3881. PASS-MI.	7672. VEH-MI.	15343. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	90. GALLONS		356. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		98. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.95	4	0.13	5	0.12
6	0.13	7	0.11	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.88	0.00	21.31	22.48	22.55	22.73	23.27	25.45
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.33	2.50	2.57	2.76	3.29	5.47
4	0.00	0.00	0.78	1.95	2.02	2.20	2.74	4.92
5	0.00	0.00	0.15	1.32	1.39	1.58	2.11	4.30
6	0.00	0.00	0.00	0.32	0.40	0.58	1.11	3.30
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4609.	0.	4609.	4609.	0.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
2	3	99999.	0.	1198.	4609.	0.	1198.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
3	2	11000.	0.	0.	3411.	0.	0.	3411.	4000.	0.	0.	0.	.85	60.	28.6	D	21.5	12.3
4	2	1500.	20.	0.	3431.	20.	0.	3431.	4000.	0.	0.	0.	.86	60.	28.8	D	21.5	12.3
5	2	1400.	0.	0.	3431.	0.	0.	3431.	4000.	0.	0.	0.	.86	60.	28.8	D	21.5	12.3
6	2	1500.	290.	0.	3721.	290.	0.	3721.	4000.	0.	0.	0.	.93	56.	33.0	D	22.5	11.7
7	2	1300.	0.	0.	3721.	0.	0.	3542.	4000.	0. *	1131.	179.	.89	46.	38.5	F	21.8	12.2
8	3	500.	1198.	950.	4919.	1198.	950.	4740.	5130.	0. **	500.	179.	.92	37.	42.9	F	21.3	12.8
9	2	2300.	0.	0.	3969.	0.	0.	3790.	4000.	0. **	2300.	179.	.95	31.	61.2	F	20.9	13.2
10	3	250.	160.	0.	4129.	160.	0.	3950.	4250.	0. **	250.	179.	.93	25.	51.7	F	19.1	14.9
11	3	200.	0.	0.	4129.	0.	0.	3950.	4250.	0. **	200.	179.	.93	24.	53.8	F	19.1	15.0
12	3	250.	0.	1550.	4129.	0.	1550.	3950.	4250.	0. **	250.	179.	.93	24.	55.8	F	19.1	15.0
13	2	50.	0.	0.	2579.	0.	0.	2400.	4000.	0. **	50.	179.	.60	8.	151.8	F	10.5	25.4
14	2	50.	0.	0.	2579.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	0.	0.	2579.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
16	2	10.	0.	0.	2579.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
17	2	1500.	616.	0.	3195.	616.	0.	3016.	4000.	0.	0.	0.	.75	64.	23.5	C	19.4	13.8
18	2	1500.	0.	789.	3195.	0.	745.	3016.	4000.	0.	0.	0.	.75	64.	23.5	C	19.4	13.8
19	2	12000.	0.	0.	2406.	0.	0.	2271.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
20	3	500.	0.	2406.	2406.	0.	2271.	2271.	6000.	0.	0.	0.	.38	65.	11.6	B	19.0	14.1
TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 62.	25.0	19.7	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	886. VEH-HRS	1092. PASS-HRS	886. VEH-HRS	1092. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	886. VEH-HRS	1092. PASS-HRS	886. VEH-HRS	1092. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	54474. VEH-MI.	67235. PASS-MI.	54474. VEH-MI.	67235. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	25. VPMPL		25. VPMPL	
TOTAL FUEL =	2771. GALLONS		2771. GALLONS	
TOTAL EMISSIONS =	738. KILOGRAMS		738. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 1 OF 4

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	11.98	3	4.88	4	0.69	5	0.65
6	1.26	7	2.89	8	2.71	9	14.20	10	2.25
11	1.91	12	2.53	13	1.26	14	0.00	15	0.00
16	0.00	17	0.09	18	0.09	19	0.00	20	0.00

***** TOTAL DELAY = 47.5 VEH-HRS ***** AVERAGE DELAY = 0.73 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 2 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.88	0.00	22.57	24.00	24.08	24.26	24.79	26.98
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	2.60	4.02	4.10	4.28	4.81	7.00

* 4 *	0.00	0.00	1.76	3.19	3.26	3.45	3.98	6.17	
* 5 *	0.00	0.00	0.26	1.68	1.76	1.94	2.47	4.66	
* 6 *	0.00	0.00	0.00	0.35	0.42	0.61	1.14	3.33	
* 7 *	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89	
* 8 *	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4609.	0.	4609.	4609.	0.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
2	3	99999.	0.	1198.	4609.	0.	1198.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
3	2	11000.	0.	0.	3411.	0.	0.	3411.	4000.	0.	0.	0.	.85	60.	28.6	D	21.5	12.3
4	2	1500.	20.	0.	3431.	20.	0.	3252.	4000.	0. *	362.	179.	.81	57.	28.4	F	21.4	12.4
5	2	1400.	0.	0.	3431.	0.	0.	3252.	4000.	0. **	1400.	179.	.81	30.	54.6	F	19.3	14.5
6	2	1500.	290.	0.	3721.	290.	0.	3542.	4000.	0. **	1500.	179.	.89	23.	77.4	F	18.8	15.4
7	2	1300.	0.	0.	3721.	0.	0.	3542.	4000.	0. **	1300.	179.	.89	19.	91.5	F	17.9	16.5
8	3	500.	1198.	950.	4919.	1198.	950.	4740.	5130.	0. **	500.	179.	.92	22.	71.2	F	18.9	15.3
9	2	2300.	0.	0.	3969.	0.	0.	3790.	4000.	0. **	2300.	179.	.95	24.	78.1	F	19.6	14.5
10	3	250.	160.	0.	4129.	160.	0.	3950.	4250.	0. **	250.	179.	.93	23.	58.1	F	19.1	15.1
11	3	200.	0.	0.	4129.	0.	0.	3950.	4250.	0. **	200.	179.	.93	23.	58.1	F	19.1	15.1
12	3	250.	0.	1550.	4129.	0.	1550.	3950.	4250.	0. **	250.	179.	.93	23.	58.1	F	19.1	15.1
13	2	50.	0.	0.	2579.	0.	0.	2400.	4000.	0. **	50.	179.	.60	8.	153.8	F	10.4	25.5
14	2	50.	0.	0.	2579.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	0.	0.	2579.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
16	2	10.	0.	0.	2579.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
17	2	1500.	616.	0.	3195.	616.	0.	3016.	4000.	0.	0.	0.	.75	64.	23.5	C	19.4	13.8
18	2	1500.	0.	789.	3195.	0.	745.	3016.	4000.	0.	0.	0.	.75	64.	23.5	C	19.4	13.8
19	2	12000.	0.	0.	2406.	0.	0.	2271.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
20	3	500.	0.	2406.	2406.	0.	2271.	2271.	6000.	0.	0.	0.	.38	65.	11.6	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 1.00			LOWEST LOS = F		AVG = 58.				26.6		19.6	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	930. VEH-HRS	1140. PASS-HRS	1816. VEH-HRS	2231. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	930. VEH-HRS	1140. PASS-HRS	1816. VEH-HRS	2231. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	54404. VEH-MI.	67159. PASS-MI.	108878. VEH-MI.	134394. PASS-MI.
AVERAGE SYSTEM SPEED =	58. MPH.		60. MPH.	
AVERAGE DENSITY =	27. VPMPL		26. VPMPL	
TOTAL FUEL =	2783. GALLONS		5554. GALLONS	
TOTAL EMISSIONS =	744. KILOGRAMS		1482. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	11.98	3	4.88	4	1.02	5	8.14
6	14.41	7	15.81	8	6.66	9	21.32	10	2.69
11	2.15	12	2.69	13	1.28	14	0.00	15	0.00
16	0.00	17	0.09	18	0.09	19	0.00	20	0.00

***** TOTAL DELAY = 93.3 VEH-HRS ***** AVERAGE DELAY = 1.50 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8

1	18.00	0.00	23.69	25.00	25.06	25.24	25.85	28.03
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	3.39	4.70	4.75	4.94	5.54	7.73
4	0.00	0.00	1.54	2.85	2.91	3.09	3.70	5.89
5	0.00	0.00	0.21	1.52	1.58	1.76	2.37	4.55
6	0.00	0.00	0.00	0.32	0.37	0.56	1.16	3.35
7	0.00	0.00	0.00	0.00	0.00	0.17	0.78	2.97
8	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.79

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4720.	0.	4720.	4720.	0.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
2	3	99999.	0.	1227.	4720.	0.	1227.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
3	2	11000.	0.	0.	3493.	0.	0.	3354.	4000.	0. *	1415.	139.	.84	54.	31.0	F	21.4	12.4
4	2	1500.	19.	0.	3512.	19.	0.	3373.	4000.	0. **	1500.	139.	.84	19.	88.3	F	17.5	16.9
5	2	1400.	0.	0.	3512.	0.	0.	3373.	4000.	0. **	1400.	139.	.84	17.	100.8	F	16.8	18.0
6	2	1500.	400.	0.	3912.	400.	0.	3773.	4000.	0. **	1500.	139.	.94	24.	79.0	F	19.5	14.6
7	2	1300.	0.	0.	3912.	0.	0.	3773.	4000.	0. **	1300.	139.	.94	24.	79.0	F	19.5	14.6
8	3	500.	1227.	1130.	5139.	1227.	1128.	5000.	5130.	0. **	500.	130.	.97	27.	61.7	F	20.4	13.6
9	2	2300.	0.	0.	4009.	0.	0.	3872.	4000.	0. **	2300.	128.	.97	26.	73.6	F	20.2	13.8
10	3	250.	194.	0.	4203.	194.	0.	4066.	4250.	0. **	250.	128.	.96	25.	53.9	F	19.9	14.1
11	3	200.	0.	0.	4203.	0.	0.	4066.	4250.	0. **	200.	128.	.96	25.	53.9	F	19.9	14.1
12	3	250.	0.	1320.	4203.	0.	1317.	4066.	4250.	0. **	250.	128.	.96	25.	53.9	F	19.9	14.1
13	2	50.	0.	350.	2883.	0.	349.	2749.	4000.	0. **	50.	128.	.69	10.	134.8	F	13.1	22.8
14	2	50.	0.	0.	2533.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	350.	0.	2883.	350.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
16	2	10.	0.	0.	2883.	0.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
17	2	1500.	1045.	0.	3928.	1045.	0.	3795.	4000.	0.	0.	0.	.95	56.	33.8	D	22.5	11.6
18	2	1500.	0.	1270.	3928.	0.	1227.	3795.	4000.	0.	0.	0.	.95	56.	33.8	D	22.5	11.6
19	2	12000.	0.	0.	2658.	0.	0.	2568.	4000.	0.	0.	0.	.64	65.	19.8	C	19.0	14.1
20	3	500.	0.	2658.	2658.	0.	2568.	2568.	6000.	0.	0.	0.	.43	65.	13.2	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 57.		28.7		19.7	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	992. VEH-HRS	1209. PASS-HRS	2808. VEH-HRS	3441. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	992. VEH-HRS	1209. PASS-HRS	2808. VEH-HRS	3441. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	56238. VEH-MI.	69443. PASS-MI.	165116. VEH-MI.	203837. PASS-MI.
AVERAGE SYSTEM SPEED =	57. MPH.		59. MPH.	
AVERAGE DENSITY =	29. VPMPL		27. VPMPL	
TOTAL FUEL =	2851. GALLONS		8405. GALLONS	
TOTAL EMISSIONS =	762. KILOGRAMS		2244. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.08	2	16.67	3	11.23	4	17.84	5	19.85
6	14.20	7	12.31	8	5.12	9	19.09	10	2.35
11	1.88	12	2.35	13	1.08	14	0.00	15	0.00
16	0.00	17	1.30	18	1.30	19	0.00	20	0.00

***** TOTAL DELAY = 126.6 VEH-HRS ***** AVERAGE DELAY = 2.02 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	18.00	0.00	24.92	26.23	26.29	26.47	27.08	29.26
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	3.51	4.82	4.88	5.06	5.67	7.86
4	0.00	0.00	1.54	2.85	2.91	3.09	3.70	5.89
5	0.00	0.00	0.21	1.52	1.58	1.76	2.37	4.55
6	0.00	0.00	0.00	0.32	0.37	0.56	1.16	3.35
7	0.00	0.00	0.00	0.00	0.00	0.17	0.78	2.97
8	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.79

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4720.	0.	4720.	4720.	0.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
2	3	99999.	0.	1227.	4720.	0.	1227.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
3	2	11000.	0.	0.	3493.	0.	0.	3354.	4000.	0. *	3948.	139.	.84	37.	45.8	F	20.2	13.6
4	2	1500.	19.	0.	3512.	19.	0.	3373.	4000.	0. **	1500.	139.	.84	17.	100.8	F	16.8	18.0
5	2	1400.	0.	0.	3512.	0.	0.	3373.	4000.	0. **	1400.	139.	.84	17.	100.8	F	16.8	18.0
6	2	1500.	400.	0.	3912.	400.	0.	3773.	4000.	0. **	1500.	139.	.94	24.	79.0	F	19.5	14.6
7	2	1300.	0.	0.	3912.	0.	0.	3773.	4000.	0. **	1300.	139.	.94	24.	79.0	F	19.5	14.6
8	3	500.	1227.	1130.	5139.	1227.	1128.	5000.	5130.	0. **	500.	130.	.97	27.	61.7	F	20.4	13.6
9	2	2300.	0.	0.	4009.	0.	0.	3872.	4000.	0. **	2300.	128.	.97	26.	73.6	F	20.2	13.8
10	3	250.	194.	0.	4203.	194.	0.	4066.	4250.	0. **	250.	128.	.96	25.	53.9	F	19.9	14.1
11	3	200.	0.	0.	4203.	0.	0.	4066.	4250.	0. **	200.	128.	.96	25.	53.9	F	19.9	14.1
12	3	250.	0.	1320.	4203.	0.	1317.	4066.	4250.	0. **	250.	128.	.96	25.	53.9	F	19.9	14.1
13	2	50.	0.	350.	2883.	0.	349.	2749.	4000.	0. **	50.	128.	.69	10.	134.8	F	13.1	22.8
14	2	50.	0.	0.	2533.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	350.	0.	2883.	350.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
16	2	10.	0.	0.	2883.	0.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
17	2	1500.	1045.	0.	3928.	1045.	0.	3795.	4000.	0.	0.	0.	.95	56.	33.8	D	22.5	11.6
18	2	1500.	0.	1270.	3928.	0.	1227.	3795.	4000.	0.	0.	0.	.95	56.	33.8	D	22.5	11.6
19	2	12000.	0.	0.	2658.	0.	0.	2568.	4000.	0.	0.	0.	.64	65.	19.8	C	19.0	14.1
20	3	500.	0.	2658.	2658.	0.	2568.	2568.	6000.	0.	0.	0.	.43	65.	13.2	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 55.		30.0		19.6	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1026. VEH-HRS	1244. PASS-HRS	3834. VEH-HRS	4684. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1026. VEH-HRS	1244. PASS-HRS	3834. VEH-HRS	4684. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	56205. VEH-MI.	69410. PASS-MI.	221321. VEH-MI.	273247. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		58. MPH.	
AVERAGE DENSITY =	30. VPMPL		28. VPMPL	
TOTAL FUEL =	2861. GALLONS		11266. GALLONS	
TOTAL EMISSIONS =	767. KILOGRAMS		3011. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.08	2	16.67	3	42.96	4	21.27	5	19.85
6	14.20	7	12.31	8	5.12	9	19.09	10	2.35
11	1.88	12	2.35	13	1.08	14	0.00	15	0.00
16	0.00	17	1.30	18	1.30	19	0.00	20	0.00

***** TOTAL DELAY = 161.8 VEH-HRS ***** AVERAGE DELAY = 2.65 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
```

FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 7 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

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ON-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
 6000.****** 1500. 1500.****** 2000. 1500. 1500.
```

OFF-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
********** 2000. 2000. 1500. 1500. 1500. 6000.
```

ON-RAMP 1 IS THE MAINLINE ORIGIN
OFF-RAMP 8 IS THE MAINLINE DESTINATION

***** ON-RAMPS 2 AND 5 ARE SYNTHETIC ORIGINS USED TO ENTER AND LEAVE THE PL LANE(S)
***** OFF-RAMPS 1 AND 2 ARE SYNTHETIC DESTINATIONS USED TO ENTER AND LEAVE THE PL LANE(S)

INPUT HAS BEEN COMPLETED

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 15:54 PAGE 3
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1650.	1300.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda

8
9
10
11
12
13
14
15
16
17
18
19
20

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1198.	0.	1198.	1198.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
4	1	1500.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
5	1	1400.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
6	1	1500.	0.	0.	1198.	0.	0.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
7	1	1300.	0.	1198.	1198.	0.	1198.	1198.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

```
 *  20                                                                                                                        *
 *                                                                                                                            *
 ******************************************************************************************************************************
 *                                                                                                                            *
 *   TOTAL   16700. =    3.2 MILES                        MAX(V/C) = 0.73  LOWEST LOS = C   AVG = 62.   19.3         21.6   12.8 *
 *                                                                                                                            *
 ******************************************************************************************************************************


                              CURRENT TIME SLICE                              CUMULATIVE VALUES
      FREEWAY TRAVEL TIME =      31. VEH-HRS      61. PASS-HRS                 31. VEH-HRS      61. PASS-HRS
      FREEWAY MERGE DELAY =       0. VEH-HRS       0. PASS-HRS                  0. VEH-HRS       0. PASS-HRS
   ON-RAMP MRG/CAP DELAY =        0. VEH-HRS       0. PASS-HRS                  0. VEH-HRS       0. PASS-HRS
          OFF-RAMP DELAY =        0. VEH-HRS       0. PASS-HRS                  0. VEH-HRS       0. PASS-HRS
  TOTAL SYSTEM TRAVEL TIME =     31. VEH-HRS      61. PASS-HRS                 31. VEH-HRS      61. PASS-HRS
 TOTAL FRWAY TRAV DISTANCE =   1895. VEH-MI.    3790. PASS-MI.               1895. VEH-MI.    3790. PASS-MI.
     AVERAGE SYSTEM SPEED =      62. MPH.                                      62. MPH.
          AVERAGE DENSITY =      19. VPMPL                                     19. VPMPL
               TOTAL FUEL =      88. GALLONS                                   88. GALLONS
          TOTAL EMISSIONS =      24. KILOGRAMS                                 24. KILOGRAMS

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                                                      TIME SLICE  1 OF  4


    ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY

         1          0.00         2          0.00         3          0.93         4          0.13         5          0.12
         6          0.13         7          0.11         8          0.00         9          0.00        10          0.00
        11          0.00        12          0.00        13          0.00        14          0.00        15          0.00
        16          0.00        17          0.00        18          0.00        19          0.00        20          0.00

    ***** TOTAL DELAY =      1.4  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****


1 INSTITUTE OF TRANSPORTATION STUDIES                    FREQ12PL   REL 3.01            2/29/2016  15:54             PAGE  7
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                      TIME SLICE  2 OF  4

                                        **************************************************
                                        **                                              **
                                        **         FREEWAY TRAVEL TIME (MINUTES)        **
                                        **                                              **
                                        **************************************************


                               *******************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                               *
                               * DOWN                                                            *
                               *          1     2     3     4     5     6     7     8
+                                                                                                *
                               *   ****************************************************************
                               *   *                                                             *
+                                                                                                *
                               *  1 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *  2 *  0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *  3 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *  4 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *  5 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *  6 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *  7 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *  8 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                *
                               *   *                                                             *
                               *******************************************************************


1 INSTITUTE OF TRANSPORTATION STUDIES                    FREQ12PL   REL 3.01            2/29/2016  15:54             PAGE  8
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                      TIME SLICE  2 OF  4


 ******************************************************************************************************************************
 *                                                                                                                            *
 *                                            TIME SLICE FREEWAY PERFORMANCE TABLE                                            *
 *                                                                                                                            *
 ******************************************************************************************************************************
 * SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC    WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS    FUEL   EMISS  *
 * SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE  RATIO  MPH   VPMPL  LEVEL   MPG   GS/VM  *
 ******************************************************************************************************************************
 *                                                                                                                            *
 *   1                                                                                                                        *
 *   2                                                                                                                        *
 *   3   1   11000.  1198.    0. 1198.  1198.    0. 1198.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
 *   4   1    1500.     0.    0. 1198.     0.    0. 1198.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
 *   5   1    1400.     0.    0. 1198.     0.    0. 1198.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
 *   6   1    1500.     0.    0. 1198.     0.    0. 1198.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
 *   7   1    1300.     0. 1198. 1198.     0. 1198. 1198.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
 *   8                                                                                                                        *
 *   9                                                                                                                        *
```

```
  *10                                                                                                                 *
 *  11                                                                                                                *
 *  12                                                                                                                *
 *  13                                                                                                                *
 *  14                                                                                                                *
 *  15                                                                                                                *
 *  16                                                                                                                *
 *  17                                                                                                                *
 *  18                                                                                                                *
 *  19                                                                                                                *
 *  20                                                                                                                *
 *                                                                                                                    *
**********************************************************************************************************************
 *                                                                                                                    *
 *   TOTAL   16700. =    3.2 MILES                        MAX(V/C) = 0.73  LOWEST LOS = C   AVG = 62.   19.3         21.6    12.8  *
 *                                                                                                                    *
**********************************************************************************************************************
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                               CURRENT TIME SLICE                               CUMULATIVE VALUES
        FREEWAY TRAVEL TIME =      31. VEH-HRS        61. PASS-HRS               61. VEH-HRS       122. PASS-HRS
       FREEWAY MERGE DELAY =       0. VEH-HRS         0. PASS-HRS                0. VEH-HRS         0. PASS-HRS
    ON-RAMP MRG/CAP DELAY =        0. VEH-HRS         0. PASS-HRS                0. VEH-HRS         0. PASS-HRS
          OFF-RAMP DELAY =         0. VEH-HRS         0. PASS-HRS                0. VEH-HRS         0. PASS-HRS
 TOTAL SYSTEM TRAVEL TIME =       31. VEH-HRS        61. PASS-HRS               61. VEH-HRS       122. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =     1895. VEH-MI.      3790. PASS-MI.             3790. VEH-MI.      7580. PASS-MI.
     AVERAGE SYSTEM SPEED =       62. MPH.                                      62. MPH.
          AVERAGE DENSITY =       19. VPMPL                                     19. VPMPL
               TOTAL FUEL =       88. GALLONS                                  176. GALLONS
          TOTAL EMISSIONS =       24. KILOGRAMS                                 48. KILOGRAMS
```

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1 INSTITUTE OF TRANSPORTATION STUDIES                        FREQ12PL   REL 3.01            2/29/2016   15:54               PAGE   9
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  2 OF  4
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```
     ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

     SUBSECTION     DELAY    SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY

          1          0.00        2           0.00          3          0.93         4           0.13         5           0.12
          6          0.13        7           0.11          8          0.00         9           0.00        10           0.00
         11          0.00       12           0.00         13          0.00        14           0.00        15           0.00
         16          0.00       17           0.00         18          0.00        19           0.00        20           0.00

     ***** TOTAL DELAY =      1.4  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****
```

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1 INSTITUTE OF TRANSPORTATION STUDIES                        FREQ12PL   REL 3.01            2/29/2016   15:54               PAGE  10
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  3 OF  4

                                        **************************************************
                                        **                                              **
                                        **          FREEWAY TRAVEL TIME (MINUTES)       **
                                        **                                              **
                                        **************************************************

                               *********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                 *
                               * DOWN                                                              *
                               *          1     2     3     4     5     6     7     8
+                                                                                                  *
                               *    ****************************************************************
                               *    *                                                              *
+                                                                                                  *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *    *                                                              *
                               *********************************************************************
```

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1 INSTITUTE OF TRANSPORTATION STUDIES                        FREQ12PL   REL 3.01            2/29/2016   15:54               PAGE  11
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  3 OF  4

**********************************************************************************************************************
 *                                                                                                                    *
 *                                          TIME SLICE FREEWAY PERFORMANCE TABLE                                      *
 *                                                                                                                    *
**********************************************************************************************************************
 * SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS    FUEL   EMISS  *
 * SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE RATIO  MPH   VPMPL  LEVEL    MPG   GS/VM  *
**********************************************************************************************************************
```

1																			
2																			
3	1	11000.	1227.	0.	1227.	1227.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
4	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
5	1	1400.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
6	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
7	1	1300.	0.	1227.	1227.	0.	1227.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
TOTAL		16700. =	3.2 MILES						MAX(V/C) = 0.74			LOWEST LOS = C		AVG = 62.	19.8		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	92. VEH-HRS	185. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	92. VEH-HRS	185. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1941. VEH-MI.	3881. PASS-MI.	5731. VEH-MI.	11462. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	90. GALLONS		266. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		73. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.95	4	0.13	5	0.12
6	0.13	7	0.11	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1227.	0.	1227.	1227.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
4	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
5	1	1400.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
6	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
7	1	1300.	0.	1227.	1227.	0.	1227.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. =	3.2 MILES					MAX(V/C) = 0.74		LOWEST LOS = C		AVG = 62.		19.8		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	124. VEH-HRS	247. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	124. VEH-HRS	247. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1941. VEH-MI.	3881. PASS-MI.	7672. VEH-MI.	15343. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	90. GALLONS		356. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		98. KILOGRAMS	

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 15:54 PAGE 15
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 4 OF 4

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.95	4	0.13	5	0.12
6	0.13	7	0.11	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 1 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.88	0.00	21.44	22.69	22.76	22.95	23.48	25.67
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.46	2.71	2.79	2.97	3.50	5.69
4	0.00	0.00	0.91	2.16	2.23	2.41	2.95	5.13
5	0.00	0.00	0.18	1.43	1.50	1.68	2.22	4.40
6	0.00	0.00	0.00	0.33	0.40	0.59	1.12	3.30
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4609.	0.	4609.	4609.	0.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
2	3	99999.	0.	1198.	4609.	0.	1198.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
3	2	11000.	0.	0.	3411.	0.	0.	3411.	4000.	0.	0.	0.	.85	60.	28.6	D	21.5	12.3
4	2	1500.	20.	0.	3431.	20.	0.	3431.	4000.	0.	0.	0.	.86	60.	28.8	D	21.5	12.3
5	2	1400.	0.	0.	3431.	0.	0.	3431.	4000.	0.	0.	0.	.86	60.	28.8	D	21.5	12.3
6	2	1500.	290.	0.	3721.	290.	0.	3492.	4000.	0. *	737.	229.	.87	53.	33.2	F	22.2	11.8
7	2	1300.	0.	0.	3721.	0.	0.	3492.	4000.	0. **	1300.	229.	.87	36.	48.0	F	20.9	13.1
8	3	500.	1198.	950.	4919.	1198.	950.	4690.	5130.	0. **	500.	229.	.91	32.	48.6	F	20.7	13.4
9	2	2300.	0.	0.	3969.	0.	0.	3740.	4000.	0. **	2300.	229.	.94	28.	66.0	F	20.4	13.7
10	3	250.	210.	0.	4179.	210.	0.	3950.	4250.	0. **	250.	229.	.93	25.	53.1	F	19.1	15.0
11	3	200.	0.	0.	4179.	0.	0.	3950.	4250.	0. **	200.	229.	.93	24.	54.7	F	19.1	15.0
12	3	250.	0.	1550.	4179.	0.	1550.	3950.	4250.	0. **	250.	229.	.93	23.	56.3	F	19.1	15.0
13	2	50.	0.	0.	2629.	0.	0.	2400.	4000.	0. **	50.	229.	.60	8.	152.2	F	10.5	25.4
14	2	50.	0.	0.	2629.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	0.	0.	2629.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
16	2	10.	0.	0.	2629.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
17	2	1500.	608.	0.	3237.	608.	0.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
18	2	1500.	0.	789.	3237.	0.	733.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
19	2	12000.	0.	0.	2448.	0.	0.	2275.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
20	3	500.	0.	2448.	2448.	0.	2275.	2275.	6000.	0.	0.	0.	.38	65.	11.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 61.		25.2	19.6	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	892. VEH-HRS	1099. PASS-HRS	892. VEH-HRS	1099. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	892. VEH-HRS	1099. PASS-HRS	892. VEH-HRS	1099. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	54457. VEH-MI.	67215. PASS-MI.	54457. VEH-MI.	67215. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		61. MPH.	
AVERAGE DENSITY =	25. VPMPL		25. VPMPL	
TOTAL FUEL =	2773. GALLONS		2773. GALLONS	
TOTAL EMISSIONS =	739. KILOGRAMS		739. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 1 OF 4

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	11.98	3	4.88	4	0.69	5	0.65
6	1.92	7	5.46	8	3.57	9	16.51	10	2.35
11	1.97	12	2.57	13	1.27	14	0.00	15	0.00
16	0.00	17	0.09	18	0.09	19	0.00	20	0.00

***** TOTAL DELAY = 54.0 VEH-HRS ***** AVERAGE DELAY = 0.84 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 2 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.88	0.00	23.25	24.73	24.80	24.99	25.52	27.71
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	3.27	4.75	4.82	5.01	5.54	7.72

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                                *  4 *   0.00  0.00  1.96  3.44  3.51  3.70  4.23  6.41
+                               *                                                      *
                                *  5 *   0.00  0.00  0.27  1.75  1.82  2.00  2.54  4.72
+                               *                                                      *
                                *  6 *   0.00  0.00  0.00  0.35  0.42  0.61  1.14  3.33
+                               *                                                      *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  0.17  0.71  2.89
+                               *                                                      *
                                *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.53  2.72
+                               *                                                      *
                                *    *                                                 *
                                ************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4609.	0.	4609.	4609.	0.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
2	3	99999.	0.	1198.	4609.	0.	1198.	4609.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
3	2	11000.	0.	0.	3411.	0.	0.	3182.	4000.	0. *	238.	229.	.80	60.	26.7	F	21.5	12.3
4	2	1500.	20.	0.	3431.	20.	0.	3202.	4000.	0. **	1500.	229.	.80	33.	48.0	F	19.7	14.1
5	2	1400.	0.	0.	3431.	0.	0.	3202.	4000.	0. **	1400.	229.	.80	20.	80.3	F	17.4	16.8
6	2	1500.	290.	0.	3721.	290.	0.	3492.	4000.	0. **	1500.	229.	.87	19.	91.7	F	17.7	16.7
7	2	1300.	0.	0.	3721.	0.	0.	3492.	4000.	0. **	1300.	229.	.87	19.	94.4	F	17.5	17.0
8	3	500.	1198.	950.	4919.	1198.	950.	4690.	5130.	0. **	500.	229.	.91	21.	73.0	F	18.7	15.6
9	2	2300.	0.	0.	3969.	0.	0.	3740.	4000.	0. **	2300.	229.	.94	23.	80.8	F	19.2	14.9
10	3	250.	210.	0.	4179.	210.	0.	3950.	4250.	0. **	250.	229.	.93	23.	58.1	F	19.1	15.1
11	3	200.	0.	0.	4179.	0.	0.	3950.	4250.	0. **	200.	229.	.93	23.	58.1	F	19.1	15.1
12	3	250.	0.	1550.	4179.	0.	1550.	3950.	4250.	0. **	250.	229.	.93	23.	58.1	F	19.1	15.1
13	2	50.	0.	0.	2629.	0.	0.	2400.	4000.	0. **	50.	229.	.60	8.	153.8	F	10.4	25.5
14	2	50.	0.	0.	2629.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	0.	0.	2629.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
16	2	10.	0.	0.	2629.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
17	2	1500.	608.	0.	3237.	608.	0.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
18	2	1500.	0.	789.	3237.	0.	733.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
19	2	12000.	0.	0.	2448.	0.	0.	2275.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
20	3	500.	0.	2448.	2448.	0.	2275.	2275.	6000.	0.	0.	0.	.38	65.	11.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 57.		27.2		19.5	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	949. VEH-HRS	1159. PASS-HRS	1841. VEH-HRS	2258. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	949. VEH-HRS	1159. PASS-HRS	1841. VEH-HRS	2258. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	54355. VEH-MI.	67106. PASS-MI.	108812. VEH-MI.	134322. PASS-MI.
AVERAGE SYSTEM SPEED =	57. MPH.		59. MPH.	
AVERAGE DENSITY =	27. VPMPL		26. VPMPL	
TOTAL FUEL =	2788. GALLONS		5561. GALLONS	
TOTAL EMISSIONS =	746. KILOGRAMS		1485. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	11.98	3	5.01	4	6.99	5	15.12
6	18.47	7	16.62	8	6.95	9	22.68	10	2.69
11	2.15	12	2.69	13	1.28	14	0.00	15	0.00
16	0.00	17	0.09	18	0.09	19	0.00	20	0.00

***** TOTAL DELAY = 112.9 VEH-HRS ***** AVERAGE DELAY = 1.87 MIN/VEH *****

****
** **
** FREEWAY TRAVEL TIME (MINUTES) **
** **
****

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8

1	18.00	0.00	24.79	26.16	26.22	26.40	27.01	29.20
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	3.69	5.06	5.12	5.30	5.91	8.09
4	0.00	0.00	1.63	3.00	3.05	3.24	3.84	6.03
5	0.00	0.00	0.22	1.59	1.65	1.83	2.44	4.62
6	0.00	0.00	0.00	0.32	0.37	0.56	1.17	3.35
7	0.00	0.00	0.00	0.00	0.00	0.17	0.78	2.97
8	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.79

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4720.	0.	4720.	4720.	0.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
2	3	99999.	0.	1227.	4720.	0.	1227.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
3	2	11000.	0.	0.	3493.	0.	0.	3297.	4000.	0. *	3665.	195.	.82	40.	41.0	F	20.5	13.2
4	2	1500.	19.	0.	3512.	19.	0.	3316.	4000.	0. **	1500.	195.	.83	16.	103.9	F	16.4	18.4
5	2	1400.	0.	0.	3512.	0.	0.	3316.	4000.	0. **	1400.	195.	.83	16.	103.9	F	16.4	18.4
6	2	1500.	400.	0.	3912.	400.	0.	3716.	4000.	0. **	1500.	195.	.93	23.	82.1	F	19.1	15.1
7	2	1300.	0.	0.	3912.	0.	0.	3716.	4000.	0. **	1300.	195.	.93	23.	82.1	F	19.1	15.1
8	3	500.	1227.	1130.	5139.	1227.	1128.	4944.	5130.	0. **	500.	186.	.96	26.	63.8	F	20.1	13.9
9	2	2300.	0.	0.	4009.	0.	0.	3815.	4000.	0. **	2300.	185.	.95	25.	76.7	F	19.8	14.2
10	3	250.	241.	0.	4250.	241.	0.	4056.	4250.	0. **	250.	185.	.95	25.	54.2	F	19.8	14.2
11	3	200.	0.	0.	4250.	0.	0.	4056.	4250.	0. **	200.	185.	.95	25.	54.2	F	19.8	14.2
12	3	250.	0.	1310.	4250.	0.	1307.	4056.	4250.	0. **	250.	185.	.95	25.	54.2	F	19.8	14.2
13	2	50.	0.	350.	2940.	0.	349.	2749.	4000.	0. **	50.	185.	.69	10.	134.8	F	13.1	22.8
14	2	50.	0.	0.	2590.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	350.	0.	2940.	350.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
16	2	10.	0.	0.	2940.	0.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
17	2	1500.	1038.	0.	3978.	1038.	0.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
18	2	1500.	0.	1270.	3978.	0.	1209.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
19	2	12000.	0.	0.	2708.	0.	0.	2579.	4000.	0.	0.	0.	.64	65.	19.8	C	19.0	14.1
20	3	500.	0.	2708.	2708.	0.	2579.	2579.	6000.	0.	0.	0.	.43	65.	13.2	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 55.		29.8		19.6	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1023. VEH-HRS	1241. PASS-HRS	2864. VEH-HRS	3499. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1023. VEH-HRS	1241. PASS-HRS	2864. VEH-HRS	3499. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	56168. VEH-MI.	69371. PASS-MI.	164980. VEH-MI.	203693. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		58. MPH.	
AVERAGE DENSITY =	30. VPMPL		27. VPMPL	
TOTAL FUEL =	2860. GALLONS		8420. GALLONS	
TOTAL EMISSIONS =	766. KILOGRAMS		2251. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.08	2	16.67	3	34.14	4	22.27	5	20.79
6	15.21	7	13.18	8	5.46	9	20.63	10	2.38
11	1.90	12	2.38	13	1.08	14	0.00	15	0.00
16	0.00	17	1.27	18	1.27	19	0.00	20	0.00

***** TOTAL DELAY = 158.7 VEH-HRS ***** AVERAGE DELAY = 2.62 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	18.00	0.00	26.58	27.95	28.00	28.19	28.79	30.98
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	3.69	5.06	5.12	5.30	5.91	8.09
4	0.00	0.00	1.63	3.00	3.05	3.24	3.84	6.03
5	0.00	0.00	0.22	1.59	1.65	1.83	2.44	4.62
6	0.00	0.00	0.00	0.32	0.37	0.56	1.17	3.35
7	0.00	0.00	0.00	0.00	0.00	0.17	0.78	2.97
8	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.79

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4720.	0.	4720.	4720.	0.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
2	3	99999.	0.	1227.	4720.	0.	1227.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
3	2	11000.	0.	0.	3493.	0.	0.	3297.	4000.	0.	* 7091.	195.	.82	26.	64.5	F	18.8	15.2
4	2	1500.	19.	0.	3512.	19.	0.	3316.	4000.	0.	** 1500.	195.	.83	16.	103.9	F	16.4	18.4
5	2	1400.	0.	0.	3512.	0.	0.	3316.	4000.	0.	** 1400.	195.	.83	16.	103.9	F	16.4	18.4
6	2	1500.	400.	0.	3912.	400.	0.	3716.	4000.	0.	** 1500.	195.	.93	23.	82.1	F	19.1	15.1
7	2	1300.	0.	0.	3912.	0.	0.	3716.	4000.	0.	** 1300.	195.	.93	23.	82.1	F	19.1	15.1
8	3	500.	1227.	1130.	5139.	1227.	1128.	4944.	5130.	0.	** 500.	186.	.96	26.	63.8	F	20.1	13.9
9	2	2300.	0.	0.	4009.	0.	0.	3815.	4000.	0.	** 2300.	185.	.95	25.	76.7	F	19.8	14.2
10	3	250.	241.	0.	4250.	241.	0.	4056.	4250.	0.	** 250.	185.	.95	25.	54.2	F	19.8	14.2
11	3	200.	0.	0.	4250.	0.	0.	4056.	4250.	0.	** 200.	185.	.95	25.	54.2	F	19.8	14.2
12	3	250.	0.	1310.	4250.	0.	1307.	4056.	4250.	0.	** 250.	185.	.95	25.	54.2	F	19.8	14.2
13	2	50.	0.	350.	2940.	0.	349.	2749.	4000.	0.	** 50.	185.	.69	10.	134.8	F	13.1	22.8
14	2	50.	0.	0.	2590.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	350.	0.	2940.	350.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
16	2	10.	0.	0.	2940.	0.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
17	2	1500.	1038.	0.	3978.	1038.	0.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
18	2	1500.	0.	1270.	3978.	0.	1209.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
19	2	12000.	0.	0.	2708.	0.	0.	2579.	4000.	0.	0.	0.	.64	65.	19.8	C	19.0	14.1
20	3	500.	0.	2708.	2708.	0.	2579.	2579.	6000.	0.	0.	0.	.43	65.	13.2	B	19.0	14.1
TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 52.		31.7	19.5	13.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1072. VEH-HRS	1289. PASS-HRS	3935. VEH-HRS	4788. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1072. VEH-HRS	1289. PASS-HRS	3935. VEH-HRS	4788. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	56105. VEH-MI.	69308. PASS-MI.	221085. VEH-MI.	273001. PASS-MI.
AVERAGE SYSTEM SPEED =	52. MPH.		56. MPH.	
AVERAGE DENSITY =	32. VPMPL		28. VPMPL	
TOTAL FUEL =	2873. GALLONS		11293. GALLONS	
TOTAL EMISSIONS =	772. KILOGRAMS		3024. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.08	2	16.67	3	83.99	4	22.27	5	20.79
6	15.21	7	13.18	8	5.46	9	20.63	10	2.38
11	1.90	12	2.38	13	1.08	14	0.00	15	0.00
16	0.00	17	1.27	18	1.27	19	0.00	20	0.00

***** TOTAL DELAY = 208.5 VEH-HRS ***** AVERAGE DELAY = 3.53 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 7 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 16:36 PAGE 2
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ON-RAMP CAPACITY LIMITS

1	2	3	4	5	6	7	8
6000.******	1500.	1500.******	2000.	1500.	1500.		

OFF-RAMP CAPACITY LIMITS

1	2	3	4	5	6	7	8
**********	2000.	2000.	1500.	1500.	1500.	6000.	

ON-RAMP 1 IS THE MAINLINE ORIGIN
OFF-RAMP 8 IS THE MAINLINE DESTINATION

***** ON-RAMPS 2 AND 5 ARE SYNTHETIC ORIGINS USED TO ENTER AND LEAVE THE PL LANE(S)
***** OFF-RAMPS 1 AND 2 ARE SYNTHETIC DESTINATIONS USED TO ENTER AND LEAVE THE PL LANE(S)

INPUT HAS BEEN COMPLETED

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 16:36 PAGE 3
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1650.	1300.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda

8

9

10

11

12

13

14

15

16

17

18

19

20

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1199.	0.	1199.	1199.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
4	1	1500.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
5	1	1400.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
6	1	1500.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
7	1	1300.	0.	1199.	1199.	0.	1199.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

```
*  20                                                                                                                            *
*                                                                                                                                *
**********************************************************************************************************************************
*                                                                                                                                *
*   TOTAL   16700. =    3.2 MILES                      MAX(V/C) = 0.73  LOWEST LOS = C   AVG = 62.   19.3          21.6    12.8  *
*                                                                                                                                *
**********************************************************************************************************************************


                                 CURRENT TIME SLICE                              CUMULATIVE VALUES
      FREEWAY TRAVEL TIME =      31. VEH-HRS       61. PASS-HRS                  31. VEH-HRS       61. PASS-HRS
      FREEWAY MERGE DELAY =       0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
   ON-RAMP MRG/CAP DELAY =        0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
          OFF-RAMP DELAY =        0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
  TOTAL SYSTEM TRAVEL TIME =     31. VEH-HRS       61. PASS-HRS                  31. VEH-HRS       61. PASS-HRS
 TOTAL FRWAY TRAV DISTANCE =   1896. VEH-MI.     3791. PASS-MI.                1896. VEH-MI.     3791. PASS-MI.
      AVERAGE SYSTEM SPEED =     62. MPH.                                        62. MPH.
           AVERAGE DENSITY =     19. VPMPL                                       19. VPMPL
                TOTAL FUEL =     88. GALLONS                                     88. GALLONS
           TOTAL EMISSIONS =     24. KILOGRAMS                                   24. KILOGRAMS


1 INSTITUTE OF TRANSPORTATION STUDIES                    FREQ12PL   REL 3.01            2/29/2016  16:36              PAGE   6
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                      TIME SLICE  1 OF  4


    ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

    SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY

         1          0.00          2          0.00          3          0.93          4          0.13          5          0.12
         6          0.13          7          0.11          8          0.00          9          0.00         10          0.00
        11          0.00         12          0.00         13          0.00         14          0.00         15          0.00
        16          0.00         17          0.00         18          0.00         19          0.00         20          0.00

    ***** TOTAL DELAY =      1.4  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****


1 INSTITUTE OF TRANSPORTATION STUDIES                    FREQ12PL   REL 3.01            2/29/2016  16:36              PAGE   7
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                      TIME SLICE  2 OF  4

                                        **************************************************
                                        **                                              **
                                        **          FREEWAY TRAVEL TIME (MINUTES)       **
                                        **                                              **
                                        **************************************************


                               **********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                  *
                               * DOWN                                                               *
                               *          1     2     3     4     5     6     7     8
+                                                                                                   *
                               *    *****************************************************************
                               *    *                                                               *
+                                                                                                   *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *    *                                                               *
                               **********************************************************************


1 INSTITUTE OF TRANSPORTATION STUDIES                    FREQ12PL   REL 3.01            2/29/2016  16:36              PAGE   8
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                      TIME SLICE  2 OF  4


**********************************************************************************************************************************
*                                                                                                                                *
*                                              TIME SLICE FREEWAY PERFORMANCE TABLE                                              *
*                                                                                                                                *
**********************************************************************************************************************************
* SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS    FUEL   EMISS  *
* SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE RATIO  MPH   VPMPL  LEVEL   MPG   GS/VM  *
**********************************************************************************************************************************
*                                                                                                                                *
*   1                                                                                                                            *
*   2                                                                                                                            *
*   3   1   11000.  1199.    0. 1199.  1199.    0. 1199.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
*   4   1    1500.     0.    0. 1199.     0.    0. 1199.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
*   5   1    1400.     0.    0. 1199.     0.    0. 1199.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
*   6   1    1500.     0.    0. 1199.     0.    0. 1199.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
*   7   1    1300.     0. 1199. 1199.     0. 1199. 1199.  1650.     0.       0.     0.   .73    62.   19.3    C     21.6    12.8  *
*   8                                                                                                                            *
*   9                                                                                                                            *
```

```
*  10                                                                                                                         *
*  11                                                                                                                         *
*  12                                                                                                                         *
*  13                                                                                                                         *
*  14                                                                                                                         *
*  15                                                                                                                         *
*  16                                                                                                                         *
*  17                                                                                                                         *
*  18                                                                                                                         *
*  19                                                                                                                         *
*  20                                                                                                                         *
*                                                                                                                             *
*******************************************************************************************************************************
*                                                                                                                             *
*   TOTAL   16700. =    3.2 MILES                     MAX(V/C) = 0.73  LOWEST LOS = C   AVG = 62.   19.3         21.6   12.8  *
*                                                                                                                             *
*******************************************************************************************************************************


                              CURRENT TIME SLICE                           CUMULATIVE VALUES
      FREEWAY TRAVEL TIME =     31. VEH-HRS      61. PASS-HRS              61. VEH-HRS      122. PASS-HRS
     FREEWAY MERGE DELAY =       0. VEH-HRS       0. PASS-HRS               0. VEH-HRS        0. PASS-HRS
   ON-RAMP MRG/CAP DELAY =       0. VEH-HRS       0. PASS-HRS               0. VEH-HRS        0. PASS-HRS
         OFF-RAMP DELAY =        0. VEH-HRS       0. PASS-HRS               0. VEH-HRS        0. PASS-HRS
  TOTAL SYSTEM TRAVEL TIME =    31. VEH-HRS      61. PASS-HRS              61. VEH-HRS      122. PASS-HRS
 TOTAL FRWAY TRAV DISTANCE =  1896. VEH-MI.    3791. PASS-MI.            3791. VEH-MI.     7582. PASS-MI.
     AVERAGE SYSTEM SPEED =     62. MPH.                                   62. MPH.
         AVERAGE DENSITY =      19. VPMPL                                  19. VPMPL
              TOTAL FUEL =      88. GALLONS                               176. GALLONS
         TOTAL EMISSIONS =      24. KILOGRAMS                              48. KILOGRAMS


1 INSTITUTE OF TRANSPORTATION STUDIES                          FREQ12PL   REL 3.01            2/29/2016   16:36             PAGE   9
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  2 OF  4


     ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY

          1          0.00          2          0.00          3          0.93          4          0.13          5          0.12
          6          0.13          7          0.11          8          0.00          9          0.00         10          0.00
         11          0.00         12          0.00         13          0.00         14          0.00         15          0.00
         16          0.00         17          0.00         18          0.00         19          0.00         20          0.00

     ***** TOTAL DELAY =      1.4  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****


1 INSTITUTE OF TRANSPORTATION STUDIES                          FREQ12PL   REL 3.01            2/29/2016   16:36             PAGE  10
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  3 OF  4

                                        **************************************************
                                        **                                              **
                                        **          FREEWAY TRAVEL TIME (MINUTES)       **
                                        **                                              **
                                        **************************************************


                               *********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                 *
                               * DOWN                                                              *
                               *          1     2     3     4     5     6     7     8
+                                                                                                  *
                               *    ****************************************************************
                               *    *                                                              *
+                                                                                                  *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *    *                                                              *
                               *********************************************************************


1 INSTITUTE OF TRANSPORTATION STUDIES                          FREQ12PL   REL 3.01            2/29/2016   16:36             PAGE  11
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  3 OF  4


*******************************************************************************************************************************
*                                                                                                                             *
*                                              TIME SLICE FREEWAY PERFORMANCE TABLE                                           *
*                                                                                                                             *
*******************************************************************************************************************************
* SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS    FUEL   EMISS  *
* SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE  RATIO  MPH   VPMPL  LEVEL    MPG   GS/VM  *
*******************************************************************************************************************************
```

1																			
2																			
3	1	11000.	1227.	0.	1227.	1227.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
4	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
5	1	1400.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
6	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
7	1	1300.	0.	1227.	1227.	0.	1227.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8	
8																			
9																			
10																			
11																			
12																			
13																			
14																			
15																			
16																			
17																			
18																			
19																			
20																			
TOTAL		16700. =	3.2 MILES						MAX(V/C) = 0.74			LOWEST LOS = C		AVG = 62.	19.8		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	92. VEH-HRS	185. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	92. VEH-HRS	185. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1941. VEH-MI.	3881. PASS-MI.	5732. VEH-MI.	11464. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	90. GALLONS		266. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		73. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.95	4	0.13	5	0.12
6	0.13	7	0.11	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1227.	0.	1227.	1227.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
4	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
5	1	1400.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
6	1	1500.	0.	0.	1227.	0.	0.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
7	1	1300.	0.	1227.	1227.	0.	1227.	1227.	1650.	0.	0.	0.	.74	62.	19.8	C	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. =	3.2 MILES					MAX(V/C) = 0.74		LOWEST LOS = C		AVG = 62.		19.8		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	124. VEH-HRS	248. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	63. PASS-HRS	124. VEH-HRS	248. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1941. VEH-MI.	3881. PASS-MI.	7673. VEH-MI.	15345. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	90. GALLONS		356. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		98. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.95	4	0.13	5	0.12
6	0.13	7	0.11	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.88	0.00	21.42	22.65	22.73	22.91	23.44	25.63
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.44	2.67	2.75	2.93	3.46	5.65
4	0.00	0.00	0.88	2.12	2.19	2.38	2.91	5.09
5	0.00	0.00	0.17	1.41	1.48	1.67	2.20	4.38
6	0.00	0.00	0.00	0.33	0.40	0.59	1.12	3.30
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72

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TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4610.	0.	4610.	4610.	0.	4610.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
2	3	99999.	0.	1199.	4610.	0.	1199.	4610.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
3	2	11000.	0.	0.	3411.	0.	0.	3411.	4000.	0.	0.	0.	.85	60.	28.6	D	21.5	12.3
4	2	1500.	20.	0.	3431.	20.	0.	3431.	4000.	0.	0.	0.	.86	59.	28.8	D	21.5	12.3
5	2	1400.	0.	0.	3431.	0.	0.	3431.	4000.	0.	0.	0.	.86	59.	28.8	D	21.5	12.3
6	2	1500.	290.	0.	3721.	290.	0.	3501.	4000.	0. *	585.	220.	.88	54.	32.5	F	22.3	11.8
7	2	1300.	0.	0.	3721.	0.	0.	3501.	4000.	0. **	1300.	220.	.88	38.	46.6	F	21.0	12.9
8	3	500.	1199.	950.	4920.	1199.	950.	4700.	5130.	0. **	500.	220.	.92	33.	47.7	F	20.8	13.3
9	2	2300.	0.	0.	3970.	0.	0.	3750.	4000.	0. **	2300.	220.	.94	29.	65.2	F	20.5	13.6
10	3	250.	200.	0.	4170.	200.	0.	3950.	4250.	0. **	250.	220.	.93	25.	52.9	F	19.1	14.9
11	3	200.	0.	0.	4170.	0.	0.	3950.	4250.	0. **	200.	220.	.93	24.	54.6	F	19.1	15.0
12	3	250.	0.	1550.	4170.	0.	1550.	3950.	4250.	0. **	250.	220.	.93	23.	56.3	F	19.1	15.0
13	2	50.	0.	0.	2620.	0.	0.	2400.	4000.	0. **	50.	220.	.60	8.	152.1	F	10.5	25.4
14	2	50.	0.	0.	2620.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	0.	0.	2620.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
16	2	10.	0.	0.	2620.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
17	2	1500.	608.	0.	3228.	608.	0.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
18	2	1500.	0.	790.	3228.	0.	736.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
19	2	12000.	0.	0.	2438.	0.	0.	2272.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
20	3	500.	0.	2438.	2438.	0.	2272.	2272.	6000.	0.	0.	0.	.38	65.	11.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 1.00					LOWEST LOS = F		AVG = 61.		25.1		19.6	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	891. VEH-HRS	1098. PASS-HRS	891. VEH-HRS	1098. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	891. VEH-HRS	1098. PASS-HRS	891. VEH-HRS	1098. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	54468. VEH-MI.	67229. PASS-MI.	54468. VEH-MI.	67229. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		61. MPH.	
AVERAGE DENSITY =	25. VPMPL		25. VPMPL	
TOTAL FUEL =	2773. GALLONS		2773. GALLONS	
TOTAL EMISSIONS =	739. KILOGRAMS		739. KILOGRAMS	

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TIME SLICE 1 OF 4

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	12.02	3	4.89	4	0.69	5	0.65
6	1.68	7	5.07	8	3.44	9	16.12	10	2.33
11	1.96	12	2.56	13	1.27	14	0.00	15	0.00
16	0.00	17	0.09	18	0.09	19	0.00	20	0.00

***** TOTAL DELAY = 52.9 VEH-HRS ***** AVERAGE DELAY = 0.82 MIN/VEH *****

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TIME SLICE 2 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.88	0.00	23.13	24.60	24.67	24.86	25.39	27.57
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	3.15	4.62	4.69	4.88	5.41	7.59

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                                *  4 *   0.00  0.00  1.93  3.40  3.47  3.66  4.19  6.38
+                                                                                      *
                                *  5 *   0.00  0.00  0.26  1.73  1.81  1.99  2.52  4.71
+                                                                                      *
                                *  6 *   0.00  0.00  0.00  0.35  0.42  0.61  1.14  3.33
+                                                                                      *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  0.17  0.71  2.89
+                                                                                      *
                                *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.53  2.72
+                                                                                      *
                                *    *                                                 *
                                ************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4610.	0.	4610.	4610.	0.	4610.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
2	3	99999.	0.	1199.	4610.	0.	1199.	4610.	6000.	0.	0.	0.	.77	64.	24.1	C	19.5	13.7
3	2	11000.	0.	0.	3411.	0.	0.	3411.	4000.	0.	0.	0.	.85	60.	28.6	D	21.5	12.3
4	2	1500.	20.	0.	3431.	20.	0.	3211.	4000.	0.	** 1500.	220.	.80	37.	43.5	F	20.1	13.7
5	2	1400.	0.	0.	3431.	0.	0.	3211.	4000.	0.	** 1400.	220.	.80	21.	76.4	F	17.7	16.4
6	2	1500.	290.	0.	3721.	290.	0.	3501.	4000.	0.	** 1500.	220.	.88	19.	89.9	F	17.9	16.6
7	2	1300.	0.	0.	3721.	0.	0.	3501.	4000.	0.	** 1300.	220.	.88	19.	93.8	F	17.6	16.9
8	3	500.	1199.	950.	4920.	1199.	950.	4700.	5130.	0.	** 500.	220.	.92	22.	72.6	F	18.7	15.5
9	2	2300.	0.	0.	3970.	0.	0.	3750.	4000.	0.	** 2300.	220.	.94	23.	80.3	F	19.3	14.8
10	3	250.	200.	0.	4170.	200.	0.	3950.	4250.	0.	** 250.	220.	.93	23.	58.1	F	19.1	15.1
11	3	200.	0.	0.	4170.	0.	0.	3950.	4250.	0.	** 200.	220.	.93	23.	58.1	F	19.1	15.1
12	3	250.	0.	1550.	4170.	0.	1550.	3950.	4250.	0.	** 250.	220.	.93	23.	58.1	F	19.1	15.1
13	2	50.	0.	0.	2620.	0.	0.	2400.	4000.	0.	** 50.	220.	.60	8.	153.8	F	10.4	25.5
14	2	50.	0.	0.	2620.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	0.	0.	2620.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
16	2	10.	0.	0.	2620.	0.	0.	2400.	4000.	0.	0.	0.	.60	65.	18.5	C	19.0	14.1
17	2	1500.	608.	0.	3228.	608.	0.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
18	2	1500.	0.	790.	3228.	0.	736.	3008.	4000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
19	2	12000.	0.	0.	2438.	0.	0.	2272.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
20	3	500.	0.	2438.	2438.	0.	2272.	2272.	6000.	0.	0.	0.	.38	65.	11.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 57.		27.2		19.5	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	946. VEH-HRS	1156. PASS-HRS	1837. VEH-HRS	2254. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	946. VEH-HRS	1156. PASS-HRS	1837. VEH-HRS	2254. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	54372. VEH-MI.	67126. PASS-MI.	108840. VEH-MI.	134354. PASS-MI.
AVERAGE SYSTEM SPEED =	57. MPH.		59. MPH.	
AVERAGE DENSITY =	27. VPMPL		26. VPMPL	
TOTAL FUEL =	2787. GALLONS		5560. GALLONS	
TOTAL EMISSIONS =	746. KILOGRAMS		1485. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	12.02	3	4.89	4	5.63	5	14.07
6	17.97	7	16.47	8	6.89	9	22.41	10	2.69
11	2.15	12	2.69	13	1.28	14	0.00	15	0.00
16	0.00	17	0.09	18	0.09	19	0.00	20	0.00

***** TOTAL DELAY = 109.4 VEH-HRS ***** AVERAGE DELAY = 1.80 MIN/VEH *****


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                                ************************************************
                                **                                            **
                                **          FREEWAY TRAVEL TIME (MINUTES)     **
                                **                                            **
                                ************************************************
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                                ****************************************************************
                                * ORIGINS        DESTINATIONS ACROSS                           *
                                * DOWN                                                         *
                                *          1     2     3     4     5     6     7     8
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* 1 *	18.00	0.00	24.56	25.91	25.97	26.15	26.76	28.95
* 2 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 3 *	0.00	0.00	3.64	5.00	5.05	5.24	5.84	8.03
* 4 *	0.00	0.00	1.60	2.96	3.01	3.20	3.80	5.99
* 5 *	0.00	0.00	0.22	1.57	1.63	1.81	2.42	4.60
* 6 *	0.00	0.00	0.00	0.32	0.37	0.56	1.17	3.35
* 7 *	0.00	0.00	0.00	0.00	0.00	0.17	0.78	2.97
* 8 *	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.79

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4720.	0.	4720.	4720.	0.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
2	3	99999.	0.	1227.	4720.	0.	1227.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
3	2	11000.	0.	0.	3493.	0.	0.	3312.	4000.	0. *	3208.	181.	.83	43.	38.7	F	20.7	13.0
4	2	1500.	19.	0.	3512.	19.	0.	3331.	4000.	0. **	1500.	181.	.83	16.	103.1	F	16.5	18.3
5	2	1400.	0.	0.	3512.	0.	0.	3331.	4000.	0. **	1400.	181.	.83	16.	103.1	F	16.5	18.3
6	2	1500.	401.	0.	3913.	401.	0.	3732.	4000.	0. **	1500.	181.	.93	23.	81.3	F	19.2	15.0
7	2	1300.	0.	0.	3913.	0.	0.	3732.	4000.	0. **	1300.	181.	.93	23.	81.3	F	19.2	15.0
8	3	500.	1227.	1130.	5140.	1227.	1128.	4959.	5130.	0. **	500.	171.	.97	26.	63.2	F	20.2	13.8
9	2	2300.	0.	0.	4010.	0.	0.	3831.	4000.	0. **	2300.	169.	.96	25.	75.9	F	19.9	14.1
10	3	250.	226.	0.	4236.	226.	0.	4057.	4250.	0. **	250.	169.	.95	25.	54.2	F	19.8	14.2
11	3	200.	0.	0.	4236.	0.	0.	4057.	4250.	0. **	200.	169.	.95	25.	54.2	F	19.8	14.2
12	3	250.	0.	1311.	4236.	0.	1308.	4057.	4250.	0. **	250.	169.	.95	25.	54.2	F	19.8	14.2
13	2	50.	0.	350.	2925.	0.	349.	2749.	4000.	0. **	50.	169.	.69	10.	134.8	F	13.1	22.8
14	2	50.	0.	0.	2575.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	350.	0.	2925.	350.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
16	2	10.	0.	0.	2925.	0.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
17	2	1500.	1038.	0.	3963.	1038.	0.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
18	2	1500.	0.	1271.	3963.	0.	1215.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
19	2	12000.	0.	0.	2692.	0.	0.	2573.	4000.	0.	0.	0.	.64	65.	19.8	C	19.0	14.1
20	3	500.	0.	2692.	2692.	0.	2573.	2573.	6000.	0.	0.	0.	.43	65.	13.2	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 55.		29.6		19.7	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1016. VEH-HRS	1234. PASS-HRS	2853. VEH-HRS	3488. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1016. VEH-HRS	1234. PASS-HRS	2853. VEH-HRS	3488. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	56183. VEH-MI.	69385. PASS-MI.	165022. VEH-MI.	203739. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		58. MPH.	
AVERAGE DENSITY =	30. VPMPL		27. VPMPL	
TOTAL FUEL =	2858. GALLONS		8418. GALLONS	
TOTAL EMISSIONS =	765. KILOGRAMS		2250. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.08	2	16.67	3	28.81	4	22.02	5	20.55
6	14.94	7	12.94	8	5.37	9	20.21	10	2.37
11	1.90	12	2.37	13	1.08	14	0.00	15	0.00
16	0.00	17	1.27	18	1.27	19	0.00	20	0.00

***** TOTAL DELAY = 151.9 VEH-HRS ***** AVERAGE DELAY = 2.49 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	18.00	0.00	26.20	27.55	27.61	27.79	28.40	30.58
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	3.64	5.00	5.05	5.24	5.84	8.03
4	0.00	0.00	1.60	2.96	3.01	3.20	3.80	5.99
5	0.00	0.00	0.22	1.57	1.63	1.81	2.42	4.60
6	0.00	0.00	0.00	0.32	0.37	0.56	1.17	3.35
7	0.00	0.00	0.00	0.00	0.00	0.17	0.78	2.97
8	0.00	0.00	0.00	0.00	0.00	0.00	0.61	2.79

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4720.	0.	4720.	4720.	0.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
2	3	99999.	0.	1227.	4720.	0.	1227.	4720.	6000.	0.	0.	0.	.79	63.	24.8	C	19.7	13.5
3	2	11000.	0.	0.	3493.	0.	0.	3312.	4000.	0. *	6415.	181.	.83	27.	60.4	F	19.1	14.8
4	2	1500.	19.	0.	3512.	19.	0.	3331.	4000.	0. **	1500.	181.	.83	16.	103.1	F	16.5	18.3
5	2	1400.	0.	0.	3512.	0.	0.	3331.	4000.	0. **	1400.	181.	.83	16.	103.1	F	16.5	18.3
6	2	1500.	401.	0.	3913.	401.	0.	3732.	4000.	0. **	1500.	181.	.93	23.	81.3	F	19.2	15.0
7	2	1300.	0.	0.	3913.	0.	0.	3732.	4000.	0. **	1300.	181.	.93	23.	81.3	F	19.2	15.0
8	3	500.	1227.	1130.	5140.	1227.	1128.	4959.	5130.	0. **	500.	171.	.97	26.	63.2	F	20.2	13.8
9	2	2300.	0.	0.	4010.	0.	0.	3831.	4000.	0. **	2300.	169.	.96	25.	75.9	F	19.9	14.1
10	3	250.	226.	0.	4236.	226.	0.	4057.	4250.	0. **	250.	169.	.95	25.	54.2	F	19.8	14.2
11	3	200.	0.	0.	4236.	0.	0.	4057.	4250.	0. **	200.	169.	.95	25.	54.2	F	19.8	14.2
12	3	250.	0.	1311.	4236.	0.	1308.	4057.	4250.	0. **	250.	169.	.95	25.	54.2	F	19.8	14.2
13	2	50.	0.	350.	2925.	0.	349.	2749.	4000.	0. **	50.	169.	.69	10.	134.8	F	13.1	22.8
14	2	50.	0.	0.	2575.	0.	0.	2400.	2400.	0.	0.	0.	1.00	65.	18.5	E	19.0	14.1
15	2	1000.	350.	0.	2925.	350.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
16	2	10.	0.	0.	2925.	0.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
17	2	1500.	1038.	0.	3963.	1038.	0.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
18	2	1500.	0.	1271.	3963.	0.	1215.	3788.	4000.	0.	0.	0.	.95	56.	33.6	D	22.4	11.7
19	2	12000.	0.	0.	2692.	0.	0.	2573.	4000.	0.	0.	0.	.64	65.	19.8	C	19.0	14.1
20	3	500.	0.	2692.	2692.	0.	2573.	2573.	6000.	0.	0.	0.	.43	65.	13.2	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 53.		31.3		19.6	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1061. VEH-HRS	1279. PASS-HRS	3914. VEH-HRS	4767. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1061. VEH-HRS	1279. PASS-HRS	3914. VEH-HRS	4767. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	56127. VEH-MI.	69330. PASS-MI.	221150. VEH-MI.	273069. PASS-MI.
AVERAGE SYSTEM SPEED =	53. MPH.		56. MPH.	
AVERAGE DENSITY =	31. VPMPL		28. VPMPL	
TOTAL FUEL =	2870. GALLONS		11288. GALLONS	
TOTAL EMISSIONS =	771. KILOGRAMS		3021. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.08	2	16.67	3	74.93	4	22.02	5	20.55
6	14.94	7	12.94	8	5.37	9	20.21	10	2.37
11	1.90	12	2.37	13	1.08	14	0.00	15	0.00
16	0.00	17	1.27	18	1.27	19	0.00	20	0.00

***** TOTAL DELAY = 198.0 VEH-HRS ***** AVERAGE DELAY = 3.33 MIN/VEH *****

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 7 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

ON-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
 6000.****** 1500. 1500.****** 2000. 1500. 1500.
```

OFF-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
********** 2000. 2000. 1500. 1500. 1500. 6000.
```

ON-RAMP 1 IS THE MAINLINE ORIGIN
OFF-RAMP 8 IS THE MAINLINE DESTINATION

***** ON-RAMPS 2 AND 5 ARE SYNTHETIC ORIGINS USED TO ENTER AND LEAVE THE PL LANE(S)
***** OFF-RAMPS 1 AND 2 ARE SYNTHETIC DESTINATIONS USED TO ENTER AND LEAVE THE PL LANE(S)

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1500.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1500.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1500.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1500.	1300.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda

8

9

10

11

12

13

14

15

16

17

18

19

20

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	571.	0.	571.	571.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
4	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
5	1	1400.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
6	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
7	1	1300.	0.	571.	571.	0.	571.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

```
*  20                                                                                                                         *
*                                                                                                                             *
*******************************************************************************************************************************
*                                                                                                                             *
*   TOTAL   16700. =    3.2 MILES                         MAX(V/C) = 0.38  LOWEST LOS = A   AVG = 62.    9.2         21.6   12.8 *
*                                                                                                                             *
*******************************************************************************************************************************


                              CURRENT TIME SLICE                            CUMULATIVE VALUES
     FREEWAY TRAVEL TIME =      15. VEH-HRS       29. PASS-HRS               15. VEH-HRS       29. PASS-HRS
     FREEWAY MERGE DELAY =       0. VEH-HRS        0. PASS-HRS                0. VEH-HRS        0. PASS-HRS
  ON-RAMP MRG/CAP DELAY =        0. VEH-HRS        0. PASS-HRS                0. VEH-HRS        0. PASS-HRS
         OFF-RAMP DELAY =        0. VEH-HRS        0. PASS-HRS                0. VEH-HRS        0. PASS-HRS
 TOTAL SYSTEM TRAVEL TIME =     15. VEH-HRS       29. PASS-HRS               15. VEH-HRS       29. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =    903. VEH-MI.     1807. PASS-MI.              903. VEH-MI.     1807. PASS-MI.
    AVERAGE SYSTEM SPEED =      62. MPH.                                     62. MPH.
         AVERAGE DENSITY =       9. VPMPL                                     9. VPMPL
              TOTAL FUEL =      42. GALLONS                                  42. GALLONS
         TOTAL EMISSIONS =      12. KILOGRAMS                                12. KILOGRAMS
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1 INSTITUTE OF TRANSPORTATION STUDIES                      FREQ12PL   REL 3.01            3/ 3/2016   15: 8             PAGE   6
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                      TIME SLICE  1 OF  6
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   ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

   SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY

        1          0.00          2          0.00          3          0.44          4          0.06          5          0.06
        6          0.06          7          0.05          8          0.00          9          0.00         10          0.00
       11          0.00         12          0.00         13          0.00         14          0.00         15          0.00
       16          0.00         17          0.00         18          0.00         19          0.00         20          0.00

   ***** TOTAL DELAY =      0.7  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****
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1 INSTITUTE OF TRANSPORTATION STUDIES                      FREQ12PL   REL 3.01            3/ 3/2016   15: 8             PAGE   7
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                                                      TIME SLICE  2 OF  6

                                        **************************************************
                                        **                                              **
                                        **        FREEWAY TRAVEL TIME (MINUTES)         **
                                        **                                              **
                                        **************************************************


                               *********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                  *
                               * DOWN                                                               *
                               *          1     2     3     4     5     6     7     8               
+                                                                                                   *
                               *    ****************************************************************
                               *    *                                                               *
+                                                                                                   *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                   *
                               *    *                                                               *
                               *********************************************************************
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1 INSTITUTE OF TRANSPORTATION STUDIES                      FREQ12PL   REL 3.01            3/ 3/2016   15: 8             PAGE   8
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                      TIME SLICE  2 OF  6


*******************************************************************************************************************************
*                                                                                                                             *
*                                            TIME SLICE FREEWAY PERFORMANCE TABLE                                             *
*                                                                                                                             *
*******************************************************************************************************************************
* SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS    FUEL   EMISS *
* SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE  RATIO  MPH   VPMPL  LEVEL    MPG   GS/VM *
*******************************************************************************************************************************
*                                                                                                                             *
*   1                                                                                                                         *
*   2                                                                                                                         *
*   3   1   11000.   571.    0.  571.   571.    0.  571.  1500.     0.       0.     0.  .38    62.    9.2     A     21.6    12.8 *
*   4   1    1500.     0.    0.  571.     0.    0.  571.  1500.     0.       0.     0.  .38    62.    9.2     A     21.6    12.8 *
*   5   1    1400.     0.    0.  571.     0.    0.  571.  1500.     0.       0.     0.  .38    62.    9.2     A     21.6    12.8 *
*   6   1    1500.     0.    0.  571.     0.    0.  571.  1500.     0.       0.     0.  .38    62.    9.2     A     21.6    12.8 *
*   7   1    1300.     0.  571.  571.     0.  571.  571.  1500.     0.       0.     0.  .38    62.    9.2     A     21.6    12.8 *
*   8                                                                                                                         *
*   9                                                                                                                         *
```

```
  *10                                                                                                                    *
 *  11                                                                                                                   *
 *  12                                                                                                                   *
 *  13                                                                                                                   *
 *  14                                                                                                                   *
 *  15                                                                                                                   *
 *  16                                                                                                                   *
 *  17                                                                                                                   *
 *  18                                                                                                                   *
 *  19                                                                                                                   *
 *  20                                                                                                                   *
 *                                                                                                                       *
 *************************************************************************************************************************
 *                                                                                                                       *
 *   TOTAL   16700. =    3.2 MILES                     MAX(V/C) = 0.38  LOWEST LOS = A   AVG = 62.    9.2         21.6   12.8  *
 *                                                                                                                       *
 *************************************************************************************************************************


                                  CURRENT TIME SLICE                              CUMULATIVE VALUES
        FREEWAY TRAVEL TIME =       15. VEH-HRS       29. PASS-HRS                  29. VEH-HRS       58. PASS-HRS
        FREEWAY MERGE DELAY =        0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
     ON-RAMP MRG/CAP DELAY =         0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
            OFF-RAMP DELAY =         0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
  TOTAL SYSTEM TRAVEL TIME =        15. VEH-HRS       29. PASS-HRS                  29. VEH-HRS       58. PASS-HRS
 TOTAL FRWAY TRAV DISTANCE =       903. VEH-MI.     1807. PASS-MI.                1807. VEH-MI.     3613. PASS-MI.
      AVERAGE SYSTEM SPEED =        62. MPH.                                        62. MPH.
           AVERAGE DENSITY =         9. VPMPL                                        9. VPMPL
                TOTAL FUEL =        42. GALLONS                                     84. GALLONS
           TOTAL EMISSIONS =        12. KILOGRAMS                                   23. KILOGRAMS


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    ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

    SUBSECTION     DELAY    SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY

         1          0.00         2          0.00          3          0.44          4          0.06          5          0.06
         6          0.06         7          0.05          8          0.00          9          0.00         10          0.00
        11          0.00        12          0.00         13          0.00         14          0.00         15          0.00
        16          0.00        17          0.00         18          0.00         19          0.00         20          0.00

    ***** TOTAL DELAY =      0.7  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****


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                                                       TIME SLICE  3 OF  6

                                        **************************************************
                                        **                                              **
                                        **          FREEWAY TRAVEL TIME (MINUTES)       **
                                        **                                              **
                                        **************************************************

                               *********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                 *
                               * DOWN                                                              *
                               *          1     2     3     4     5     6     7     8
+                                                                                                  *
                               *    ****************************************************************
                               *    *                                                              *
+                                                                                                  *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *    *                                                              *
                               *********************************************************************


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                                                       TIME SLICE  3 OF  6


 *************************************************************************************************************************
 *                                                                                                                       *
 *                                            TIME SLICE FREEWAY PERFORMANCE TABLE                                       *
 *                                                                                                                       *
 *************************************************************************************************************************
 * SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS    FUEL   EMISS  *
 * SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE RATIO  MPH   VPMPL  LEVEL    MPG   GS/VM  *
 *************************************************************************************************************************
```

1																		
2																		
3	1	11000.	621.	0.	621.	621.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
4	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
5	1	1400.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
6	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
7	1	1300.	0.	621.	621.	0.	621.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. =	3.2 MILES					MAX(V/C) = 0.41		LOWEST LOS = A		AVG = 62.		10.0		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	45. VEH-HRS	90. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	45. VEH-HRS	90. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	982. VEH-MI.	1963. PASS-MI.	2788. VEH-MI.	5576. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		9. VPMPL	
TOTAL FUEL =	46. GALLONS		129. GALLONS	
TOTAL EMISSIONS =	13. KILOGRAMS		36. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.48	4	0.07	5	0.06
6	0.07	7	0.06	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	621.	0.	621.	621.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
4	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
5	1	1400.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
6	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
7	1	1300.	0.	621.	621.	0.	621.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES								MAX(V/C) = 0.41	LOWEST LOS = A		AVG = 62.		10.0		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	61. VEH-HRS	122. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	61. VEH-HRS	122. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	982. VEH-MI.	1963. PASS-MI.	3770. VEH-MI.	7539. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	46. GALLONS		175. GALLONS	
TOTAL EMISSIONS =	13. KILOGRAMS		48. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.48	4	0.07	5	0.06
6	0.07	7	0.06	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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TIME SLICE 5 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	536.	0.	536.	536.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
4	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
5	1	1400.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
6	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
7	1	1300.	0.	536.	536.	0.	536.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES									MAX(V/C) = 0.36		LOWEST LOS = A		AVG = 62.	8.6	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	74. VEH-HRS	149. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	74. VEH-HRS	149. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	848. VEH-MI.	1695. PASS-MI.	4617. VEH-MI.	9235. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH		62. MPH	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	39. GALLONS		214. GALLONS	
TOTAL EMISSIONS =	11. KILOGRAMS		59. KILOGRAMS	

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TIME SLICE 5 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.42	4	0.06	5	0.05
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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TIME SLICE 6 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
                                * 4 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                    *
                                * 5 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                    *
                                * 6 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                    *
                                * 7 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                    *
                                * 8 *  0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                    *
                                *   *                                                *
                                **********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	536.	0.	536.	536.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
4	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
5	1	1400.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
6	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
7	1	1300.	0.	536.	536.	0.	536.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES								MAX(V/C) = 0.36	LOWEST LOS = A			AVG = 62.	8.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	88. VEH-HRS	176. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	88. VEH-HRS	176. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	848. VEH-MI.	1695. PASS-MI.	5465. VEH-MI.	10930. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	39. GALLONS		254. GALLONS	
TOTAL EMISSIONS =	11. KILOGRAMS		70. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.42	4	0.06	5	0.05
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****


```
                                ************************************************
                                **                                            **
                                **          FREEWAY TRAVEL TIME (MINUTES)     **
                                **                                            **
                                ************************************************
```

```
                                **********************************************************************
                                * ORIGINS        DESTINATIONS ACROSS                                 *
                                * DOWN                                                               *
                                *          1     2     3     4     5     6     7     8               *
```

1	17.57	0.00	20.76	21.31	21.32	21.50	22.03	24.22	
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	0.00	1.17	1.72	1.73	1.92	2.45	4.63	
4	0.00	0.00	0.64	1.19	1.20	1.38	1.92	4.10	
5	0.00	0.00	0.09	0.64	0.65	0.83	1.36	3.55	
6	0.00	0.00	0.00	0.12	0.13	0.31	0.85	3.03	
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89	
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.71	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3570.	0.	3570.	3570.	0.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
2	3	99999.	0.	571.	3570.	0.	571.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
3	2	11000.	0.	0.	2999.	0.	0.	2999.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
4	2	1500.	40.	0.	3039.	40.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
5	2	1400.	0.	0.	3039.	0.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
6	2	1500.	590.	0.	3629.	590.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
7	2	1300.	0.	0.	3629.	0.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
8	3	500.	571.	750.	4200.	571.	750.	4200.	4950.	0.	0.	0.	.85	65.	21.5	C	19.0	14.1
9	2	2300.	0.	0.	3450.	0.	0.	3450.	4000.	0.	0.	0.	.86	61.	28.3	D	20.9	12.7
10	3	250.	551.	0.	4001.	551.	0.	4001.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
11	3	200.	0.	0.	4001.	0.	0.	4001.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
12	3	250.	0.	1750.	4001.	0.	1750.	4001.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
13	2	50.	0.	0.	2251.	0.	0.	2251.	4000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
14	2	50.	0.	0.	2251.	0.	0.	2251.	2470.	0.	0.	0.	.91	65.	17.3	B	19.0	14.1
15	2	1000.	0.	0.	2251.	0.	0.	2251.	4000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
16	2	10.	0.	0.	2251.	0.	0.	2251.	4000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
17	2	1500.	691.	0.	2942.	691.	0.	2942.	4000.	0.	0.	0.	.74	64.	22.8	C	19.2	13.9
18	2	1500.	0.	300.	2942.	0.	300.	2942.	4000.	0.	0.	0.	.74	64.	22.8	C	19.2	13.9
19	2	12000.	0.	0.	2642.	0.	0.	2642.	4000.	0.	0.	0.	.66	65.	20.3	C	19.0	14.1
20	3	500.	0.	2642.	2642.	0.	2642.	2642.	6000.	0.	0.	0.	.44	65.	13.5	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 0.91				LOWEST LOS = D			AVG = 64.		19.6		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	687. VEH-HRS	785. PASS-HRS	687. VEH-HRS	785. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	687. VEH-HRS	785. PASS-HRS	687. VEH-HRS	785. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	44311. VEH-MI.	50642. PASS-MI.	44311. VEH-MI.	50642. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2310. GALLONS		2310. GALLONS	
TOTAL EMISSIONS =	616. KILOGRAMS		616. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.33	4	0.32	5	0.30
6	1.04	7	0.90	8	0.00	9	0.76	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.06	18	0.06	19	0.00	20	0.00

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.11 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.76	21.31	21.32	21.50	22.03	24.22
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.17	1.72	1.73	1.92	2.45	4.63
4	0.00	0.00	0.64	1.19	1.20	1.38	1.92	4.10
5	0.00	0.00	0.09	0.64	0.65	0.83	1.36	3.55
6	0.00	0.00	0.00	0.12	0.13	0.31	0.85	3.03
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.71

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3570.	0.	3570.	3570.	0.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
2	3	99999.	0.	571.	3570.	0.	571.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
3	2	11000.	0.	0.	2999.	0.	0.	2999.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
4	2	1500.	40.	0.	3039.	40.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
5	2	1400.	0.	0.	3039.	0.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
6	2	1500.	590.	0.	3629.	590.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
7	2	1300.	0.	0.	3629.	0.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
8	3	500.	571.	750.	4200.	571.	750.	4200.	4950.	0.	0.	0.	.85	65.	21.5	C	19.0	14.1
9	2	2300.	0.	0.	3450.	0.	0.	3450.	4000.	0.	0.	0.	.86	61.	28.3	D	20.9	12.7
10	3	250.	551.	0.	4001.	551.	0.	4001.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
11	3	200.	0.	0.	4001.	0.	0.	4001.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
12	3	250.	0.	1750.	4001.	0.	1750.	4001.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
13	2	50.	0.	0.	2251.	0.	0.	2251.	4000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
14	2	50.	0.	0.	2251.	0.	0.	2251.	2470.	0.	0.	0.	.91	65.	17.3	B	19.0	14.1
15	2	1000.	0.	0.	2251.	0.	0.	2251.	4000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
16	2	10.	0.	0.	2251.	0.	0.	2251.	4000.	0.	0.	0.	.56	65.	17.3	B	19.0	14.1
17	2	1500.	691.	0.	2942.	691.	0.	2942.	4000.	0.	0.	0.	.74	64.	22.8	C	19.2	13.9
18	2	1500.	0.	300.	2942.	0.	300.	2942.	4000.	0.	0.	0.	.74	64.	22.8	C	19.2	13.9
19	2	12000.	0.	0.	2642.	0.	0.	2642.	4000.	0.	0.	0.	.66	65.	20.3	C	19.0	14.1
20	3	500.	0.	2642.	2642.	0.	2642.	2642.	6000.	0.	0.	0.	.44	65.	13.5	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 0.91	LOWEST LOS = D		AVG = 64.		19.6		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	687. VEH-HRS	785. PASS-HRS	1375. VEH-HRS	1570. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	687. VEH-HRS	785. PASS-HRS	1375. VEH-HRS	1570. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	44311. VEH-MI.	50642. PASS-MI.	88622. VEH-MI.	101285. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2310. GALLONS		4620. GALLONS	
TOTAL EMISSIONS =	616. KILOGRAMS		1232. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.33	4	0.32	5	0.30
6	1.04	7	0.90	8	0.00	9	0.76	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.06	18	0.06	19	0.00	20	0.00

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.11 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.88	22.04	22.11	22.29	22.84	25.02
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.25	2.41	2.48	2.66	3.21	5.39
4	0.00	0.00	0.71	1.87	1.93	2.12	2.66	4.85
5	0.00	0.00	0.10	1.26	1.32	1.51	2.05	4.24
6	0.00	0.00	0.00	0.40	0.47	0.65	1.19	3.38
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.91
8	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.73

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3879.	0.	3879.	3879.	0.	3879.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
2	3	99999.	0.	621.	3879.	0.	621.	3879.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
3	2	11000.	0.	0.	3258.	0.	0.	3258.	4000.	0.	0.	0.	.81	61.	26.8	D	21.0	12.6
4	2	1500.	50.	0.	3308.	50.	0.	3308.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
5	2	1400.	0.	0.	3308.	0.	0.	3308.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
6	2	1500.	660.	0.	3968.	660.	0.	3968.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
7	2	1300.	0.	0.	3968.	0.	0.	3968.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	621.	950.	4589.	621.	950.	4589.	4950.	0.	0.	0.	.93	58.	26.5	D	22.1	11.9
9	2	2300.	0.	0.	3639.	0.	0.	3482.	4000.	0. *	2217.	157.	.87	34.	50.5	F	20.2	13.7
10	3	250.	572.	0.	4211.	572.	0.	4054.	4750.	0. **	250.	157.	.85	22.	62.4	F	17.5	16.7
11	3	200.	0.	0.	4211.	0.	0.	4054.	4750.	0. **	200.	157.	.85	20.	67.8	F	17.3	17.0
12	3	250.	0.	1560.	4211.	0.	1560.	4054.	4750.	0. **	250.	157.	.85	18.	73.2	F	17.2	17.3
13	2	50.	0.	24.	2651.	0.	24.	2494.	4000.	0. **	50.	157.	.62	9.	146.6	F	11.1	24.7
14	2	50.	0.	0.	2627.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	25.	0.	2652.	25.	0.	2495.	4000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
16	2	10.	0.	0.	2652.	0.	0.	2495.	4000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
17	2	1500.	757.	0.	3409.	757.	0.	3252.	4000.	0.	0.	0.	.81	63.	25.9	C	20.0	13.3
18	2	1500.	0.	689.	3409.	0.	657.	3252.	4000.	0.	0.	0.	.81	63.	25.9	C	20.0	13.3
19	2	12000.	0.	0.	2720.	0.	0.	2595.	4000.	0.	0.	0.	.65	65.	20.0	C	19.0	14.1
20	3	500.	0.	2720.	2720.	0.	2595.	2595.	6000.	0.	0.	0.	.43	65.	13.3	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 62.		21.9		19.3	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	766. VEH-HRS	875. PASS-HRS	2141. VEH-HRS	2445. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	766. VEH-HRS	875. PASS-HRS	2141. VEH-HRS	2445. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	47798. VEH-MI.	54621. PASS-MI.	136420. VEH-MI.	155905. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		64. MPH.	
AVERAGE DENSITY =	22. VPMPL		20. VPMPL	
TOTAL FUEL =	2481. GALLONS		7101. GALLONS	
TOTAL EMISSIONS =	662. KILOGRAMS		1894. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	3.70	4	0.55	5	0.51
6	2.13	7	1.85	8	0.43	9	10.65	10	2.99
11	2.69	12	3.73	13	1.21	14	0.00	15	0.00
16	0.00	17	0.25	18	0.25	19	0.00	20	0.00

***** TOTAL DELAY = 30.9 VEH-HRS ***** AVERAGE DELAY = 0.51 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	17.57	0.00	21.46	23.34	23.41	23.60	24.14	26.33
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.83	3.72	3.78	3.97	4.51	6.70
4	0.00	0.00	1.23	3.11	3.18	3.37	3.91	6.10
5	0.00	0.00	0.26	2.15	2.21	2.40	2.94	5.13
6	0.00	0.00	0.00	0.46	0.53	0.71	1.26	3.44
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.91
8	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.73

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3879.	0.	3879.	3879.	0.	3879.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
2	3	99999.	0.	621.	3879.	0.	621.	3879.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
3	2	11000.	0.	0.	3258.	0.	0.	3258.	4000.	0.	0.	0.	.81	61.	26.8	D	21.0	12.6
4	2	1500.	50.	0.	3308.	50.	0.	3308.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
5	2	1400.	0.	0.	3308.	0.	0.	3151.	4000.	0. *	673.	157.	.79	50.	31.6	F	20.7	13.0
6	2	1500.	660.	0.	3968.	660.	0.	3811.	4000.	0. **	1500.	157.	.95	36.	53.0	F	21.8	12.4
7	2	1300.	0.	0.	3968.	0.	0.	3811.	4000.	0. **	1300.	157.	.95	30.	63.7	F	20.9	13.2
8	3	500.	621.	950.	4589.	621.	950.	4432.	4950.	0. **	500.	157.	.90	22.	68.3	F	18.6	15.6
9	2	2300.	0.	0.	3639.	0.	0.	3482.	4000.	0. **	2300.	157.	.87	18.	94.8	F	17.5	17.1
10	3	250.	572.	0.	4211.	572.	0.	4054.	4750.	0. **	250.	157.	.85	17.	78.1	F	17.0	17.6
11	3	200.	0.	0.	4211.	0.	0.	4054.	4750.	0. **	200.	157.	.85	17.	78.1	F	17.0	17.6
12	3	250.	0.	1560.	4211.	0.	1560.	4054.	4750.	0. **	250.	157.	.85	17.	78.1	F	17.0	17.6
13	2	50.	0.	24.	2651.	0.	24.	2494.	4000.	0. **	50.	157.	.62	8.	148.7	F	11.0	24.8
14	2	50.	0.	0.	2627.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	25.	0.	2652.	25.	0.	2495.	4000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
16	2	10.	0.	0.	2652.	0.	0.	2495.	4000.	0.	0.	0.	.62	65.	19.2	C	19.0	14.1
17	2	1500.	757.	0.	3409.	757.	0.	3252.	4000.	0.	0.	0.	.81	63.	25.9	C	20.0	13.3
18	2	1500.	0.	689.	3409.	0.	657.	3252.	4000.	0.	0.	0.	.81	63.	25.9	C	20.0	13.3
19	2	12000.	0.	0.	2720.	0.	0.	2595.	4000.	0.	0.	0.	.65	65.	20.0	C	19.0	14.1
20	3	500.	0.	2720.	2720.	0.	2595.	2595.	6000.	0.	0.	0.	.43	65.	13.3	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 59.		23.3		19.2	14.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	806. VEH-HRS	919. PASS-HRS	2947. VEH-HRS	3364. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	806. VEH-HRS	919. PASS-HRS	2947. VEH-HRS	3364. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	47742. VEH-MI.	54560. PASS-MI.	184163. VEH-MI.	210465. PASS-MI.
AVERAGE SYSTEM SPEED =	59. MPH.		62. MPH.	

AVERAGE DENSITY =	23. VPMPL	21. VPMPL
TOTAL FUEL =	2492. GALLONS	9593. GALLONS
TOTAL EMISSIONS =	667. KILOGRAMS	2561. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	3.70	4	0.55	5	2.05
6	6.90	7	8.58	8	6.50	9	29.65	10	4.07
11	3.25	12	4.07	13	1.23	14	0.00	15	0.00
16	0.00	17	0.25	18	0.25	19	0.00	20	0.00

***** TOTAL DELAY = 71.0 VEH-HRS ***** AVERAGE DELAY = 1.17 MIN/VEH *****

QUEUE CLEAR SECTION 13 T2= 0.465

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	21.13	22.59	22.64	22.82	23.40	25.61
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.54	3.00	3.05	3.24	3.81	6.02
4	0.00	0.00	0.99	2.45	2.50	2.68	3.26	5.46
5	0.00	0.00	0.20	1.66	1.72	1.90	2.47	4.68
6	0.00	0.00	0.00	0.43	0.48	0.67	1.24	3.45
7	0.00	0.00	0.00	0.00	0.00	0.17	0.75	2.96
8	0.00	0.00	0.00	0.00	0.00	0.00	0.57	2.78

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3350.	0.	3350.	3350.	0.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
2	3	99999.	0.	536.	3350.	0.	536.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
3	2	11000.	0.	0.	2814.	0.	0.	2814.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
4	2	1500.	51.	0.	2865.	51.	0.	2865.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
5	2	1400.	0.	0.	2865.	0.	0.	2865.	4000.	0.	0.	0.	.72	57.	25.2	C	20.2	13.2
6	2	1500.	440.	0.	3305.	440.	0.	3305.	4000.	0.	0.	0.	.83	44.	37.2	E	20.6	13.1
7	2	1300.	0.	0.	3305.	0.	0.	3305.	4000.	0.	0.	0.	.83	37.	44.7	E	20.3	13.5
8	3	500.	536.	671.	3841.	536.	671.	3841.	4950.	0.	0.	0.	.78	28.	45.6	F	18.0	15.8
9	2	2300.	0.	0.	3170.	0.	0.	3170.	4000.	0.	0.	0.	.79	25.	62.5	F	18.6	15.4
10	3	250.	440.	0.	3610.	440.	0.	3610.	4750.	0.	0.	0.	.76	19.	63.1	F	17.1	17.3
11	3	200.	0.	0.	3610.	0.	0.	3610.	4750.	0.	0.	0.	.76	18.	65.1	F	17.0	17.5
12	3	250.	0.	1271.	3610.	0.	1271.	3610.	4750.	0.	0.	0.	.76	18.	67.1	F	16.9	17.6
13	2	50.	0.	260.	2339.	0.	260.	2730.	4000.	0.	0.	-391.	.68	11.	128.4	F	13.3	22.3
14	2	50.	0.	0.	2079.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	260.	0.	2339.	260.	0.	2730.	4000.	0.	0.	0.	.68	65.	21.0	C	19.0	14.1
16	2	10.	0.	0.	2339.	0.	0.	2730.	4000.	0.	0.	0.	.68	65.	21.0	C	19.0	14.1
17	2	1500.	832.	0.	3171.	832.	0.	3562.	4000.	0.	0.	0.	.89	60.	29.8	D	21.5	12.3
18	2	1500.	0.	529.	3171.	0.	594.	3562.	4000.	0.	0.	0.	.89	60.	29.8	D	21.5	12.3
19	2	12000.	0.	0.	2642.	0.	0.	2968.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8

*	20	3	500.	0.	2642.	2642.	0.	2968.	2968.	6000.	0.	0.	0.	.49	65.	15.2	B	19.0	14.1	*
*																				*
*	TOTAL	137309. =	26.0 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 61.		20.2		19.2	14.0	*
*																				*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	701. VEH-HRS	800. PASS-HRS	3647. VEH-HRS	4164. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	701. VEH-HRS	800. PASS-HRS	3647. VEH-HRS	4164. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42513. VEH-MI.	48599. PASS-MI.	226675. VEH-MI.	259064. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		21. VPMPL	
TOTAL FUEL =	2218. GALLONS		11811. GALLONS	
TOTAL EMISSIONS =	593. KILOGRAMS		3154. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.18	4	0.30	5	0.85
6	3.41	7	4.93	8	3.86	9	17.93	10	3.45
11	2.89	12	3.79	13	1.01	14	0.00	15	0.00
16	0.00	17	0.69	18	0.69	19	0.56	20	0.00

***** TOTAL DELAY = 46.5 VEH-HRS ***** AVERAGE DELAY = 0.85 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.73	21.27	21.28	21.46	22.00	24.18
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.15	1.68	1.69	1.87	2.41	4.60
4	0.00	0.00	0.61	1.15	1.16	1.34	1.88	4.07
5	0.00	0.00	0.09	0.62	0.63	0.81	1.36	3.54
6	0.00	0.00	0.00	0.12	0.13	0.31	0.85	3.04
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.90
8	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.72

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3350.	0.	3350.	3350.	0.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
2	3	99999.	0.	536.	3350.	0.	536.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
3	2	11000.	0.	0.	2814.	0.	0.	2814.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
4	2	1500.	51.	0.	2865.	51.	0.	2865.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
5	2	1400.	0.	0.	2865.	0.	0.	2865.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
6	2	1500.	440.	0.	3305.	440.	0.	3305.	4000.	0.	0.	0.	.83	60.	27.3	D	21.1	12.5
7	2	1300.	0.	0.	3305.	0.	0.	3305.	4000.	0.	0.	0.	.83	60.	27.3	D	21.1	12.5
8	3	500.	536.	671.	3841.	536.	671.	3841.	4950.	0.	0.	0.	.78	65.	19.7	C	19.0	14.1
9	2	2300.	0.	0.	3170.	0.	0.	3170.	4000.	0.	0.	0.	.79	63.	25.0	C	19.7	13.5

*10	3	250.	440.	0.	3610.	440.	0.	3610.	4750.	0.	0.	0.	.76	65.	18.5	C	19.0	14.1	*
* 11	3	200.	0.	0.	3610.	0.	0.	3610.	4750.	0.	0.	0.	.76	65.	18.5	C	19.0	14.1	*
* 12	3	250.	0.	1271.	3610.	0.	1271.	3610.	4750.	0.	0.	0.	.76	65.	18.5	C	19.0	14.1	*
* 13	2	50.	0.	260.	2339.	0.	260.	2339.	4000.	0.	0.	0.	.58	65.	18.0	B	19.0	14.1	*
* 14	2	50.	0.	0.	2079.	0.	0.	2079.	2470.	0.	0.	0.	.84	65.	16.0	B	19.0	14.1	*
* 15	2	1000.	260.	0.	2339.	260.	0.	2339.	4000.	0.	0.	0.	.58	65.	18.0	B	19.0	14.1	*
* 16	2	10.	0.	0.	2339.	0.	0.	2339.	4000.	0.	0.	0.	.58	65.	18.0	B	19.0	14.1	*
* 17	2	1500.	832.	0.	3171.	832.	0.	3171.	4000.	0.	0.	0.	.79	63.	25.0	C	19.7	13.5	*
* 18	2	1500.	0.	529.	3171.	0.	529.	3171.	4000.	0.	0.	0.	.79	63.	25.0	C	19.7	13.5	*
* 19	2	12000.	0.	0.	2642.	0.	0.	2642.	4000.	0.	0.	0.	.66	65.	20.3	C	19.0	14.1	*
* 20	3	500.	0.	2642.	2642.	0.	2642.	2642.	6000.	0.	0.	0.	.44	65.	13.5	B	19.0	14.1	*
*																			*
*																			*
* TOTAL 137309. = 26.0 MILES MAX(V/C) = 0.84 LOWEST LOS = D AVG = 65. 18.5 19.2 13.9 *																			
*																			*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	648. VEH-HRS	741. PASS-HRS	4296. VEH-HRS	4904. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	648. VEH-HRS	741. PASS-HRS	4296. VEH-HRS	4904. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	41861. VEH-MI.	47846. PASS-MI.	268536. VEH-MI.	306910. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		63. MPH.	
AVERAGE DENSITY =	19. VPMPL		21. VPMPL	
TOTAL FUEL =	2185. GALLONS		13996. GALLONS	
TOTAL EMISSIONS =	583. KILOGRAMS		3736. KILOGRAMS	

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TIME SLICE 6 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.18	4	0.30	5	0.28
6	0.55	7	0.47	8	0.00	9	0.28	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.18	18	0.18	19	0.00	20	0.00

***** TOTAL DELAY = 4.4 VEH-HRS ***** AVERAGE DELAY = 0.09 MIN/VEH *****

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
```

FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 7 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

ON-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
 6000.****** 1500. 1500.****** 2000. 1500. 1500.
```

OFF-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
********** 2000. 2000. 1500. 1500. 1500. 6000.
```

ON-RAMP 1 IS THE MAINLINE ORIGIN
OFF-RAMP 8 IS THE MAINLINE DESTINATION

***** ON-RAMPS 2 AND 5 ARE SYNTHETIC ORIGINS USED TO ENTER AND LEAVE THE PL LANE(S)
***** OFF-RAMPS 1 AND 2 ARE SYNTHETIC DESTINATIONS USED TO ENTER AND LEAVE THE PL LANE(S)

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	PCT TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1500.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1500.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1500.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1500.	1300.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda

8
9
10
11
12
13
14
15
16
17
18
19
20

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	571.	0.	571.	571.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
4	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
5	1	1400.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
6	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
7	1	1300.	0.	571.	571.	0.	571.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

20																		
TOTAL	16700. =	3.2 MILES										MAX(V/C) = 0.38	LOWEST LOS = A	AVG = 62.	9.2		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	15. VEH-HRS	29. PASS-HRS	15. VEH-HRS	29. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	15. VEH-HRS	29. PASS-HRS	15. VEH-HRS	29. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	903. VEH-MI.	1807. PASS-MI.	903. VEH-MI.	1807. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	42. GALLONS		42. GALLONS	
TOTAL EMISSIONS =	12. KILOGRAMS		12. KILOGRAMS	

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TIME SLICE 1 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.44	4	0.06	5	0.06
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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TIME SLICE 2 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	571.	0.	571.	571.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
4	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
5	1	1400.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
6	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
7	1	1300.	0.	571.	571.	0.	571.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
8																		
9																		

```
 *10                                                                                                                        *
*  11                                                                                                                       *
*  12                                                                                                                       *
*  13                                                                                                                       *
*  14                                                                                                                       *
*  15                                                                                                                       *
*  16                                                                                                                       *
*  17                                                                                                                       *
*  18                                                                                                                       *
*  19                                                                                                                       *
*  20                                                                                                                       *
*                                                                                                                           *
*****************************************************************************************************************************
*                                                                                                                           *
*   TOTAL   16700. =    3.2 MILES                     MAX(V/C) = 0.38  LOWEST LOS = A   AVG = 62.    9.2         21.6   12.8  *
*                                                                                                                           *
*****************************************************************************************************************************


                               CURRENT TIME SLICE                              CUMULATIVE VALUES
      FREEWAY TRAVEL TIME =     15. VEH-HRS       29. PASS-HRS                  29. VEH-HRS       58. PASS-HRS
      FREEWAY MERGE DELAY =      0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
    ON-RAMP MRG/CAP DELAY =      0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
          OFF-RAMP DELAY =      0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
  TOTAL SYSTEM TRAVEL TIME =     15. VEH-HRS       29. PASS-HRS                  29. VEH-HRS       58. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =    903. VEH-MI.     1807. PASS-MI.               1807. VEH-MI.     3613. PASS-MI.
     AVERAGE SYSTEM SPEED =     62. MPH.                                        62. MPH.
          AVERAGE DENSITY =      9. VPMPL                                        9. VPMPL
               TOTAL FUEL =     42. GALLONS                                     84. GALLONS
          TOTAL EMISSIONS =     12. KILOGRAMS                                   23. KILOGRAMS


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                                                   TIME SLICE  2 OF  6


    ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY    SUBSECTION     DELAY

         1          0.00         2          0.00         3          0.44         4          0.06         5          0.06
         6          0.06         7          0.05         8          0.00         9          0.00        10          0.00
        11          0.00        12          0.00        13          0.00        14          0.00        15          0.00
        16          0.00        17          0.00        18          0.00        19          0.00        20          0.00

    ***** TOTAL DELAY =      0.7  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****


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  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  3 OF  6

                                        **************************************************
                                        **                                              **
                                        **          FREEWAY TRAVEL TIME (MINUTES)       **
                                        **                                              **
                                        **************************************************


                               *********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                 *
                               * DOWN                                                              *
                               *           1     2     3     4     5     6     7     8
+                                                                                                  *
                               *    *****************************************************************
                               *    *                                                              *
+                                                                                                  *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *    *                                                              *
                               *********************************************************************


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  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                   TIME SLICE  3 OF  6


*****************************************************************************************************************************
*                                                                                                                           *
*                                              TIME SLICE FREEWAY PERFORMANCE TABLE                                         *
*                                                                                                                           *
*****************************************************************************************************************************
* SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS     FUEL   EMISS  *
* SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE RATIO  MPH   VPMPL  LEVEL    MPG   GS/VM  *
*****************************************************************************************************************************
```

1																		
2																		
3	1	11000.	621.	0.	621.	621.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
4	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
5	1	1400.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
6	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
7	1	1300.	0.	621.	621.	0.	621.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. =	3.2 MILES					MAX(V/C) = 0.41		LOWEST LOS = A		AVG = 62.		10.0		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	45. VEH-HRS	90. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	45. VEH-HRS	90. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	982. VEH-MI.	1964. PASS-MI.	2789. VEH-MI.	5577. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		9. VPMPL	
TOTAL FUEL =	46. GALLONS		129. GALLONS	
TOTAL EMISSIONS =	13. KILOGRAMS		36. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.48	4	0.07	5	0.06
6	0.07	7	0.06	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	621.	0.	621.	621.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
4	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
5	1	1400.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
6	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
7	1	1300.	0.	621.	621.	0.	621.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES								MAX(V/C) = 0.41	LOWEST LOS = A		AVG = 62.		10.0		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	61. VEH-HRS	122. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	61. VEH-HRS	122. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	982. VEH-MI.	1964. PASS-MI.	3771. VEH-MI.	7541. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	46. GALLONS		175. GALLONS	
TOTAL EMISSIONS =	13. KILOGRAMS		48. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.48	4	0.07	5	0.06
6	0.07	7	0.06	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 5 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	536.	0.	536.	536.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
4	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
5	1	1400.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
6	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
7	1	1300.	0.	536.	536.	0.	536.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES											MAX(V/C) = 0.36	LOWEST LOS = A	AVG = 62.	8.6	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	74. VEH-HRS	149. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	74. VEH-HRS	149. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	848. VEH-MI.	1695. PASS-MI.	4618. VEH-MI.	9237. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	39. GALLONS		214. GALLONS	
TOTAL EMISSIONS =	11. KILOGRAMS		59. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 5 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.42	4	0.06	5	0.05
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 6 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	536.	0.	536.	536.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
4	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
5	1	1400.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
6	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
7	1	1300.	0.	536.	536.	0.	536.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES								MAX(V/C) = 0.36	LOWEST LOS = A			AVG = 62.	8.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	88. VEH-HRS	176. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	88. VEH-HRS	176. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	848. VEH-MI.	1695. PASS-MI.	5466. VEH-MI.	10932. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	39. GALLONS		254. GALLONS	
TOTAL EMISSIONS =	11. KILOGRAMS		70. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.42	4	0.06	5	0.05
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8

1	17.57	0.00	20.76	21.31	21.32	21.50	22.03	24.22
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.17	1.72	1.73	1.92	2.45	4.63
4	0.00	0.00	0.64	1.19	1.20	1.38	1.92	4.10
5	0.00	0.00	0.09	0.64	0.65	0.83	1.36	3.55
6	0.00	0.00	0.00	0.12	0.13	0.31	0.85	3.03
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3570.	0.	3570.	3570.	0.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
2	3	99999.	0.	571.	3570.	0.	571.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
3	2	11000.	0.	0.	2999.	0.	0.	2999.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
4	2	1500.	40.	0.	3039.	40.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
5	2	1400.	0.	0.	3039.	0.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
6	2	1500.	590.	0.	3629.	590.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
7	2	1300.	0.	0.	3629.	0.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
8	3	500.	571.	750.	4200.	571.	750.	4200.	4950.	0.	0.	0.	.85	65.	21.5	C	19.0	14.1
9	2	2300.	0.	0.	3450.	0.	0.	3450.	4000.	0.	0.	0.	.86	61.	28.3	D	20.9	12.7
10	3	250.	539.	0.	3989.	539.	0.	3989.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
11	3	200.	0.	0.	3989.	0.	0.	3989.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
12	3	250.	0.	1710.	3989.	0.	1710.	3989.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
13	2	50.	0.	0.	2279.	0.	0.	2279.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
14	2	50.	0.	0.	2279.	0.	0.	2279.	2470.	0.	0.	0.	.92	65.	17.5	B	19.0	14.1
15	2	1000.	0.	0.	2279.	0.	0.	2279.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
16	2	10.	0.	0.	2279.	0.	0.	2279.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
17	2	1500.	686.	0.	2965.	686.	0.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
18	2	1500.	0.	299.	2965.	0.	299.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
19	2	12000.	0.	0.	2666.	0.	0.	2666.	4000.	0.	0.	0.	.67	65.	20.5	C	19.0	14.1
20	3	500.	0.	2666.	2666.	0.	2666.	2666.	6000.	0.	0.	0.	.44	65.	13.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 0.92			LOWEST LOS = D		AVG = 64.				19.6		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	688. VEH-HRS	786. PASS-HRS	688. VEH-HRS	786. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	688. VEH-HRS	786. PASS-HRS	688. VEH-HRS	786. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	44348. VEH-MI.	50685. PASS-MI.	44348. VEH-MI.	50685. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2312. GALLONS		2312. GALLONS	
TOTAL EMISSIONS =	616. KILOGRAMS		616. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.33	4	0.32	5	0.30
6	1.04	7	0.90	8	0.00	9	0.76	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.07	18	0.07	19	0.00	20	0.00

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.11 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.76	21.31	21.32	21.50	22.03	24.22
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.17	1.72	1.73	1.92	2.45	4.63
4	0.00	0.00	0.64	1.19	1.20	1.38	1.92	4.10
5	0.00	0.00	0.09	0.64	0.65	0.83	1.36	3.55
6	0.00	0.00	0.00	0.12	0.13	0.31	0.85	3.03
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3570.	0.	3570.	3570.	0.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
2	3	99999.	0.	571.	3570.	0.	571.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
3	2	11000.	0.	0.	2999.	0.	0.	2999.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
4	2	1500.	40.	0.	3039.	40.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
5	2	1400.	0.	0.	3039.	0.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
6	2	1500.	590.	0.	3629.	590.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
7	2	1300.	0.	0.	3629.	0.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
8	3	500.	571.	750.	4200.	571.	750.	4200.	4950.	0.	0.	0.	.85	65.	21.5	C	19.0	14.1
9	2	2300.	0.	0.	3450.	0.	0.	3450.	4000.	0.	0.	0.	.86	61.	28.3	D	20.9	12.7
10	3	250.	539.	0.	3989.	539.	0.	3989.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
11	3	200.	0.	0.	3989.	0.	0.	3989.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
12	3	250.	0.	1710.	3989.	0.	1710.	3989.	4750.	0.	0.	0.	.84	65.	20.5	C	19.0	14.1
13	2	50.	0.	0.	2279.	0.	0.	2279.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
14	2	50.	0.	0.	2279.	0.	0.	2279.	2470.	0.	0.	0.	.92	65.	17.5	B	19.0	14.1
15	2	1000.	0.	0.	2279.	0.	0.	2279.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
16	2	10.	0.	0.	2279.	0.	0.	2279.	4000.	0.	0.	0.	.57	65.	17.5	B	19.0	14.1
17	2	1500.	686.	0.	2965.	686.	0.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
18	2	1500.	0.	299.	2965.	0.	299.	2965.	4000.	0.	0.	0.	.74	64.	23.1	C	19.3	13.8
19	2	12000.	0.	0.	2666.	0.	0.	2666.	4000.	0.	0.	0.	.67	65.	20.5	C	19.0	14.1
20	3	500.	0.	2666.	2666.	0.	2666.	2666.	6000.	0.	0.	0.	.44	65.	13.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 0.92	LOWEST LOS = D		AVG = 64.		19.6		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	688. VEH-HRS	786. PASS-HRS	1376. VEH-HRS	1572. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	688. VEH-HRS	786. PASS-HRS	1376. VEH-HRS	1572. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	44348. VEH-MI.	50685. PASS-MI.	88697. VEH-MI.	101371. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2312. GALLONS		4624. GALLONS	
TOTAL EMISSIONS =	616. KILOGRAMS		1233. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.33	4	0.32	5	0.30
6	1.04	7	0.90	8	0.00	9	0.76	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.07	18	0.07	19	0.00	20	0.00

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.11 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.88	22.06	22.12	22.31	22.85	25.04
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.25	2.43	2.50	2.68	3.23	5.41
4	0.00	0.00	0.71	1.88	1.95	2.13	2.68	4.86
5	0.00	0.00	0.10	1.27	1.34	1.52	2.07	4.25
6	0.00	0.00	0.00	0.40	0.47	0.65	1.20	3.38
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.91
8	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.73

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3881.	0.	3881.	3881.	0.	3881.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
2	3	99999.	0.	621.	3881.	0.	621.	3881.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
3	2	11000.	0.	0.	3260.	0.	0.	3260.	4000.	0.	0.	0.	.82	61.	26.9	D	21.0	12.6
4	2	1500.	49.	0.	3309.	49.	0.	3309.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
5	2	1400.	0.	0.	3309.	0.	0.	3309.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
6	2	1500.	660.	0.	3969.	660.	0.	3969.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
7	2	1300.	0.	0.	3969.	0.	0.	3969.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	621.	950.	4590.	621.	950.	4590.	4950.	0.	0.	0.	.93	58.	26.6	D	22.1	11.9
9	2	2300.	0.	0.	3640.	0.	0.	3479.	4000.	0. *	2286.	161.	.87	34.	51.4	F	20.1	13.8
10	3	250.	561.	0.	4201.	561.	0.	4040.	4750.	0. **	250.	161.	.85	21.	63.0	F	17.4	16.7
11	3	200.	0.	0.	4201.	0.	0.	4040.	4750.	0. **	200.	161.	.85	20.	68.4	F	17.3	17.1
12	3	250.	0.	1520.	4201.	0.	1520.	4040.	4750.	0. **	250.	161.	.85	18.	73.8	F	17.1	17.4
13	2	50.	0.	50.	2681.	0.	50.	2520.	4000.	0. **	50.	161.	.63	9.	145.3	F	11.3	24.5
14	2	50.	0.	0.	2631.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	50.	0.	2681.	50.	0.	2520.	4000.	0.	0.	0.	.63	65.	19.4	C	19.0	14.1
16	2	10.	0.	0.	2681.	0.	0.	2520.	4000.	0.	0.	0.	.63	65.	19.4	C	19.0	14.1
17	2	1500.	748.	0.	3429.	748.	0.	3268.	4000.	0.	0.	0.	.82	63.	26.1	D	20.0	13.3
18	2	1500.	0.	691.	3429.	0.	659.	3268.	4000.	0.	0.	0.	.82	63.	26.1	D	20.0	13.3
19	2	12000.	0.	0.	2738.	0.	0.	2609.	4000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
20	3	500.	0.	2738.	2738.	0.	2609.	2609.	6000.	0.	0.	0.	.43	65.	13.4	B	19.0	14.1
TOTAL		137309. = 26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 62.		22.0		19.3	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	768. VEH-HRS	876. PASS-HRS	2144. VEH-HRS	2448. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	768. VEH-HRS	876. PASS-HRS	2144. VEH-HRS	2448. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	47842. VEH-MI.	54672. PASS-MI.	136539. VEH-MI.	156042. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		64. MPH.	
AVERAGE DENSITY =	22. VPMPL		20. VPMPL	
TOTAL FUEL =	2484. GALLONS		7107. GALLONS	
TOTAL EMISSIONS =	663. KILOGRAMS		1895. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	3.71	4	0.55	5	0.51
6	2.13	7	1.85	8	0.43	9	11.05	10	3.04
11	2.73	12	3.78	13	1.19	14	0.00	15	0.00
16	0.00	17	0.27	18	0.27	19	0.00	20	0.00

***** TOTAL DELAY = 31.5 VEH-HRS ***** AVERAGE DELAY = 0.52 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	21.51	23.40	23.47	23.65	24.20	26.38
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.88	3.77	3.84	4.02	4.57	6.75
4	0.00	0.00	1.26	3.15	3.22	3.40	3.95	6.13
5	0.00	0.00	0.27	2.16	2.23	2.41	2.96	5.14
6	0.00	0.00	0.00	0.46	0.53	0.71	1.26	3.45
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.91
8	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.73

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3881.	0.	3881.	3881.	0.	3881.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
2	3	99999.	0.	621.	3881.	0.	621.	3881.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
3	2	11000.	0.	0.	3260.	0.	0.	3260.	4000.	0.	0.	0.	.82	61.	26.9	D	21.0	12.6
4	2	1500.	49.	0.	3309.	49.	0.	3309.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
5	2	1400.	0.	0.	3309.	0.	0.	3148.	4000.	0. *	778.	161.	.79	47.	33.3	F	20.5	13.1
6	2	1500.	660.	0.	3969.	660.	0.	3808.	4000.	0. **	1500.	161.	.95	35.	54.4	F	21.7	12.5
7	2	1300.	0.	0.	3969.	0.	0.	3808.	4000.	0. **	1300.	161.	.95	29.	65.0	F	20.7	13.4
8	3	500.	621.	950.	4590.	621.	950.	4429.	4950.	0. **	500.	161.	.89	21.	69.5	F	18.5	15.8
9	2	2300.	0.	0.	3640.	0.	0.	3479.	4000.	0. **	2300.	161.	.87	18.	95.0	F	17.5	17.1
10	3	250.	561.	0.	4201.	561.	0.	4040.	4750.	0. **	250.	161.	.85	17.	78.6	F	16.9	17.7
11	3	200.	0.	0.	4201.	0.	0.	4040.	4750.	0. **	200.	161.	.85	17.	78.6	F	16.9	17.7
12	3	250.	0.	1520.	4201.	0.	1520.	4040.	4750.	0. **	250.	161.	.85	17.	78.6	F	16.9	17.7
13	2	50.	0.	50.	2681.	0.	50.	2520.	4000.	0. **	50.	161.	.63	9.	147.3	F	11.2	24.6
14	2	50.	0.	0.	2631.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	50.	0.	2681.	50.	0.	2520.	4000.	0.	0.	0.	.63	65.	19.4	C	19.0	14.1
16	2	10.	0.	0.	2681.	0.	0.	2520.	4000.	0.	0.	0.	.63	65.	19.4	C	19.0	14.1
17	2	1500.	748.	0.	3429.	748.	0.	3268.	4000.	0.	0.	0.	.82	63.	26.1	D	20.0	13.3
18	2	1500.	0.	691.	3429.	0.	659.	3268.	4000.	0.	0.	0.	.82	63.	26.1	D	20.0	13.3
19	2	12000.	0.	0.	2738.	0.	0.	2609.	4000.	0.	0.	0.	.65	65.	20.1	C	19.0	14.1
20	3	500.	0.	2738.	2738.	0.	2609.	2609.	6000.	0.	0.	0.	.43	65.	13.4	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 1.00			LOWEST LOS = F		AVG = 59.			23.4			19.2	14.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	808. VEH-HRS	921. PASS-HRS	2951. VEH-HRS	3369. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	808. VEH-HRS	921. PASS-HRS	2951. VEH-HRS	3369. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	47784. VEH-MI.	54608. PASS-MI.	184322. VEH-MI.	210650. PASS-MI.
AVERAGE SYSTEM SPEED =	59. MPH.		62. MPH.	

AVERAGE DENSITY =	23. VPMPL	21. VPMPL
TOTAL FUEL =	2494. GALLONS	9601. GALLONS
TOTAL EMISSIONS =	668. KILOGRAMS	2563. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	3.71	4	0.55	5	2.52
6	7.31	7	8.89	8	6.67	9	29.74	10	4.11
11	3.29	12	4.11	13	1.21	14	0.00	15	0.00
16	0.00	17	0.27	18	0.27	19	0.00	20	0.00

***** TOTAL DELAY = 72.6 VEH-HRS ***** AVERAGE DELAY = 1.19 MIN/VEH *****

QUEUE CLEAR SECTION 13 T2= 0.475

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	21.16	22.64	22.70	22.88	23.46	25.67
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.57	3.06	3.11	3.29	3.87	6.08
4	0.00	0.00	1.01	2.49	2.55	2.73	3.31	5.52
5	0.00	0.00	0.21	1.69	1.75	1.93	2.51	4.72
6	0.00	0.00	0.00	0.44	0.49	0.68	1.25	3.46
7	0.00	0.00	0.00	0.00	0.00	0.17	0.75	2.96
8	0.00	0.00	0.00	0.00	0.00	0.00	0.57	2.78

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3350.	0.	3350.	3350.	0.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
2	3	99999.	0.	536.	3350.	0.	536.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
3	2	11000.	0.	0.	2814.	0.	0.	2814.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
4	2	1500.	50.	0.	2864.	50.	0.	2864.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
5	2	1400.	0.	0.	2864.	0.	0.	2864.	4000.	0.	0.	0.	.72	55.	25.9	C	20.1	13.3
6	2	1500.	440.	0.	3304.	440.	0.	3304.	4000.	0.	0.	0.	.83	43.	38.0	E	20.6	13.1
7	2	1300.	0.	0.	3304.	0.	0.	3304.	4000.	0.	0.	0.	.83	36.	45.5	F	20.2	13.6
8	3	500.	536.	671.	3840.	536.	671.	3840.	4950.	0.	0.	0.	.78	27.	46.6	F	18.0	15.8
9	2	2300.	0.	0.	3169.	0.	0.	3169.	4000.	0.	0.	0.	.79	25.	63.5	F	18.6	15.5
10	3	250.	429.	0.	3598.	429.	0.	3598.	4750.	0.	0.	0.	.76	19.	64.3	F	17.0	17.5
11	3	200.	0.	0.	3598.	0.	0.	3598.	4750.	0.	0.	0.	.76	18.	66.4	F	16.9	17.6
12	3	250.	0.	1240.	3598.	0.	1240.	3598.	4750.	0.	0.	0.	.76	18.	68.4	F	16.8	17.8
13	2	50.	0.	279.	2358.	0.	279.	2749.	4000.	0.	0.	-391.	.69	11.	129.3	F	13.3	22.3
14	2	50.	0.	0.	2079.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	280.	0.	2359.	280.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
16	2	10.	0.	0.	2359.	0.	0.	2750.	4000.	0.	0.	0.	.69	65.	21.2	C	19.0	14.1
17	2	1500.	830.	0.	3189.	830.	0.	3580.	4000.	0.	0.	0.	.89	59.	30.1	D	21.5	12.3
18	2	1500.	0.	530.	3189.	0.	595.	3580.	4000.	0.	0.	0.	.89	59.	30.1	D	21.5	12.3
19	2	12000.	0.	0.	2659.	0.	0.	2985.	4000.	0.	0.	0.	.75	64.	23.2	C	19.3	13.8

*	20	3	500.	0.	2659.	2659.	0.	2985.	2985.	6000.	0.	0.	0.	.50	65.	15.3	B	19.0	14.1	*
*	TOTAL	137309. =	26.0 MILES					MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 61.		20.3				19.2	14.0	*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	703. VEH-HRS	803. PASS-HRS	3654. VEH-HRS	4172. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	703. VEH-HRS	803. PASS-HRS	3654. VEH-HRS	4172. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42543. VEH-MI.	48634. PASS-MI.	226866. VEH-MI.	259284. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		21. VPMPL	
TOTAL FUEL =	2220. GALLONS		11821. GALLONS	
TOTAL EMISSIONS =	594. KILOGRAMS		3157. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.18	4	0.30	5	1.04
6	3.68	7	5.16	8	4.01	9	18.44	10	3.55
11	2.98	12	3.90	13	1.02	14	0.00	15	0.00
16	0.00	17	0.73	18	0.73	19	0.62	20	0.00

***** TOTAL DELAY = 48.3 VEH-HRS ***** AVERAGE DELAY = 0.88 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.73	21.27	21.28	21.46	22.00	24.19
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.15	1.68	1.69	1.87	2.41	4.60
4	0.00	0.00	0.61	1.15	1.16	1.34	1.88	4.07
5	0.00	0.00	0.09	0.62	0.63	0.81	1.36	3.54
6	0.00	0.00	0.00	0.12	0.13	0.31	0.86	3.04
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.90
8	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.72

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3350.	0.	3350.	3350.	0.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
2	3	99999.	0.	536.	3350.	0.	536.	3350.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
3	2	11000.	0.	0.	2814.	0.	0.	2814.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
4	2	1500.	50.	0.	2864.	50.	0.	2864.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
5	2	1400.	0.	0.	2864.	0.	0.	2864.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
6	2	1500.	440.	0.	3304.	440.	0.	3304.	4000.	0.	0.	0.	.83	60.	27.3	D	21.1	12.5
7	2	1300.	0.	0.	3304.	0.	0.	3304.	4000.	0.	0.	0.	.83	60.	27.3	D	21.1	12.5
8	3	500.	536.	671.	3840.	536.	671.	3840.	4950.	0.	0.	0.	.78	65.	19.7	C	19.0	14.1
9	2	2300.	0.	0.	3169.	0.	0.	3169.	4000.	0.	0.	0.	.79	63.	25.0	C	19.7	13.5

*10	3	250.	429.	0.	3598.	429.	0.	3598.	4750.	0.	0.	0.	.76	65.	18.5	C	19.0	14.1	*
* 11	3	200.	0.	0.	3598.	0.	0.	3598.	4750.	0.	0.	0.	.76	65.	18.5	C	19.0	14.1	*
* 12	3	250.	0.	1240.	3598.	0.	1240.	3598.	4750.	0.	0.	0.	.76	65.	18.5	C	19.0	14.1	*
* 13	2	50.	0.	279.	2358.	0.	279.	2358.	4000.	0.	0.	0.	.59	65.	18.1	C	19.0	14.1	*
* 14	2	50.	0.	0.	2079.	0.	0.	2079.	2470.	0.	0.	0.	.84	65.	16.0	B	19.0	14.1	*
* 15	2	1000.	280.	0.	2359.	280.	0.	2359.	4000.	0.	0.	0.	.59	65.	18.1	C	19.0	14.1	*
* 16	2	10.	0.	0.	2359.	0.	0.	2359.	4000.	0.	0.	0.	.59	65.	18.1	C	19.0	14.1	*
* 17	2	1500.	830.	0.	3189.	830.	0.	3189.	4000.	0.	0.	0.	.80	63.	25.2	C	19.8	13.5	*
* 18	2	1500.	0.	530.	3189.	0.	530.	3189.	4000.	0.	0.	0.	.80	63.	25.2	C	19.8	13.5	*
* 19	2	12000.	0.	0.	2659.	0.	0.	2659.	4000.	0.	0.	0.	.66	65.	20.5	C	19.0	14.1	*
* 20	3	500.	0.	2659.	2659.	0.	2659.	2659.	6000.	0.	0.	0.	.44	65.	13.6	B	19.0	14.1	*
*																			*
* TOTAL	137309. =	26.0 MILES					MAX(V/C) = 0.84			LOWEST LOS = D		AVG = 65.		18.6			19.2	13.9	*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	649. VEH-HRS	741. PASS-HRS	4303. VEH-HRS	4913. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	649. VEH-HRS	741. PASS-HRS	4303. VEH-HRS	4913. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	41886. VEH-MI.	47876. PASS-MI.	268752. VEH-MI.	307160. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		21. VPMPL	
TOTAL FUEL =	2186. GALLONS		14007. GALLONS	
TOTAL EMISSIONS =	583. KILOGRAMS		3740. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.18	4	0.30	5	0.28
6	0.55	7	0.47	8	0.00	9	0.28	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.20	18	0.20	19	0.00	20	0.00

***** TOTAL DELAY = 4.5 VEH-HRS ***** AVERAGE DELAY = 0.09 MIN/VEH *****

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PL

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 7 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

ON-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
 6000.****** 1500. 1500.****** 2000. 1500. 1500.
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OFF-RAMP CAPACITY LIMITS

```
   1     2     3     4     5     6     7     8
********** 2000. 2000. 1500. 1500. 1500. 6000.
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ON-RAMP 1 IS THE MAINLINE ORIGIN
OFF-RAMP 8 IS THE MAINLINE DESTINATION

***** ON-RAMPS 2 AND 5 ARE SYNTHETIC ORIGINS USED TO ENTER AND LEAVE THE PL LANE(S)
***** OFF-RAMPS 1 AND 2 ARE SYNTHETIC DESTINATIONS USED TO ENTER AND LEAVE THE PL LANE(S)

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1500.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1500.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1500.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1500.	1300.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda

8

9

10

11

12

13

14

15

16

17

18

19

20

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS

	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	571.	0.	571.	571.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
4	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
5	1	1400.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
6	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
7	1	1300.	0.	571.	571.	0.	571.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		

```
*  20                                                                                                                          *
*                                                                                                                              *
********************************************************************************************************************************
*                                                                                                                              *
*   TOTAL   16700. =    3.2 MILES                        MAX(V/C) = 0.38  LOWEST LOS = A   AVG = 62.    9.2         21.6   12.8 *
*                                                                                                                              *
********************************************************************************************************************************
```

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	15. VEH-HRS	29. PASS-HRS	15. VEH-HRS	29. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	15. VEH-HRS	29. PASS-HRS	15. VEH-HRS	29. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	903. VEH-MI.	1807. PASS-MI.	903. VEH-MI.	1807. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	42. GALLONS		42. GALLONS	
TOTAL EMISSIONS =	12. KILOGRAMS		12. KILOGRAMS	

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TIME SLICE 1 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.44	4	0.06	5	0.06
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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TIME SLICE 2 OF 6

```
**************************************************
**                                              **
**         FREEWAY TRAVEL TIME (MINUTES)        **
**                                              **
**************************************************
```

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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TIME SLICE 2 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	571.	0.	571.	571.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
4	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
5	1	1400.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
6	1	1500.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
7	1	1300.	0.	571.	571.	0.	571.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
8																		
9																		

```
  *10                                                                                                                   *
 *  11                                                                                                                  *
 *  12                                                                                                                  *
 *  13                                                                                                                  *
 *  14                                                                                                                  *
 *  15                                                                                                                  *
 *  16                                                                                                                  *
 *  17                                                                                                                  *
 *  18                                                                                                                  *
 *  19                                                                                                                  *
 *  20                                                                                                                  *
 *                                                                                                                      *
 ************************************************************************************************************************
 *                                                                                                                      *
 *   TOTAL   16700. =    3.2 MILES                        MAX(V/C) = 0.38  LOWEST LOS = A   AVG = 62.    9.2         21.6   12.8  *
 *                                                                                                                      *
 ************************************************************************************************************************

                                  CURRENT TIME SLICE                              CUMULATIVE VALUES
        FREEWAY TRAVEL TIME =      15. VEH-HRS       29. PASS-HRS                  29. VEH-HRS       58. PASS-HRS
        FREEWAY MERGE DELAY =       0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
     ON-RAMP MRG/CAP DELAY =        0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
            OFF-RAMP DELAY =        0. VEH-HRS        0. PASS-HRS                   0. VEH-HRS        0. PASS-HRS
   TOTAL SYSTEM TRAVEL TIME =      15. VEH-HRS       29. PASS-HRS                  29. VEH-HRS       58. PASS-HRS
  TOTAL FRWAY TRAV DISTANCE =     903. VEH-MI.     1807. PASS-MI.                1807. VEH-MI.     3613. PASS-MI.
      AVERAGE SYSTEM SPEED =       62. MPH.                                        62. MPH.
           AVERAGE DENSITY =        9. VPMPL                                        9. VPMPL
                TOTAL FUEL =       42. GALLONS                                     84. GALLONS
           TOTAL EMISSIONS =       12. KILOGRAMS                                   23. KILOGRAMS

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                                                    TIME SLICE  2 OF  6

     ***** MAINLINE DELAY  (VEH-HRS) *****   DESIRED SPEED =  65.0 *****

     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY     SUBSECTION     DELAY

          1          0.00          2          0.00          3          0.44          4          0.06          5          0.06
          6          0.06          7          0.05          8          0.00          9          0.00         10          0.00
         11          0.00         12          0.00         13          0.00         14          0.00         15          0.00
         16          0.00         17          0.00         18          0.00         19          0.00         20          0.00

     ***** TOTAL DELAY =      0.7  VEH-HRS  ***** AVERAGE DELAY =     0.07  MIN/VEH  *****

1 INSTITUTE OF TRANSPORTATION STUDIES                       FREQ12PL   REL 3.01            3/ 3/2016   15:22              PAGE  10
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                                                    TIME SLICE  3 OF  6

                                        **************************************************
                                        **                                              **
                                        **          FREEWAY TRAVEL TIME (MINUTES)       **
                                        **                                              **
                                        **************************************************

                               *********************************************************************
                               * ORIGINS       DESTINATIONS ACROSS                                 *
                               * DOWN                                                              *
                               *          1     2     3     4     5     6     7     8
+                                                                                                  *
                               *    *****************************************************************
                               *    *                                                              *
+                                                                                                  *
                               *  1 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  2 *   0.00  3.06  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                                  *
                               *    *                                                              *
                               *********************************************************************

1 INSTITUTE OF TRANSPORTATION STUDIES                       FREQ12PL   REL 3.01            3/ 3/2016   15:22              PAGE  11
  UNIVERSITY OF CALIFORNIA, BERKELEY    SHORT TERM SIMULATION OF PRIORITY LANE
                                                    TIME SLICE  3 OF  6

 ************************************************************************************************************************
 *                                                                                                                      *
 *                                          TIME SLICE FREEWAY PERFORMANCE TABLE                                        *
 *                                                                                                                      *
 ************************************************************************************************************************
 * SUB  NO.   SSEC    O-D DATA DEMANDS   ADJUSTED VOLUMES   SSEC   WEAVE  CONGEST STORAGE  V/C  SPEED DENSITY  LOS    FUEL   EMISS  *
 * SEC  LNS  LENGTH   ORG   DES  SSEC    ORG   DES  SSEC    CAP.    EFF    LENGTH   RATE RATIO  MPH   VPMPL  LEVEL    MPG   GS/VM  *
 ************************************************************************************************************************
```

1																		
2																		
3	1	11000.	621.	0.	621.	621.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
4	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
5	1	1400.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
6	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
7	1	1300.	0.	621.	621.	0.	621.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. =	3.2 MILES					MAX(V/C) = 0.41		LOWEST LOS = A		AVG = 62.		10.0		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	45. VEH-HRS	90. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	45. VEH-HRS	90. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	982. VEH-MI.	1964. PASS-MI.	2788. VEH-MI.	5577. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		9. VPMPL	
TOTAL FUEL =	46. GALLONS		129. GALLONS	
TOTAL EMISSIONS =	13. KILOGRAMS		36. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.48	4	0.07	5	0.06
6	0.07	7	0.06	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	621.	0.	621.	621.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
4	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
5	1	1400.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
6	1	1500.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
7	1	1300.	0.	621.	621.	0.	621.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES									MAX(V/C) = 0.41		LOWEST LOS = A		AVG = 62.	10.0		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	61. VEH-HRS	122. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	16. VEH-HRS	32. PASS-HRS	61. VEH-HRS	122. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	982. VEH-MI.	1964. PASS-MI.	3770. VEH-MI.	7540. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	46. GALLONS		175. GALLONS	
TOTAL EMISSIONS =	13. KILOGRAMS		48. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.48	4	0.07	5	0.06
6	0.07	7	0.06	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.7 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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TIME SLICE 5 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	536.	0.	536.	536.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
4	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
5	1	1400.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
6	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
7	1	1300.	0.	536.	536.	0.	536.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES							MAX(V/C) = 0.36		LOWEST LOS = A		AVG = 62.		8.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	74. VEH-HRS	149. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	74. VEH-HRS	149. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	848. VEH-MI.	1696. PASS-MI.	4618. VEH-MI.	9236. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	39. GALLONS		214. GALLONS	
TOTAL EMISSIONS =	11. KILOGRAMS		59. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 5 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.42	4	0.06	5	0.05
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 6 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.06	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

```
                                *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                      *
                                *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                      *
                                *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                      *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                      *
                                *  8 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                      *
                                *    *                                                 *
                                ************************************************************
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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 6 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	536.	0.	536.	536.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
4	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
5	1	1400.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
6	1	1500.	0.	0.	536.	0.	0.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
7	1	1300.	0.	536.	536.	0.	536.	536.	1500.	0.	0.	0.	.36	62.	8.6	A	21.6	12.8
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
16																		
17																		
18																		
19																		
20																		
TOTAL		16700. = 3.2 MILES								MAX(V/C) = 0.36	LOWEST LOS = A			AVG = 62.	8.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	88. VEH-HRS	176. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	14. VEH-HRS	27. PASS-HRS	88. VEH-HRS	176. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	848. VEH-MI.	1696. PASS-MI.	5466. VEH-MI.	10932. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		9. VPMPL	
TOTAL FUEL =	39. GALLONS		254. GALLONS	
TOTAL EMISSIONS =	11. KILOGRAMS		70. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 6 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.42	4	0.06	5	0.05
6	0.06	7	0.05	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00

***** TOTAL DELAY = 0.6 VEH-HRS ***** AVERAGE DELAY = 0.07 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF NON-PRIORITY LANES
TIME SLICE 1 OF 6

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                                ************************************************
                                **                                            **
                                **          FREEWAY TRAVEL TIME (MINUTES)     **
                                **                                            **
                                ************************************************
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                                ****************************************************************
                                * ORIGINS        DESTINATIONS ACROSS                           *
                                * DOWN                                                         *
                                *          1     2     3     4     5     6     7     8        *
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1	17.57	0.00	20.76	21.31	21.32	21.50	22.03	24.22	
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	0.00	1.17	1.72	1.73	1.92	2.45	4.63	
4	0.00	0.00	0.64	1.19	1.20	1.38	1.92	4.10	
5	0.00	0.00	0.09	0.64	0.65	0.83	1.36	3.55	
6	0.00	0.00	0.00	0.12	0.13	0.31	0.85	3.03	
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89	
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3570.	0.	3570.	3570.	0.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
2	3	99999.	0.	571.	3570.	0.	571.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
3	2	11000.	0.	0.	2999.	0.	0.	2999.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
4	2	1500.	40.	0.	3039.	40.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
5	2	1400.	0.	0.	3039.	0.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
6	2	1500.	590.	0.	3629.	590.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
7	2	1300.	0.	0.	3629.	0.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
8	3	500.	571.	750.	4200.	571.	750.	4200.	4950.	0.	0.	0.	.85	65.	21.5	C	19.0	14.1
9	2	2300.	0.	0.	3450.	0.	0.	3450.	4000.	0.	0.	0.	.86	61.	28.3	D	20.9	12.7
10	3	250.	570.	0.	4020.	570.	0.	4020.	4750.	0.	0.	0.	.85	65.	20.6	C	19.0	14.1
11	3	200.	0.	0.	4020.	0.	0.	4020.	4750.	0.	0.	0.	.85	65.	20.6	C	19.0	14.1
12	3	250.	0.	1709.	4020.	0.	1709.	4020.	4750.	0.	0.	0.	.85	65.	20.6	C	19.0	14.1
13	2	50.	0.	0.	2311.	0.	0.	2311.	4000.	0.	0.	0.	.58	65.	17.8	B	19.0	14.1
14	2	50.	0.	0.	2311.	0.	0.	2311.	2470.	0.	0.	0.	.94	65.	17.8	B	19.0	14.1
15	2	1000.	0.	0.	2311.	0.	0.	2311.	4000.	0.	0.	0.	.58	65.	17.8	B	19.0	14.1
16	2	10.	0.	0.	2311.	0.	0.	2311.	4000.	0.	0.	0.	.58	65.	17.8	B	19.0	14.1
17	2	1500.	686.	0.	2997.	686.	0.	2997.	4000.	0.	0.	0.	.75	64.	23.3	C	19.3	13.8
18	2	1500.	0.	301.	2997.	0.	301.	2997.	4000.	0.	0.	0.	.75	64.	23.3	C	19.3	13.8
19	2	12000.	0.	0.	2696.	0.	0.	2696.	4000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
20	3	500.	0.	2696.	2696.	0.	2696.	2696.	6000.	0.	0.	0.	.45	65.	13.8	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 0.94			LOWEST LOS = D		AVG = 64.				19.7		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	689. VEH-HRS	787. PASS-HRS	689. VEH-HRS	787. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	689. VEH-HRS	787. PASS-HRS	689. VEH-HRS	787. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	44398. VEH-MI.	50743. PASS-MI.	44398. VEH-MI.	50743. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2314. GALLONS		2314. GALLONS	
TOTAL EMISSIONS =	617. KILOGRAMS		617. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.33	4	0.32	5	0.30
6	1.04	7	0.90	8	0.00	9	0.76	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.08	18	0.08	19	0.00	20	0.00

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.11 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.76	21.31	21.32	21.50	22.03	24.22
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.17	1.72	1.73	1.92	2.45	4.63
4	0.00	0.00	0.64	1.19	1.20	1.38	1.92	4.10
5	0.00	0.00	0.09	0.64	0.65	0.83	1.36	3.55
6	0.00	0.00	0.00	0.12	0.13	0.31	0.85	3.03
7	0.00	0.00	0.00	0.00	0.00	0.17	0.71	2.89
8	0.00	0.00	0.00	0.00	0.00	0.00	0.53	2.72

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3570.	0.	3570.	3570.	0.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
2	3	99999.	0.	571.	3570.	0.	571.	3570.	6000.	0.	0.	0.	.60	65.	18.3	C	19.0	14.1
3	2	11000.	0.	0.	2999.	0.	0.	2999.	4000.	0.	0.	0.	.75	62.	24.2	C	20.3	13.0
4	2	1500.	40.	0.	3039.	40.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
5	2	1400.	0.	0.	3039.	0.	0.	3039.	4000.	0.	0.	0.	.76	62.	24.5	C	20.3	13.0
6	2	1500.	590.	0.	3629.	590.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
7	2	1300.	0.	0.	3629.	0.	0.	3629.	4000.	0.	0.	0.	.91	57.	31.6	D	22.1	11.9
8	3	500.	571.	750.	4200.	571.	750.	4200.	4950.	0.	0.	0.	.85	65.	21.5	C	19.0	14.1
9	2	2300.	0.	0.	3450.	0.	0.	3450.	4000.	0.	0.	0.	.86	61.	28.3	D	20.9	12.7
10	3	250.	570.	0.	4020.	570.	0.	4020.	4750.	0.	0.	0.	.85	65.	20.6	C	19.0	14.1
11	3	200.	0.	0.	4020.	0.	0.	4020.	4750.	0.	0.	0.	.85	65.	20.6	C	19.0	14.1
12	3	250.	0.	1709.	4020.	0.	1709.	4020.	4750.	0.	0.	0.	.85	65.	20.6	C	19.0	14.1
13	2	50.	0.	0.	2311.	0.	0.	2311.	4000.	0.	0.	0.	.58	65.	17.8	B	19.0	14.1
14	2	50.	0.	0.	2311.	0.	0.	2311.	2470.	0.	0.	0.	.94	65.	17.8	B	19.0	14.1
15	2	1000.	0.	0.	2311.	0.	0.	2311.	4000.	0.	0.	0.	.58	65.	17.8	B	19.0	14.1
16	2	10.	0.	0.	2311.	0.	0.	2311.	4000.	0.	0.	0.	.58	65.	17.8	B	19.0	14.1
17	2	1500.	686.	0.	2997.	686.	0.	2997.	4000.	0.	0.	0.	.75	64.	23.3	C	19.3	13.8
18	2	1500.	0.	301.	2997.	0.	301.	2997.	4000.	0.	0.	0.	.75	64.	23.3	C	19.3	13.8
19	2	12000.	0.	0.	2696.	0.	0.	2696.	4000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
20	3	500.	0.	2696.	2696.	0.	2696.	2696.	6000.	0.	0.	0.	.45	65.	13.8	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 0.94	LOWEST LOS = D		AVG = 64.		19.7		19.2	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	689. VEH-HRS	787. PASS-HRS	1378. VEH-HRS	1573. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	689. VEH-HRS	787. PASS-HRS	1378. VEH-HRS	1573. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	44398. VEH-MI.	50743. PASS-MI.	88797. VEH-MI.	101487. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	20. VPMPL		20. VPMPL	
TOTAL FUEL =	2314. GALLONS		4629. GALLONS	
TOTAL EMISSIONS =	617. KILOGRAMS		1234. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.33	4	0.32	5	0.30
6	1.04	7	0.90	8	0.00	9	0.76	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.08	18	0.08	19	0.00	20	0.00

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.11 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.88	22.06	22.13	22.31	22.86	25.04
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.25	2.43	2.50	2.68	3.23	5.42
4	0.00	0.00	0.71	1.89	1.95	2.14	2.68	4.87
5	0.00	0.00	0.10	1.28	1.34	1.53	2.07	4.26
6	0.00	0.00	0.00	0.40	0.46	0.65	1.19	3.38
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.91
8	0.00	0.00	0.00	0.00	0.00	0.00	0.55	2.73

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3880.	0.	3880.	3880.	0.	3880.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
2	3	99999.	0.	621.	3880.	0.	621.	3880.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
3	2	11000.	0.	0.	3259.	0.	0.	3259.	4000.	0.	0.	0.	.81	61.	26.8	D	21.0	12.6
4	2	1500.	50.	0.	3309.	50.	0.	3309.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
5	2	1400.	0.	0.	3309.	0.	0.	3309.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
6	2	1500.	661.	0.	3970.	661.	0.	3970.	4000.	0.	0.	0.	.99	52.	38.1	E	23.5	11.2
7	2	1300.	0.	0.	3970.	0.	0.	3970.	4000.	0.	0.	0.	.99	52.	38.1	E	23.5	11.2
8	3	500.	621.	950.	4591.	621.	950.	4591.	4950.	0.	0.	0.	.93	58.	26.6	D	22.1	11.9
9	2	2300.	0.	0.	3641.	0.	0.	3479.	4000.	0. **	2300.	162.	.87	33.	52.1	F	20.1	13.8
10	3	250.	590.	0.	4231.	590.	0.	4069.	4750.	0. **	250.	162.	.86	22.	62.7	F	17.5	16.6
11	3	200.	0.	0.	4231.	0.	0.	4069.	4750.	0. **	200.	162.	.86	20.	67.8	F	17.4	16.9
12	3	250.	0.	1519.	4231.	0.	1519.	4069.	4750.	0. **	250.	162.	.86	19.	72.9	F	17.2	17.2
13	2	50.	0.	80.	2712.	0.	80.	2550.	4000.	0. **	50.	162.	.64	9.	143.7	F	11.5	24.2
14	2	50.	0.	0.	2632.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	80.	0.	2712.	80.	0.	2550.	4000.	0.	0.	0.	.64	65.	19.6	C	19.0	14.1
16	2	10.	0.	0.	2712.	0.	0.	2550.	4000.	0.	0.	0.	.64	65.	19.6	C	19.0	14.1
17	2	1500.	748.	0.	3460.	748.	0.	3298.	4000.	0.	0.	0.	.82	62.	26.4	D	20.1	13.2
18	2	1500.	0.	690.	3460.	0.	658.	3298.	4000.	0.	0.	0.	.82	62.	26.4	D	20.1	13.2
19	2	12000.	0.	0.	2770.	0.	0.	2640.	4000.	0.	0.	0.	.66	65.	20.3	C	19.0	14.1
20	3	500.	0.	2770.	2770.	0.	2640.	2640.	6000.	0.	0.	0.	.44	65.	13.5	B	19.0	14.1
TOTAL	137309. =	26.0 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 62.		22.0		19.3	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	768. VEH-HRS	877. PASS-HRS	2146. VEH-HRS	2451. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	768. VEH-HRS	877. PASS-HRS	2146. VEH-HRS	2451. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	47882. VEH-MI.	54718. PASS-MI.	136678. VEH-MI.	156205. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		64. MPH.	
AVERAGE DENSITY =	22. VPMPL		20. VPMPL	
TOTAL FUEL =	2486. GALLONS		7114. GALLONS	
TOTAL EMISSIONS =	663. KILOGRAMS		1897. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	3.70	4	0.55	5	0.51
6	2.14	7	1.85	8	0.43	9	11.35	10	3.00
11	2.68	12	3.71	13	1.18	14	0.00	15	0.00
16	0.00	17	0.30	18	0.30	19	0.00	20	0.00

***** TOTAL DELAY = 31.7 VEH-HRS ***** AVERAGE DELAY = 0.53 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	21.52	23.40	23.46	23.65	24.20	26.38
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.89	3.77	3.84	4.02	4.57	6.75
4	0.00	0.00	1.26	3.15	3.21	3.40	3.94	6.13
5	0.00	0.00	0.27	2.15	2.22	2.40	2.95	5.13
6	0.00	0.00	0.00	0.45	0.52	0.70	1.25	3.44
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.91
8	0.00	0.00	0.00	0.00	0.00	0.00	0.55	2.73

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3880.	0.	3880.	3880.	0.	3880.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
2	3	99999.	0.	621.	3880.	0.	621.	3880.	6000.	0.	0.	0.	.65	65.	19.9	C	19.0	14.1
3	2	11000.	0.	0.	3259.	0.	0.	3259.	4000.	0.	0.	0.	.81	61.	26.8	D	21.0	12.6
4	2	1500.	50.	0.	3309.	50.	0.	3309.	4000.	0.	0.	0.	.83	60.	27.4	D	21.2	12.5
5	2	1400.	0.	0.	3309.	0.	0.	3147.	4000.	0. *	805.	162.	.79	47.	33.8	F	20.5	13.2
6	2	1500.	661.	0.	3970.	661.	0.	3808.	4000.	0. **	1500.	162.	.95	35.	54.8	F	21.7	12.6
7	2	1300.	0.	0.	3970.	0.	0.	3808.	4000.	0. **	1300.	162.	.95	29.	65.2	F	20.7	13.4
8	3	500.	621.	950.	4591.	621.	950.	4429.	4950.	0. **	500.	162.	.89	21.	69.8	F	18.5	15.8
9	2	2300.	0.	0.	3641.	0.	0.	3479.	4000.	0. **	2300.	162.	.87	18.	95.0	F	17.5	17.1
10	3	250.	590.	0.	4231.	590.	0.	4069.	4750.	0. **	250.	162.	.86	17.	77.5	F	17.1	17.5
11	3	200.	0.	0.	4231.	0.	0.	4069.	4750.	0. **	200.	162.	.86	17.	77.5	F	17.1	17.5
12	3	250.	0.	1519.	4231.	0.	1519.	4069.	4750.	0. **	250.	162.	.86	17.	77.5	F	17.1	17.5
13	2	50.	0.	80.	2712.	0.	80.	2550.	4000.	0. **	50.	162.	.64	9.	145.6	F	11.4	24.4
14	2	50.	0.	0.	2632.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	80.	0.	2712.	80.	0.	2550.	4000.	0.	0.	0.	.64	65.	19.6	C	19.0	14.1
16	2	10.	0.	0.	2712.	0.	0.	2550.	4000.	0.	0.	0.	.64	65.	19.6	C	19.0	14.1
17	2	1500.	748.	0.	3460.	748.	0.	3298.	4000.	0.	0.	0.	.82	62.	26.4	D	20.1	13.2
18	2	1500.	0.	690.	3460.	0.	658.	3298.	4000.	0.	0.	0.	.82	62.	26.4	D	20.1	13.2
19	2	12000.	0.	0.	2770.	0.	0.	2640.	4000.	0.	0.	0.	.66	65.	20.3	C	19.0	14.1
20	3	500.	0.	2770.	2770.	0.	2640.	2640.	6000.	0.	0.	0.	.44	65.	13.5	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 59.		23.4		19.2	14.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	809. VEH-HRS	922. PASS-HRS	2955. VEH-HRS	3373. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	809. VEH-HRS	922. PASS-HRS	2955. VEH-HRS	3373. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	47823. VEH-MI.	54654. PASS-MI.	184502. VEH-MI.	210858. PASS-MI.
AVERAGE SYSTEM SPEED =	59. MPH.		62. MPH.	

AVERAGE DENSITY =	23. VPMPL	21. VPMPL
TOTAL FUEL =	2496. GALLONS	9610. GALLONS
TOTAL EMISSIONS =	668. KILOGRAMS	2565. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	3.70	4	0.55	5	2.65
6	7.40	7	8.95	8	6.71	9	29.74	10	4.02
11	3.22	12	4.02	13	1.19	14	0.00	15	0.00
16	0.00	17	0.30	18	0.30	19	0.00	20	0.00

***** TOTAL DELAY = 72.8 VEH-HRS ***** AVERAGE DELAY = 1.20 MIN/VEH *****

QUEUE CLEAR SECTION 13 T2= 0.476

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	21.16	22.65	22.70	22.88	23.46	25.68
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.58	3.06	3.11	3.30	3.88	6.09
4	0.00	0.00	1.01	2.50	2.55	2.73	3.31	5.52
5	0.00	0.00	0.21	1.69	1.74	1.93	2.51	4.72
6	0.00	0.00	0.00	0.43	0.48	0.67	1.25	3.46
7	0.00	0.00	0.00	0.00	0.00	0.17	0.75	2.97
8	0.00	0.00	0.00	0.00	0.00	0.00	0.58	2.79

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3351.	0.	3351.	3351.	0.	3351.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
2	3	99999.	0.	536.	3351.	0.	536.	3351.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
3	2	11000.	0.	0.	2815.	0.	0.	2815.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
4	2	1500.	51.	0.	2866.	51.	0.	2866.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
5	2	1400.	0.	0.	2866.	0.	0.	2866.	4000.	0.	0.	0.	.72	55.	26.2	D	20.1	13.3
6	2	1500.	440.	0.	3306.	440.	0.	3306.	4000.	0.	0.	0.	.83	43.	38.3	E	20.6	13.2
7	2	1300.	0.	0.	3306.	0.	0.	3306.	4000.	0.	0.	0.	.83	36.	45.8	F	20.2	13.6
8	3	500.	536.	671.	3842.	536.	671.	3842.	4950.	0.	0.	0.	.78	27.	46.9	F	18.0	15.8
9	2	2300.	0.	0.	3171.	0.	0.	3171.	4000.	0.	0.	0.	.79	25.	63.8	F	18.6	15.5
10	3	250.	459.	0.	3630.	459.	0.	3630.	4750.	0.	0.	0.	.76	19.	63.8	F	17.1	17.3
11	3	200.	0.	0.	3630.	0.	0.	3630.	4750.	0.	0.	0.	.76	18.	65.8	F	17.0	17.4
12	3	250.	0.	1240.	3630.	0.	1240.	3630.	4750.	0.	0.	0.	.76	18.	67.7	F	17.0	17.6
13	2	50.	0.	310.	2390.	0.	310.	2780.	4000.	0.	0.	-390.	.69	11.	128.0	F	13.4	22.2
14	2	50.	0.	0.	2080.	0.	0.	2470.	2470.	0.	0.	0.	1.00	65.	19.0	E	19.0	14.1
15	2	1000.	310.	0.	2390.	310.	0.	2780.	4000.	0.	0.	0.	.69	65.	21.4	C	19.0	14.1
16	2	10.	0.	0.	2390.	0.	0.	2780.	4000.	0.	0.	0.	.69	65.	21.4	C	19.0	14.1
17	2	1500.	830.	0.	3220.	830.	0.	3610.	4000.	0.	0.	0.	.90	59.	30.6	D	21.6	12.2
18	2	1500.	0.	530.	3220.	0.	594.	3610.	4000.	0.	0.	0.	.90	59.	30.6	D	21.6	12.2
19	2	12000.	0.	0.	2690.	0.	0.	3016.	4000.	0.	0.	0.	.75	64.	23.5	C	19.4	13.8

*	20	3	500.	0.	2690.	2690.	0.	3016.	3016.	6000.	0.	0.	0.	.50	65.	15.5	B	19.0	14.1	*

*	TOTAL	137309.	=	26.0	MILES				MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 61.		20.3			19.2	13.9	*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	704. VEH-HRS	804. PASS-HRS	3659. VEH-HRS	4177. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	704. VEH-HRS	804. PASS-HRS	3659. VEH-HRS	4177. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42606. VEH-MI.	48707. PASS-MI.	227108. VEH-MI.	259565. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		21. VPMPL	
TOTAL FUEL =	2222. GALLONS		11832. GALLONS	
TOTAL EMISSIONS =	594. KILOGRAMS		3160. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.18	4	0.30	5	1.10
6	3.75	7	5.22	8	4.05	9	18.57	10	3.50
11	2.93	12	3.83	13	1.00	14	0.00	15	0.00
16	0.00	17	0.80	18	0.80	19	0.72	20	0.00

***** TOTAL DELAY = 48.7 VEH-HRS ***** AVERAGE DELAY = 0.89 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	17.57	0.00	20.73	21.27	21.28	21.46	22.00	24.19
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	1.15	1.68	1.69	1.87	2.42	4.60
4	0.00	0.00	0.61	1.15	1.16	1.34	1.88	4.07
5	0.00	0.00	0.09	0.62	0.63	0.81	1.36	3.54
6	0.00	0.00	0.00	0.12	0.13	0.31	0.86	3.04
7	0.00	0.00	0.00	0.00	0.00	0.17	0.72	2.90
8	0.00	0.00	0.00	0.00	0.00	0.00	0.54	2.73

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3351.	0.	3351.	3351.	0.	3351.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
2	3	99999.	0.	536.	3351.	0.	536.	3351.	6000.	0.	0.	0.	.56	65.	17.2	B	19.0	14.1
3	2	11000.	0.	0.	2815.	0.	0.	2815.	4000.	0.	0.	0.	.70	62.	22.7	C	20.3	13.0
4	2	1500.	51.	0.	2866.	51.	0.	2866.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
5	2	1400.	0.	0.	2866.	0.	0.	2866.	4000.	0.	0.	0.	.72	62.	23.1	C	20.3	13.0
6	2	1500.	440.	0.	3306.	440.	0.	3306.	4000.	0.	0.	0.	.83	60.	27.4	D	21.1	12.5
7	2	1300.	0.	0.	3306.	0.	0.	3306.	4000.	0.	0.	0.	.83	60.	27.4	D	21.1	12.5
8	3	500.	536.	671.	3842.	536.	671.	3842.	4950.	0.	0.	0.	.78	65.	19.7	C	19.0	14.1
9	2	2300.	0.	0.	3171.	0.	0.	3171.	4000.	0.	0.	0.	.79	63.	25.0	C	19.7	13.5

10	3	250.	459.	0.	3630.	459.	0.	3630.	4750.	0.	0.	0.	.76	65.	18.6	C	19.0	14.1
11	3	200.	0.	0.	3630.	0.	0.	3630.	4750.	0.	0.	0.	.76	65.	18.6	C	19.0	14.1
12	3	250.	0.	1240.	3630.	0.	1240.	3630.	4750.	0.	0.	0.	.76	65.	18.6	C	19.0	14.1
13	2	50.	0.	310.	2390.	0.	310.	2390.	4000.	0.	0.	0.	.60	65.	18.4	C	19.0	14.1
14	2	50.	0.	0.	2080.	0.	0.	2080.	2470.	0.	0.	0.	.84	65.	16.0	B	19.0	14.1
15	2	1000.	310.	0.	2390.	310.	0.	2390.	4000.	0.	0.	0.	.60	65.	18.4	C	19.0	14.1
16	2	10.	0.	0.	2390.	0.	0.	2390.	4000.	0.	0.	0.	.60	65.	18.4	C	19.0	14.1
17	2	1500.	830.	0.	3220.	830.	0.	3220.	4000.	0.	0.	0.	.81	63.	25.6	C	19.9	13.4
18	2	1500.	0.	530.	3220.	0.	530.	3220.	4000.	0.	0.	0.	.81	63.	25.6	C	19.9	13.4
19	2	12000.	0.	0.	2690.	0.	0.	2690.	4000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
20	3	500.	0.	2690.	2690.	0.	2690.	2690.	6000.	0.	0.	0.	.45	65.	13.8	B	19.0	14.1

TOTAL 137309. = 26.0 MILES MAX(V/C) = 0.84 LOWEST LOS = D AVG = 65. 18.6 19.2 13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	650. VEH-HRS	742. PASS-HRS	4309. VEH-HRS	4919. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	650. VEH-HRS	742. PASS-HRS	4309. VEH-HRS	4919. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	41949. VEH-MI.	47948. PASS-MI.	269057. VEH-MI.	307514. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		21. VPMPL	
TOTAL FUEL =	2189. GALLONS		14021. GALLONS	
TOTAL EMISSIONS =	584. KILOGRAMS		3743. KILOGRAMS	

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TIME SLICE 6 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	2.18	4	0.30	5	0.28
6	0.55	7	0.47	8	0.00	9	0.28	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.22	18	0.22	19	0.00	20	0.00

***** TOTAL DELAY = 4.5 VEH-HRS ***** AVERAGE DELAY = 0.09 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

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UNIVERSITY OF CALIFORNIA, BERKELEY

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	12500.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	8660.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	5	10000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	5	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	5	6000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 18 T2 =0.582
QUEUE COLLISION IN SECTION 16 T2 =0.631
QUEUE COLLISION IN SECTION 15 T2 =0.468
QUEUE COLLISION IN SECTION 14 T2 =0.491

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	26.31	28.37	28.98	30.31	32.75	41.19
2	0.00	0.00	1.28	1.89	3.22	5.66	14.10
3	0.00	0.00	0.00	0.15	1.48	3.91	12.35
4	0.00	0.00	0.00	0.00	0.00	1.69	10.13
5	0.00	0.00	0.00	0.00	0.00	0.00	0.80
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	8471.	1609.	8471.	8471.	1609.	8471.	12500.	0.	0.	0.	.68	65.	26.1	D	19.2	14.0
2	3	99999.	0.	0.	6862.	0.	0.	4634.	8660.	0. *	742.	2228.	.54	63.	24.4	F	19.9	13.4
3	3	2830.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	2830.	2228.	.66	46.	33.9	F	22.7	11.8
4	3	930.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	930.	2228.	.66	41.	37.7	F	22.1	12.1
5	3	1490.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	1490.	2228.	.66	38.	40.1	F	21.8	12.4
6	3	3020.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	3020.	2228.	.66	34.	44.9	F	21.2	12.8
7	3	1030.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	1030.	2228.	.66	31.	49.3	F	20.7	13.3
8	3	1440.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	1440.	2228.	.66	30.	52.1	F	20.4	13.5
9	3	1430.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	1430.	2228.	.66	28.	55.4	F	20.0	13.8
10	3	3480.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	3480.	2228.	.66	25.	61.3	F	19.4	14.4
11	3	1020.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	1020.	2228.	.66	23.	66.9	F	18.8	14.9
12	3	980.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	980.	2228.	.66	22.	69.5	F	18.6	15.2
13	3	1800.	0.	0.	6862.	0.	0.	4634.	7000.	0. **	1800.	2228.	.66	21.	73.2	F	18.2	15.5
14	3	1500.	0.	770.	6862.	0.	765.	4634.	6820.	0. **	1500.	2186.	.68	21.	74.0	F	18.3	15.6
15	3	1300.	0.	0.	6092.	0.	0.	3869.	6000.	0. **	1300.	2131.	.64	19.	67.9	F	17.8	16.1
16	3	1000.	653.	0.	6745.	553.	0.	4422.	5903.	0. **	1000.	1481.	.75	29.	51.6	F	20.5	13.7
17	3	1100.	0.	0.	6745.	0.	0.	4422.	6000.	0. **	1100.	1481.	.74	27.	54.3	F	19.9	14.1
18	3	1000.	0.	521.	6745.	0.	455.	4422.	5891.	0. **	1000.	1469.	.75	27.	54.9	F	20.2	14.1
19	3	900.	0.	0.	6224.	0.	0.	3967.	6000.	0. **	900.	1469.	.66	22.	59.9	F	17.8	15.9
20	3	100.	215.	0.	6439.	215.	0.	4182.	5965.	0. **	100.	1469.	.70	23.	59.9	F	18.5	15.3
21	3	100.	0.	0.	6439.	0.	0.	4182.	6000.	0. **	100.	1469.	.70	23.	60.7	F	18.4	15.5
22	3	100.	0.	533.	6439.	0.	468.	4182.	5893.	0. **	100.	1469.	.71	23.	59.5	F	18.7	15.2
23	3	700.	0.	0.	5906.	0.	0.	3714.	6000.	0. **	700.	1469.	.62	19.	65.0	F	16.5	17.0
24	3	1500.	0.	833.	5906.	0.	731.	3714.	5833.	0. **	1500.	1469.	.64	19.	66.5	F	16.8	17.0
25	3	800.	0.	0.	5073.	0.	0.	2983.	6000.	0. **	800.	1469.	.50	12.	81.1	F	12.9	20.1
26	3	1000.	1173.	0.	6246.	1173.	0.	4156.	5748.	0. **	1000.	1469.	.72	20.	68.4	F	18.0	16.1
27	3	800.	0.	0.	6246.	0.	0.	4156.	6000.	0. **	800.	1469.	.69	18.	75.8	F	17.0	17.1
28	3	1000.	0.	458.	6246.	0.	414.	4156.	5928.	0. **	1000.	1469.	.70	18.	76.9	F	17.0	17.2
29	3	8000.	0.	0.	5788.	0.	0.	3742.	6000.	0. **	8000.	1469.	.62	12.	104.9	F	14.0	20.8
30	5	100.	1358.	0.	7146.	1358.	0.	5100.	10000.	0. **	100.	1469.	.51	7.	147.9	F	9.8	26.4
31	5	1000.	1000.	0.	8146.	900.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	8146.	8146.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 44.		36.3		19.5	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3993. VEH-HRS	4014. PASS-HRS	3993. VEH-HRS	4014. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	110. PASS-HRS	100. VEH-HRS	110. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4093. VEH-HRS	4123. PASS-HRS	4093. VEH-HRS	4123. PASS-HRS
TOTAL TRAV DISTANCE =	175909. VEH-MI.	176942. PASS-MI.	175909. VEH-MI.	176942. PASS-MI.
AVERAGE SYSTEM SPEED =	43. MPH.		44. MPH.	
AVERAGE DENSITY =	36. VPMPL		36. VPMPL	
TOTAL FUEL =	9039. GALLONS		9039. GALLONS	
TOTAL EMISSIONS =	2456. KILOGRAMS		2456. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.02	2	54.19	3	23.61	4	10.47	5	19.56
6	50.20	7	20.35	8	31.21	9	34.17	10	96.39
11	31.81	12	32.08	13	62.79	14	52.42	15	44.35
16	19.85	17	23.71	18	21.75	19	24.27	20	2.59
21	2.64	22	2.55	23	21.94	24	47.81	25	36.07
26	30.37	27	27.91	28	35.26	29	414.05	30	12.54
31	0.00	32	0.00						

***** TOTAL DELAY = 1286.9 VEH-HRS ***** AVERAGE DELAY = 18.76 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	4.59	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.59	17.85	1.11	5.79	0.31	7.21
ON-RAMP	6	RAMP	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	32.25	34.21	34.88	36.37	39.09	47.00
2	0.00	0.00	1.19	1.86	3.35	6.07	13.98
3	0.00	0.00	0.00	0.15	1.64	4.36	12.27
4	0.00	0.00	0.00	0.00	0.00	1.80	9.71
5	0.00	0.00	0.00	0.00	0.00	0.00	0.79
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	7320.	1391.	7320.	7320.	1391.	7320.	12500.	0.	0.	0.	.59	65.	22.5	C	19.2	14.0
2	3	99999.	0.	0.	5929.	0.	0.	5744.	8660.	0. *	3022.	185.	.66	60.	32.1	F	19.1	14.1
3	3	2830.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	2830.	185.	.82	18.	105.8	F	17.6	17.1
4	3	930.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	930.	185.	.82	18.	105.8	F	17.6	17.1
5	3	1490.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	1490.	185.	.82	18.	105.8	F	17.6	17.1
6	3	3020.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	3020.	185.	.82	18.	105.8	F	17.6	17.1
7	3	1030.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	1030.	185.	.82	18.	105.8	F	17.6	17.1
8	3	1440.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	1440.	185.	.82	18.	105.8	F	17.6	17.1
9	3	1430.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	1430.	185.	.82	18.	105.8	F	17.6	17.1
10	3	3480.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	3480.	185.	.82	18.	105.8	F	17.6	17.1
11	3	1020.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	1020.	185.	.82	18.	105.8	F	17.6	17.1
12	3	980.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	980.	185.	.82	18.	105.8	F	17.6	17.1
13	3	1800.	0.	0.	5929.	0.	0.	5744.	7000.	0. **	1800.	185.	.82	18.	105.8	F	17.6	17.1
14	3	1500.	0.	705.	5929.	0.	705.	5744.	6835.	0. **	1500.	185.	.84	19.	99.0	F	18.2	16.4
15	3	1300.	0.	0.	5224.	0.	0.	5039.	6000.	0. **	1300.	185.	.84	19.	87.1	F	18.2	16.5
16	3	1000.	648.	0.	5872.	648.	0.	5687.	5919.	0. **	1000.	185.	.96	30.	63.6	F	21.5	12.8
17	3	1100.	0.	0.	5872.	0.	0.	5687.	6000.	0. **	1100.	185.	.95	28.	66.9	F	21.1	13.2
18	3	1000.	0.	605.	5872.	0.	603.	5687.	5875.	0. **	1000.	185.	.97	31.	61.8	F	21.7	12.6
19	3	900.	0.	0.	5267.	0.	0.	5084.	6000.	0. **	900.	185.	.85	20.	85.6	F	18.4	16.2
20	3	100.	229.	0.	5496.	229.	0.	5313.	5968.	0. **	100.	185.	.89	23.	77.2	F	19.4	14.9
21	3	100.	0.	0.	5496.	0.	0.	5313.	6000.	0. **	100.	185.	.89	23.	78.5	F	19.3	15.1
22	3	100.	0.	635.	5496.	0.	633.	5313.	5875.	0. **	100.	185.	.90	24.	73.4	F	19.8	14.5
23	3	700.	0.	0.	4861.	0.	0.	4681.	6000.	0. **	700.	185.	.78	16.	98.2	F	16.6	18.3
24	3	1500.	0.	927.	4861.	0.	924.	4681.	5818.	0. **	1500.	185.	.80	17.	90.8	F	17.2	17.6
25	3	800.	0.	0.	3934.	0.	0.	3757.	6000.	0. **	800.	185.	.63	10.	127.0	F	13.0	23.0
26	3	1000.	1041.	0.	4975.	1041.	0.	4798.	5786.	0. **	1000.	185.	.83	19.	85.9	F	17.8	16.8
27	3	800.	0.	0.	4975.	0.	0.	4798.	6000.	0. **	800.	185.	.80	17.	94.6	F	17.1	17.8
28	3	1000.	0.	539.	4975.	0.	538.	4798.	5919.	0. **	1000.	185.	.81	18.	91.3	F	17.3	17.4
29	3	8000.	0.	0.	4436.	0.	0.	4260.	6000.	0. **	8000.	185.	.71	13.	111.3	F	14.7	20.6
30	5	100.	1040.	0.	5476.	1040.	0.	5300.	10000.	0. **	100.	185.	.53	7.	144.9	F	10.1	26.0
31	5	1000.	700.	0.	6176.	700.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	6176.	6176.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 37.		51.0		18.6	14.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4283. VEH-HRS	4304. PASS-HRS	8276. VEH-HRS	8317. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	200. VEH-HRS	219. PASS-HRS	300. VEH-HRS	329. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4483. VEH-HRS	4523. PASS-HRS	8576. VEH-HRS	8646. PASS-HRS
TOTAL TRAV DISTANCE =	157212. VEH-MI.	158230. PASS-MI.	333122. VEH-MI.	335172. PASS-MI.
AVERAGE SYSTEM SPEED =	35. MPH.		40. MPH.	
AVERAGE DENSITY =	51. VPMPL		44. VPMPL	
TOTAL FUEL =	8526. GALLONS		17565. GALLONS	
TOTAL EMISSIONS =	2376. KILOGRAMS		4832. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	157.44	3	122.69	4	40.32	5	64.59
6	130.92	7	44.65	8	62.43	9	61.99	10	150.86
11	44.22	12	42.48	13	78.03	14	59.31	15	45.21
16	19.56	17	23.57	18	18.54	19	30.46	20	2.84
21	2.91	22	2.62	23	29.51	24	56.93	25	48.95
26	34.81	27	31.80	28	37.88	29	406.60	30	12.18
31	0.00	32	0.00						

***** TOTAL DELAY = 1864.3 VEH-HRS ***** AVERAGE DELAY = 21.78 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	8.02	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.02	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	1	1650.	980.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	65		0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT TRUCKS	DES SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
20	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT TRUCKS	DES SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	25.33	26.17	26.38	26.77	27.40	28.80	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.24	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																			
2	1	99999.	1609.	0.	1609.	1609.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
3	1	2830.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
4	1	930.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
5	1	1490.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
6	1	3020.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
7	1	1030.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
8	1	1440.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
9	1	1430.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
10	1	3480.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
11	1	1020.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
12	1	980.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
13	1	1800.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
14	1	1500.	0.	181.	1609.	0.	181.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
15	1	1300.	0.	0.	1429.	0.	0.	1429.	1650.	0.	0.	0.	.87	65.	22.0	C	20.0	13.7	
16	1	1000.	97.	0.	1526.	97.	0.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
17	1	1100.	0.	0.	1526.	0.	0.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
18	1	1000.	0.	109.	1526.	0.	109.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
19	1	900.	0.	0.	1417.	0.	0.	1417.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7	
20	1	100.	35.	0.	1452.	35.	0.	1452.	1650.	0.	0.	0.	.88	60.	24.1	C	22.6	12.2	
21	1	100.	0.	0.	1452.	0.	0.	1452.	1650.	0.	0.	0.	.88	60.	24.1	C	22.6	12.2	
22	1	100.	0.	107.	1452.	0.	107.	1452.	1650.	0.	0.	0.	.88	60.	24.1	C	22.6	12.2	
23	1	700.	0.	0.	1345.	0.	0.	1345.	1650.	0.	0.	0.	.82	65.	20.7	C	20.0	13.7	
24	1	1500.	0.	167.	1345.	0.	167.	1345.	1650.	0.	0.	0.	.82	65.	20.7	C	20.0	13.7	
25	1	800.	0.	0.	1178.	0.	0.	1178.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7	
26	1	1000.	252.	0.	1430.	252.	0.	1430.	1650.	0.	0.	0.	.87	65.	22.0	C	20.0	13.7	
27	1	800.	0.	0.	1430.	0.	0.	1430.	1650.	0.	0.	0.	.87	65.	22.0	C	20.0	13.7	
28	1	1000.	0.	72.	1430.	0.	72.	1430.	1650.	0.	0.	0.	.87	65.	22.0	C	20.0	13.7	
29	1	8000.	0.	1358.	1358.	0.	1358.	1358.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
30																			
31																			
32																			
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.98		LOWEST LOS = D		AVG = 55.		28.6		24.0	11.4	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	760. VEH-HRS	1520. PASS-HRS	760. VEH-HRS	1520. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	760. VEH-HRS	1520. PASS-HRS	760. VEH-HRS	1520. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	41990. VEH-MI.	83980. PASS-MI.	41990. VEH-MI.	83980. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		55. MPH.	
AVERAGE DENSITY =	29. VPMPL		29. VPMPL	
TOTAL FUEL =	1750. GALLONS		1750. GALLONS	
TOTAL EMISSIONS =	479. KILOGRAMS		479. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	92.88	3	2.63	4	0.86	5	1.38
6	2.81	7	0.96	8	1.34	9	1.33	10	3.23
11	0.95	12	0.91	13	1.67	14	1.39	15	0.00
16	0.56	17	0.61	18	0.56	19	0.00	20	0.03
21	0.03	22	0.03	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 114.2 VEH-HRS ***** AVERAGE DELAY = 4.26 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00

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                          *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                          *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                          *    *                                                  *
                          ***********************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1391.	0.	1391.	1391.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
3	1	2830.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
4	1	930.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
5	1	1490.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
6	1	3020.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
7	1	1030.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
8	1	1440.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
9	1	1430.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
10	1	3480.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
11	1	1020.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
12	1	980.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
13	1	1800.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
14	1	1500.	0.	165.	1391.	0.	165.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
15	1	1300.	0.	0.	1226.	0.	0.	1226.	1650.	0.	0.	0.	.74	65.	18.9	C	20.0	13.7
16	1	1000.	81.	0.	1306.	81.	0.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
17	1	1100.	0.	0.	1306.	0.	0.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
18	1	1000.	0.	125.	1306.	0.	125.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
19	1	900.	0.	0.	1182.	0.	0.	1182.	1650.	0.	0.	0.	.72	65.	18.2	C	20.0	13.7
20	1	100.	32.	0.	1214.	32.	0.	1214.	1650.	0.	0.	0.	.74	65.	18.7	C	20.0	13.7
21	1	100.	0.	0.	1214.	0.	0.	1214.	1650.	0.	0.	0.	.74	65.	18.7	C	20.0	13.7
22	1	100.	0.	125.	1214.	0.	125.	1214.	1650.	0.	0.	0.	.74	65.	18.7	C	20.0	13.7
23	1	700.	0.	0.	1089.	0.	0.	1089.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
24	1	1500.	0.	182.	1089.	0.	182.	1089.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
25	1	800.	0.	0.	907.	0.	0.	907.	1650.	0.	0.	0.	.55	65.	14.0	B	20.0	13.7
26	1	1000.	214.	0.	1121.	214.	0.	1121.	1650.	0.	0.	0.	.68	65.	17.2	B	20.0	13.7
27	1	800.	0.	0.	1121.	0.	0.	1121.	1650.	0.	0.	0.	.68	65.	17.2	B	20.0	13.7
28	1	1000.	0.	81.	1121.	0.	81.	1121.	1650.	0.	0.	0.	.68	65.	17.2	B	20.0	13.7
29	1	8000.	0.	1040.	1040.	0.	1040.	1040.	1650.	0.	0.	0.	.63	65.	16.0	B	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES								MAX(V/C) = 0.84		LOWEST LOS = C		AVG = 65.	20.8		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	553. VEH-HRS	1106. PASS-HRS	1313. VEH-HRS	2627. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	553. VEH-HRS	1106. PASS-HRS	1313. VEH-HRS	2627. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	35960. VEH-MI.	71921. PASS-MI.	77950. VEH-MI.	155900. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		59. MPH.	
AVERAGE DENSITY =	21. VPMPL		25. VPMPL	
TOTAL FUEL =	1798. GALLONS		3548. GALLONS	
TOTAL EMISSIONS =	494. KILOGRAMS		973. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222   PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111          222   PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

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FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	12500.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	8660.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7490.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	5	10000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	5	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	5	6000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 16 T2 =0.629
QUEUE COLLISION IN SECTION 15 T2 =0.475
QUEUE COLLISION IN SECTION 14 T2 =0.498

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	26.40	28.66	30.87	33.42	42.05
2	0.00	0.00	1.47	3.68	6.23	14.86
3	0.00	0.00	0.00	1.62	4.17	12.80
4	0.00	0.00	0.00	0.00	1.76	10.38
5	0.00	0.00	0.00	0.00	0.00	0.80
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF		CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	8470.	1609.	8470.	8470.	1609.	8470.	12500.	0.		0.	0.	.68	65.	26.1	D	19.2	14.0
2	3	99999.	0.	0.	6861.	0.	0.	4536.	8660.	0.	*	729.	2325.	.52	63.	23.9	F	19.9	13.4
3	3	2830.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	2830.	2325.	.65	46.	33.2	F	22.7	11.8
4	3	930.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	930.	2325.	.65	41.	37.0	F	22.1	12.1
5	3	1490.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	1490.	2325.	.65	38.	39.5	F	21.8	12.4
6	3	3020.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	3020.	2325.	.65	34.	44.2	F	21.2	12.8
7	3	1030.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	1030.	2325.	.65	31.	48.7	F	20.7	13.3
8	3	1440.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	1440.	2325.	.65	29.	51.5	F	20.3	13.5
9	3	1430.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	1430.	2325.	.65	28.	54.8	F	20.0	13.8
10	3	3480.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	3480.	2325.	.65	25.	60.7	F	19.3	14.4
11	3	1020.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	1020.	2325.	.65	23.	66.4	F	18.8	15.0
12	3	980.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	980.	2325.	.65	22.	69.0	F	18.5	15.2
13	3	1800.	0.	0.	6861.	0.	0.	4536.	7000.	0.	**	1800.	2325.	.65	21.	72.7	F	18.2	15.6
14	3	1500.	0.	770.	6861.	0.	765.	4536.	6820.	0.	**	1500.	2284.	.67	21.	73.7	F	18.2	15.6
15	3	1300.	0.	0.	6091.	0.	0.	3771.	6000.	0.	**	1300.	2229.	.63	19.	67.5	F	17.6	16.1
16	3	1000.	652.	0.	6743.	552.	0.	4323.	5903.	0.	**	1000.	1580.	.73	28.	51.9	F	20.3	13.9
17	3	1100.	0.	0.	6743.	0.	0.	4323.	6000.	0.	**	1100.	1580.	.72	26.	54.7	F	19.7	14.3
18	4	1000.	0.	1051.	6743.	0.	920.	4323.	7271.	0.	**	1000.	1580.	.59	19.	55.8	F	15.9	17.3
19	3	900.	0.	0.	5692.	0.	0.	3403.	6000.	0.	**	900.	1580.	.57	17.	65.6	F	15.2	17.7
20	3	100.	288.	0.	5980.	240.	0.	3643.	5948.	0.	**	100.	1580.	.61	19.	65.6	F	16.4	17.0
21	3	100.	0.	0.	5980.	0.	0.	3643.	6000.	0.	**	100.	1580.	.61	18.	66.8	F	16.2	17.2
22	3	100.	0.	0.	5980.	0.	0.	3643.	6000.	0.	**	100.	1580.	.61	18.	67.2	F	16.2	17.3
23	3	700.	0.	0.	5980.	0.	0.	3643.	6000.	0.	**	700.	1580.	.61	18.	68.7	F	16.0	17.4
24	3	1500.	0.	834.	5980.	0.	728.	3643.	5835.	0.	**	1500.	1580.	.62	17.	70.0	F	16.4	17.4
25	3	800.	0.	0.	5146.	0.	0.	2915.	6000.	0.	**	800.	1580.	.49	11.	85.1	F	12.6	20.5
26	3	1000.	1214.	0.	6360.	1214.	0.	4129.	5739.	0.	**	1000.	1580.	.72	19.	70.7	F	17.8	16.4
27	3	800.	0.	0.	6360.	0.	0.	4129.	6000.	0.	**	800.	1580.	.69	18.	78.4	F	16.8	17.3
28	3	1000.	0.	459.	6360.	0.	413.	4129.	5929.	0.	**	1000.	1580.	.70	17.	79.3	F	16.8	17.4
29	3	8000.	0.	0.	5901.	0.	0.	3716.	6000.	0.	**	8000.	1580.	.62	12.	106.6	F	13.8	21.0
30	5	100.	1384.	0.	7285.	1384.	0.	5100.	10000.	0.	**	100.	1580.	.51	7.	148.0	F	9.8	26.4
31	5	1000.	1000.	0.	8285.	900.	0.	6000.	6000.	0.		0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	8285.	8285.	0.	6000.	6000.	6000.	0.		0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES												MAX(V/C) = 1.00	LOWEST LOS = F	AVG = 43.		36.1	19.5	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4042. VEH-HRS	4063. PASS-HRS	4042. VEH-HRS	4063. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	124. VEH-HRS	134. PASS-HRS	124. VEH-HRS	134. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4166. VEH-HRS	4196. PASS-HRS	4166. VEH-HRS	4196. PASS-HRS
TOTAL TRAV DISTANCE =	175558. VEH-MI.	176592. PASS-MI.	175558. VEH-MI.	176592. PASS-MI.
AVERAGE SYSTEM SPEED =	42. MPH.		43. MPH.	
AVERAGE DENSITY =	36. VPMPL		36. VPMPL	
TOTAL FUEL =	9065. GALLONS		9065. GALLONS	
TOTAL EMISSIONS =	2462. KILOGRAMS		2462. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.02	2	54.04	3	23.66	4	10.54	5	19.74
6	50.77	7	20.61	8	31.63	9	34.65	10	97.83
11	32.30	12	32.59	13	63.81	14	53.41	15	45.29
16	20.73	17	24.72	18	35.65	19	30.44	20	3.23
21	3.31	22	3.33	23	23.96	24	51.90	25	38.57
26	31.98	27	29.32	28	36.91	29	423.41	30	12.54
31	0.00	32	0.00						

***** TOTAL DELAY = 1340.9 VEH-HRS ***** AVERAGE DELAY = 19.95 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	4.60	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.60	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	48.	24.00	5.00	8.57	0.53	2.78	0.15	3.46
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	48.	24.00	5.00	8.57	0.53	2.78	0.15	3.46
ON-RAMP	6	RAMP	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	33.22	35.62	38.12	40.89	48.89
2	0.00	0.00	1.60	4.10	6.87	14.87
3	0.00	0.00	0.00	1.75	4.51	12.52
4	0.00	0.00	0.00	0.00	1.82	9.82
5	0.00	0.00	0.00	0.00	0.00	0.79
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	7321.	1391.	7321.	7321.	1391.	7321.	12500.	0.	0.	0.	.59	65.	22.5	C	19.2	14.0
2	3	99999.	0.	0.	5930.	0.	0.	5660.	8660.	0. *	3997.	270.	.65	58.	32.4	F	19.1	14.1
3	3	2830.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	2830.	270.	.81	17.	108.4	F	17.3	17.5
4	3	930.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	930.	270.	.81	17.	108.4	F	17.3	17.5
5	3	1490.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	1490.	270.	.81	17.	108.4	F	17.3	17.5
6	3	3020.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	3020.	270.	.81	17.	108.4	F	17.3	17.5
7	3	1030.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	1030.	270.	.81	17.	108.4	F	17.3	17.5
8	3	1440.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	1440.	270.	.81	17.	108.4	F	17.3	17.5
9	3	1430.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	1430.	270.	.81	17.	108.4	F	17.3	17.5
10	3	3480.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	3480.	270.	.81	17.	108.4	F	17.3	17.5
11	3	1020.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	1020.	270.	.81	17.	108.4	F	17.3	17.5
12	3	980.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	980.	270.	.81	17.	108.4	F	17.3	17.5
13	3	1800.	0.	0.	5930.	0.	0.	5660.	7000.	0. **	1800.	270.	.81	17.	108.4	F	17.3	17.5
14	3	1500.	0.	705.	5930.	0.	705.	5660.	6835.	0. **	1500.	270.	.83	19.	101.7	F	17.8	16.9
15	3	1300.	0.	0.	5225.	0.	0.	4955.	6000.	0. **	1300.	270.	.83	18.	89.7	F	17.8	16.9
16	3	1000.	648.	0.	5873.	648.	0.	5603.	5919.	0. **	1000.	270.	.95	28.	66.2	F	21.0	13.2
17	3	1100.	0.	0.	5873.	0.	0.	5603.	6000.	0. **	1100.	270.	.93	27.	69.5	F	20.6	13.6
18	4	1000.	0.	1236.	5873.	0.	1231.	5603.	7236.	0. **	1000.	270.	.77	16.	89.8	F	16.5	18.5
19	3	900.	0.	0.	4637.	0.	0.	4372.	6000.	0. **	900.	270.	.73	14.	107.8	F	15.2	20.0
20	3	100.	314.	0.	4951.	262.	0.	4634.	5949.	0. **	100.	270.	.78	16.	97.6	F	16.6	18.4
21	3	100.	0.	0.	4951.	0.	0.	4634.	6000.	0. **	100.	270.	.77	16.	99.7	F	16.5	18.6
22	3	100.	0.	0.	4951.	0.	0.	4634.	6000.	0. **	100.	270.	.77	16.	99.7	F	16.5	18.6
23	3	700.	0.	0.	4951.	0.	0.	4634.	6000.	0. **	700.	270.	.77	16.	99.7	F	16.5	18.6
24	3	1500.	0.	932.	4951.	0.	916.	4634.	5822.	0. **	1500.	270.	.80	17.	92.4	F	17.0	17.9
25	3	800.	0.	0.	4019.	0.	0.	3718.	6000.	0. **	800.	270.	.62	10.	128.2	F	12.7	23.2
26	3	1000.	1053.	0.	5072.	1053.	0.	4771.	5783.	0. **	1000.	270.	.82	18.	86.6	F	17.7	17.0
27	3	800.	0.	0.	5072.	0.	0.	4771.	6000.	0. **	800.	270.	.80	17.	95.4	F	17.0	17.9
28	3	1000.	0.	541.	5072.	0.	534.	4771.	5921.	0. **	1000.	270.	.81	17.	92.2	F	17.2	17.6
29	3	8000.	0.	0.	4531.	0.	0.	4237.	6000.	0. **	8000.	270.	.71	13.	112.0	F	14.6	20.7
30	5	100.	1063.	0.	5594.	1063.	0.	5300.	10000.	0. **	100.	270.	.53	7.	144.9	F	10.1	26.0
31	5	1000.	700.	0.	6294.	700.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	6294.	6294.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 35.		52.1		18.4	15.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4417. VEH-HRS	4438. PASS-HRS	8459. VEH-HRS	8501. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	274. VEH-HRS	293. PASS-HRS	398. VEH-HRS	427. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4691. VEH-HRS	4731. PASS-HRS	8857. VEH-HRS	8928. PASS-HRS
TOTAL TRAV DISTANCE =	156539. VEH-MI.	157558. PASS-MI.	332097. VEH-MI.	334150. PASS-MI.
AVERAGE SYSTEM SPEED =	33. MPH.		39. MPH.	
AVERAGE DENSITY =	52. VPMPL		44. VPMPL	
TOTAL FUEL =	8587. GALLONS		17652. GALLONS	
TOTAL EMISSIONS =	2402. KILOGRAMS		4864. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	200.79	3	127.58	4	41.92	5	67.17
6	136.14	7	46.43	8	64.92	9	64.46	10	156.88
11	45.98	12	44.18	13	81.14	14	61.90	15	47.46
16	21.29	17	25.48	18	51.70	19	43.67	20	4.19
21	4.31	22	4.31	23	30.18	24	58.51	25	49.59
26	35.29	27	32.24	28	38.48	29	410.39	30	12.18
31	0.00	32	0.00						

***** TOTAL DELAY = 2008.8 VEH-HRS ***** AVERAGE DELAY = 23.71 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	8.02	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.02	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	100.	74.00	12.27	26.42	1.64	8.57	0.45	10.67
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	74.00	12.27	26.42	1.64	8.57	0.45	10.67
ON-RAMP	6	RAMP	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	1	1650.	980.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	65		0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda

20	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	25.33	26.17	26.77	27.43	28.83	0.00
3	0.00	0.00	0.00	0.00	0.00	3.27	0.00
4	0.00	0.00	0.00	0.00	0.00	2.50	0.00
5	0.00	0.00	0.00	0.00	0.00	1.93	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																			
2	1	99999.	1609.	0.	1609.	1609.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
3	1	2830.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
4	1	930.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
5	1	1490.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
6	1	3020.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
7	1	1030.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
8	1	1440.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
9	1	1430.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
10	1	3480.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
11	1	1020.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
12	1	980.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
13	1	1800.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
14	1	1500.	0.	181.	1609.	0.	181.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
15	1	1300.	0.	0.	1429.	0.	0.	1429.	1650.	0.	0.	0.	.87	65.	22.0	C	20.0	13.7	
16	1	1000.	97.	0.	1526.	97.	0.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
17	1	1100.	0.	0.	1526.	0.	0.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
18	1	1000.	0.	219.	1526.	0.	219.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
19	1	900.	0.	0.	1306.	0.	0.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7	
20	1	100.	52.	0.	1359.	52.	0.	1359.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
21	1	100.	0.	0.	1359.	0.	0.	1359.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
22	1	100.	0.	0.	1359.	0.	0.	1359.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
23	1	700.	0.	0.	1359.	0.	0.	1359.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
24	1	1500.	0.	165.	1359.	0.	165.	1359.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
25	1	800.	0.	0.	1194.	0.	0.	1194.	1650.	0.	0.	0.	.72	65.	18.4	C	20.0	13.7	
26	1	1000.	261.	0.	1455.	261.	0.	1455.	1650.	0.	0.	0.	.88	60.	24.2	C	22.7	12.2	
27	1	800.	0.	0.	1455.	0.	0.	1455.	1650.	0.	0.	0.	.88	60.	24.2	C	22.7	12.2	
28	1	1000.	0.	71.	1455.	0.	71.	1455.	1650.	0.	0.	0.	.88	60.	24.2	C	22.7	12.2	
29	1	8000.	0.	1384.	1384.	0.	1384.	1384.	1650.	0.	0.	0.	.84	65.	21.3	C	20.0	13.7	
30																			
31																			
32																			

TOTAL	140349. =	26.6 MILES						MAX(V/C) = 0.98		LOWEST LOS = D		AVG = 55.		28.7			24.1	11.4	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	762. VEH-HRS	1523. PASS-HRS	762. VEH-HRS	1523. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	762. VEH-HRS	1523. PASS-HRS	762. VEH-HRS	1523. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42028. VEH-MI.	84055. PASS-MI.	42028. VEH-MI.	84055. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		55. MPH.	
AVERAGE DENSITY =	29. VPMPL		29. VPMPL	
TOTAL FUEL =	1747. GALLONS		1747. GALLONS	
TOTAL EMISSIONS =	479. KILOGRAMS		479. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	92.88	3	2.63	4	0.86	5	1.38
6	2.81	7	0.96	8	1.34	9	1.33	10	3.23
11	0.95	12	0.91	13	1.67	14	1.39	15	0.00
16	0.56	17	0.61	18	0.56	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.35	27	0.28	28	0.35	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 115.0 VEH-HRS ***** AVERAGE DELAY = 4.30 MIN/VEH *****

****
** **
** FREEWAY TRAVEL TIME (MINUTES) **
** **
****

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00

```
                                *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                                *    *                                            *
                                **********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1391.	0.	1391.	1391.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
3	1	2830.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
4	1	930.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
5	1	1490.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
6	1	3020.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
7	1	1030.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
8	1	1440.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
9	1	1430.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
10	1	3480.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
11	1	1020.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
12	1	980.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
13	1	1800.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
14	1	1500.	0.	165.	1391.	0.	165.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
15	1	1300.	0.	0.	1226.	0.	0.	1226.	1650.	0.	0.	0.	.74	65.	18.9	C	20.0	13.7
16	1	1000.	81.	0.	1306.	81.	0.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
17	1	1100.	0.	0.	1306.	0.	0.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
18	1	1000.	0.	254.	1306.	0.	254.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
19	1	900.	0.	0.	1052.	0.	0.	1052.	1650.	0.	0.	0.	.64	65.	16.2	B	20.0	13.7
20	1	100.	51.	0.	1103.	51.	0.	1103.	1650.	0.	0.	0.	.67	65.	17.0	B	20.0	13.7
21	1	100.	0.	0.	1103.	0.	0.	1103.	1650.	0.	0.	0.	.67	65.	17.0	B	20.0	13.7
22	1	100.	0.	0.	1103.	0.	0.	1103.	1650.	0.	0.	0.	.67	65.	17.0	B	20.0	13.7
23	1	700.	0.	0.	1103.	0.	0.	1103.	1650.	0.	0.	0.	.67	65.	17.0	B	20.0	13.7
24	1	1500.	0.	178.	1103.	0.	178.	1103.	1650.	0.	0.	0.	.67	65.	17.0	B	20.0	13.7
25	1	800.	0.	0.	925.	0.	0.	925.	1650.	0.	0.	0.	.56	65.	14.2	B	20.0	13.7
26	1	1000.	217.	0.	1142.	217.	0.	1142.	1650.	0.	0.	0.	.69	65.	17.6	B	20.0	13.7
27	1	800.	0.	0.	1142.	0.	0.	1142.	1650.	0.	0.	0.	.69	65.	17.6	B	20.0	13.7
28	1	1000.	0.	79.	1142.	0.	79.	1142.	1650.	0.	0.	0.	.69	65.	17.6	B	20.0	13.7
29	1	8000.	0.	1063.	1063.	0.	1063.	1063.	1650.	0.	0.	0.	.64	65.	16.4	B	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES								MAX(V/C) = 0.84	LOWEST LOS = C		AVG = 65.		20.8		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	554. VEH-HRS	1107. PASS-HRS	1315. VEH-HRS	2630. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	554. VEH-HRS	1107. PASS-HRS	1315. VEH-HRS	2630. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	35985. VEH-MI.	71970. PASS-MI.	78013. VEH-MI.	156025. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		59. MPH.	
AVERAGE DENSITY =	21. VPMPL		25. VPMPL	
TOTAL FUEL =	1799. GALLONS		3547. GALLONS	
TOTAL EMISSIONS =	494. KILOGRAMS		973. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111          222   PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111        2222    PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

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FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	12500.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	8660.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7490.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	5	10000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	5	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	5	6000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 16 T2 =0.631
QUEUE COLLISION IN SECTION 15 T2 =0.476
QUEUE COLLISION IN SECTION 14 T2 =0.499

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	26.38	28.64	30.84	33.38	41.99
2	0.00	0.00	1.46	3.66	6.20	14.81
3	0.00	0.00	0.00	1.61	4.15	12.76
4	0.00	0.00	0.00	0.00	1.75	10.36
5	0.00	0.00	0.00	0.00	0.00	0.80
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	8472.	1609.	8472.	8472.	1609.	8472.	12500.	0.	0.	0.	.68	65.	26.1	D	19.2	14.0
2	3	99999.	0.	0.	6863.	0.	0.	4543.	8660.	0. *	726.	2320.	.52	63.	23.9	F	19.9	13.4
3	3	2830.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	2830.	2320.	.65	46.	33.3	F	22.7	11.8
4	3	930.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	930.	2320.	.65	41.	37.0	F	22.1	12.1
5	3	1490.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	1490.	2320.	.65	38.	39.5	F	21.8	12.4
6	3	3020.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	3020.	2320.	.65	34.	44.3	F	21.2	12.8
7	3	1030.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	1030.	2320.	.65	31.	48.7	F	20.7	13.3
8	3	1440.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	1440.	2320.	.65	29.	51.5	F	20.4	13.5
9	3	1430.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	1430.	2320.	.65	28.	54.8	F	20.0	13.8
10	3	3480.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	3480.	2320.	.65	25.	60.7	F	19.4	14.4
11	3	1020.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	1020.	2320.	.65	23.	66.4	F	18.8	15.0
12	3	980.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	980.	2320.	.65	22.	69.0	F	18.5	15.2
13	3	1800.	0.	0.	6863.	0.	0.	4543.	7000.	0. **	1800.	2320.	.65	21.	72.7	F	18.2	15.6
14	3	1500.	0.	770.	6863.	0.	765.	4543.	6820.	0. **	1500.	2277.	.67	21.	73.6	F	18.2	15.6
15	3	1300.	0.	0.	6093.	0.	0.	3778.	6000.	0. **	1300.	2222.	.63	19.	67.4	F	17.7	16.1
16	3	1000.	653.	0.	6746.	553.	0.	4331.	5903.	0. **	1000.	1572.	.73	28.	51.8	F	20.3	13.8
17	3	1100.	0.	0.	6746.	0.	0.	4331.	6000.	0. **	1100.	1572.	.72	26.	54.5	F	19.7	14.3
18	4	1000.	0.	1051.	6746.	0.	919.	4331.	7271.	0. **	1000.	1572.	.60	19.	55.6	F	16.0	17.2
19	3	900.	0.	0.	5695.	0.	0.	3412.	6000.	0. **	900.	1572.	.57	17.	65.3	F	15.3	17.7
20	3	100.	271.	0.	5966.	240.	0.	3652.	5951.	0. **	100.	1572.	.61	19.	65.4	F	16.5	17.0
21	3	100.	0.	0.	5966.	0.	0.	3652.	6000.	0. **	100.	1572.	.61	18.	66.5	F	16.2	17.2
22	3	100.	0.	0.	5966.	0.	0.	3652.	6000.	0. **	100.	1572.	.61	18.	66.9	F	16.2	17.2
23	3	700.	0.	0.	5966.	0.	0.	3652.	6000.	0. **	700.	1572.	.61	18.	68.5	F	16.1	17.4
24	3	1500.	0.	836.	5966.	0.	732.	3652.	5835.	0. **	1500.	1572.	.63	17.	69.8	F	16.4	17.4
25	3	800.	0.	0.	5130.	0.	0.	2920.	6000.	0. **	800.	1572.	.49	11.	84.9	F	12.6	20.5
26	3	1000.	1214.	0.	6344.	1214.	0.	4134.	5739.	0. **	1000.	1572.	.72	20.	70.5	F	17.8	16.3
27	3	800.	0.	0.	6344.	0.	0.	4134.	6000.	0. **	800.	1572.	.69	18.	78.2	F	16.8	17.3
28	3	1000.	0.	459.	6344.	0.	414.	4134.	5929.	0. **	1000.	1572.	.70	17.	79.1	F	16.8	17.4
29	3	8000.	0.	0.	5885.	0.	0.	3720.	6000.	0. **	8000.	1572.	.62	12.	106.5	F	13.8	21.0
30	5	100.	1380.	0.	7265.	1380.	0.	5100.	10000.	0. **	100.	1572.	.51	7.	148.0	F	9.8	26.4
31	5	1000.	1000.	0.	8265.	900.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	8265.	8265.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00 LOWEST LOS = F			AVG = 43.		36.1		19.5	13.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4039. VEH-HRS	4060. PASS-HRS	4039. VEH-HRS	4060. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	116. VEH-HRS	125. PASS-HRS	116. VEH-HRS	125. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4155. VEH-HRS	4185. PASS-HRS	4155. VEH-HRS	4185. PASS-HRS
TOTAL TRAV DISTANCE =	175631. VEH-MI.	176663. PASS-MI.	175631. VEH-MI.	176663. PASS-MI.
AVERAGE SYSTEM SPEED =	42. MPH.		43. MPH.	
AVERAGE DENSITY =	36. VPMPL		36. VPMPL	
TOTAL FUEL =	9062. GALLONS		9062. GALLONS	
TOTAL EMISSIONS =	2461. KILOGRAMS		2461. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.02	2	54.23	3	23.65	4	10.53	5	19.71
6	50.68	7	20.57	8	31.57	9	34.58	10	97.62
11	32.23	12	32.51	13	63.66	14	53.24	15	45.13
16	20.57	17	24.53	18	35.41	19	30.24	20	3.21
21	3.29	22	3.31	23	23.81	24	51.59	25	38.42
26	31.84	27	29.20	28	36.77	29	422.51	30	12.54
31	0.00	32	0.00						

***** TOTAL DELAY = 1337.2 VEH-HRS ***** AVERAGE DELAY = 19.87 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	4.59	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.59	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	31.	15.50	3.43	5.53	0.34	1.80	0.10	2.23
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	31.	15.50	3.43	5.53	0.34	1.80	0.10	2.23
ON-RAMP	6	RAMP	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	32.90	35.27	37.76	40.51	48.50
2	0.00	0.00	1.57	4.06	6.82	14.80
3	0.00	0.00	0.00	1.75	4.50	12.48
4	0.00	0.00	0.00	0.00	1.82	9.80
5	0.00	0.00	0.00	0.00	0.00	0.79
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	7322.	1391.	7322.	7322.	1391.	7322.	12500.	0.	0.	0.	.59	65.	22.5	C	19.2	14.0
2	3	99999.	0.	0.	5931.	0.	0.	5687.	8660.	0. *	3694.	244.	.66	59.	32.3	F	19.1	14.1
3	3	2830.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	2830.	244.	.81	18.	107.5	F	17.4	17.4
4	3	930.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	930.	244.	.81	18.	107.5	F	17.4	17.4
5	3	1490.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	1490.	244.	.81	18.	107.5	F	17.4	17.4
6	3	3020.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	3020.	244.	.81	18.	107.5	F	17.4	17.4
7	3	1030.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	1030.	244.	.81	18.	107.5	F	17.4	17.4
8	3	1440.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	1440.	244.	.81	18.	107.5	F	17.4	17.4
9	3	1430.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	1430.	244.	.81	18.	107.5	F	17.4	17.4
10	3	3480.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	3480.	244.	.81	18.	107.5	F	17.4	17.4
11	3	1020.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	1020.	244.	.81	18.	107.5	F	17.4	17.4
12	3	980.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	980.	244.	.81	18.	107.5	F	17.4	17.4
13	3	1800.	0.	0.	5931.	0.	0.	5687.	7000.	0. **	1800.	244.	.81	18.	107.5	F	17.4	17.4
14	3	1500.	0.	705.	5931.	0.	705.	5687.	6835.	0. **	1500.	244.	.83	19.	100.8	F	17.9	16.7
15	3	1300.	0.	0.	5226.	0.	0.	4982.	6000.	0. **	1300.	244.	.83	19.	88.8	F	17.9	16.8
16	3	1000.	649.	0.	5875.	649.	0.	5631.	5919.	0. **	1000.	244.	.95	29.	65.3	F	21.2	13.1
17	3	1100.	0.	0.	5875.	0.	0.	5631.	6000.	0. **	1100.	244.	.94	27.	68.6	F	20.8	13.5
18	4	1000.	0.	1236.	5875.	0.	1231.	5631.	7236.	0. **	1000.	244.	.78	16.	89.1	F	16.6	18.4
19	3	900.	0.	0.	4639.	0.	0.	4400.	6000.	0. **	900.	244.	.73	14.	106.9	F	15.3	19.9
20	3	100.	288.	0.	4927.	240.	0.	4640.	5953.	0. **	100.	244.	.78	16.	97.6	F	16.6	18.4
21	3	100.	0.	0.	4927.	0.	0.	4640.	6000.	0. **	100.	244.	.77	16.	99.5	F	16.5	18.5
22	3	100.	0.	0.	4927.	0.	0.	4640.	6000.	0. **	100.	244.	.77	16.	99.5	F	16.5	18.5
23	3	700.	0.	0.	4927.	0.	0.	4640.	6000.	0. **	700.	244.	.77	16.	99.5	F	16.5	18.5
24	3	1500.	0.	932.	4927.	0.	918.	4640.	5821.	0. **	1500.	244.	.80	17.	92.2	F	17.0	17.9
25	3	800.	0.	0.	3995.	0.	0.	3723.	6000.	0. **	800.	244.	.62	10.	128.0	F	12.7	23.2
26	3	1000.	1053.	0.	5048.	1053.	0.	4776.	5783.	0. **	1000.	244.	.83	18.	86.4	F	17.7	16.9
27	3	800.	0.	0.	5048.	0.	0.	4776.	6000.	0. **	800.	244.	.80	17.	95.3	F	17.0	17.9
28	3	1000.	0.	540.	5048.	0.	534.	4776.	5921.	0. **	1000.	244.	.81	17.	92.0	F	17.2	17.6
29	3	8000.	0.	0.	4508.	0.	0.	4242.	6000.	0. **	8000.	244.	.71	13.	111.9	F	14.6	20.7
30	5	100.	1058.	0.	5566.	1058.	0.	5300.	10000.	0. **	100.	244.	.53	7.	144.9	F	10.1	26.0
31	5	1000.	700.	0.	6266.	700.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	6266.	6266.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES						MAX(V/C) = 1.00 LOWEST LOS = F			AVG = 36.			51.9			18.5	15.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4390. VEH-HRS	4411. PASS-HRS	8429. VEH-HRS	8471. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	255. VEH-HRS	274. PASS-HRS	371. VEH-HRS	399. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4645. VEH-HRS	4685. PASS-HRS	8799. VEH-HRS	8870. PASS-HRS
TOTAL TRAV DISTANCE =	156727. VEH-MI.	157743. PASS-MI.	332358. VEH-MI.	334407. PASS-MI.
AVERAGE SYSTEM SPEED =	34. MPH.		39. MPH.	
AVERAGE DENSITY =	52. VPMPL		44. VPMPL	
TOTAL FUEL =	8576. GALLONS		17638. GALLONS	
TOTAL EMISSIONS =	2397. KILOGRAMS		4858. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	186.81	3	125.99	4	41.40	5	66.33
6	134.45	7	45.86	8	64.11	9	63.66	10	154.93
11	45.41	12	43.63	13	80.14	14	61.06	15	46.73
16	20.71	17	24.84	18	51.12	19	43.14	20	4.19
21	4.30	22	4.30	23	30.09	24	58.29	25	49.52
26	35.19	27	32.16	28	38.38	29	409.56	30	12.18
31	0.00	32	0.00						

***** TOTAL DELAY = 1978.5 VEH-HRS ***** AVERAGE DELAY = 23.30 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	8.01	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.01	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	79.	55.00	10.34	19.64	1.22	6.37	0.34	7.93
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	79.	55.00	10.34	19.64	1.22	6.37	0.34	7.93
ON-RAMP	6	RAMP	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	1	1650.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda

20	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT TRUCKS	DES SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	25.34	26.17	26.77	27.44	28.84	0.00
3	0.00	0.00	0.00	0.00	0.00	3.27	0.00
4	0.00	0.00	0.00	0.00	0.00	2.50	0.00
5	0.00	0.00	0.00	0.00	0.00	1.93	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																			
2	1	99999.	1609.	0.	1609.	1609.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
3	1	2830.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
4	1	930.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
5	1	1490.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
6	1	3020.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
7	1	1030.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
8	1	1440.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
9	1	1430.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
10	1	3480.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
11	1	1020.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
12	1	980.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
13	1	1800.	0.	0.	1609.	0.	0.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
14	1	1500.	0.	181.	1609.	0.	181.	1609.	1650.	0.	0.	0.	.98	54.	29.7	D	24.6	11.1	
15	1	1300.	0.	0.	1429.	0.	0.	1429.	1650.	0.	0.	0.	.87	65.	22.0	C	20.0	13.7	
16	1	1000.	97.	0.	1526.	97.	0.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
17	1	1100.	0.	0.	1526.	0.	0.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
18	1	1000.	0.	219.	1526.	0.	219.	1526.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7	
19	1	900.	0.	0.	1307.	0.	0.	1307.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7	
20	1	100.	49.	0.	1355.	49.	0.	1355.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
21	1	100.	0.	0.	1355.	0.	0.	1355.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
22	1	100.	0.	0.	1355.	0.	0.	1355.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
23	1	700.	0.	0.	1355.	0.	0.	1355.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
24	1	1500.	0.	165.	1355.	0.	165.	1355.	1650.	0.	0.	0.	.82	65.	20.9	C	20.0	13.7	
25	1	800.	0.	0.	1190.	0.	0.	1190.	1650.	0.	0.	0.	.72	65.	18.3	C	20.0	13.7	
26	1	1000.	261.	0.	1451.	261.	0.	1451.	1650.	0.	0.	0.	.88	60.	24.1	C	22.6	12.2	
27	1	800.	0.	0.	1451.	0.	0.	1451.	1650.	0.	0.	0.	.88	60.	24.1	C	22.6	12.2	
28	1	1000.	0.	71.	1451.	0.	71.	1451.	1650.	0.	0.	0.	.88	60.	24.1	C	22.6	12.2	
29	1	8000.	0.	1380.	1380.	0.	1380.	1380.	1650.	0.	0.	0.	.84	65.	21.2	C	20.0	13.7	
30																			
31																			
32																			
TOTAL		140349. =	26.6 MILES							MAX(V/C) = 0.98		LOWEST LOS = D		AVG = 55.	28.7		24.1	11.4	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	762. VEH-HRS	1523. PASS-HRS	762. VEH-HRS	1523. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	762. VEH-HRS	1523. PASS-HRS	762. VEH-HRS	1523. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42022. VEH-MI.	84045. PASS-MI.	42022. VEH-MI.	84045. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		55. MPH.	
AVERAGE DENSITY =	29. VPMPL		29. VPMPL	
TOTAL FUEL =	1747. GALLONS		1747. GALLONS	
TOTAL EMISSIONS =	478. KILOGRAMS		478. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	92.99	3	2.63	4	0.86	5	1.39
6	2.81	7	0.96	8	1.34	9	1.33	10	3.24
11	0.95	12	0.91	13	1.67	14	1.39	15	0.00
16	0.56	17	0.61	18	0.56	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.34	27	0.27	28	0.34	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 115.1 VEH-HRS ***** AVERAGE DELAY = 4.30 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00

```
                          *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          *    *                                           *
                          ****************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1391.	0.	1391.	1391.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
3	1	2830.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
4	1	930.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
5	1	1490.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
6	1	3020.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
7	1	1030.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
8	1	1440.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
9	1	1430.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
10	1	3480.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
11	1	1020.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
12	1	980.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
13	1	1800.	0.	0.	1391.	0.	0.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
14	1	1500.	0.	165.	1391.	0.	165.	1391.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
15	1	1300.	0.	0.	1226.	0.	0.	1226.	1650.	0.	0.	0.	.74	65.	18.9	C	20.0	13.7
16	1	1000.	81.	0.	1306.	81.	0.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
17	1	1100.	0.	0.	1306.	0.	0.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
18	1	1000.	0.	254.	1306.	0.	254.	1306.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
19	1	900.	0.	0.	1052.	0.	0.	1052.	1650.	0.	0.	0.	.64	65.	16.2	B	20.0	13.7
20	1	100.	47.	0.	1099.	47.	0.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
21	1	100.	0.	0.	1099.	0.	0.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
22	1	100.	0.	0.	1099.	0.	0.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
23	1	700.	0.	0.	1099.	0.	0.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
24	1	1500.	0.	179.	1099.	0.	179.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
25	1	800.	0.	0.	920.	0.	0.	920.	1650.	0.	0.	0.	.56	65.	14.2	B	20.0	13.7
26	1	1000.	217.	0.	1137.	217.	0.	1137.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
27	1	800.	0.	0.	1137.	0.	0.	1137.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
28	1	1000.	0.	79.	1137.	0.	79.	1137.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
29	1	8000.	0.	1058.	1058.	0.	1058.	1058.	1650.	0.	0.	0.	.64	65.	16.3	B	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.84	LOWEST LOS = C			AVG = 65.		20.8		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	553. VEH-HRS	1107. PASS-HRS	1315. VEH-HRS	2630. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	553. VEH-HRS	1107. PASS-HRS	1315. VEH-HRS	2630. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	35976. VEH-MI.	71953. PASS-MI.	77999. VEH-MI.	155998. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		59. MPH.	
AVERAGE DENSITY =	21. VPMPL		25. VPMPL	
TOTAL FUEL =	1799. GALLONS		3546. GALLONS	
TOTAL EMISSIONS =	494. KILOGRAMS		973. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ   1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ         QQQQ   1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ         QQQQ   1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ   1111      2222      PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ    1111     222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7020.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	5500.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	21.28	22.06	22.27	22.65	23.29	27.79
2	0.00	0.00	0.55	0.76	1.14	1.79	6.28
3	0.00	0.00	0.00	0.05	0.44	1.08	5.58
4	0.00	0.00	0.00	0.00	0.00	0.50	5.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5522.	718.	5522.	5522.	718.	5522.	10000.	0.	0.	0.	.55	65.	21.2	C	19.2	14.0
2	3	99999.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
3	3	2830.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
4	3	930.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
5	3	1490.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
6	3	3020.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
7	3	1030.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
8	3	1440.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
9	3	1430.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
10	3	3480.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
11	3	1020.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
12	3	980.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
13	3	1800.	0.	0.	4804.	0.	0.	4804.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
14	3	1500.	0.	539.	4804.	0.	539.	4804.	6919.	0.	0.	0.	.69	65.	24.7	C	19.3	13.9
15	3	1300.	0.	0.	4265.	0.	0.	4265.	6000.	0.	0.	0.	.71	65.	21.9	C	19.2	14.0
16	3	1000.	338.	0.	4603.	240.	0.	4505.	5967.	0.	0.	0.	.75	64.	23.4	C	19.6	13.7
17	3	1100.	0.	0.	4603.	0.	0.	4505.	6000.	0.	0.	0.	.75	64.	23.4	C	19.5	13.7
18	4	1000.	0.	176.	4603.	0.	172.	4505.	6996.	0.	0.	0.	.64	65.	17.3	B	19.2	14.0
19	3	900.	0.	0.	4427.	0.	0.	4333.	6000.	0.	0.	0.	.72	65.	22.2	C	19.2	14.0
20	3	100.	210.	0.	4637.	210.	0.	4543.	5979.	0.	0.	0.	.76	64.	23.7	C	19.6	13.7
21	3	100.	0.	0.	4637.	0.	0.	4543.	6000.	0.	0.	0.	.76	64.	23.6	C	19.6	13.7
22	3	100.	0.	513.	4637.	0.	502.	4543.	5933.	0.	0.	0.	.77	64.	23.7	C	19.7	13.6
23	3	700.	0.	0.	4124.	0.	0.	4041.	6000.	0.	0.	0.	.67	65.	20.7	C	19.2	14.0
24	3	1500.	0.	629.	4124.	0.	615.	4041.	5918.	0.	0.	0.	.68	65.	20.7	C	19.2	14.0
25	3	800.	0.	0.	3495.	0.	0.	3426.	6000.	0.	0.	0.	.57	65.	17.6	B	19.2	14.0
26	3	1000.	1623.	0.	5118.	1273.	0.	4699.	5773.	0.	0.	0.	.81	63.	25.0	C	20.2	13.2
27	3	800.	0.	0.	5118.	0.	0.	4699.	6000.	0.	0.	0.	.78	64.	24.7	C	19.8	13.5
28	3	1000.	0.	296.	5118.	0.	270.	4699.	5975.	0.	0.	0.	.79	63.	24.7	C	19.9	13.5
29	3	8000.	0.	0.	4822.	0.	0.	4080.	6000.	0. *	4214.	349.	.68	25.	55.2	F	16.5	16.4
30	4	100.	720.	0.	5542.	720.	0.	4800.	8000.	0. **	100.	349.	.60	7.	181.4	F	9.5	26.7
31	4	1000.	800.	0.	6342.	700.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6342.	6342.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 60.		26.2		19.1	14.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2190. VEH-HRS	2201. PASS-HRS	2190. VEH-HRS	2201. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	274. VEH-HRS	281. PASS-HRS	274. VEH-HRS	281. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2464. VEH-HRS	2481. PASS-HRS	2464. VEH-HRS	2481. PASS-HRS
TOTAL TRAV DISTANCE =	130414. VEH-MI.	131017. PASS-MI.	130414. VEH-MI.	131017. PASS-MI.
AVERAGE SYSTEM SPEED =	53. MPH.		60. MPH.	
AVERAGE DENSITY =	26. VPMPL		26. VPMPL	
TOTAL FUEL =	6928. GALLONS		6928. GALLONS	
TOTAL EMISSIONS =	1874. KILOGRAMS		1874. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	3.23	3	0.09	4	0.03	5	0.05
6	0.10	7	0.03	8	0.05	9	0.05	10	0.11
11	0.03	12	0.03	13	0.06	14	0.06	15	0.00
16	0.18	17	0.19	18	0.00	19	0.00	20	0.02
21	0.02	22	0.02	23	0.00	24	0.00	25	0.00
26	0.50	27	0.25	28	0.33	29	165.55	30	12.36
31	0.00	32	0.00						

***** TOTAL DELAY = 183.3 VEH-HRS ***** AVERAGE DELAY = 2.66 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	98.	49.00	8.70	17.50	1.09	5.68	0.30	7.06
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	98.	49.00	8.70	17.50	1.09	5.68	0.30	7.06
ON-RAMP	4	RAMP	350.	175.00	5.68	62.49	3.88	20.27	1.08	25.23
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	350.	175.00	5.68	62.49	3.88	20.27	1.08	25.23
ON-RAMP	6	RAMP	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	21.38	22.16	22.37	22.80	25.19	40.77
2	0.00	0.00	0.55	0.76	1.19	3.58	19.16
3	0.00	0.00	0.00	0.05	0.49	2.87	18.45
4	0.00	0.00	0.00	0.00	0.00	1.93	17.50
5	0.00	0.00	0.00	0.00	0.00	0.00	0.89
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5821.	757.	5821.	5821.	757.	5821.	10000.	0.	0.	0.	.58	65.	22.4	C	19.2	14.0
2	3	99999.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
3	3	2830.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
4	3	930.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
5	3	1490.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
6	3	3020.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
7	3	1030.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
8	3	1440.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
9	3	1430.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
10	3	3480.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
11	3	1020.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
12	3	980.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
13	3	1800.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
14	3	1500.	0.	818.	5064.	0.	818.	5064.	6878.	0.	0.	0.	.74	64.	26.2	D	19.4	13.8
15	3	1300.	0.	0.	4246.	0.	0.	4246.	6000.	0.	0.	0.	.71	65.	21.8	C	19.2	14.0
16	3	1000.	387.	0.	4633.	385.	0.	4631.	5967.	0.	0.	0.	.78	64.	24.2	C	19.8	13.6
17	3	1100.	0.	0.	4633.	0.	0.	4631.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
18	4	1000.	0.	194.	4633.	0.	194.	4631.	6994.	0.	0.	0.	.66	65.	17.8	B	19.2	14.0
19	3	900.	0.	0.	4439.	0.	0.	4437.	6000.	0.	0.	0.	.74	64.	23.0	C	19.5	13.8
20	3	100.	194.	0.	4633.	194.	0.	4631.	5983.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
21	3	100.	0.	0.	4633.	0.	0.	4631.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
22	3	100.	0.	708.	4633.	0.	704.	4631.	5908.	0.	0.	0.	.78	64.	24.3	C	19.8	13.5
23	3	700.	0.	0.	3925.	0.	0.	3927.	6000.	0.	0.	0.	.65	65.	20.1	C	19.2	14.0
24	3	1500.	0.	859.	3925.	0.	855.	3114.	5888.	0. *	690.	813.	.53	55.	18.9	F	18.8	14.2
25	3	800.	0.	0.	3066.	0.	0.	2259.	6000.	0. **	800.	813.	.38	20.	38.1	F	16.7	15.7
26	3	1000.	1610.	0.	4676.	1277.	0.	3536.	5777.	0. **	1000.	813.	.61	22.	53.8	F	15.6	16.9
27	3	800.	0.	0.	4676.	0.	0.	3536.	6000.	0. **	800.	813.	.59	16.	72.2	F	14.3	18.2
28	3	1000.	0.	314.	4676.	0.	288.	3536.	5974.	0. **	1000.	813.	.59	13.	88.3	F	13.3	19.5
29	3	8000.	0.	0.	4362.	0.	0.	3248.	6000.	0. **	8000.	813.	.54	6.	174.9	F	9.4	26.3
30	4	100.	652.	0.	5014.	652.	0.	3900.	8000.	0. **	100.	813.	.49	5.	214.0	F	8.4	28.7
31	4	1000.	1600.	0.	6614.	1600.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6614.	6614.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES				MAX(V/C) = 1.00 LOWEST LOS = F AVG = 46.									35.1		18.5	14.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2953. VEH-HRS	2964. PASS-HRS	5142. VEH-HRS	5165. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	716. VEH-HRS	729. PASS-HRS	990. VEH-HRS	1009. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3668. VEH-HRS	3693. PASS-HRS	6132. VEH-HRS	6174. PASS-HRS
TOTAL TRAV DISTANCE =	134488. VEH-MI.	135091. PASS-MI.	264902. VEH-MI.	266108. PASS-MI.
AVERAGE SYSTEM SPEED =	37. MPH.		52. MPH.	
AVERAGE DENSITY =	35. VPMPL		31. VPMPL	
TOTAL FUEL =	7520. GALLONS		14448. GALLONS	
TOTAL EMISSIONS =	2039. KILOGRAMS		3912. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	10.46	3	0.30	4	0.10	5	0.16
6	0.32	7	0.11	8	0.15	9	0.15	10	0.36
11	0.11	12	0.10	13	0.19	14	0.21	15	0.00
16	0.28	17	0.28	18	0.00	19	0.12	20	0.03
21	0.03	22	0.03	23	0.00	24	3.11	25	15.77
26	23.72	27	28.15	28	44.73	29	739.63	30	15.07
31	0.00	32	0.00						

***** TOTAL DELAY = 883.6 VEH-HRS ***** AVERAGE DELAY = 16.17 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	99.00	12.25	35.35	2.19	11.47	0.61	14.27
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	99.00	12.25	35.35	2.19	11.47	0.61	14.27
ON-RAMP	4	RAMP	683.	516.50	14.20	184.43	11.44	59.84	3.17	74.45
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	683.	516.50	14.20	184.43	11.44	59.84	3.17	74.45
ON-RAMP	6	RAMP	100.	100.00	4.02	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	4.02	35.71	2.22	11.58	0.61	14.41

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS

	1	2	3	4	5	6	7
1	0.09	21.23	22.00	22.21	22.71	26.43	37.63
2	0.00	0.00	0.54	0.75	1.25	4.97	16.17
3	0.00	0.00	0.00	0.05	0.55	4.27	15.47
4	0.00	0.00	0.00	0.00	0.00	2.86	14.05
5	0.00	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5091.	662.	5091.	5091.	662.	5091.	10000.	0.	0.	0.	.51	65.	19.6	C	19.2	14.0
2	3	99999.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
3	3	2830.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
4	3	930.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
5	3	1490.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
6	3	3020.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
7	3	1030.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
8	3	1440.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
9	3	1430.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
10	3	3480.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
11	3	1020.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
12	3	980.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
13	3	1800.	0.	0.	4429.	0.	0.	4429.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
14	3	1500.	0.	644.	4429.	0.	644.	4429.	6904.	0.	0.	0.	.64	65.	22.7	C	19.2	14.0
15	3	1300.	0.	0.	3785.	0.	0.	3785.	6000.	0.	0.	0.	.63	65.	19.4	C	19.2	14.0
16	3	1000.	340.	0.	4125.	340.	0.	4125.	5970.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
17	3	1100.	0.	0.	4125.	0.	0.	4125.	6000.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
18	4	1000.	0.	150.	4125.	0.	150.	4125.	7000.	0.	0.	0.	.59	65.	15.9	B	19.2	14.0
19	3	900.	0.	0.	3975.	0.	0.	3975.	6000.	0.	0.	0.	.66	65.	20.4	C	19.2	14.0
20	3	100.	183.	0.	4158.	183.	0.	4158.	5983.	0.	0.	0.	.69	65.	21.3	C	19.2	14.0
21	3	100.	0.	0.	4158.	0.	0.	4158.	6000.	0.	0.	0.	.69	65.	21.3	C	19.2	14.0

*22	3	100.	0.	611.	4158.	0.	611.	4158.	5921.	0.	0.	0.	.70	65.	21.3	C	19.2	14.0	*	
* 23	3	700.	0.	0.	3547.	0.	0.	3547.	6000.	0.	0.	0.	.59	65.	18.2	C	19.2	14.0	*	
* 24	3	1500.	0.	735.	3547.	0.	735.	3547.	5905.	0.	0.	0.	.60	45.	26.2	D	18.3	14.7	*	
* 25	3	800.	0.	0.	2812.	0.	0.	2812.	6000.	0.	0.	0.	.47	11.	88.9	F	12.4	20.2	*	
* 26	3	1000.	1183.	0.	3995.	1333.	0.	4145.	5833.	0.	0.	0.	.71	14.	100.5	F	14.7	20.0	*	
* 27	3	800.	0.	0.	3995.	0.	0.	4402.	6000.	0.	*	218.	-257.	.73	10.	142.4	F	13.1	22.5	*
* 28	3	1000.	0.	203.	3995.	0.	219.	4402.	5982.	0.	**	1000.	-257.	.74	10.	148.6	F	13.0	22.9	*
* 29	3	8000.	0.	0.	3792.	0.	0.	4183.	6000.	0.	**	8000.	-257.	.70	9.	159.2	F	11.5	24.3	*
* 30	4	100.	567.	0.	4359.	567.	0.	4750.	8000.	0.	**	100.	-257.	.59	6.	186.2	F	9.3	27.1	*
* 31	4	1000.	750.	0.	5109.	750.	0.	5500.	5500.	0.		0.	0.	1.00	65.	21.2	E	19.2	14.0	*
* 32	4	2640.	0.	5109.	5109.	0.	5500.	5500.	8000.	0.		0.	0.	.69	65.	21.2	C	20.0	13.7	*
*																				*
*																				*
* TOTAL	144589. =	27.4 MILES							MAX(V/C) = 1.00			LOWEST LOS = F		AVG = 45.			32.7	18.4	14.7	*
*																				*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2710. VEH-HRS	2721. PASS-HRS	7852. VEH-HRS	7886. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	808. VEH-HRS	821. PASS-HRS	1798. VEH-HRS	1830. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3518. VEH-HRS	3542. PASS-HRS	9650. VEH-HRS	9716. PASS-HRS
TOTAL TRAV DISTANCE =	120666. VEH-MI.	121260. PASS-MI.	385568. VEH-MI.	387368. PASS-MI.
AVERAGE SYSTEM SPEED =	34. MPH.		49. MPH.	
AVERAGE DENSITY =	33. VPMPL		31. VPMPL	
TOTAL FUEL =	6864. GALLONS		21312. GALLONS	
TOTAL EMISSIONS =	1892. KILOGRAMS		5805. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.06	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	6.84	25	35.10
26	47.02	27	54.28	28	71.60	29	626.00	30	12.72
31	0.00	32	0.00						

***** TOTAL DELAY = 853.6 VEH-HRS ***** AVERAGE DELAY = 12.40 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	13.64	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	13.64	35.71	2.22	11.58	0.61	14.41
ON-RAMP	4	RAMP	533.	608.00	17.94	217.10	13.47	70.44	3.74	87.64
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	533.	608.00	17.94	217.10	13.47	70.44	3.74	87.64
ON-RAMP	6	RAMP	100.	100.00	7.97	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.97	35.71	2.22	11.58	0.61	14.41

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	1	1650.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
20	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	65	D	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																		
2	1	99999.	718.	0.	718.	718.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
3	1	2830.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
4	1	930.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
5	1	1490.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
6	1	3020.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
7	1	1030.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
8	1	1440.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
9	1	1430.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
10	1	3480.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
11	1	1020.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
12	1	980.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
13	1	1800.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
14	1	1500.	0.	81.	718.	0.	81.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
15	1	1300.	0.	0.	637.	0.	0.	637.	1650.	0.	0.	0.	.39	65.	9.8	A	20.0	13.7
16	1	1000.	33.	0.	670.	33.	0.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
17	1	1100.	0.	0.	670.	0.	0.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
18	1	1000.	0.	24.	670.	0.	24.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
19	1	900.	0.	0.	646.	0.	0.	646.	1650.	0.	0.	0.	.39	65.	9.9	A	20.0	13.7
20	1	100.	21.	0.	668.	21.	0.	668.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
21	1	100.	0.	0.	668.	0.	0.	668.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
22	1	100.	0.	67.	668.	0.	67.	668.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
23	1	700.	0.	0.	600.	0.	0.	600.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
24	1	1500.	0.	82.	600.	0.	82.	600.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
25	1	800.	0.	0.	518.	0.	0.	518.	1650.	0.	0.	0.	.31	65.	8.0	A	20.0	13.7
26	1	1000.	227.	0.	746.	227.	0.	746.	1650.	0.	0.	0.	.45	65.	11.5	B	20.0	13.7
27	1	800.	0.	0.	746.	0.	0.	746.	1650.	0.	0.	0.	.45	65.	11.5	B	20.0	13.7
28	1	1000.	0.	25.	746.	0.	25.	746.	1650.	0.	0.	0.	.45	65.	11.5	B	20.0	13.7
29	1	8000.	0.	720.	720.	0.	720.	720.	1650.	0.	0.	0.	.44	65.	11.1	B	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.45	LOWEST LOS = B		AVG = 65.	11.0				20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	292. VEH-HRS	583. PASS-HRS	292. VEH-HRS	583. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	292. VEH-HRS	583. PASS-HRS	292. VEH-HRS	583. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	18955. VEH-MI.	37910. PASS-MI.	18955. VEH-MI.	37910. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	11. VPMPL		11. VPMPL	
TOTAL FUEL =	948. GALLONS		948. GALLONS	
TOTAL EMISSIONS =	260. KILOGRAMS		260. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00

```
                                *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                      *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                      *
                                *    *                                                 *
                                **********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	757.	0.	757.	757.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
3	1	2830.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
4	1	930.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
5	1	1490.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
6	1	3020.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
7	1	1030.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
8	1	1440.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
9	1	1430.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
10	1	3480.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
11	1	1020.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
12	1	980.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
13	1	1800.	0.	0.	757.	0.	0.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
14	1	1500.	0.	122.	757.	0.	122.	757.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
15	1	1300.	0.	0.	635.	0.	0.	635.	1650.	0.	0.	0.	.38	65.	9.8	A	20.0	13.7
16	1	1000.	33.	0.	667.	33.	0.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
17	1	1100.	0.	0.	667.	0.	0.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
18	1	1000.	0.	26.	667.	0.	26.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
19	1	900.	0.	0.	641.	0.	0.	641.	1650.	0.	0.	0.	.39	65.	9.9	A	20.0	13.7
20	1	100.	17.	0.	658.	17.	0.	658.	1650.	0.	0.	0.	.40	65.	10.1	A	20.0	13.7
21	1	100.	0.	0.	658.	0.	0.	658.	1650.	0.	0.	0.	.40	65.	10.1	A	20.0	13.7
22	1	100.	0.	92.	658.	0.	92.	658.	1650.	0.	0.	0.	.40	65.	10.1	A	20.0	13.7
23	1	700.	0.	0.	566.	0.	0.	566.	1650.	0.	0.	0.	.34	65.	8.7	A	20.0	13.7
24	1	1500.	0.	112.	566.	0.	112.	566.	1650.	0.	0.	0.	.34	65.	8.7	A	20.0	13.7
25	1	800.	0.	0.	454.	0.	0.	454.	1650.	0.	0.	0.	.28	65.	7.0	A	20.0	13.7
26	1	1000.	223.	0.	678.	223.	0.	678.	1650.	0.	0.	0.	.41	65.	10.4	A	20.0	13.7
27	1	800.	0.	0.	678.	0.	0.	678.	1650.	0.	0.	0.	.41	65.	10.4	A	20.0	13.7
28	1	1000.	0.	26.	678.	0.	26.	678.	1650.	0.	0.	0.	.41	65.	10.4	A	20.0	13.7
29	1	8000.	0.	652.	652.	0.	652.	652.	1650.	0.	0.	0.	.40	65.	10.0	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES								MAX(V/C) = 0.46	LOWEST LOS = B			AVG = 65.	11.4		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	303. VEH-HRS	606. PASS-HRS	594. VEH-HRS	1189. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	303. VEH-HRS	606. PASS-HRS	594. VEH-HRS	1189. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	19680. VEH-MI.	39361. PASS-MI.	38636. VEH-MI.	77271. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	11. VPMPL		11. VPMPL	
TOTAL FUEL =	984. GALLONS		1932. GALLONS	
TOTAL EMISSIONS =	270. KILOGRAMS		531. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****


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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	662.	0.	662.	662.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
3	1	2830.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
4	1	930.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
5	1	1490.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
6	1	3020.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
7	1	1030.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
8	1	1440.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
9	1	1430.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
10	1	3480.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
11	1	1020.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
12	1	980.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
13	1	1800.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
14	1	1500.	0.	96.	662.	0.	96.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
15	1	1300.	0.	0.	565.	0.	0.	565.	1650.	0.	0.	0.	.34	65.	8.7	A	20.0	13.7
16	1	1000.	30.	0.	596.	30.	0.	596.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
17	1	1100.	0.	0.	596.	0.	0.	596.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
18	1	1000.	0.	20.	596.	0.	20.	596.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
19	1	900.	0.	0.	575.	0.	0.	575.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
20	1	100.	17.	0.	592.	17.	0.	592.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
21	1	100.	0.	0.	592.	0.	0.	592.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
22	1	100.	0.	79.	592.	0.	79.	592.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
23	1	700.	0.	0.	513.	0.	0.	513.	1650.	0.	0.	0.	.31	65.	7.9	A	20.0	13.7
24	1	1500.	0.	95.	513.	0.	95.	513.	1650.	0.	0.	0.	.31	65.	7.9	A	20.0	13.7
25	1	800.	0.	0.	417.	0.	0.	417.	1650.	0.	0.	0.	.25	65.	6.4	A	20.0	13.7
26	1	1000.	167.	0.	584.	167.	0.	584.	1650.	0.	0.	0.	.35	65.	9.0	A	20.0	13.7
27	1	800.	0.	0.	584.	0.	0.	584.	1650.	0.	0.	0.	.35	65.	9.0	A	20.0	13.7
28	1	1000.	0.	18.	584.	0.	18.	584.	1650.	0.	0.	0.	.35	65.	9.0	A	20.0	13.7
29	1	8000.	0.	567.	567.	0.	567.	567.	1650.	0.	0.	0.	.34	65.	8.7	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.40		LOWEST LOS = A		AVG = 65.		10.0		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	265. VEH-HRS	530. PASS-HRS	859. VEH-HRS	1719. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	265. VEH-HRS	530. PASS-HRS	859. VEH-HRS	1719. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	17224. VEH-MI.	34447. PASS-MI.	55859. VEH-MI.	111718. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	10. VPMPL		11. VPMPL	
TOTAL FUEL =	861. GALLONS		2793. GALLONS	
TOTAL EMISSIONS =	237. KILOGRAMS		768. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ   1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ   1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ   1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ   1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ    1111    222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222        PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222 PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT TRK	DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7020.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	5500.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	21.28	22.06	22.65	23.29	28.17
2	0.00	0.00	0.55	1.14	1.79	6.66
3	0.00	0.00	0.00	0.44	1.08	5.95
4	0.00	0.00	0.00	0.00	0.50	5.38
5	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	SPEED RATIO	DENSITY MPH	VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1	4	500.	5520.	718.	5520.	5520.	718.	5520.	10000.	0.	0.	0.	.55	65.	21.2	C	19.2	14.0
2	3	99999.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
3	3	2830.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
4	3	930.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
5	3	1490.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
6	3	3020.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
7	3	1030.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
8	3	1440.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
9	3	1430.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
10	3	3480.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
11	3	1020.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
12	3	980.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
13	3	1800.	0.	0.	4802.	0.	0.	4802.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
14	3	1500.	0.	539.	4802.	0.	539.	4802.	6919.	0.	0.	0.	.69	65.	24.7	C	19.3	13.9
15	3	1300.	0.	0.	4263.	0.	0.	4263.	6000.	0.	0.	0.	.71	65.	21.9	C	19.2	14.0
16	3	1000.	337.	0.	4600.	240.	0.	4503.	5967.	0.	0.	0.	.75	64.	23.4	C	19.6	13.7
17	3	1100.	0.	0.	4600.	0.	0.	4503.	6000.	0.	0.	0.	.75	64.	23.4	C	19.5	13.7
18	4	1000.	0.	686.	4600.	0.	670.	4503.	6926.	0.	0.	0.	.65	65.	17.3	B	19.2	14.0
19	3	900.	0.	0.	3914.	0.	0.	3833.	6000.	0.	0.	0.	.64	65.	19.7	C	19.2	14.0
20	3	100.	304.	0.	4218.	240.	0.	4073.	5964.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
21	3	100.	0.	0.	4218.	0.	0.	4073.	6000.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
22	3	100.	0.	0.	4218.	0.	0.	4073.	6000.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
23	3	700.	0.	0.	4218.	0.	0.	4073.	6000.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
24	3	1500.	0.	630.	4218.	0.	606.	4073.	5920.	0.	0.	0.	.69	65.	20.9	C	19.2	14.0
25	3	800.	0.	0.	3588.	0.	0.	3467.	6000.	0.	0.	0.	.58	65.	17.8	B	19.2	14.0
26	3	1000.	1587.	0.	5175.	1277.	0.	4744.	5777.	0.	0.	0.	.82	63.	25.3	C	20.3	13.2
27	3	800.	0.	0.	5175.	0.	0.	4744.	6000.	0.	0.	0.	.79	63.	25.0	C	19.9	13.5
28	3	1000.	0.	296.	5175.	0.	269.	4744.	5975.	0.	0.	0.	.79	63.	25.0	C	19.9	13.4
29	3	8000.	0.	0.	4879.	0.	0.	4071.	6000.	0. *	4886.	403.	.68	22.	60.7	F	16.1	16.8
30	4	100.	729.	0.	5608.	729.	0.	4800.	8000.	0. **	100.	403.	.60	7.	181.8	F	9.5	26.7
31	4	1000.	800.	0.	6408.	700.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6408.	6408.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. =	27.4 MILES						MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 59.		26.5			19.1	14.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2216. VEH-HRS	2227. PASS-HRS	2216. VEH-HRS	2227. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	286. VEH-HRS	292. PASS-HRS	286. VEH-HRS	292. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2502. VEH-HRS	2519. PASS-HRS	2502. VEH-HRS	2519. PASS-HRS
TOTAL TRAV DISTANCE =	130319. VEH-MI.	130922. PASS-MI.	130319. VEH-MI.	130922. PASS-MI.
AVERAGE SYSTEM SPEED =	52. MPH.		59. MPH.	
AVERAGE DENSITY =	26. VPMPL		26. VPMPL	
TOTAL FUEL =	6937. GALLONS		6937. GALLONS	
TOTAL EMISSIONS =	1877. KILOGRAMS		1877. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	3.20	3	0.09	4	0.03	5	0.05
6	0.10	7	0.03	8	0.05	9	0.05	10	0.11
11	0.03	12	0.03	13	0.06	14	0.06	15	0.00
16	0.18	17	0.19	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.55	27	0.28	28	0.37	29	193.44	30	12.39
31	0.00	32	0.00						

***** TOTAL DELAY = 211.3 VEH-HRS ***** AVERAGE DELAY = 3.07 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	97.	48.50	8.64	17.32	1.07	5.62	0.30	6.99
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	97.	48.50	8.64	17.32	1.07	5.62	0.30	6.99
ON-RAMP	3	RAMP	64.	32.00	6.32	11.43	0.71	3.71	0.20	4.61
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	64.	32.00	6.32	11.43	0.71	3.71	0.20	4.61
ON-RAMP	4	RAMP	310.	155.00	5.14	55.35	3.43	17.96	0.95	22.34
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	310.	155.00	5.14	55.35	3.43	17.96	0.95	22.34
ON-RAMP	6	RAMP	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	21.38	22.16	23.14	26.39	42.77
2	0.00	0.00	0.55	1.53	4.78	21.16
3	0.00	0.00	0.00	0.83	4.07	20.46
4	0.00	0.00	0.00	0.00	2.46	18.84
5	0.00	0.00	0.00	0.00	0.00	0.89
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5819.	756.	5819.	5819.	756.	5819.	10000.	0.	0.	0.	.58	65.	22.4	C	19.2	14.0
2	3	99999.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
3	3	2830.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
4	3	930.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
5	3	1490.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
6	3	3020.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
7	3	1030.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
8	3	1440.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
9	3	1430.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
10	3	3480.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
11	3	1020.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
12	3	980.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
13	3	1800.	0.	0.	5063.	0.	0.	5063.	7000.	0.	0.	0.	.72	65.	26.1	D	19.4	13.8
14	3	1500.	0.	818.	5063.	0.	818.	5063.	6878.	0.	0.	0.	.74	64.	26.2	D	19.4	13.8
15	3	1300.	0.	0.	4245.	0.	0.	4245.	6000.	0.	0.	0.	.71	65.	21.8	C	19.2	14.0
16	3	1000.	388.	0.	4633.	385.	0.	4630.	5967.	0.	0.	0.	.78	64.	24.2	C	19.8	13.6
17	3	1100.	0.	0.	4633.	0.	0.	4630.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
18	4	1000.	0.	898.	4633.	0.	894.	4630.	6898.	0.	0.	0.	.67	65.	17.8	B	19.2	14.0
19	3	900.	0.	0.	3735.	0.	0.	3736.	6000.	0.	0.	0.	.62	65.	19.2	C	19.2	14.0
20	3	100.	277.	0.	4012.	241.	0.	3977.	5970.	0.	0.	0.	.67	65.	20.4	C	19.2	14.0
21	3	100.	0.	0.	4012.	0.	0.	3977.	6000.	0.	0.	0.	.66	65.	20.4	C	19.2	14.0
22	3	100.	0.	0.	4012.	0.	0.	3977.	6000.	0.	0.	0.	.66	65.	20.4	C	19.2	14.0
23	3	700.	0.	0.	4012.	0.	0.	3096.	6000.	0. *	507.	881.	.52	54.	19.2	F	18.8	14.2
24	3	1500.	0.	862.	4012.	0.	846.	3096.	5892.	0. **	1500.	881.	.53	27.	37.8	F	16.7	15.7
25	3	800.	0.	0.	3150.	0.	0.	2250.	6000.	0. **	800.	881.	.37	12.	64.8	F	14.8	17.4
26	3	1000.	1575.	0.	4725.	1281.	0.	3531.	5781.	0. **	1000.	881.	.61	16.	73.1	F	14.4	18.2
27	3	800.	0.	0.	4725.	0.	0.	3531.	6000.	0. **	800.	881.	.59	13.	92.3	F	13.1	19.6
28	3	1000.	0.	315.	4725.	0.	290.	3531.	5975.	0. **	1000.	881.	.59	11.	107.8	F	12.3	20.9
29	3	8000.	0.	0.	4410.	0.	0.	3241.	6000.	0. **	8000.	881.	.54	6.	184.2	F	9.1	27.0
30	4	100.	659.	0.	5069.	659.	0.	3900.	8000.	0. **	100.	881.	.49	5.	214.0	F	8.4	28.7
31	4	1000.	1600.	0.	6669.	1600.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6669.	6669.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00 LOWEST LOS = F				AVG = 44.	36.3		18.4	14.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3055. VEH-HRS	3067. PASS-HRS	5271. VEH-HRS	5294. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	738. VEH-HRS	751. PASS-HRS	1023. VEH-HRS	1043. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3792. VEH-HRS	3817. PASS-HRS	6294. VEH-HRS	6336. PASS-HRS
TOTAL TRAV DISTANCE =	134187. VEH-MI.	134790. PASS-MI.	264506. VEH-MI.	265712. PASS-MI.

AVERAGE SYSTEM SPEED =	35. MPH.	50. MPH.
AVERAGE DENSITY =	36. VPMPL	31. VPMPL
TOTAL FUEL =	7549. GALLONS	14487. GALLONS
TOTAL EMISSIONS =	2046. KILOGRAMS	3923. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	10.42	3	0.29	4	0.10	5	0.16
6	0.31	7	0.11	8	0.15	9	0.15	10	0.36
11	0.11	12	0.10	13	0.19	14	0.21	15	0.00
16	0.27	17	0.28	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	1.67	24	23.26	25	30.94
26	35.92	27	38.01	28	56.19	29	776.13	30	15.07
31	0.00	32	0.00						

***** TOTAL DELAY = 990.4 VEH-HRS ***** AVERAGE DELAY = 18.28 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	98.50	12.19	35.17	2.18	11.41	0.61	14.20
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	98.50	12.19	35.17	2.18	11.41	0.61	14.20
ON-RAMP	3	RAMP	100.	82.00	14.43	29.28	1.82	9.50	0.50	11.82
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	82.00	14.43	29.28	1.82	9.50	0.50	11.82
ON-RAMP	4	RAMP	604.	457.00	13.03	163.19	10.12	52.94	2.81	65.87
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	604.	457.00	13.03	163.19	10.12	52.94	2.81	65.87
ON-RAMP	6	RAMP	100.	100.00	4.02	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	4.02	35.71	2.22	11.58	0.61	14.41

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	21.23	22.00	23.97	28.99	40.21
2	0.00	0.00	0.54	2.50	7.53	18.75
3	0.00	0.00	0.00	1.81	6.83	18.05
4	0.00	0.00	0.00	0.00	3.17	14.40
5	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5090.	662.	5090.	5090.	662.	5090.	10000.	0.	0.	0.	.51	65.	19.6	C	19.2	14.0
2	3	99999.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
3	3	2830.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0

* 4	3	930.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 5	3	1490.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 6	3	3020.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 7	3	1030.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 8	3	1440.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 9	3	1430.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 10	3	3480.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 11	3	1020.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 12	3	980.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 13	3	1800.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 14	3	1500.	0.	644.	4428.	0.	644.	4428.	6904.	0.	0.	0.	.64	65.	22.7	C	19.2	14.0	*
* 15	3	1300.	0.	0.	3784.	0.	0.	3784.	6000.	0.	0.	0.	.63	65.	19.4	C	19.2	14.0	*
* 16	3	1000.	339.	0.	4123.	339.	0.	4123.	5970.	0.	0.	0.	.69	65.	21.1	C	19.2	14.0	*
* 17	3	1100.	0.	0.	4123.	0.	0.	4123.	6000.	0.	0.	0.	.69	65.	21.1	C	19.2	14.0	*
* 18	4	1000.	0.	757.	4123.	0.	757.	4123.	6917.	0.	0.	0.	.60	65.	15.9	B	19.2	14.0	*
* 19	3	900.	0.	0.	3366.	0.	0.	3366.	6000.	0.	0.	0.	.56	65.	17.3	B	19.2	14.0	*
* 20	3	100.	252.	0.	3618.	252.	0.	3618.	5972.	0.	0.	0.	.61	65.	18.6	C	19.2	14.0	*
* 21	3	100.	0.	0.	3618.	0.	0.	3618.	6000.	0.	0.	0.	.60	65.	18.6	C	19.2	14.0	*
* 22	3	100.	0.	0.	3618.	0.	0.	3618.	6000.	0.	0.	0.	.60	65.	18.6	C	19.2	14.0	*
* 23	3	700.	0.	0.	3618.	0.	0.	3618.	6000.	0.	0.	0.	.60	37.	32.8	D	17.6	15.2	*
* 24	3	1500.	0.	737.	3618.	0.	737.	3618.	5907.	0.	0.	0.	.61	11.	108.7	F	12.4	21.4	*
* 25	3	800.	0.	0.	2881.	0.	0.	3061.	6000.	0. *	760.	-179.	.51	5.	208.0	F	8.4	28.7	*
* 26	3	1000.	1157.	0.	4038.	1337.	0.	4398.	5837.	0. **	1000.	-179.	.75	10.	140.5	F	13.4	22.5	*
* 27	3	800.	0.	0.	4038.	0.	0.	4398.	6000.	0. **	800.	-179.	.73	10.	149.8	F	12.8	23.1	*
* 28	3	1000.	0.	202.	4038.	0.	221.	4398.	5982.	0. **	1000.	-179.	.74	10.	148.8	F	12.9	23.0	*
* 29	3	8000.	0.	0.	3836.	0.	0.	4177.	6000.	0. **	8000.	-179.	.70	9.	159.4	F	11.5	24.3	*
* 30	4	100.	573.	0.	4409.	573.	0.	4750.	8000.	0. **	100.	-179.	.59	6.	186.2	F	9.3	27.1	*
* 31	4	1000.	750.	0.	5159.	750.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0	*
* 32	4	2640.	0.	5159.	5159.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7	*
*																			*
*																			*
* TOTAL	144589. =	27.4 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 42.		34.6		18.2	14.8	*
*																			*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2864. VEH-HRS	2876. PASS-HRS	8135. VEH-HRS	8170. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	814. VEH-HRS	827. PASS-HRS	1837. VEH-HRS	1870. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3678. VEH-HRS	3703. PASS-HRS	9972. VEH-HRS	10039. PASS-HRS
TOTAL TRAV DISTANCE =	120593. VEH-MI.	121188. PASS-MI.	385099. VEH-MI.	386900. PASS-MI.
AVERAGE SYSTEM SPEED =	33. MPH.		47. MPH.	
AVERAGE DENSITY =	35. VPMPL		32. VPMPL	
TOTAL FUEL =	6919. GALLONS		21405. GALLONS	
TOTAL EMISSIONS =	1906. KILOGRAMS		5829. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.06	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	5.70	24	79.16	25	87.39
26	67.04	27	57.85	28	71.73	29	627.33	30	12.72
31	0.00	32	0.00						

***** TOTAL DELAY = 1009.0 VEH-HRS ***** AVERAGE DELAY = 14.98 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	13.67	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	13.67	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	100.	100.00	17.05	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	17.05	35.71	2.22	11.58	0.61	14.41
ON-RAMP	4	RAMP	424.	514.00	16.03	183.54	11.39	59.55	3.16	74.09
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	424.	514.00	16.03	183.54	11.39	59.55	3.16	74.09
ON-RAMP	6	RAMP	100.	100.00	7.97	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.97	35.71	2.22	11.58	0.61	14.41

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	1	1650.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
20	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	65	D	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																		
2	1	99999.	718.	0.	718.	718.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
3	1	2830.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
4	1	930.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
5	1	1490.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
6	1	3020.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
7	1	1030.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
8	1	1440.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
9	1	1430.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
10	1	3480.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
11	1	1020.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
12	1	980.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
13	1	1800.	0.	0.	718.	0.	0.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
14	1	1500.	0.	81.	718.	0.	81.	718.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
15	1	1300.	0.	0.	637.	0.	0.	637.	1650.	0.	0.	0.	.39	65.	9.8	A	20.0	13.7
16	1	1000.	33.	0.	670.	33.	0.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
17	1	1100.	0.	0.	670.	0.	0.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
18	1	1000.	0.	94.	670.	0.	94.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
19	1	900.	0.	0.	576.	0.	0.	576.	1650.	0.	0.	0.	.35	65.	8.9	A	20.0	13.7
20	1	100.	36.	0.	611.	36.	0.	611.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
21	1	100.	0.	0.	611.	0.	0.	611.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
22	1	100.	0.	0.	611.	0.	0.	611.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
23	1	700.	0.	0.	611.	0.	0.	611.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
24	1	1500.	0.	80.	611.	0.	80.	611.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
25	1	800.	0.	0.	532.	0.	0.	532.	1650.	0.	0.	0.	.32	65.	8.2	A	20.0	13.7
26	1	1000.	223.	0.	754.	223.	0.	754.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
27	1	800.	0.	0.	754.	0.	0.	754.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
28	1	1000.	0.	25.	754.	0.	25.	754.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
29	1	8000.	0.	729.	729.	0.	729.	729.	1650.	0.	0.	0.	.44	65.	11.2	B	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.46	LOWEST LOS = B		AVG = 65.		11.0			20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	292. VEH-HRS	583. PASS-HRS	292. VEH-HRS	583. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	292. VEH-HRS	583. PASS-HRS	292. VEH-HRS	583. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	18961. VEH-MI.	37922. PASS-MI.	18961. VEH-MI.	37922. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	11. VPMPL		11. VPMPL	
TOTAL FUEL =	948. GALLONS		948. GALLONS	
TOTAL EMISSIONS =	261. KILOGRAMS		261. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00

```
                                *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                                *    *                                            *
                                **********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	756.	0.	756.	756.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
3	1	2830.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
4	1	930.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
5	1	1490.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
6	1	3020.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
7	1	1030.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
8	1	1440.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
9	1	1430.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
10	1	3480.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
11	1	1020.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
12	1	980.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
13	1	1800.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
14	1	1500.	0.	122.	756.	0.	122.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
15	1	1300.	0.	0.	634.	0.	0.	634.	1650.	0.	0.	0.	.38	65.	9.8	A	20.0	13.7
16	1	1000.	33.	0.	667.	33.	0.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
17	1	1100.	0.	0.	667.	0.	0.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
18	1	1000.	0.	122.	667.	0.	122.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
19	1	900.	0.	0.	545.	0.	0.	545.	1650.	0.	0.	0.	.33	65.	8.4	A	20.0	13.7
20	1	100.	30.	0.	574.	30.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
21	1	100.	0.	0.	574.	0.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
22	1	100.	0.	0.	574.	0.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
23	1	700.	0.	0.	574.	0.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
24	1	1500.	0.	108.	574.	0.	108.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
25	1	800.	0.	0.	466.	0.	0.	466.	1650.	0.	0.	0.	.28	65.	7.2	A	20.0	13.7
26	1	1000.	219.	0.	685.	219.	0.	685.	1650.	0.	0.	0.	.41	65.	10.5	A	20.0	13.7
27	1	800.	0.	0.	685.	0.	0.	685.	1650.	0.	0.	0.	.41	65.	10.5	A	20.0	13.7
28	1	1000.	0.	25.	685.	0.	25.	685.	1650.	0.	0.	0.	.41	65.	10.5	A	20.0	13.7
29	1	8000.	0.	659.	659.	0.	659.	659.	1650.	0.	0.	0.	.40	65.	10.1	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES								MAX(V/C) = 0.46	LOWEST LOS = B			AVG = 65.	11.4		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	303. VEH-HRS	605. PASS-HRS	594. VEH-HRS	1189. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	303. VEH-HRS	605. PASS-HRS	594. VEH-HRS	1189. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	19673. VEH-MI.	39347. PASS-MI.	38635. VEH-MI.	77269. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	11. VPMPL		11. VPMPL	
TOTAL FUEL =	984. GALLONS		1932. GALLONS	
TOTAL EMISSIONS =	270. KILOGRAMS		531. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****


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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	662.	0.	662.	662.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
3	1	2830.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
4	1	930.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
5	1	1490.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
6	1	3020.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
7	1	1030.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
8	1	1440.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
9	1	1430.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
10	1	3480.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
11	1	1020.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
12	1	980.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
13	1	1800.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
14	1	1500.	0.	96.	662.	0.	96.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
15	1	1300.	0.	0.	565.	0.	0.	565.	1650.	0.	0.	0.	.34	65.	8.7	A	20.0	13.7
16	1	1000.	30.	0.	595.	30.	0.	595.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
17	1	1100.	0.	0.	595.	0.	0.	595.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
18	1	1000.	0.	103.	595.	0.	103.	595.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
19	1	900.	0.	0.	492.	0.	0.	492.	1650.	0.	0.	0.	.30	65.	7.6	A	20.0	13.7
20	1	100.	28.	0.	520.	28.	0.	520.	1650.	0.	0.	0.	.32	65.	8.0	A	20.0	13.7
21	1	100.	0.	0.	520.	0.	0.	520.	1650.	0.	0.	0.	.32	65.	8.0	A	20.0	13.7
22	1	100.	0.	0.	520.	0.	0.	520.	1650.	0.	0.	0.	.32	65.	8.0	A	20.0	13.7
23	1	700.	0.	0.	520.	0.	0.	520.	1650.	0.	0.	0.	.32	65.	8.0	A	20.0	13.7
24	1	1500.	0.	93.	520.	0.	93.	520.	1650.	0.	0.	0.	.32	65.	8.0	A	20.0	13.7
25	1	800.	0.	0.	427.	0.	0.	427.	1650.	0.	0.	0.	.26	65.	6.6	A	20.0	13.7
26	1	1000.	163.	0.	591.	163.	0.	591.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
27	1	800.	0.	0.	591.	0.	0.	591.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
28	1	1000.	0.	18.	591.	0.	18.	591.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
29	1	8000.	0.	573.	573.	0.	573.	573.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES						MAX(V/C) = 0.40		LOWEST LOS = A			AVG = 65.	10.0			20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	265. VEH-HRS	530. PASS-HRS	859. VEH-HRS	1719. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	265. VEH-HRS	530. PASS-HRS	859. VEH-HRS	1719. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	17223. VEH-MI.	34446. PASS-MI.	55858. VEH-MI.	111715. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	10. VPMPL		11. VPMPL	
TOTAL FUEL =	861. GALLONS		2793. GALLONS	
TOTAL EMISSIONS =	237. KILOGRAMS		767. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ   1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ   1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ   1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ   1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ    1111    222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111 2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

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FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7020.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	5500.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	21.28	22.05	22.65	23.29	28.14
2	0.00	0.00	0.55	1.14	1.79	6.64
3	0.00	0.00	0.00	0.44	1.08	5.93
4	0.00	0.00	0.00	0.00	0.50	5.36
5	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	SPEED RATIO	DENSITY MPH	VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1	4	500.	5518.	717.	5518.	5518.	717.	5518.	10000.	0.	0.	0.	.55	65.	21.2	C	19.2	14.0
2	3	99999.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
3	3	2830.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
4	3	930.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
5	3	1490.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
6	3	3020.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
7	3	1030.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
8	3	1440.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
9	3	1430.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
10	3	3480.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
11	3	1020.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
12	3	980.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
13	3	1800.	0.	0.	4801.	0.	0.	4801.	7000.	0.	0.	0.	.69	65.	24.7	C	19.2	13.9
14	3	1500.	0.	539.	4801.	0.	539.	4801.	6919.	0.	0.	0.	.69	65.	24.7	C	19.3	13.9
15	3	1300.	0.	0.	4262.	0.	0.	4262.	6000.	0.	0.	0.	.71	65.	21.9	C	19.2	14.0
16	3	1000.	337.	0.	4599.	240.	0.	4502.	5967.	0.	0.	0.	.75	64.	23.4	C	19.6	13.7
17	3	1100.	0.	0.	4599.	0.	0.	4502.	6000.	0.	0.	0.	.75	64.	23.4	C	19.5	13.7
18	4	1000.	0.	686.	4599.	0.	670.	4502.	6926.	0.	0.	0.	.65	65.	17.3	B	19.2	14.0
19	3	900.	0.	0.	3913.	0.	0.	3832.	6000.	0.	0.	0.	.64	65.	19.7	C	19.2	14.0
20	3	100.	295.	0.	4208.	240.	0.	4072.	5965.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
21	3	100.	0.	0.	4208.	0.	0.	4072.	6000.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
22	3	100.	0.	0.	4208.	0.	0.	4072.	6000.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
23	3	700.	0.	0.	4208.	0.	0.	4072.	6000.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
24	3	1500.	0.	630.	4208.	0.	608.	4072.	5920.	0.	0.	0.	.69	65.	20.9	C	19.2	14.0
25	3	800.	0.	0.	3578.	0.	0.	3464.	6000.	0.	0.	0.	.58	65.	17.8	B	19.2	14.0
26	3	1000.	1587.	0.	5165.	1277.	0.	4741.	5777.	0.	0.	0.	.82	63.	25.3	C	20.3	13.2
27	3	800.	0.	0.	5165.	0.	0.	4741.	6000.	0.	0.	0.	.79	63.	24.9	C	19.9	13.5
28	3	1000.	0.	295.	5165.	0.	269.	4741.	5975.	0.	0.	0.	.79	63.	25.0	C	19.9	13.4
29	3	8000.	0.	0.	4870.	0.	0.	4072.	6000.	0. *	4850.	400.	.68	22.	60.4	F	16.1	16.8
30	4	100.	728.	0.	5598.	728.	0.	4800.	8000.	0. **	100.	400.	.60	7.	181.8	F	9.5	26.7
31	4	1000.	800.	0.	6398.	700.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6398.	6398.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. =	27.4 MILES						MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 59.		26.4			19.1	14.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2214. VEH-HRS	2225. PASS-HRS	2214. VEH-HRS	2225. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	281. VEH-HRS	288. PASS-HRS	281. VEH-HRS	288. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2495. VEH-HRS	2513. PASS-HRS	2495. VEH-HRS	2513. PASS-HRS
TOTAL TRAV DISTANCE =	130293. VEH-MI.	130896. PASS-MI.	130293. VEH-MI.	130896. PASS-MI.
AVERAGE SYSTEM SPEED =	52. MPH.		59. MPH.	
AVERAGE DENSITY =	26. VPMPL		26. VPMPL	
TOTAL FUEL =	6934. GALLONS		6934. GALLONS	
TOTAL EMISSIONS =	1875. KILOGRAMS		1875. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	3.18	3	0.09	4	0.03	5	0.05
6	0.10	7	0.03	8	0.05	9	0.05	10	0.11
11	0.03	12	0.03	13	0.06	14	0.06	15	0.00
16	0.18	17	0.18	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.55	27	0.28	28	0.37	29	191.91	30	12.39
31	0.00	32	0.00						

***** TOTAL DELAY = 209.7 VEH-HRS ***** AVERAGE DELAY = 3.05 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	97.	48.50	8.64	17.32	1.07	5.62	0.30	6.99
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	97.	48.50	8.64	17.32	1.07	5.62	0.30	6.99
ON-RAMP	3	RAMP	55.	27.50	5.59	9.82	0.61	3.19	0.17	3.96
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	55.	27.50	5.59	9.82	0.61	3.19	0.17	3.96
ON-RAMP	4	RAMP	310.	155.00	5.14	55.35	3.43	17.96	0.95	22.34
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	310.	155.00	5.14	55.35	3.43	17.96	0.95	22.34
ON-RAMP	6	RAMP	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	21.38	22.16	23.12	26.34	42.69
2	0.00	0.00	0.55	1.51	4.73	21.08
3	0.00	0.00	0.00	0.81	4.02	20.37
4	0.00	0.00	0.00	0.00	2.44	18.79
5	0.00	0.00	0.00	0.00	0.00	0.89
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5820.	756.	5820.	5820.	756.	5820.	10000.	0.	0.	0.	.58	65.	22.4	C	19.2	14.0
2	3	99999.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
3	3	2830.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
4	3	930.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
5	3	1490.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
6	3	3020.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
7	3	1030.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
8	3	1440.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
9	3	1430.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
10	3	3480.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
11	3	1020.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
12	3	980.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
13	3	1800.	0.	0.	5064.	0.	0.	5064.	7000.	0.	0.	0.	.72	65.	26.2	D	19.4	13.8
14	3	1500.	0.	818.	5064.	0.	818.	5064.	6878.	0.	0.	0.	.74	64.	26.2	D	19.4	13.8
15	3	1300.	0.	0.	4246.	0.	0.	4246.	6000.	0.	0.	0.	.71	65.	21.8	C	19.2	14.0
16	3	1000.	388.	0.	4634.	385.	0.	4631.	5967.	0.	0.	0.	.78	64.	24.2	C	19.8	13.6
17	3	1100.	0.	0.	4634.	0.	0.	4631.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
18	4	1000.	0.	898.	4634.	0.	894.	4631.	6898.	0.	0.	0.	.67	65.	17.8	B	19.2	14.0
19	3	900.	0.	0.	3736.	0.	0.	3737.	6000.	0.	0.	0.	.62	65.	19.2	C	19.2	14.0
20	3	100.	274.	0.	4010.	240.	0.	3977.	5971.	0.	0.	0.	.67	65.	20.4	C	19.2	14.0
21	3	100.	0.	0.	4010.	0.	0.	3977.	6000.	0.	0.	0.	.66	65.	20.4	C	19.2	14.0
22	3	100.	0.	0.	4010.	0.	0.	3977.	6000.	0.	0.	0.	.66	65.	20.4	C	19.2	14.0
23	3	700.	0.	0.	4010.	0.	0.	3097.	6000.	0. *	463.	880.	.52	55.	18.6	F	18.8	14.2
24	3	1500.	0.	862.	4010.	0.	847.	3097.	5892.	0. **	1500.	880.	.53	28.	37.1	F	16.8	15.7
25	3	800.	0.	0.	3148.	0.	0.	2250.	6000.	0. **	800.	880.	.37	12.	63.9	F	14.9	17.3
26	3	1000.	1575.	0.	4723.	1281.	0.	3531.	5781.	0. **	1000.	880.	.61	16.	72.4	F	14.4	18.1
27	3	800.	0.	0.	4723.	0.	0.	3531.	6000.	0. **	800.	880.	.59	13.	91.5	F	13.2	19.6
28	3	1000.	0.	315.	4723.	0.	290.	3531.	5975.	0. **	1000.	880.	.59	11.	107.0	F	12.3	20.8
29	3	8000.	0.	0.	4408.	0.	0.	3241.	6000.	0. **	8000.	880.	.54	6.	183.8	F	9.1	26.9
30	4	100.	659.	0.	5067.	659.	0.	3900.	8000.	0. **	100.	880.	.49	5.	214.0	F	8.4	28.7
31	4	1000.	1600.	0.	6667.	1600.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6667.	6667.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00 LOWEST LOS = F				AVG = 44.	36.2		18.4	14.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3051. VEH-HRS	3063. PASS-HRS	5265. VEH-HRS	5288. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	728. VEH-HRS	741. PASS-HRS	1009. VEH-HRS	1028. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3779. VEH-HRS	3803. PASS-HRS	6274. VEH-HRS	6316. PASS-HRS
TOTAL TRAV DISTANCE =	134217. VEH-MI.	134820. PASS-MI.	264510. VEH-MI.	265716. PASS-MI.

AVERAGE SYSTEM SPEED =	36. MPH.	50. MPH.
AVERAGE DENSITY =	36. VPMPL	31. VPMPL
TOTAL FUEL =	7545. GALLONS	14479. GALLONS
TOTAL EMISSIONS =	2045. KILOGRAMS	3920. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	10.46	3	0.30	4	0.10	5	0.16
6	0.32	7	0.11	8	0.15	9	0.15	10	0.36
11	0.11	12	0.10	13	0.19	14	0.21	15	0.00
16	0.28	17	0.28	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	1.40	24	22.45	25	30.41
26	35.49	27	37.64	28	55.75	29	774.71	30	15.07
31	0.00	32	0.00						

***** TOTAL DELAY = 986.2 VEH-HRS ***** AVERAGE DELAY = 18.19 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	98.50	12.19	35.17	2.18	11.41	0.61	14.20
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	98.50	12.19	35.17	2.18	11.41	0.61	14.20
ON-RAMP	3	RAMP	89.	72.00	13.13	25.71	1.59	8.34	0.44	10.38
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	89.	72.00	13.13	25.71	1.59	8.34	0.44	10.38
ON-RAMP	4	RAMP	604.	457.00	13.03	163.19	10.12	52.94	2.81	65.87
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	604.	457.00	13.03	163.19	10.12	52.94	2.81	65.87
ON-RAMP	6	RAMP	100.	100.00	4.02	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	4.02	35.71	2.22	11.58	0.61	14.41

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS

	1	2	3	4	5	6
1	0.09	21.23	22.00	23.83	28.84	40.06
2	0.00	0.00	0.54	2.37	7.38	18.60
3	0.00	0.00	0.00	1.67	6.68	17.90
4	0.00	0.00	0.00	0.00	3.17	14.39
5	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5090.	662.	5090.	5090.	662.	5090.	10000.	0.	0.	0.	.51	65.	19.6	C	19.2	14.0
2	3	99999.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0
3	3	2830.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0

* 4	3	930.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 5	3	1490.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 6	3	3020.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 7	3	1030.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 8	3	1440.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 9	3	1430.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 10	3	3480.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 11	3	1020.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 12	3	980.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 13	3	1800.	0.	0.	4428.	0.	0.	4428.	7000.	0.	0.	0.	.63	65.	22.7	C	19.2	14.0	*
* 14	3	1500.	0.	644.	4428.	0.	644.	4428.	6904.	0.	0.	0.	.64	65.	22.7	C	19.2	14.0	*
* 15	3	1300.	0.	0.	3784.	0.	0.	3784.	6000.	0.	0.	0.	.63	65.	19.4	C	19.2	14.0	*
* 16	3	1000.	340.	0.	4124.	340.	0.	4124.	5970.	0.	0.	0.	.69	65.	21.1	C	19.2	14.0	*
* 17	3	1100.	0.	0.	4124.	0.	0.	4124.	6000.	0.	0.	0.	.69	65.	21.1	C	19.2	14.0	*
* 18	4	1000.	0.	757.	4124.	0.	757.	4124.	6917.	0.	0.	0.	.60	65.	15.9	B	19.2	14.0	*
* 19	3	900.	0.	0.	3367.	0.	0.	3367.	6000.	0.	0.	0.	.56	65.	17.3	B	19.2	14.0	*
* 20	3	100.	242.	0.	3609.	240.	0.	3607.	5973.	0.	0.	0.	.60	65.	18.5	C	19.2	14.0	*
* 21	3	100.	0.	0.	3609.	0.	0.	3607.	6000.	0.	0.	0.	.60	65.	18.5	C	19.2	14.0	*
* 22	3	100.	0.	0.	3609.	0.	0.	3607.	6000.	0.	0.	0.	.60	65.	18.5	C	19.2	14.0	*
* 23	3	700.	0.	0.	3609.	0.	0.	3607.	6000.	0.	0.	0.	.60	40.	29.7	D	17.9	14.9	*
* 24	3	1500.	0.	737.	3609.	0.	736.	3607.	5907.	0.	0.	0.	.61	12.	100.3	F	12.8	20.7	*
* 25	3	800.	0.	0.	2872.	0.	0.	3061.	6000.	0. *	621.	-191.	.51	5.	206.0	F	8.5	28.5	*
* 26	3	1000.	1157.	0.	4029.	1337.	0.	4398.	5837.	0. **	1000.	-191.	.75	10.	140.5	F	13.4	22.5	*
* 27	3	800.	0.	0.	4029.	0.	0.	4398.	6000.	0. **	800.	-191.	.73	10.	149.8	F	12.9	23.0	*
* 28	3	1000.	0.	202.	4029.	0.	220.	4398.	5982.	0. **	1000.	-191.	.74	10.	148.8	F	12.9	23.0	*
* 29	3	8000.	0.	0.	3827.	0.	0.	4178.	6000.	0. **	8000.	-191.	.70	9.	159.4	F	11.5	24.3	*
* 30	4	100.	572.	0.	4399.	572.	0.	4750.	8000.	0. **	100.	-191.	.59	6.	186.2	F	9.3	27.1	*
* 31	4	1000.	750.	0.	5149.	750.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0	*
* 32	4	2640.	0.	5149.	5149.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7	*
*																			*
*																			*
* TOTAL	144589. =	27.4 MILES						MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 42.		34.4			18.2	14.8	*
*																			*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2854. VEH-HRS	2866. PASS-HRS	8120. VEH-HRS	8154. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	804. VEH-HRS	817. PASS-HRS	1813. VEH-HRS	1845. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3658. VEH-HRS	3683. PASS-HRS	9932. VEH-HRS	9999. PASS-HRS
TOTAL TRAV DISTANCE =	120589. VEH-MI.	121184. PASS-MI.	385099. VEH-MI.	386900. PASS-MI.
AVERAGE SYSTEM SPEED =	33. MPH.		47. MPH.	
AVERAGE DENSITY =	34. VPMPL		32. VPMPL	
TOTAL FUEL =	6911. GALLONS		21391. GALLONS	
TOTAL EMISSIONS =	1904. KILOGRAMS		5824. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.06	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	4.48	24	71.80	25	86.42
26	67.02	27	57.83	28	71.71	29	627.11	30	12.72
31	0.00	32	0.00						

***** TOTAL DELAY = 999.2 VEH-HRS ***** AVERAGE DELAY = 14.81 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	13.64	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	13.64	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	91.	90.00	16.31	32.14	1.99	10.43	0.55	12.97
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	91.	90.00	16.31	32.14	1.99	10.43	0.55	12.97
ON-RAMP	4	RAMP	424.	514.00	16.03	183.54	11.39	59.55	3.16	74.09
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	424.	514.00	16.03	183.54	11.39	59.55	3.16	74.09
ON-RAMP	6	RAMP	100.	100.00	7.97	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.97	35.71	2.22	11.58	0.61	14.41

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2830.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	1	1650.	930.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	1	1650.	1490.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	1	1650.	3020.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	1	1650.	1030.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	1	1650.	1440.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	1	1650.	1430.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	1	1650.	3480.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	1	1650.	1020.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	1	1650.	980.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	1	1650.	1800.	65		0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	1	1650.	1500.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1300.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	1	1650.	1000.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	1	1650.	1100.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	1	1650.	1000.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	1	1650.	900.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda

20	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	1	1650.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	1	1650.	1500.	65	D	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	1	1650.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	1	1650.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	1	1650.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	1	1650.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																		
2	1	99999.	717.	0.	717.	717.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
3	1	2830.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
4	1	930.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
5	1	1490.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
6	1	3020.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
7	1	1030.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
8	1	1440.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
9	1	1430.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
10	1	3480.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
11	1	1020.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
12	1	980.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
13	1	1800.	0.	0.	717.	0.	0.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
14	1	1500.	0.	81.	717.	0.	81.	717.	1650.	0.	0.	0.	.43	65.	11.0	B	20.0	13.7
15	1	1300.	0.	0.	637.	0.	0.	637.	1650.	0.	0.	0.	.39	65.	9.8	A	20.0	13.7
16	1	1000.	33.	0.	670.	33.	0.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
17	1	1100.	0.	0.	670.	0.	0.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
18	1	1000.	0.	94.	670.	0.	94.	670.	1650.	0.	0.	0.	.41	65.	10.3	A	20.0	13.7
19	1	900.	0.	0.	576.	0.	0.	576.	1650.	0.	0.	0.	.35	65.	8.9	A	20.0	13.7
20	1	100.	35.	0.	610.	35.	0.	610.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
21	1	100.	0.	0.	610.	0.	0.	610.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
22	1	100.	0.	0.	610.	0.	0.	610.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
23	1	700.	0.	0.	610.	0.	0.	610.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
24	1	1500.	0.	80.	610.	0.	80.	610.	1650.	0.	0.	0.	.37	65.	9.4	A	20.0	13.7
25	1	800.	0.	0.	530.	0.	0.	530.	1650.	0.	0.	0.	.32	65.	8.2	A	20.0	13.7
26	1	1000.	223.	0.	753.	223.	0.	753.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
27	1	800.	0.	0.	753.	0.	0.	753.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
28	1	1000.	0.	25.	753.	0.	25.	753.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
29	1	8000.	0.	728.	728.	0.	728.	728.	1650.	0.	0.	0.	.44	65.	11.2	B	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. =	26.6 MILES						MAX(V/C) = 0.46		LOWEST LOS = B		AVG = 65.		11.0		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	292. VEH-HRS	583. PASS-HRS	292. VEH-HRS	583. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	292. VEH-HRS	583. PASS-HRS	292. VEH-HRS	583. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	18955. VEH-MI.	37909. PASS-MI.	18955. VEH-MI.	37909. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	11. VPMPL		11. VPMPL	
TOTAL FUEL =	948. GALLONS		948. GALLONS	
TOTAL EMISSIONS =	260. KILOGRAMS		260. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00

```
                                *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                                 *
                                *    *                                            *
                                **********************************************************************
```


TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	756.	0.	756.	756.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
3	1	2830.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
4	1	930.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
5	1	1490.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
6	1	3020.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
7	1	1030.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
8	1	1440.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
9	1	1430.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
10	1	3480.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
11	1	1020.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
12	1	980.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
13	1	1800.	0.	0.	756.	0.	0.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
14	1	1500.	0.	122.	756.	0.	122.	756.	1650.	0.	0.	0.	.46	65.	11.6	B	20.0	13.7
15	1	1300.	0.	0.	634.	0.	0.	634.	1650.	0.	0.	0.	.38	65.	9.8	A	20.0	13.7
16	1	1000.	33.	0.	667.	33.	0.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
17	1	1100.	0.	0.	667.	0.	0.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
18	1	1000.	0.	122.	667.	0.	122.	667.	1650.	0.	0.	0.	.40	65.	10.3	A	20.0	13.7
19	1	900.	0.	0.	545.	0.	0.	545.	1650.	0.	0.	0.	.33	65.	8.4	A	20.0	13.7
20	1	100.	29.	0.	574.	29.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
21	1	100.	0.	0.	574.	0.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
22	1	100.	0.	0.	574.	0.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
23	1	700.	0.	0.	574.	0.	0.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
24	1	1500.	0.	108.	574.	0.	108.	574.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
25	1	800.	0.	0.	466.	0.	0.	466.	1650.	0.	0.	0.	.28	65.	7.2	A	20.0	13.7
26	1	1000.	219.	0.	684.	219.	0.	684.	1650.	0.	0.	0.	.41	65.	10.5	A	20.0	13.7
27	1	800.	0.	0.	684.	0.	0.	684.	1650.	0.	0.	0.	.41	65.	10.5	A	20.0	13.7
28	1	1000.	0.	25.	684.	0.	25.	684.	1650.	0.	0.	0.	.41	65.	10.5	A	20.0	13.7
29	1	8000.	0.	659.	659.	0.	659.	659.	1650.	0.	0.	0.	.40	65.	10.1	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES								MAX(V/C) = 0.46	LOWEST LOS = B			AVG = 65.	11.4		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	303. VEH-HRS	605. PASS-HRS	594. VEH-HRS	1189. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	303. VEH-HRS	605. PASS-HRS	594. VEH-HRS	1189. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	19672. VEH-MI.	39344. PASS-MI.	38627. VEH-MI.	77254. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	11. VPMPL		11. VPMPL	
TOTAL FUEL =	984. GALLONS		1931. GALLONS	
TOTAL EMISSIONS =	270. KILOGRAMS		531. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****


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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	662.	0.	662.	662.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
3	1	2830.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
4	1	930.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
5	1	1490.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
6	1	3020.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
7	1	1030.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
8	1	1440.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
9	1	1430.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
10	1	3480.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
11	1	1020.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
12	1	980.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
13	1	1800.	0.	0.	662.	0.	0.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
14	1	1500.	0.	96.	662.	0.	96.	662.	1650.	0.	0.	0.	.40	65.	10.2	A	20.0	13.7
15	1	1300.	0.	0.	565.	0.	0.	565.	1650.	0.	0.	0.	.34	65.	8.7	A	20.0	13.7
16	1	1000.	30.	0.	595.	30.	0.	595.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
17	1	1100.	0.	0.	595.	0.	0.	595.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
18	1	1000.	0.	103.	595.	0.	103.	595.	1650.	0.	0.	0.	.36	65.	9.2	A	20.0	13.7
19	1	900.	0.	0.	492.	0.	0.	492.	1650.	0.	0.	0.	.30	65.	7.6	A	20.0	13.7
20	1	100.	27.	0.	519.	27.	0.	519.	1650.	0.	0.	0.	.31	65.	8.0	A	20.0	13.7
21	1	100.	0.	0.	519.	0.	0.	519.	1650.	0.	0.	0.	.31	65.	8.0	A	20.0	13.7
22	1	100.	0.	0.	519.	0.	0.	519.	1650.	0.	0.	0.	.31	65.	8.0	A	20.0	13.7
23	1	700.	0.	0.	519.	0.	0.	519.	1650.	0.	0.	0.	.31	65.	8.0	A	20.0	13.7
24	1	1500.	0.	93.	519.	0.	93.	519.	1650.	0.	0.	0.	.31	65.	8.0	A	20.0	13.7
25	1	800.	0.	0.	426.	0.	0.	426.	1650.	0.	0.	0.	.26	65.	6.6	A	20.0	13.7
26	1	1000.	163.	0.	589.	163.	0.	589.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
27	1	800.	0.	0.	589.	0.	0.	589.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
28	1	1000.	0.	18.	589.	0.	18.	589.	1650.	0.	0.	0.	.36	65.	9.1	A	20.0	13.7
29	1	8000.	0.	572.	572.	0.	572.	572.	1650.	0.	0.	0.	.35	65.	8.8	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.40	LOWEST LOS = A			AVG = 65.		10.0		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	265. VEH-HRS	530. PASS-HRS	859. VEH-HRS	1718. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	265. VEH-HRS	530. PASS-HRS	859. VEH-HRS	1718. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	17220. VEH-MI.	34439. PASS-MI.	55846. VEH-MI.	111693. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	10. VPMPL		11. VPMPL	
TOTAL FUEL =	861. GALLONS		2792. GALLONS	
TOTAL EMISSIONS =	237. KILOGRAMS		767. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

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FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6226.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6240.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6240.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6240.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6410.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6410.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6410.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6130.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6130.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	9685.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	20.28	20.59	21.40	21.59	24.02
2	0.00	0.65	0.96	1.77	1.96	4.38
3	0.00	0.00	0.18	0.99	1.18	3.61
4	0.00	0.00	0.00	0.68	0.87	3.30
5	0.00	0.00	0.00	0.52	0.72	3.14
6	0.00	0.00	0.00	0.00	0.03	2.46
7	0.00	0.00	0.00	0.00	0.00	2.32
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	5690.	967.	5690.	5690.	967.	5690.	10000.	0.	0.	0.	.57	65.	17.5	B	19.2	14.0

2	3	99999.	0.	0.	4723.	0.	0.	4723.	6226.	0.	0.	0.	.76	64.	24.6	C	19.6	13.7
3	3	2740.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
4	3	600.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
5	3	700.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
6	3	2630.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
7	3	2530.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
8	4	1500.	171.	0.	4894.	171.	0.	4894.	6220.	0.	0.	0.	.79	65.	18.8	C	19.2	14.0
9	4	700.	0.	0.	4894.	0.	0.	4894.	6240.	0.	0.	0.	.78	65.	18.8	C	19.2	14.0
10	4	1500.	0.	1395.	4894.	0.	1395.	4894.	5965.	0.	0.	0.	.82	65.	18.8	C	19.2	14.0
11	3	750.	0.	0.	3499.	0.	0.	3499.	6000.	0.	0.	0.	.58	65.	17.9	B	19.2	14.0
12	4	350.	767.	0.	4266.	767.	0.	4266.	6277.	0.	0.	0.	.68	65.	16.4	B	19.2	14.0
13	4	350.	0.	0.	4266.	0.	0.	4266.	6410.	0.	0.	0.	.67	65.	16.4	B	19.2	14.0
14	4	350.	0.	277.	4266.	0.	277.	4266.	6367.	0.	0.	0.	.67	65.	16.4	B	19.2	14.0
15	3	700.	0.	0.	3989.	0.	0.	3989.	6000.	0.	0.	0.	.66	65.	20.5	C	19.2	14.0
16	3	900.	94.	0.	4083.	94.	0.	4083.	5983.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
17	3	1400.	236.	0.	4319.	236.	0.	4319.	5956.	0.	0.	0.	.73	65.	22.1	C	19.2	14.0
18	3	200.	0.	0.	4319.	0.	0.	4319.	6000.	0.	0.	0.	.72	65.	22.1	C	19.2	14.0
19	3	1400.	0.	272.	4319.	0.	272.	4319.	5961.	0.	0.	0.	.72	65.	22.1	C	19.2	14.0
20	3	900.	0.	0.	4047.	0.	0.	4047.	6000.	0.	0.	0.	.67	65.	20.8	C	19.2	14.0
21	4	100.	158.	0.	4205.	158.	0.	4205.	6098.	0.	0.	0.	.69	65.	16.2	B	19.2	14.0
22	4	100.	0.	71.	4205.	0.	71.	4205.	6120.	0.	0.	0.	.69	65.	16.2	B	19.2	14.0
23	3	600.	0.	0.	4134.	0.	0.	4134.	6000.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
24	3	1500.	423.	0.	4557.	423.	0.	4557.	5913.	0.	0.	0.	.77	64.	23.8	C	19.7	13.6
25	3	1500.	0.	0.	4557.	0.	0.	4557.	6000.	0.	0.	0.	.76	64.	23.7	C	19.6	13.7
26	3	8000.	0.	0.	4557.	0.	0.	4557.	6000.	0.	0.	0.	.76	64.	23.7	C	19.6	13.7
27	5	100.	933.	0.	5490.	933.	0.	5490.	10000.	0.	0.	0.	.55	65.	16.9	B	19.2	14.0
28	5	1000.	0.	0.	5490.	0.	0.	5490.	7750.	0.	0.	0.	.71	65.	16.9	B	19.2	14.0
29	5	1000.	0.	5490.	5490.	0.	5490.	5490.	9685.	0.	0.	0.	.57	65.	16.9	B	19.2	14.0
TOTAL	135469. =	25.7 MILES					MAX(V/C) = 0.82		LOWEST LOS = C		AVG = 64.		23.9		19.6		13.7	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1882. VEH-HRS	1891. PASS-HRS	1882. VEH-HRS	1891. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1882. VEH-HRS	1891. PASS-HRS	1882. VEH-HRS	1891. PASS-HRS
TOTAL TRAV DISTANCE =	120606. VEH-MI.	121251. PASS-MI.	120606. VEH-MI.	121251. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	24. VPMPL		24. VPMPL	
TOTAL FUEL =	6163. GALLONS		6163. GALLONS	
TOTAL EMISSIONS =	1652. KILOGRAMS		1652. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	20.65	3	0.92	4	0.20	5	0.24
6	0.88	7	0.85	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.37	25	0.30
26	1.62	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 26.0 VEH-HRS ***** AVERAGE DELAY = 0.33 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	21.74	22.05	22.92	23.12	25.84
2	0.00	0.65	0.96	1.83	2.03	4.75
3	0.00	0.00	0.18	1.05	1.25	3.97
4	0.00	0.00	0.00	0.74	0.94	3.66
5	0.00	0.00	0.00	0.58	0.78	3.50
6	0.00	0.00	0.00	0.00	0.03	2.76
7	0.00	0.00	0.00	0.00	0.00	2.61
8	0.00	0.00	0.00	0.00	0.00	0.37

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*  9 *   0.00  0.00  0.00  0.00  0.00  0.35
* 10 *   0.00  0.00  0.00  0.00  0.00  0.17
*    *
**********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6681.	1136.	6681.	6681.	1136.	6681.	10000.	0.	0.	0.	.67	65.	20.6	C	19.2	14.0
2	3	99999.	0.	0.	5545.	0.	0.	5545.	6226.	0.	0.	0.	.89	60.	31.0	D	21.7	12.3
3	3	2740.	0.	0.	5545.	0.	0.	5545.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
4	3	600.	0.	0.	5545.	0.	0.	5545.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
5	3	700.	0.	0.	5545.	0.	0.	5545.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
6	3	2630.	0.	0.	5545.	0.	0.	5545.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
7	3	2530.	0.	0.	5545.	0.	0.	5545.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
8	4	1500.	212.	0.	5757.	212.	0.	5757.	6213.	0.	0.	0.	.93	65.	22.1	C	19.2	14.0
9	4	700.	0.	0.	5757.	0.	0.	5757.	6240.	0.	0.	0.	.92	65.	22.1	C	19.2	14.0
10	4	1500.	0.	1597.	5757.	0.	1597.	5757.	5927.	0.	0.	0.	.97	65.	22.1	C	19.2	14.0
11	3	750.	0.	0.	4160.	0.	0.	4160.	6000.	0.	0.	0.	.69	65.	21.3	C	19.2	14.0
12	4	350.	1079.	0.	5239.	1079.	0.	5239.	6219.	0.	0.	0.	.84	65.	20.1	C	19.2	14.0
13	4	350.	0.	0.	5239.	0.	0.	5239.	6410.	0.	0.	0.	.82	65.	20.1	C	19.2	14.0
14	4	350.	0.	356.	5239.	0.	356.	5239.	6356.	0.	0.	0.	.82	65.	20.1	C	19.2	14.0
15	3	700.	0.	0.	4883.	0.	0.	4883.	6000.	0.	0.	0.	.81	63.	25.9	C	20.2	13.2
16	3	900.	106.	0.	4989.	106.	0.	4989.	5980.	0.	0.	0.	.83	62.	26.8	D	20.5	13.0
17	3	1400.	362.	0.	5351.	362.	0.	5351.	5930.	0.	0.	0.	.90	59.	30.2	D	21.9	12.1
18	3	200.	0.	0.	5351.	0.	0.	5351.	6000.	0.	0.	0.	.89	60.	29.9	D	21.7	12.2
19	3	1400.	0.	202.	5351.	0.	202.	5351.	5972.	0.	0.	0.	.90	59.	30.0	D	21.8	12.2
20	3	900.	0.	0.	5149.	0.	0.	5149.	6000.	0.	0.	0.	.86	61.	28.1	D	21.0	12.7
21	4	100.	208.	0.	5357.	208.	0.	5357.	6088.	0.	0.	0.	.88	65.	20.6	C	19.2	14.0
22	4	100.	0.	113.	5357.	0.	113.	5357.	6115.	0.	0.	0.	.88	65.	20.6	C	19.2	14.0
23	3	600.	0.	0.	5244.	0.	0.	5244.	6000.	0.	0.	0.	.87	60.	28.9	D	21.4	12.5
24	3	1500.	473.	0.	5717.	473.	0.	5717.	5903.	0.	0.	0.	.97	55.	34.8	D	23.2	11.4
25	3	1500.	0.	0.	5717.	0.	0.	5717.	6000.	0.	0.	0.	.95	56.	34.1	D	22.9	11.5
26	3	8000.	0.	0.	5717.	0.	0.	5717.	6000.	0.	0.	0.	.95	56.	34.1	D	22.9	11.5
27	5	100.	1171.	0.	6888.	1171.	0.	6888.	10000.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
28	5	1000.	0.	0.	6888.	0.	0.	6888.	7750.	0.	0.	0.	.89	65.	21.2	C	19.2	14.0
29	5	1000.	0.	6888.	6888.	0.	6888.	6888.	9685.	0.	0.	0.	.71	65.	21.2	C	19.2	14.0
TOTAL		135469. = 25.7 MILES							MAX(V/C) = 0.97		LOWEST LOS = D		AVG = 60.		30.6		21.6	12.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2399. VEH-HRS	2412. PASS-HRS	4281. VEH-HRS	4303. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2399. VEH-HRS	2412. PASS-HRS	4281. VEH-HRS	4303. PASS-HRS
TOTAL TRAV DISTANCE =	142945. VEH-MI.	143733. PASS-MI.	263550. VEH-MI.	264984. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		62. MPH.	
AVERAGE DENSITY =	31. VPMPL		27. VPMPL	
TOTAL FUEL =	6611. GALLONS		12773. GALLONS	
TOTAL EMISSIONS =	1760. KILOGRAMS		3412. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	144.31	3	5.51	4	1.21	5	1.41
6	5.29	7	5.09	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.36
16	0.62	17	2.20	18	0.28	19	2.06	20	0.85
21	0.00	22	0.00	23	0.69	24	4.66	25	4.06
26	21.64	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 200.2 VEH-HRS ***** AVERAGE DELAY = 2.16 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	1	1650.	350.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp

20	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	967.	0.	967.	967.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
3	1	2740.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
4	1	600.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
5	1	700.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
6	1	2630.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
7	1	2530.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
8	1	1500.	20.	0.	988.	20.	0.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
9	1	700.	0.	0.	988.	0.	0.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
10	1	1500.	0.	275.	988.	0.	275.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
11	1	750.	0.	0.	713.	0.	0.	713.	1650.	0.	0.	0.	.43	65.	11.0	A	20.0	13.7
12	1	350.	133.	0.	846.	133.	0.	846.	1650.	0.	0.	0.	.51	65.	13.0	B	20.0	13.7
13	1	350.	0.	0.	846.	0.	0.	846.	1650.	0.	0.	0.	.51	65.	13.0	B	20.0	13.7
14	1	350.	0.	43.	846.	0.	43.	846.	1650.	0.	0.	0.	.51	65.	13.0	B	20.0	13.7
15	1	700.	0.	0.	803.	0.	0.	803.	1650.	0.	0.	0.	.49	65.	12.3	B	20.0	13.7
16	1	900.	17.	0.	820.	17.	0.	820.	1650.	0.	0.	0.	.50	65.	12.6	B	20.0	13.7
17	1	1400.	44.	0.	864.	44.	0.	864.	1650.	0.	0.	0.	.52	65.	13.3	B	20.0	13.7
18	1	200.	0.	0.	864.	0.	0.	864.	1650.	0.	0.	0.	.52	65.	13.3	B	20.0	13.7
19	1	1400.	0.	39.	864.	0.	39.	864.	1650.	0.	0.	0.	.52	65.	13.3	B	20.0	13.7
20	1	900.	0.	0.	825.	0.	0.	825.	1650.	0.	0.	0.	.50	65.	12.7	B	20.0	13.7
21	1	100.	32.	0.	857.	32.	0.	857.	1650.	0.	0.	0.	.52	65.	13.2	B	20.0	13.7
22	1	100.	0.	10.	857.	0.	10.	857.	1650.	0.	0.	0.	.52	65.	13.2	B	20.0	13.7
23	1	600.	0.	0.	847.	0.	0.	847.	1650.	0.	0.	0.	.51	65.	13.0	B	20.0	13.7
24	1	1500.	87.	0.	933.	87.	0.	933.	1650.	0.	0.	0.	.57	65.	14.4	B	20.0	13.7
25	1	1500.	0.	0.	933.	0.	0.	933.	1650.	0.	0.	0.	.57	65.	14.4	B	20.0	13.7
26	1	8000.	0.	933.	933.	0.	933.	933.	1650.	0.	0.	0.	.57	65.	14.4	B	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES							MAX(V/C) = 0.60	LOWEST LOS = B			AVG = 65.		14.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	368. VEH-HRS	736. PASS-HRS	368. VEH-HRS	736. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	368. VEH-HRS	736. PASS-HRS	368. VEH-HRS	736. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	23922. VEH-MI.	47843. PASS-MI.	23922. VEH-MI.	47843. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	15. VPMPL		15. VPMPL	
TOTAL FUEL =	1196. GALLONS		1196. GALLONS	
TOTAL EMISSIONS =	329. KILOGRAMS		329. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DESTINATIONS ACROSS DOWN	1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00

*	7 *	0.00	0.00	0.00	0.00	0.00	2.06	0.00	*
*	8 *	0.00	0.00	0.00	0.00	0.00	1.92	0.00	*
*	9 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*
*	10 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*
*	11 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	*

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1136.	0.	1136.	1136.	0.	1136.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
3	1	2740.	0.	0.	1136.	0.	0.	1136.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
4	1	600.	0.	0.	1136.	0.	0.	1136.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
5	1	700.	0.	0.	1136.	0.	0.	1136.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
6	1	2630.	0.	0.	1136.	0.	0.	1136.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
7	1	2530.	0.	0.	1136.	0.	0.	1136.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
8	1	1500.	27.	0.	1162.	27.	0.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
9	1	700.	0.	0.	1162.	0.	0.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
10	1	1500.	0.	313.	1162.	0.	313.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
11	1	750.	0.	0.	849.	0.	0.	849.	1650.	0.	0.	0.	.51	65.	13.1	B	20.0	13.7
12	1	350.	191.	0.	1040.	191.	0.	1040.	1650.	0.	0.	0.	.63	65.	16.0	B	20.0	13.7
13	1	350.	0.	0.	1040.	0.	0.	1040.	1650.	0.	0.	0.	.63	65.	16.0	B	20.0	13.7
14	1	350.	0.	54.	1040.	0.	54.	1040.	1650.	0.	0.	0.	.63	65.	16.0	B	20.0	13.7
15	1	700.	0.	0.	986.	0.	0.	986.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
16	1	900.	20.	0.	1006.	20.	0.	1006.	1650.	0.	0.	0.	.61	65.	15.5	B	20.0	13.7
17	1	1400.	70.	0.	1076.	70.	0.	1076.	1650.	0.	0.	0.	.65	65.	16.5	B	20.0	13.7
18	1	200.	0.	0.	1076.	0.	0.	1076.	1650.	0.	0.	0.	.65	65.	16.5	B	20.0	13.7
19	1	1400.	0.	28.	1076.	0.	28.	1076.	1650.	0.	0.	0.	.65	65.	16.5	B	20.0	13.7
20	1	900.	0.	0.	1048.	0.	0.	1048.	1650.	0.	0.	0.	.64	65.	16.1	B	20.0	13.7
21	1	100.	42.	0.	1090.	42.	0.	1090.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
22	1	100.	0.	15.	1090.	0.	15.	1090.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
23	1	600.	0.	0.	1074.	0.	0.	1074.	1650.	0.	0.	0.	.65	65.	16.5	B	20.0	13.7
24	1	1500.	97.	0.	1171.	97.	0.	1171.	1650.	0.	0.	0.	.71	65.	18.0	C	20.0	13.7
25	1	1500.	0.	0.	1171.	0.	0.	1171.	1650.	0.	0.	0.	.71	65.	18.0	C	20.0	13.7
26	1	8000.	0.	1171.	1171.	0.	1171.	1171.	1650.	0.	0.	0.	.71	65.	18.0	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES								MAX(V/C) = 0.71		LOWEST LOS = C		AVG = 65.	17.4		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	436. VEH-HRS	872. PASS-HRS	804. VEH-HRS	1608. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	436. VEH-HRS	872. PASS-HRS	804. VEH-HRS	1608. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	28327. VEH-MI.	56653. PASS-MI.	52248. VEH-MI.	104496. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	17. VPMPL		16. VPMPL	
TOTAL FUEL =	1416. GALLONS		2612. GALLONS	
TOTAL EMISSIONS =	389. KILOGRAMS		718. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6226.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6240.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6240.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6240.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6690.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6690.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6690.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6130.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6130.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	9685.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	20.28	20.59	21.40	21.60	24.03
2	0.00	0.65	0.96	1.77	1.96	4.40
3	0.00	0.00	0.18	0.99	1.19	3.62
4	0.00	0.00	0.00	0.69	0.88	3.31
5	0.00	0.00	0.00	0.53	0.72	3.15
6	0.00	0.00	0.00	0.00	0.03	2.47
7	0.00	0.00	0.00	0.00	0.00	2.33
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	5690.	967.	5690.	5690.	967.	5690.	10000.	0.	0.	0.	.57	65.	17.5	B	19.2	14.0

2	3	99999.	0.	0.	4723.	0.	0.	4723.	6226.	0.	0.	0.	.76	64.	24.6	C	19.6	13.7
3	3	2740.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
4	3	600.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
5	3	700.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
6	3	2630.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
7	3	2530.	0.	0.	4723.	0.	0.	4723.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
8	4	1500.	171.	0.	4894.	171.	0.	4894.	6219.	0.	0.	0.	.79	65.	18.8	C	19.2	14.0
9	4	700.	0.	0.	4894.	0.	0.	4894.	6240.	0.	0.	0.	.78	65.	18.8	C	19.2	14.0
10	4	1500.	0.	1229.	4894.	0.	1229.	4894.	5998.	0.	0.	0.	.82	65.	18.8	C	19.2	14.0
11	3	750.	0.	0.	3665.	0.	0.	3665.	6000.	0.	0.	0.	.61	65.	18.8	C	19.2	14.0
12	4	350.	772.	0.	4437.	772.	0.	4437.	6562.	0.	0.	0.	.68	65.	17.1	B	19.2	14.0
13	4	350.	0.	0.	4437.	0.	0.	4437.	6690.	0.	0.	0.	.66	65.	17.1	B	19.2	14.0
14	4	350.	0.	449.	4437.	0.	449.	4437.	6619.	0.	0.	0.	.67	65.	17.1	B	19.2	14.0
15	3	700.	0.	0.	3988.	0.	0.	3988.	6000.	0.	0.	0.	.66	65.	20.5	C	19.2	14.0
16	3	900.	93.	0.	4081.	93.	0.	4081.	5983.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
17	3	1400.	312.	0.	4393.	312.	0.	4393.	5942.	0.	0.	0.	.74	64.	22.8	C	19.5	13.8
18	3	200.	0.	0.	4393.	0.	0.	4393.	6000.	0.	0.	0.	.73	64.	22.7	C	19.4	13.8
19	3	1400.	0.	272.	4393.	0.	272.	4393.	5962.	0.	0.	0.	.74	64.	22.7	C	19.4	13.8
20	3	900.	0.	0.	4121.	0.	0.	4121.	6000.	0.	0.	0.	.69	65.	21.1	C	19.2	14.0
21	4	100.	158.	0.	4279.	158.	0.	4279.	6098.	0.	0.	0.	.70	65.	16.5	B	19.2	14.0
22	4	100.	0.	70.	4279.	0.	70.	4279.	6120.	0.	0.	0.	.70	65.	16.5	B	19.2	14.0
23	3	600.	0.	0.	4209.	0.	0.	4209.	6000.	0.	0.	0.	.70	65.	21.6	C	19.2	14.0
24	3	1500.	423.	0.	4632.	423.	0.	4632.	5913.	0.	0.	0.	.78	64.	24.3	C	19.8	13.5
25	3	1500.	0.	0.	4632.	0.	0.	4632.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
26	3	8000.	0.	0.	4632.	0.	0.	4632.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
27	5	100.	949.	0.	5581.	949.	0.	5581.	10000.	0.	0.	0.	.56	65.	17.2	B	19.2	14.0
28	5	1000.	0.	0.	5581.	0.	0.	5581.	7750.	0.	0.	0.	.72	65.	17.2	B	19.2	14.0
29	5	1000.	0.	5581.	5581.	0.	5581.	5581.	9685.	0.	0.	0.	.58	65.	17.2	B	19.2	14.0
TOTAL	135469. =	25.7 MILES					MAX(V/C) = 0.82		LOWEST LOS = C		AVG = 64.		24.0		19.6		13.7	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1887. VEH-HRS	1897. PASS-HRS	1887. VEH-HRS	1897. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1887. VEH-HRS	1897. PASS-HRS	1887. VEH-HRS	1897. PASS-HRS
TOTAL TRAV DISTANCE =	120921. VEH-MI.	121574. PASS-MI.	120921. VEH-MI.	121574. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	24. VPMPL		24. VPMPL	
TOTAL FUEL =	6174. GALLONS		6174. GALLONS	
TOTAL EMISSIONS =	1655. KILOGRAMS		1655. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	20.65	3	0.92	4	0.20	5	0.24
6	0.88	7	0.85	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.18	18	0.02	19	0.17	20	0.00
21	0.00	22	0.00	23	0.00	24	0.47	25	0.39
26	2.06	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 27.0 VEH-HRS ***** AVERAGE DELAY = 0.34 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	21.74	22.05	22.93	23.14	25.92
2	0.00	0.65	0.96	1.84	2.05	4.83
3	0.00	0.00	0.18	1.06	1.27	4.05
4	0.00	0.00	0.00	0.75	0.96	3.74
5	0.00	0.00	0.00	0.59	0.79	3.58
6	0.00	0.00	0.00	0.00	0.03	2.82
7	0.00	0.00	0.00	0.00	0.00	2.67
8	0.00	0.00	0.00	0.00	0.00	0.37

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*  9 *   0.00  0.00  0.00  0.00  0.00  0.35
* 10 *   0.00  0.00  0.00  0.00  0.00  0.17
*    *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6679.	1135.	6679.	6679.	1135.	6679.	10000.	0.	0.	0.	.67	65.	20.6	C	19.2	14.0
2	3	99999.	0.	0.	5544.	0.	0.	5544.	6226.	0.	0.	0.	.89	60.	31.0	D	21.7	12.3
3	3	2740.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
4	3	600.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
5	3	700.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
6	3	2630.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
7	3	2530.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
8	4	1500.	213.	0.	5757.	213.	0.	5757.	6213.	0.	0.	0.	.93	65.	22.1	C	19.2	14.0
9	4	700.	0.	0.	5757.	0.	0.	5757.	6240.	0.	0.	0.	.92	65.	22.1	C	19.2	14.0
10	4	1500.	0.	1363.	5757.	0.	1363.	5757.	5973.	0.	0.	0.	.96	65.	22.1	C	19.2	14.0
11	3	750.	0.	0.	4394.	0.	0.	4394.	6000.	0.	0.	0.	.73	64.	22.7	C	19.4	13.8
12	4	350.	1088.	0.	5482.	1088.	0.	5482.	6507.	0.	0.	0.	.84	65.	21.1	C	19.2	14.0
13	4	350.	0.	0.	5482.	0.	0.	5482.	6690.	0.	0.	0.	.82	65.	21.1	C	19.2	14.0
14	4	350.	0.	599.	5482.	0.	599.	5482.	6599.	0.	0.	0.	.83	65.	21.1	C	19.2	14.0
15	3	700.	0.	0.	4883.	0.	0.	4883.	6000.	0.	0.	0.	.81	63.	25.9	C	20.2	13.2
16	3	900.	113.	0.	4996.	113.	0.	4996.	5979.	0.	0.	0.	.84	62.	26.8	D	20.6	13.0
17	3	1400.	476.	0.	5472.	476.	0.	5472.	5909.	0.	0.	0.	.93	58.	31.6	D	22.3	11.9
18	3	200.	0.	0.	5472.	0.	0.	5472.	6000.	0.	0.	0.	.91	59.	31.2	D	22.1	12.0
19	3	1400.	0.	204.	5472.	0.	204.	5472.	5973.	0.	0.	0.	.92	58.	31.3	D	22.1	12.0
20	3	900.	0.	0.	5268.	0.	0.	5268.	6000.	0.	0.	0.	.88	60.	29.1	D	21.5	12.4
21	4	100.	208.	0.	5476.	208.	0.	5476.	6088.	0.	0.	0.	.90	65.	21.1	C	19.2	14.0
22	4	100.	0.	115.	5476.	0.	115.	5476.	6115.	0.	0.	0.	.90	65.	21.1	C	19.2	14.0
23	3	600.	0.	0.	5361.	0.	0.	5361.	6000.	0.	0.	0.	.89	60.	30.0	D	21.8	12.2
24	3	1500.	473.	0.	5834.	473.	0.	5834.	5903.	0.	0.	0.	.99	53.	36.5	E	23.6	11.2
25	3	1500.	0.	0.	5834.	0.	0.	5834.	6000.	0.	0.	0.	.97	54.	35.7	E	23.3	11.3
26	3	8000.	0.	0.	5834.	0.	0.	5834.	6000.	0.	0.	0.	.97	54.	35.7	E	23.3	11.3
27	5	100.	1195.	0.	7029.	1195.	0.	7029.	10000.	0.	0.	0.	.70	65.	21.6	C	19.2	14.0
28	5	1000.	0.	0.	7029.	0.	0.	7029.	7750.	0.	0.	0.	.91	65.	21.6	C	19.2	14.0
29	5	1000.	0.	7029.	7029.	0.	7029.	7029.	9685.	0.	0.	0.	.73	65.	21.6	C	19.2	14.0
TOTAL		135469. = 25.7 MILES									MAX(V/C) = 0.99		LOWEST LOS = E		AVG = 59.		30.7	21.7	12.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2414. VEH-HRS	2427. PASS-HRS	4302. VEH-HRS	4324. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2414. VEH-HRS	2427. PASS-HRS	4302. VEH-HRS	4324. PASS-HRS
TOTAL TRAV DISTANCE =	143413. VEH-MI.	144213. PASS-MI.	264334. VEH-MI.	265788. PASS-MI.
AVERAGE SYSTEM SPEED =	59. MPH.		61. MPH.	
AVERAGE DENSITY =	31. VPMPL		27. VPMPL	
TOTAL FUEL =	6620. GALLONS		12794. GALLONS	
TOTAL EMISSIONS =	1762. KILOGRAMS		3417. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	144.04	3	5.50	4	1.21	5	1.41
6	5.28	7	5.08	8	0.00	9	0.00	10	0.00
11	0.08	12	0.00	13	0.00	14	0.00	15	0.36
16	0.63	17	2.83	18	0.35	19	2.57	20	1.08
21	0.00	22	0.00	23	0.86	24	5.65	25	4.92
26	26.24	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 208.1 VEH-HRS ***** AVERAGE DELAY = 2.24 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	1	1650.	350.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp

20	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	967.	0.	967.	967.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
3	1	2740.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
4	1	600.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
5	1	700.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
6	1	2630.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
7	1	2530.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
8	1	1500.	21.	0.	988.	21.	0.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
9	1	700.	0.	0.	988.	0.	0.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
10	1	1500.	0.	242.	988.	0.	242.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
11	1	750.	0.	0.	746.	0.	0.	746.	1650.	0.	0.	0.	.45	65.	11.5	B	20.0	13.7
12	1	350.	128.	0.	874.	128.	0.	874.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
13	1	350.	0.	0.	874.	0.	0.	874.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
14	1	350.	0.	71.	874.	0.	71.	874.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
15	1	700.	0.	0.	803.	0.	0.	803.	1650.	0.	0.	0.	.49	65.	12.3	B	20.0	13.7
16	1	900.	17.	0.	820.	17.	0.	820.	1650.	0.	0.	0.	.50	65.	12.6	B	20.0	13.7
17	1	1400.	58.	0.	878.	58.	0.	878.	1650.	0.	0.	0.	.53	65.	13.5	B	20.0	13.7
18	1	200.	0.	0.	878.	0.	0.	878.	1650.	0.	0.	0.	.53	65.	13.5	B	20.0	13.7
19	1	1400.	0.	38.	878.	0.	38.	878.	1650.	0.	0.	0.	.53	65.	13.5	B	20.0	13.7
20	1	900.	0.	0.	840.	0.	0.	840.	1650.	0.	0.	0.	.51	65.	12.9	B	20.0	13.7
21	1	100.	32.	0.	872.	32.	0.	872.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
22	1	100.	0.	10.	872.	0.	10.	872.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
23	1	600.	0.	0.	862.	0.	0.	862.	1650.	0.	0.	0.	.52	65.	13.3	B	20.0	13.7
24	1	1500.	87.	0.	949.	87.	0.	949.	1650.	0.	0.	0.	.57	65.	14.6	B	20.0	13.7
25	1	1500.	0.	0.	949.	0.	0.	949.	1650.	0.	0.	0.	.57	65.	14.6	B	20.0	13.7
26	1	8000.	0.	949.	949.	0.	949.	949.	1650.	0.	0.	0.	.57	65.	14.6	B	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES							MAX(V/C) = 0.60	LOWEST LOS = B			AVG = 65.		14.8		20.0	13.7

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 16: 3 PAGE 6
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	369. VEH-HRS	738. PASS-HRS	369. VEH-HRS	738. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	369. VEH-HRS	738. PASS-HRS	369. VEH-HRS	738. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	23973. VEH-MI.	47946. PASS-MI.	23973. VEH-MI.	47946. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	15. VPMPL		15. VPMPL	
TOTAL FUEL =	1199. GALLONS		1199. GALLONS	
TOTAL EMISSIONS =	329. KILOGRAMS		329. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 16: 3 PAGE 7
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 2

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00

```
                          *  7 *   0.00  0.00  0.00  0.00  0.00  2.06  0.00
+                                                                          *
                          *  8 *   0.00  0.00  0.00  0.00  0.00  1.92  0.00
+                                                                          *
                          *  9 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          * 10 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          * 11 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          *    *                                           *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1135.	0.	1135.	1135.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
3	1	2740.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
4	1	600.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
5	1	700.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
6	1	2630.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
7	1	2530.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
8	1	1500.	27.	0.	1162.	27.	0.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
9	1	700.	0.	0.	1162.	0.	0.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
10	1	1500.	0.	267.	1162.	0.	267.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
11	1	750.	0.	0.	895.	0.	0.	895.	1650.	0.	0.	0.	.54	65.	13.8	B	20.0	13.7
12	1	350.	183.	0.	1078.	183.	0.	1078.	1650.	0.	0.	0.	.65	65.	16.6	B	20.0	13.7
13	1	350.	0.	0.	1078.	0.	0.	1078.	1650.	0.	0.	0.	.65	65.	16.6	B	20.0	13.7
14	1	350.	0.	91.	1078.	0.	91.	1078.	1650.	0.	0.	0.	.65	65.	16.6	B	20.0	13.7
15	1	700.	0.	0.	986.	0.	0.	986.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
16	1	900.	21.	0.	1008.	21.	0.	1008.	1650.	0.	0.	0.	.61	65.	15.5	B	20.0	13.7
17	1	1400.	91.	0.	1099.	91.	0.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
18	1	200.	0.	0.	1099.	0.	0.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
19	1	1400.	0.	27.	1099.	0.	27.	1099.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
20	1	900.	0.	0.	1072.	0.	0.	1072.	1650.	0.	0.	0.	.65	65.	16.5	B	20.0	13.7
21	1	100.	42.	0.	1113.	42.	0.	1113.	1650.	0.	0.	0.	.67	65.	17.1	B	20.0	13.7
22	1	100.	0.	15.	1113.	0.	15.	1113.	1650.	0.	0.	0.	.67	65.	17.1	B	20.0	13.7
23	1	600.	0.	0.	1098.	0.	0.	1098.	1650.	0.	0.	0.	.67	65.	16.9	B	20.0	13.7
24	1	1500.	97.	0.	1195.	97.	0.	1195.	1650.	0.	0.	0.	.72	65.	18.4	C	20.0	13.7
25	1	1500.	0.	0.	1195.	0.	0.	1195.	1650.	0.	0.	0.	.72	65.	18.4	C	20.0	13.7
26	1	8000.	0.	1195.	1195.	0.	1195.	1195.	1650.	0.	0.	0.	.72	65.	18.4	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES								MAX(V/C) = 0.72		LOWEST LOS = C		AVG = 65.	17.5		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	437. VEH-HRS	874. PASS-HRS	806. VEH-HRS	1612. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	437. VEH-HRS	874. PASS-HRS	806. VEH-HRS	1612. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	28404. VEH-MI.	56809. PASS-MI.	52377. VEH-MI.	104755. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	17. VPMPL		16. VPMPL	
TOTAL FUEL =	1420. GALLONS		2619. GALLONS	
TOTAL EMISSIONS =	390. KILOGRAMS		720. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

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FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6226.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6240.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6240.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6240.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6690.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6690.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6690.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6130.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6130.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	9685.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	20.28	20.59	21.40	21.59	24.03
2	0.00	0.65	0.96	1.77	1.96	4.39
3	0.00	0.00	0.18	0.99	1.19	3.62
4	0.00	0.00	0.00	0.69	0.88	3.31
5	0.00	0.00	0.00	0.53	0.72	3.15
6	0.00	0.00	0.00	0.00	0.03	2.47
7	0.00	0.00	0.00	0.00	0.00	2.33
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	5689.	967.	5689.	5689.	967.	5689.	10000.	0.	0.	0.	.57	65.	17.5	B	19.2	14.0

2	3	99999.	0.	0.	4722.	0.	0.	4722.	6226.	0.	0.	0.	.76	64.	24.6	C	19.6	13.7
3	3	2740.	0.	0.	4722.	0.	0.	4722.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
4	3	600.	0.	0.	4722.	0.	0.	4722.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
5	3	700.	0.	0.	4722.	0.	0.	4722.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
6	3	2630.	0.	0.	4722.	0.	0.	4722.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
7	3	2530.	0.	0.	4722.	0.	0.	4722.	6000.	0.	0.	0.	.79	63.	24.8	C	19.9	13.5
8	4	1500.	171.	0.	4893.	171.	0.	4893.	6219.	0.	0.	0.	.79	65.	18.8	C	19.2	14.0
9	4	700.	0.	0.	4893.	0.	0.	4893.	6240.	0.	0.	0.	.78	65.	18.8	C	19.2	14.0
10	4	1500.	0.	1229.	4893.	0.	1229.	4893.	5998.	0.	0.	0.	.82	65.	18.8	C	19.2	14.0
11	3	750.	0.	0.	3664.	0.	0.	3664.	6000.	0.	0.	0.	.61	65.	18.8	C	19.2	14.0
12	4	350.	772.	0.	4436.	772.	0.	4436.	6562.	0.	0.	0.	.68	65.	17.1	B	19.2	14.0
13	4	350.	0.	0.	4436.	0.	0.	4436.	6690.	0.	0.	0.	.66	65.	17.1	B	19.2	14.0
14	4	350.	0.	449.	4436.	0.	449.	4436.	6619.	0.	0.	0.	.67	65.	17.1	B	19.2	14.0
15	3	700.	0.	0.	3987.	0.	0.	3987.	6000.	0.	0.	0.	.66	65.	20.4	C	19.2	14.0
16	3	900.	93.	0.	4080.	93.	0.	4080.	5983.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
17	3	1400.	303.	0.	4383.	303.	0.	4383.	5943.	0.	0.	0.	.74	64.	22.7	C	19.5	13.8
18	3	200.	0.	0.	4383.	0.	0.	4383.	6000.	0.	0.	0.	.73	64.	22.7	C	19.4	13.8
19	3	1400.	0.	271.	4383.	0.	271.	4383.	5961.	0.	0.	0.	.74	64.	22.7	C	19.4	13.8
20	3	900.	0.	0.	4112.	0.	0.	4112.	6000.	0.	0.	0.	.69	65.	21.1	C	19.2	14.0
21	4	100.	158.	0.	4270.	158.	0.	4270.	6098.	0.	0.	0.	.70	65.	16.4	B	19.2	14.0
22	4	100.	0.	70.	4270.	0.	70.	4270.	6120.	0.	0.	0.	.70	65.	16.4	B	19.2	14.0
23	3	600.	0.	0.	4200.	0.	0.	4200.	6000.	0.	0.	0.	.70	65.	21.5	C	19.2	14.0
24	3	1500.	423.	0.	4623.	423.	0.	4623.	5913.	0.	0.	0.	.78	64.	24.2	C	19.8	13.5
25	3	1500.	0.	0.	4623.	0.	0.	4623.	6000.	0.	0.	0.	.77	64.	24.1	C	19.7	13.6
26	3	8000.	0.	0.	4623.	0.	0.	4623.	6000.	0.	0.	0.	.77	64.	24.1	C	19.7	13.6
27	5	100.	947.	0.	5570.	947.	0.	5570.	10000.	0.	0.	0.	.56	65.	17.1	B	19.2	14.0
28	5	1000.	0.	0.	5570.	0.	0.	5570.	7750.	0.	0.	0.	.72	65.	17.1	B	19.2	14.0
29	5	1000.	0.	5570.	5570.	0.	5570.	5570.	9685.	0.	0.	0.	.58	65.	17.1	B	19.2	14.0
TOTAL	135469. =	25.7 MILES					MAX(V/C) = 0.82		LOWEST LOS = C		AVG = 64.			24.0			19.6	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1886. VEH-HRS	1896. PASS-HRS	1886. VEH-HRS	1896. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1886. VEH-HRS	1896. PASS-HRS	1886. VEH-HRS	1896. PASS-HRS
TOTAL TRAV DISTANCE =	120867. VEH-MI.	121520. PASS-MI.	120867. VEH-MI.	121520. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		64. MPH.	
AVERAGE DENSITY =	24. VPMPL		24. VPMPL	
TOTAL FUEL =	6172. GALLONS		6172. GALLONS	
TOTAL EMISSIONS =	1654. KILOGRAMS		1654. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	20.59	3	0.92	4	0.20	5	0.23
6	0.88	7	0.85	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.18	18	0.02	19	0.17	20	0.00
21	0.00	22	0.00	23	0.00	24	0.45	25	0.38
26	2.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 26.9 VEH-HRS ***** AVERAGE DELAY = 0.34 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	21.74	22.05	22.93	23.13	25.90
2	0.00	0.65	0.96	1.84	2.04	4.81
3	0.00	0.00	0.18	1.06	1.26	4.03
4	0.00	0.00	0.00	0.75	0.95	3.72
5	0.00	0.00	0.00	0.58	0.79	3.56
6	0.00	0.00	0.00	0.00	0.03	2.80
7	0.00	0.00	0.00	0.00	0.00	2.65
8	0.00	0.00	0.00	0.00	0.00	0.37

9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

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TIME SLICE 2 OF 2

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6679.	1135.	6679.	6679.	1135.	6679.	10000.	0.	0.	0.	.67	65.	20.6	C	19.2	14.0
2	3	99999.	0.	0.	5544.	0.	0.	5544.	6226.	0.	0.	0.	.89	60.	31.0	D	21.7	12.3
3	3	2740.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
4	3	600.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
5	3	700.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
6	3	2630.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
7	3	2530.	0.	0.	5544.	0.	0.	5544.	6000.	0.	0.	0.	.92	58.	32.0	D	22.3	11.9
8	4	1500.	213.	0.	5757.	213.	0.	5757.	6213.	0.	0.	0.	.93	65.	22.1	C	19.2	14.0
9	4	700.	0.	0.	5757.	0.	0.	5757.	6240.	0.	0.	0.	.92	65.	22.1	C	19.2	14.0
10	4	1500.	0.	1363.	5757.	0.	1363.	5757.	5973.	0.	0.	0.	.96	65.	22.1	C	19.2	14.0
11	3	750.	0.	0.	4394.	0.	0.	4394.	6000.	0.	0.	0.	.73	64.	22.7	C	19.4	13.8
12	4	350.	1088.	0.	5482.	1088.	0.	5482.	6507.	0.	0.	0.	.84	65.	21.1	C	19.2	14.0
13	4	350.	0.	0.	5482.	0.	0.	5482.	6690.	0.	0.	0.	.82	65.	21.1	C	19.2	14.0
14	4	350.	0.	599.	5482.	0.	599.	5482.	6599.	0.	0.	0.	.83	65.	21.1	C	19.2	14.0
15	3	700.	0.	0.	4883.	0.	0.	4883.	6000.	0.	0.	0.	.81	63.	25.9	C	20.2	13.2
16	3	900.	103.	0.	4986.	103.	0.	4986.	5980.	0.	0.	0.	.83	62.	26.8	D	20.5	13.0
17	3	1400.	456.	0.	5442.	456.	0.	5442.	5912.	0.	0.	0.	.92	58.	31.3	D	22.2	11.9
18	3	200.	0.	0.	5442.	0.	0.	5442.	6000.	0.	0.	0.	.91	59.	30.9	D	22.0	12.1
19	3	1400.	0.	203.	5442.	0.	203.	5442.	5973.	0.	0.	0.	.91	59.	31.0	D	22.0	12.1
20	3	900.	0.	0.	5239.	0.	0.	5239.	6000.	0.	0.	0.	.87	61.	28.9	D	21.3	12.5
21	4	100.	208.	0.	5447.	208.	0.	5447.	6088.	0.	0.	0.	.89	65.	21.0	C	19.2	14.0
22	4	100.	0.	113.	5447.	0.	113.	5447.	6115.	0.	0.	0.	.89	65.	21.0	C	19.2	14.0
23	3	600.	0.	0.	5334.	0.	0.	5334.	6000.	0.	0.	0.	.89	60.	29.8	D	21.7	12.3
24	3	1500.	473.	0.	5807.	473.	0.	5807.	5903.	0.	0.	0.	.98	54.	36.1	E	23.5	11.2
25	3	1500.	0.	0.	5807.	0.	0.	5807.	6000.	0.	0.	0.	.97	55.	35.3	E	23.2	11.4
26	3	8000.	0.	0.	5807.	0.	0.	5807.	6000.	0.	0.	0.	.97	55.	35.3	E	23.2	11.4
27	5	100.	1190.	0.	6997.	1190.	0.	6997.	10000.	0.	0.	0.	.70	65.	21.5	C	19.2	14.0
28	5	1000.	0.	0.	6997.	0.	0.	6997.	7750.	0.	0.	0.	.90	65.	21.5	C	19.2	14.0
29	5	1000.	0.	6997.	6997.	0.	6997.	6997.	9685.	0.	0.	0.	.72	65.	21.5	C	19.2	14.0

TOTAL 135469. = 25.7 MILES MAX(V/C) = 0.98 LOWEST LOS = E AVG = 59. 30.7 21.7 12.3

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 2/29/2016 16:45 PAGE 9
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 2 OF 2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2411. VEH-HRS	2423. PASS-HRS	4297. VEH-HRS	4320. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2411. VEH-HRS	2423. PASS-HRS	4297. VEH-HRS	4320. PASS-HRS
TOTAL TRAV DISTANCE =	143316. VEH-MI.	144114. PASS-MI.	264183. VEH-MI.	265634. PASS-MI.
AVERAGE SYSTEM SPEED =	59. MPH.		61. MPH.	
AVERAGE DENSITY =	31. VPMPL		27. VPMPL	
TOTAL FUEL =	6618. GALLONS		12790. GALLONS	
TOTAL EMISSIONS =	1761. KILOGRAMS		3416. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	144.04	3	5.50	4	1.21	5	1.41
6	5.28	7	5.08	8	0.00	9	0.00	10	0.00
11	0.08	12	0.00	13	0.00	14	0.00	15	0.36
16	0.61	17	2.67	18	0.33	19	2.44	20	1.02
21	0.00	22	0.00	23	0.82	24	5.41	25	4.71
26	25.11	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 206.1 VEH-HRS ***** AVERAGE DELAY = 2.22 MIN/VEH *****

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	1	1650.	350.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp

20	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	967.	0.	967.	967.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
3	1	2740.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
4	1	600.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
5	1	700.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
6	1	2630.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
7	1	2530.	0.	0.	967.	0.	0.	967.	1650.	0.	0.	0.	.59	65.	14.9	B	20.0	13.7
8	1	1500.	21.	0.	988.	21.	0.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
9	1	700.	0.	0.	988.	0.	0.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
10	1	1500.	0.	242.	988.	0.	242.	988.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
11	1	750.	0.	0.	746.	0.	0.	746.	1650.	0.	0.	0.	.45	65.	11.5	B	20.0	13.7
12	1	350.	128.	0.	874.	128.	0.	874.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
13	1	350.	0.	0.	874.	0.	0.	874.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
14	1	350.	0.	71.	874.	0.	71.	874.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
15	1	700.	0.	0.	803.	0.	0.	803.	1650.	0.	0.	0.	.49	65.	12.3	B	20.0	13.7
16	1	900.	17.	0.	820.	17.	0.	820.	1650.	0.	0.	0.	.50	65.	12.6	B	20.0	13.7
17	1	1400.	57.	0.	877.	57.	0.	877.	1650.	0.	0.	0.	.53	65.	13.5	B	20.0	13.7
18	1	200.	0.	0.	877.	0.	0.	877.	1650.	0.	0.	0.	.53	65.	13.5	B	20.0	13.7
19	1	1400.	0.	39.	877.	0.	39.	877.	1650.	0.	0.	0.	.53	65.	13.5	B	20.0	13.7
20	1	900.	0.	0.	838.	0.	0.	838.	1650.	0.	0.	0.	.51	65.	12.9	B	20.0	13.7
21	1	100.	32.	0.	870.	32.	0.	870.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
22	1	100.	0.	10.	870.	0.	10.	870.	1650.	0.	0.	0.	.53	65.	13.4	B	20.0	13.7
23	1	600.	0.	0.	860.	0.	0.	860.	1650.	0.	0.	0.	.52	65.	13.2	B	20.0	13.7
24	1	1500.	87.	0.	947.	87.	0.	947.	1650.	0.	0.	0.	.57	65.	14.6	B	20.0	13.7
25	1	1500.	0.	0.	947.	0.	0.	947.	1650.	0.	0.	0.	.57	65.	14.6	B	20.0	13.7
26	1	8000.	0.	947.	947.	0.	947.	947.	1650.	0.	0.	0.	.57	65.	14.6	B	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES								MAX(V/C) = 0.60	LOWEST LOS = B		AVG = 65.		14.7		20.0	13.7

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 16:45 PAGE 6
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	369. VEH-HRS	737. PASS-HRS	369. VEH-HRS	737. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	369. VEH-HRS	737. PASS-HRS	369. VEH-HRS	737. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	23968. VEH-MI.	47936. PASS-MI.	23968. VEH-MI.	47936. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	15. VPMPL		15. VPMPL	
TOTAL FUEL =	1198. GALLONS		1198. GALLONS	
TOTAL EMISSIONS =	329. KILOGRAMS		329. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 2/29/2016 16:45 PAGE 7
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 2

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00

```
                          *  7 *   0.00  0.00  0.00  0.00  0.00  2.06  0.00
+                                                                          *
                          *  8 *   0.00  0.00  0.00  0.00  0.00  1.92  0.00
+                                                                          *
                          *  9 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          * 10 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          * 11 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          *    *                                           *
                          ********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1135.	0.	1135.	1135.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
3	1	2740.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
4	1	600.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
5	1	700.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
6	1	2630.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
7	1	2530.	0.	0.	1135.	0.	0.	1135.	1650.	0.	0.	0.	.69	65.	17.5	B	20.0	13.7
8	1	1500.	27.	0.	1162.	27.	0.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
9	1	700.	0.	0.	1162.	0.	0.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
10	1	1500.	0.	267.	1162.	0.	267.	1162.	1650.	0.	0.	0.	.70	65.	17.9	B	20.0	13.7
11	1	750.	0.	0.	895.	0.	0.	895.	1650.	0.	0.	0.	.54	65.	13.8	B	20.0	13.7
12	1	350.	183.	0.	1078.	183.	0.	1078.	1650.	0.	0.	0.	.65	65.	16.6	B	20.0	13.7
13	1	350.	0.	0.	1078.	0.	0.	1078.	1650.	0.	0.	0.	.65	65.	16.6	B	20.0	13.7
14	1	350.	0.	91.	1078.	0.	91.	1078.	1650.	0.	0.	0.	.65	65.	16.6	B	20.0	13.7
15	1	700.	0.	0.	986.	0.	0.	986.	1650.	0.	0.	0.	.60	65.	15.2	B	20.0	13.7
16	1	900.	20.	0.	1006.	20.	0.	1006.	1650.	0.	0.	0.	.61	65.	15.5	B	20.0	13.7
17	1	1400.	88.	0.	1094.	88.	0.	1094.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
18	1	200.	0.	0.	1094.	0.	0.	1094.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
19	1	1400.	0.	27.	1094.	0.	27.	1094.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
20	1	900.	0.	0.	1066.	0.	0.	1066.	1650.	0.	0.	0.	.65	65.	16.4	B	20.0	13.7
21	1	100.	42.	0.	1108.	42.	0.	1108.	1650.	0.	0.	0.	.67	65.	17.0	B	20.0	13.7
22	1	100.	0.	15.	1108.	0.	15.	1108.	1650.	0.	0.	0.	.67	65.	17.0	B	20.0	13.7
23	1	600.	0.	0.	1093.	0.	0.	1093.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
24	1	1500.	97.	0.	1190.	97.	0.	1190.	1650.	0.	0.	0.	.72	65.	18.3	C	20.0	13.7
25	1	1500.	0.	0.	1190.	0.	0.	1190.	1650.	0.	0.	0.	.72	65.	18.3	C	20.0	13.7
26	1	8000.	0.	1190.	1190.	0.	1190.	1190.	1650.	0.	0.	0.	.72	65.	18.3	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES								MAX(V/C) = 0.72		LOWEST LOS = C		AVG = 65.	17.5		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	437. VEH-HRS	873. PASS-HRS	805. VEH-HRS	1611. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	437. VEH-HRS	873. PASS-HRS	805. VEH-HRS	1611. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	28389. VEH-MI.	56777. PASS-MI.	52357. VEH-MI.	104713. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	17. VPMPL		16. VPMPL	
TOTAL FUEL =	1419. GALLONS		2618. GALLONS	
TOTAL EMISSIONS =	390. KILOGRAMS		719. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222   PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ    1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ   1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ   1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ   1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ   1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ    1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ     1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7360.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6440.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6440.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6440.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6550.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6550.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6550.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6230.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6230.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 28 T2 =0.044
QUEUE COLLISION IN SECTION 10 T2 =0.848

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	22.63	23.71	26.94	28.01	45.82
2	0.00	1.43	2.51	5.74	6.82	24.62
3	0.00	0.00	0.65	3.89	4.96	22.76
4	0.00	0.00	0.00	2.71	3.78	21.59
5	0.00	0.00	0.00	2.13	3.21	21.01
6	0.00	0.00	0.00	0.00	0.19	18.00
7	0.00	0.00	0.00	0.00	0.00	17.19
8	0.00	0.00	0.00	0.00	0.00	1.39
9	0.00	0.00	0.00	0.00	0.00	1.14
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7621.	1524.	7621.	7621.	1524.	7621.	10000.	0.	0.	0.	.76	64.	23.8	C	19.6	13.7
2	3	99999.	0.	0.	6097.	0.	0.	6000.	7360.	0. *	1368.	97.	.82	61.	33.0	F	20.4	13.1
3	3	2740.	0.	0.	6097.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
4	3	600.	0.	0.	6097.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
5	3	700.	0.	0.	6097.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
6	3	2630.	0.	0.	6097.	0.	0.	3386.	6000.	0. *	1086.	2614.	.56	50.	22.4	F	23.6	11.2
7	3	2530.	0.	0.	6097.	0.	0.	3386.	6000.	0. **	2530.	2614.	.56	38.	29.6	F	22.1	11.9
8	4	1500.	336.	0.	6433.	286.	0.	3672.	6386.	0. **	1500.	2614.	.57	31.	29.7	F	20.5	12.8
9	4	700.	0.	0.	6433.	0.	0.	3672.	6440.	0. **	700.	2614.	.57	27.	33.4	F	19.6	13.2
10	4	1500.	0.	1304.	6433.	0.	1194.	3672.	6134.	0. **	1500.	2462.	.60	29.	31.8	F	20.2	12.9
11	3	750.	0.	0.	5129.	0.	0.	2430.	6000.	0. **	750.	2462.	.40	20.	40.6	F	17.2	15.1
12	4	350.	480.	0.	5609.	430.	0.	2860.	6453.	0. **	350.	2462.	.44	19.	36.8	F	16.1	16.2
13	4	350.	0.	0.	5609.	0.	0.	2860.	6550.	0. **	350.	2462.	.44	18.	39.6	F	15.9	16.4
14	4	350.	0.	421.	5609.	0.	399.	2860.	6461.	0. **	350.	2462.	.44	17.	41.1	F	15.7	16.6
15	3	700.	0.	0.	5188.	0.	0.	2461.	6000.	0. **	700.	2462.	.41	15.	53.6	F	16.1	16.0
16	3	900.	761.	0.	5949.	661.	0.	3122.	5831.	0. **	900.	2462.	.54	18.	58.8	F	16.7	15.3
17	3	1400.	327.	0.	6276.	240.	0.	3362.	5927.	0. **	1400.	2462.	.57	17.	66.0	F	16.4	15.6
18	3	200.	0.	0.	6276.	0.	0.	3362.	6000.	0. **	200.	2462.	.56	16.	71.0	F	15.8	16.1
19	3	1400.	0.	479.	6276.	0.	442.	3362.	5919.	0. **	1400.	2462.	.57	15.	74.1	F	15.6	16.4
20	3	900.	0.	0.	5797.	0.	0.	2920.	6000.	0. **	900.	2462.	.49	12.	83.5	F	14.2	17.8
21	4	100.	225.	0.	6022.	225.	0.	3145.	6175.	0. **	100.	2462.	.51	12.	66.6	F	13.1	19.4
22	4	100.	0.	128.	6022.	0.	119.	3145.	6208.	0. **	100.	2462.	.51	12.	67.7	F	13.0	19.4
23	3	600.	0.	0.	5894.	0.	0.	3026.	6000.	0. **	600.	2462.	.50	11.	90.4	F	13.7	18.3
24	3	1500.	184.	0.	6078.	184.	0.	3210.	5954.	0. **	1500.	2462.	.54	11.	95.7	F	13.5	18.7
25	3	1500.	0.	0.	6078.	0.	0.	3210.	6000.	0. **	1500.	2462.	.53	10.	107.6	F	12.7	19.7
26	3	8000.	0.	0.	6078.	0.	0.	3210.	6000.	0. **	8000.	2462.	.53	7.	147.9	F	10.5	23.4
27	5	100.	1520.	0.	7598.	1520.	0.	4730.	10000.	0. **	100.	2462.	.47	5.	208.1	F	8.7	28.0
28	5	1000.	1560.	0.	9158.	1460.	0.	6190.	7750.	0. **	1000.	1560.	.80	12.	100.6	F	14.4	20.9
29	5	1000.	1560.	10718.	10718.	1560.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. =	25.7 MILES			MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 38.		43.5		19.4	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3885. VEH-HRS	3923. PASS-HRS	3885. VEH-HRS	3923. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	194. VEH-HRS	204. PASS-HRS	194. VEH-HRS	204. PASS-HRS
OFF-RAMP DELAY =	24. VEH-HRS	24. PASS-HRS	24. VEH-HRS	24. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4103. VEH-HRS	4151. PASS-HRS	4103. VEH-HRS	4151. PASS-HRS
TOTAL TRAV DISTANCE =	149534. VEH-MI.	150536. PASS-MI.	149534. VEH-MI.	150536. PASS-MI.
AVERAGE SYSTEM SPEED =	36. MPH.		38. MPH.	
AVERAGE DENSITY =	43. VPMPL		43. VPMPL	
TOTAL FUEL =	7800. GALLONS		7800. GALLONS	
TOTAL EMISSIONS =	2079. KILOGRAMS		2079. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.49	2	126.42	3	11.72	4	2.57	5	2.99
6	13.17	7	30.14	8	28.46	9	16.15	10	31.23
11	21.43	12	11.29	13	12.38	14	12.91	15	27.57
16	33.20	17	56.26	18	8.74	19	63.74	20	50.25
21	5.72	22	5.82	23	35.35	24	89.98	25	100.02
26	684.72	27	18.63	28	77.66	29	5.53		

***** TOTAL DELAY = 1584.5 VEH-HRS ***** AVERAGE DELAY = 27.69 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	4.46	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	4.46	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	50.	25.00	3.13	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	3.13	8.93	0.55	2.90	0.15	3.60
ON-RAMP	4	RAMP	100.	50.00	3.94	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.94	17.85	1.11	5.79	0.31	7.21
ON-RAMP	5	RAMP	87.	43.50	7.98	15.53	0.96	5.04	0.27	6.27
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	87.	43.50	7.98	15.53	0.96	5.04	0.27	6.27

ON-RAMP	9	RAMP	100.	50.00	2.40	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	2.40	17.85	1.11	5.79	0.31	7.21
OFF-RAMP	2	OUTPUT POINT	48.	24.06		8.59	0.53	2.79	0.15	3.47

QUEUE COLLISION IN SECTION 3 T2 =0.671

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DESTINATIONS ACROSS DOWN	1	2	3	4	5	6
1	0.24	26.17	28.07	30.95	31.81	40.93
2	0.00	2.26	4.16	7.04	7.90	17.02
3	0.00	0.00	1.07	3.95	4.82	13.93
4	0.00	0.00	0.00	2.12	2.99	12.11
5	0.00	0.00	0.00	1.57	2.43	11.55
6	0.00	0.00	0.00	0.00	0.15	9.27
7	0.00	0.00	0.00	0.00	0.00	8.65
8	0.00	0.00	0.00	0.00	0.00	0.95
9	0.00	0.00	0.00	0.00	0.00	0.81
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7070.	1414.	7070.	7070.	1414.	7070.	10000.	0.	0.	0.	.71	65.	21.8	C	19.2	14.0
2	3	99999.	0.	0.	5656.	0.	0.	5442.	7360.	0. *	1204.	214.	.74	61.	29.6	F	19.6	13.7
3	3	2740.	0.	0.	5656.	0.	0.	5442.	6000.	0. **	2740.	329.	.91	27.	67.1	F	19.9	14.3
4	3	600.	0.	0.	5656.	0.	0.	5442.	6000.	0. **	600.	329.	.91	22.	81.6	F	18.8	15.6
5	3	700.	0.	0.	5656.	0.	0.	5442.	6000.	0. **	700.	329.	.91	21.	87.3	F	18.4	16.1
6	3	2630.	0.	0.	5656.	0.	0.	5442.	6000.	0. **	2630.	329.	.91	18.	100.2	F	17.5	17.2
7	3	2530.	0.	0.	5656.	0.	0.	5442.	6000.	0. **	2530.	329.	.91	17.	104.3	F	17.3	17.5
8	4	1500.	382.	0.	6038.	382.	0.	5824.	6383.	0. **	1500.	329.	.91	18.	82.1	F	17.4	17.3
9	4	700.	0.	0.	6038.	0.	0.	5824.	6440.	0. **	700.	329.	.90	17.	84.5	F	17.2	17.6
10	4	1500.	0.	1299.	6038.	0.	1199.	5824.	6139.	0. **	1500.	315.	.95	20.	71.7	F	18.6	16.0
11	3	750.	0.	0.	4739.	0.	0.	4504.	6000.	0. **	750.	315.	.75	10.	145.2	F	13.3	22.5
12	4	350.	512.	0.	5251.	512.	0.	5016.	6453.	0. **	350.	315.	.78	11.	111.5	F	13.8	21.8
13	4	350.	0.	0.	5251.	0.	0.	5016.	6550.	0. **	350.	315.	.77	11.	115.6	F	13.6	22.1
14	4	350.	0.	455.	5251.	0.	461.	5016.	6456.	0. **	350.	315.	.78	11.	111.6	F	13.8	21.8
15	3	700.	0.	0.	4796.	0.	0.	4555.	6000.	0. **	700.	315.	.76	11.	143.0	F	13.5	22.3
16	3	900.	811.	0.	5607.	811.	0.	5366.	5829.	0. **	900.	315.	.92	18.	97.9	F	17.7	17.0
17	3	1400.	366.	0.	5973.	353.	0.	5719.	5923.	0. **	1400.	204.	.97	22.	87.9	F	19.0	15.4
18	3	200.	0.	0.	5973.	0.	0.	5719.	6000.	0. **	200.	204.	.95	21.	92.2	F	18.7	15.8
19	3	1400.	0.	629.	5973.	0.	614.	5719.	5899.	0. **	1400.	180.	.97	22.	86.5	F	19.1	15.3
20	3	900.	0.	0.	5344.	0.	0.	5105.	6000.	0. **	900.	180.	.85	14.	119.0	F	15.8	19.4
21	4	100.	242.	0.	5586.	240.	0.	5345.	6172.	0. **	100.	180.	.87	15.	88.7	F	16.3	18.8
22	4	100.	0.	198.	5586.	0.	192.	5345.	6198.	0. **	100.	180.	.86	15.	89.8	F	16.2	18.9
23	3	600.	0.	0.	5388.	0.	0.	5153.	6000.	0. **	600.	180.	.86	15.	116.9	F	16.1	19.1
24	3	1500.	168.	0.	5556.	168.	0.	5321.	5958.	0. **	1500.	180.	.89	17.	107.2	F	16.9	18.0
25	3	1500.	0.	0.	5556.	0.	0.	5321.	6000.	0. **	1500.	180.	.89	16.	109.6	F	16.8	18.2
26	3	8000.	0.	0.	5556.	0.	0.	5321.	6000.	0. **	8000.	180.	.89	16.	109.6	F	16.8	18.2
27	5	100.	1389.	0.	6945.	1389.	0.	6710.	10000.	0. **	100.	180.	.67	8.	166.0	F	10.8	25.1
28	5	1000.	520.	0.	7465.	520.	0.	7230.	7750.	0. **	1000.	180.	.93	19.	75.6	F	18.1	16.6
29	5	1000.	520.	7985.	7985.	520.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1

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*****************************************************************************************************************************************
*                                                                                                                                       *
*   TOTAL  135469. =   25.7 MILES                      MAX(V/C) = 1.00  LOWEST LOS = F   AVG = 38.   46.5          19.0    14.6  *
*                                                                                                                                       *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3786. VEH-HRS	3818. PASS-HRS	7671. VEH-HRS	7741. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	395. VEH-HRS	415. PASS-HRS	588. VEH-HRS	618. PASS-HRS
OFF-RAMP DELAY =	109. VEH-HRS	109. PASS-HRS	133. VEH-HRS	133. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4289. VEH-HRS	4342. PASS-HRS	8391. VEH-HRS	8493. PASS-HRS
TOTAL TRAV DISTANCE =	144749. VEH-MI.	145774. PASS-MI.	294284. VEH-MI.	296309. PASS-MI.
AVERAGE SYSTEM SPEED =	34. MPH.		38. MPH.	
AVERAGE DENSITY =	46. VPMPL		45. VPMPL	
TOTAL FUEL =	7793. GALLONS		15594. GALLONS	
TOTAL EMISSIONS =	2179. KILOGRAMS		4258. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	98.36	3	62.81	4	18.63	5	23.95
6	108.40	7	109.86	8	67.85	9	32.95	10	56.02
11	52.03	12	24.45	13	25.55	14	24.48	15	47.57
16	35.99	17	46.56	18	7.15	19	45.47	20	47.45
21	5.16	22	5.25	23	30.85	24	68.10	25	70.14
26	374.09	27	13.77	28	50.52	29	5.53		

***** TOTAL DELAY = 1558.9 VEH-HRS ***** AVERAGE DELAY = 17.32 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	6.94	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	6.94	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	5.34	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	5.34	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	6.59	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.59	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	93.50	12.38	33.39	2.07	10.83	0.57	13.48
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	93.50	12.38	33.39	2.07	10.83	0.57	13.48
ON-RAMP	6	RAMP	2.	1.00	0.25	0.36	0.02	0.12	0.01	0.14
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	2.	1.00	0.25	0.36	0.02	0.12	0.01	0.14
ON-RAMP	9	RAMP	100.	100.00	11.63	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	11.63	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	169.	108.55		38.76	2.40	12.58	0.67	15.65

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS \ DESTINATIONS ACROSS	1	2	3	4	5	6
1	0.24	30.68	32.92	36.60	37.66	48.68
2	0.00	3.01	5.25	8.94	10.00	21.02
3	0.00	0.00	1.25	4.94	6.00	17.02

```
*  4 *   0.00  0.00  0.00  2.83  3.89 14.91
*  5 *   0.00  0.00  0.00  2.09  3.15 14.17
*  6 *   0.00  0.00  0.00  0.00  0.19 11.21
*  7 *   0.00  0.00  0.00  0.00  0.00 10.45
*  8 *   0.00  0.00  0.00  0.00  0.00  1.04
*  9 *   0.00  0.00  0.00  0.00  0.00  0.88
* 10 *   0.00  0.00  0.00  0.00  0.00  0.22
*    *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6510.	1302.	6510.	6510.	1302.	6510.	10000.	0.	0.	0.	.65	65.	20.0	C	19.2	14.0
2	3	99999.	0.	0.	5208.	0.	0.	5046.	7360.	0. *	2864.	162.	.69	57.	29.4	F	19.0	14.1
3	3	2740.	0.	0.	5208.	0.	0.	5046.	6000.	0. **	2740.	162.	.84	14.	121.6	F	15.4	19.8
4	3	600.	0.	0.	5208.	0.	0.	5046.	6000.	0. **	600.	162.	.84	14.	121.6	F	15.4	19.8
5	3	700.	0.	0.	5208.	0.	0.	5046.	6000.	0. **	700.	162.	.84	14.	121.6	F	15.4	19.8
6	3	2630.	0.	0.	5208.	0.	0.	5046.	6000.	0. **	2630.	162.	.84	14.	121.6	F	15.4	19.8
7	3	2530.	0.	0.	5208.	0.	0.	5046.	6000.	0. **	2530.	162.	.84	14.	121.6	F	15.4	19.8
8	4	1500.	278.	0.	5486.	278.	0.	5324.	6398.	0. **	1500.	162.	.83	13.	99.1	F	15.2	20.1
9	4	700.	0.	0.	5486.	0.	0.	5324.	6440.	0. **	700.	162.	.83	13.	100.9	F	15.0	20.3
10	4	1500.	0.	1165.	5486.	0.	1225.	5324.	6165.	0. **	1500.	162.	.86	15.	89.1	F	16.2	18.9
11	3	750.	0.	0.	4321.	0.	0.	4158.	6000.	0. **	750.	162.	.69	9.	160.2	F	11.4	24.4
12	4	350.	537.	0.	4858.	537.	0.	4695.	6446.	0. **	350.	162.	.73	10.	121.7	F	12.7	23.2
13	4	350.	0.	0.	4858.	0.	0.	4695.	6550.	0. **	350.	162.	.72	9.	126.1	F	12.2	23.6
14	4	350.	0.	398.	4858.	0.	398.	4695.	6468.	0. **	350.	162.	.73	10.	122.6	F	12.6	23.3
15	3	700.	0.	0.	4460.	0.	0.	4297.	6000.	0. **	700.	162.	.72	9.	154.2	F	12.2	23.6
16	3	900.	643.	0.	5103.	643.	0.	4940.	5863.	0. **	900.	162.	.84	14.	118.4	F	15.5	19.7
17	3	1400.	329.	0.	5432.	329.	0.	5269.	5930.	0. **	1400.	162.	.89	16.	107.9	F	16.8	18.1
18	3	200.	0.	0.	5432.	0.	0.	5269.	6000.	0. **	200.	162.	.88	16.	111.8	F	16.6	18.4
19	3	1400.	0.	524.	5432.	0.	525.	5269.	5914.	0. **	1400.	162.	.89	16.	107.0	F	16.9	18.0
20	3	900.	0.	0.	4908.	0.	0.	4744.	6000.	0. **	900.	162.	.79	12.	134.7	F	14.1	21.4
21	4	100.	194.	0.	5102.	196.	0.	4940.	6184.	0. **	100.	162.	.80	12.	102.5	F	14.3	21.2
22	4	100.	0.	172.	5102.	0.	172.	4940.	6202.	0. **	100.	162.	.80	12.	103.3	F	14.2	21.2
23	3	600.	0.	0.	4930.	0.	0.	4768.	6000.	0. **	600.	162.	.79	12.	133.7	F	14.2	21.3
24	3	1500.	200.	0.	5130.	200.	0.	4968.	5950.	0. **	1500.	162.	.83	14.	122.1	F	15.2	20.0
25	3	1500.	0.	0.	5130.	0.	0.	4968.	6000.	0. **	1500.	162.	.83	13.	125.0	F	15.0	20.2
26	3	8000.	0.	0.	5130.	0.	0.	4968.	6000.	0. **	8000.	162.	.83	13.	125.0	F	15.0	20.2
27	5	100.	1282.	0.	6412.	1282.	0.	6250.	10000.	0. **	100.	162.	.63	7.	178.0	F	9.9	26.3
28	5	1000.	750.	0.	7162.	750.	0.	7000.	7750.	0. **	1000.	162.	.90	17.	81.6	F	17.2	17.6
29	5	1000.	750.	7912.	7912.	750.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. = 25.7 MILES								MAX(V/C) = 1.00 LOWEST LOS = F				AVG = 32.	51.3		18.0	15.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4155. VEH-HRS	4189. PASS-HRS	11826. VEH-HRS	11931. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	401. VEH-HRS	421. PASS-HRS	989. VEH-HRS	1039. PASS-HRS
OFF-RAMP DELAY =	139. VEH-HRS	140. PASS-HRS	272. VEH-HRS	273. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4695. VEH-HRS	4750. PASS-HRS	13087. VEH-HRS	13242. PASS-HRS
TOTAL TRAV DISTANCE =	133514. VEH-MI.	134494. PASS-MI.	427797. VEH-MI.	430803. PASS-MI.
AVERAGE SYSTEM SPEED =	28. MPH.		36. MPH.	
AVERAGE DENSITY =	51. VPMPL		47. VPMPL	
TOTAL FUEL =	7622. GALLONS		23216. GALLONS	
TOTAL EMISSIONS =	2144. KILOGRAMS		6402. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	206.93	3	149.00	4	32.63	5	38.07
6	143.02	7	137.58	8	89.34	9	42.64	10	78.03
11	59.20	12	27.47	13	28.65	14	27.72	15	52.56
16	47.58	17	64.30	18	9.64	19	63.58	20	56.46
21	6.33	22	6.38	23	37.24	24	82.37	25	84.79
26	452.23	27	15.04	28	56.88	29	5.53		

***** TOTAL DELAY = 2101.2 VEH-HRS ***** AVERAGE DELAY = 25.07 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	9.15	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	9.15	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	5.11	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	5.11	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	8.08	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.08	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	13.99	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	13.99	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	0.	1.00	0.04	0.36	0.02	0.12	0.01	0.14
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	0.	1.00	0.04	0.36	0.02	0.12	0.01	0.14
ON-RAMP	9	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	109.	139.06		49.66	3.08	16.11	0.85	20.04

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	1	1650.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	1	1650.	350.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp

20	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.21	22.53	23.40	23.59	25.86	0.00
3	0.00	0.00	0.00	0.00	2.13	4.40	0.00
4	0.00	0.00	0.00	0.00	0.00	3.52	0.00
5	0.00	0.00	0.00	0.00	0.00	3.21	0.00
6	0.00	0.00	0.00	0.00	0.00	3.05	0.00
7	0.00	0.00	0.00	0.00	0.00	2.31	0.00
8	0.00	0.00	0.00	0.00	0.00	2.16	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1524.	0.	1524.	1524.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
3	1	2740.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
4	1	600.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
5	1	700.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
6	1	2630.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
7	1	2530.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
8	1	1500.	54.	0.	1578.	54.	0.	1578.	1650.	0.	0.	0.	.96	56.	28.3	D	24.2	11.3
9	1	700.	0.	0.	1578.	0.	0.	1578.	1650.	0.	0.	0.	.96	56.	28.3	D	24.2	11.3
10	1	1500.	0.	306.	1578.	0.	285.	1578.	1650.	0.	0.	0.	.96	56.	28.3	D	24.2	11.3
11	1	750.	0.	0.	1271.	0.	0.	1271.	1650.	0.	0.	0.	.77	65.	19.6	C	20.0	13.7
12	1	350.	97.	0.	1369.	97.	0.	1369.	1650.	0.	0.	0.	.83	65.	21.1	C	20.0	13.7
13	1	350.	0.	0.	1369.	0.	0.	1369.	1650.	0.	0.	0.	.83	65.	21.1	C	20.0	13.7
14	1	350.	0.	89.	1369.	0.	89.	1369.	1650.	0.	0.	0.	.83	65.	21.1	C	20.0	13.7
15	1	700.	0.	0.	1280.	0.	0.	1280.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
16	1	900.	169.	0.	1449.	169.	0.	1449.	1650.	0.	0.	0.	.88	65.	22.3	C	20.0	13.7
17	1	1400.	73.	0.	1522.	73.	0.	1522.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
18	1	200.	0.	0.	1522.	0.	0.	1522.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
19	1	1400.	0.	81.	1522.	0.	81.	1522.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
20	1	900.	0.	0.	1441.	0.	0.	1441.	1650.	0.	0.	0.	.87	65.	22.2	C	20.0	13.7
21	1	100.	55.	0.	1496.	55.	0.	1496.	1650.	0.	0.	0.	.91	59.	25.4	C	23.1	11.9
22	1	100.	0.	22.	1496.	0.	22.	1496.	1650.	0.	0.	0.	.91	59.	25.4	C	23.1	11.9
23	1	600.	0.	0.	1474.	0.	0.	1474.	1650.	0.	0.	0.	.89	60.	24.7	C	22.9	12.0
24	1	1500.	46.	0.	1520.	46.	0.	1520.	1650.	0.	0.	0.	.92	58.	26.2	D	23.4	11.8
25	1	1500.	0.	0.	1520.	0.	0.	1520.	1650.	0.	0.	0.	.92	58.	26.2	D	23.4	11.8
26	1	8000.	0.	1520.	1520.	0.	1520.	1520.	1650.	0.	0.	0.	.92	58.	26.2	D	23.4	11.8
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES							MAX(V/C) = 0.96		LOWEST LOS = D		AVG = 58.		26.2		23.3	11.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	655. VEH-HRS	1311. PASS-HRS	655. VEH-HRS	1311. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	10. VEH-HRS	21. PASS-HRS	10. VEH-HRS	21. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	666. VEH-HRS	1332. PASS-HRS	666. VEH-HRS	1332. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	37998. VEH-MI.	75996. PASS-MI.	37998. VEH-MI.	75996. PASS-MI.
AVERAGE SYSTEM SPEED =	57. MPH.		58. MPH.	
AVERAGE DENSITY =	26. VPMPL		26. VPMPL	
TOTAL FUEL =	1633. GALLONS		1633. GALLONS	
TOTAL EMISSIONS =	449. KILOGRAMS		449. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	55.10	3	1.51	4	0.33	5	0.39
6	1.45	7	1.39	8	1.15	9	0.54	10	1.15
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.76	18	0.11	19	0.76	20	0.00
21	0.05	22	0.05	23	0.24	24	0.80	25	0.80
26	4.28	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 70.9 VEH-HRS ***** AVERAGE DELAY = 2.79 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	21.	10.47	3.59	0.23	1.18	0.06	1.47

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.80	20.11	20.91	21.11	23.14	0.00

3	0.00	0.00	0.00	0.00	2.02	4.04	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1414.	0.	1414.	1414.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
3	1	2740.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
4	1	600.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
5	1	700.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
6	1	2630.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
7	1	2530.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
8	1	1500.	57.	0.	1471.	57.	0.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.1
9	1	700.	0.	0.	1471.	0.	0.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.1
10	1	1500.	0.	301.	1471.	0.	282.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.1
11	1	750.	0.	0.	1170.	0.	0.	1170.	1650.	0.	0.	0.	.71	65.	18.0	B	20.0	13.7
12	1	350.	97.	0.	1267.	97.	0.	1267.	1650.	0.	0.	0.	.77	65.	19.5	C	20.0	13.7
13	1	350.	0.	0.	1267.	0.	0.	1267.	1650.	0.	0.	0.	.77	65.	19.5	C	20.0	13.7
14	1	350.	0.	94.	1267.	0.	94.	1267.	1650.	0.	0.	0.	.77	65.	19.5	C	20.0	13.7
15	1	700.	0.	0.	1173.	0.	0.	1173.	1650.	0.	0.	0.	.71	65.	18.0	C	20.0	13.7
16	1	900.	171.	0.	1344.	171.	0.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
17	1	1400.	77.	0.	1422.	77.	0.	1422.	1650.	0.	0.	0.	.86	65.	21.9	C	20.0	13.7
18	1	200.	0.	0.	1422.	0.	0.	1422.	1650.	0.	0.	0.	.86	65.	21.9	C	20.0	13.7
19	1	1400.	0.	101.	1422.	0.	101.	1422.	1650.	0.	0.	0.	.86	65.	21.9	C	20.0	13.7
20	1	900.	0.	0.	1321.	0.	0.	1321.	1650.	0.	0.	0.	.80	65.	20.3	C	20.0	13.7
21	1	100.	58.	0.	1379.	58.	0.	1379.	1650.	0.	0.	0.	.84	65.	21.2	C	20.0	13.7
22	1	100.	0.	32.	1379.	0.	32.	1379.	1650.	0.	0.	0.	.84	65.	21.2	C	20.0	13.7
23	1	600.	0.	0.	1347.	0.	0.	1347.	1650.	0.	0.	0.	.82	65.	20.7	C	20.0	13.7
24	1	1500.	42.	0.	1389.	42.	0.	1389.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
25	1	1500.	0.	0.	1389.	0.	0.	1389.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
26	1	8000.	0.	1389.	1389.	0.	1389.	1389.	1650.	0.	0.	0.	.84	65.	21.4	C	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES				MAX(V/C) = 0.89		LOWEST LOS = C		AVG = 65.					21.7		20.1	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	543. VEH-HRS	1086. PASS-HRS	1199. VEH-HRS	2397. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	30. VEH-HRS	61. PASS-HRS	41. VEH-HRS	82. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	573. VEH-HRS	1147. PASS-HRS	1239. VEH-HRS	2479. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	35209. VEH-MI.	70418. PASS-MI.	73207. VEH-MI.	146414. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		61. MPH.	
AVERAGE DENSITY =	22. VPMPL		24. VPMPL	
TOTAL FUEL =	1764. GALLONS		3398. GALLONS	
TOTAL EMISSIONS =	486. KILOGRAMS		935. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.58	9	0.27	10	0.58
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.06 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	40.	30.35	10.41	0.66	3.42	0.18	4.26

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1302.	0.	1302.	1302.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
3	1	2740.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
4	1	600.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
5	1	700.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
6	1	2630.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
7	1	2530.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
8	1	1500.	42.	0.	1345.	42.	0.	1345.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
9	1	700.	0.	0.	1345.	0.	0.	1345.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
10	1	1500.	0.	275.	1345.	0.	286.	1345.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
11	1	750.	0.	0.	1070.	0.	0.	1070.	1650.	0.	0.	0.	.65	65.	16.5	B	20.0	13.7
12	1	350.	104.	0.	1174.	104.	0.	1174.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
13	1	350.	0.	0.	1174.	0.	0.	1174.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
14	1	350.	0.	82.	1174.	0.	82.	1174.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
15	1	700.	0.	0.	1092.	0.	0.	1092.	1650.	0.	0.	0.	.66	65.	16.8	B	20.0	13.7
16	1	900.	137.	0.	1230.	137.	0.	1230.	1650.	0.	0.	0.	.75	65.	18.9	C	20.0	13.7
17	1	1400.	70.	0.	1300.	70.	0.	1300.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
18	1	200.	0.	0.	1300.	0.	0.	1300.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
19	1	1400.	0.	86.	1300.	0.	86.	1300.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
20	1	900.	0.	0.	1214.	0.	0.	1214.	1650.	0.	0.	0.	.74	65.	18.7	C	20.0	13.7
21	1	100.	46.	0.	1261.	46.	0.	1261.	1650.	0.	0.	0.	.76	65.	19.4	C	20.0	13.7
22	1	100.	0.	28.	1261.	0.	28.	1261.	1650.	0.	0.	0.	.76	65.	19.4	C	20.0	13.7
23	1	600.	0.	0.	1232.	0.	0.	1232.	1650.	0.	0.	0.	.75	65.	19.0	C	20.0	13.7
24	1	1500.	50.	0.	1282.	50.	0.	1282.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
25	1	1500.	0.	0.	1282.	0.	0.	1282.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
26	1	8000.	0.	1282.	1282.	0.	1282.	1282.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES						MAX(V/C) = 0.81	LOWEST LOS = C				AVG = 65.	19.9			20.0	13.7

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 3 OF 3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	499. VEH-HRS	997. PASS-HRS	1697. VEH-HRS	3395. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	34. VEH-HRS	68. PASS-HRS	75. VEH-HRS	150. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	533. VEH-HRS	1066. PASS-HRS	1772. VEH-HRS	3544. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	32418. VEH-MI.	64837. PASS-MI.	105626. VEH-MI.	211251. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		23. VPMPL	
TOTAL FUEL =	1633. GALLONS		5030. GALLONS	
TOTAL EMISSIONS =	450. KILOGRAMS		1385. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	28.	34.04	11.68	0.74	3.84	0.20	4.78

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7360.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6440.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6440.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6440.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6640.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6640.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6640.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6230.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6230.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 28 T2 =0.044
QUEUE COLLISION IN SECTION 10 T2 =0.838

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	22.66	23.76	27.05	28.14	46.05
2	0.00	1.46	2.56	5.86	6.94	24.85
3	0.00	0.00	0.67	3.96	5.05	22.96
4	0.00	0.00	0.00	2.76	3.85	21.76
5	0.00	0.00	0.00	2.16	3.25	21.16
6	0.00	0.00	0.00	0.00	0.20	18.10
7	0.00	0.00	0.00	0.00	0.00	17.29
8	0.00	0.00	0.00	0.00	0.00	1.39
9	0.00	0.00	0.00	0.00	0.00	1.14
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7619.	1524.	7619.	7619.	1524.	7619.	10000.	0.	0.	0.	.76	64.	23.8	C	19.6	13.7
2	3	99999.	0.	0.	6095.	0.	0.	6000.	7360.	0. *	1340.	95.	.82	61.	32.9	F	20.4	13.1
3	3	2740.	0.	0.	6095.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
4	3	600.	0.	0.	6095.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
5	3	700.	0.	0.	6095.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
6	3	2630.	0.	0.	6095.	0.	0.	3373.	6000.	0. *	1190.	2627.	.56	50.	22.4	F	23.6	11.2
7	3	2530.	0.	0.	6095.	0.	0.	3373.	6000.	0. **	2530.	2627.	.56	38.	29.9	F	22.0	11.9
8	4	1500.	336.	0.	6431.	286.	0.	3659.	6386.	0. **	1500.	2627.	.57	31.	30.0	F	20.4	12.8
9	4	700.	0.	0.	6431.	0.	0.	3659.	6440.	0. **	700.	2627.	.57	27.	33.7	F	19.6	13.3
10	4	1500.	0.	1231.	6431.	0.	1176.	3659.	6151.	0. **	1500.	2492.	.59	28.	32.6	F	20.1	13.1
11	3	750.	0.	0.	5200.	0.	0.	2483.	6000.	0. **	750.	2492.	.41	20.	42.0	F	17.2	15.1
12	4	350.	481.	0.	5681.	431.	0.	2914.	6544.	0. **	350.	2492.	.45	19.	38.4	F	16.0	16.3
13	4	350.	0.	0.	5681.	0.	0.	2914.	6640.	0. **	350.	2492.	.44	18.	41.2	F	15.8	16.5
14	4	350.	0.	495.	5681.	0.	470.	2914.	6535.	0. **	350.	2492.	.45	17.	42.6	F	15.6	16.7
15	3	700.	0.	0.	5186.	0.	0.	2444.	6000.	0. **	700.	2492.	.41	15.	54.6	F	16.1	16.1
16	3	900.	720.	0.	5906.	620.	0.	3064.	5840.	0. **	900.	2492.	.52	17.	59.8	F	16.5	15.5
17	3	1400.	393.	0.	6299.	293.	0.	3357.	5913.	0. **	1400.	2492.	.57	17.	66.9	F	16.4	15.7
18	3	200.	0.	0.	6299.	0.	0.	3357.	6000.	0. **	200.	2492.	.56	16.	72.0	F	15.8	16.2
19	3	1400.	0.	479.	6299.	0.	442.	3357.	5919.	0. **	1400.	2492.	.57	15.	75.1	F	15.5	16.5
20	3	900.	0.	0.	5820.	0.	0.	2915.	6000.	0. **	900.	2492.	.49	12.	84.5	F	14.1	17.8
21	4	100.	225.	0.	6045.	225.	0.	3140.	6175.	0. **	100.	2492.	.51	12.	67.3	F	13.0	19.4
22	4	100.	0.	128.	6045.	0.	119.	3140.	6208.	0. **	100.	2492.	.51	11.	68.4	F	13.0	19.5
23	3	600.	0.	0.	5917.	0.	0.	3021.	6000.	0. **	600.	2492.	.50	11.	91.3	F	13.6	18.4
24	3	1500.	184.	0.	6101.	184.	0.	3205.	5954.	0. **	1500.	2492.	.54	11.	96.6	F	13.4	18.7
25	3	1500.	0.	0.	6101.	0.	0.	3205.	6000.	0. **	1500.	2492.	.53	10.	108.4	F	12.6	19.8
26	3	8000.	0.	0.	6101.	0.	0.	3205.	6000.	0. **	8000.	2492.	.53	7.	148.4	F	10.5	23.4
27	5	100.	1525.	0.	7626.	1525.	0.	4730.	10000.	0. **	100.	2492.	.47	5.	208.2	F	8.7	28.0
28	5	1000.	1560.	0.	9186.	1460.	0.	6190.	7750.	0. **	1000.	1560.	.80	12.	100.6	F	14.4	20.9
29	5	1000.	1560.	10746.	10746.	1560.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. =	25.7 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 38.	43.6		19.3	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3899. VEH-HRS	3937. PASS-HRS	3899. VEH-HRS	3937. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	200. VEH-HRS	210. PASS-HRS	200. VEH-HRS	210. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4099. VEH-HRS	4147. PASS-HRS	4099. VEH-HRS	4147. PASS-HRS
TOTAL TRAV DISTANCE =	149472. VEH-MI.	150473. PASS-MI.	149472. VEH-MI.	150473. PASS-MI.
AVERAGE SYSTEM SPEED =	36. MPH.		38. MPH.	
AVERAGE DENSITY =	44. VPMPL		44. VPMPL	
TOTAL FUEL =	7797. GALLONS		7797. GALLONS	
TOTAL EMISSIONS =	2077. KILOGRAMS		2077. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.49	2	125.12	3	11.72	4	2.57	5	2.99
6	13.55	7	31.04	8	29.04	9	16.43	10	32.79
11	22.07	12	11.79	13	12.90	14	13.37	15	28.39
16	34.42	17	57.31	18	8.90	19	64.85	20	50.98
21	5.79	22	5.90	23	35.79	24	90.98	25	100.92
26	687.70	27	18.64	28	77.66	29	5.53		

***** TOTAL DELAY = 1599.6 VEH-HRS ***** AVERAGE DELAY = 28.02 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	4.46	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	4.46	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	50.	25.00	3.12	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	3.12	8.93	0.55	2.90	0.15	3.60
ON-RAMP	4	RAMP	100.	50.00	4.17	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.17	17.85	1.11	5.79	0.31	7.21
ON-RAMP	5	RAMP	100.	50.00	7.63	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	7.63	17.85	1.11	5.79	0.31	7.21

ON-RAMP	9	RAMP	100.	50.00	2.40	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	2.40	17.85	1.11	5.79	0.31	7.21

QUEUE COLLISION IN SECTION 3 T2 =0.535

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DESTINATIONS ACROSS	1	2	3	4	5	6
1	0.24	27.14	29.08	32.04	32.92	42.12
2	0.00	2.41	4.35	7.31	8.19	17.39
3	0.00	0.00	1.10	4.06	4.94	14.13
4	0.00	0.00	0.00	2.19	3.06	12.26
5	0.00	0.00	0.00	1.58	2.46	11.66
6	0.00	0.00	0.00	0.00	0.15	9.35
7	0.00	0.00	0.00	0.00	0.00	8.73
8	0.00	0.00	0.00	0.00	0.00	0.95
9	0.00	0.00	0.00	0.00	0.00	0.81
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7070.	1414.	7070.	7070.	1414.	7070.	10000.	0.	0.	0.	.71	65.	21.8	C	19.2	14.0
2	3	99999.	0.	0.	5656.	0.	0.	5337.	7360.	0. *	2242.	319.	.73	60.	29.5	F	19.6	13.7
3	3	2740.	0.	0.	5656.	0.	0.	5337.	6000.	0. **	2740.	431.	.89	23.	76.7	F	19.0	15.3
4	3	600.	0.	0.	5656.	0.	0.	5337.	6000.	0. **	600.	431.	.89	20.	89.5	F	18.1	16.4
5	3	700.	0.	0.	5656.	0.	0.	5337.	6000.	0. **	700.	431.	.89	19.	94.6	F	17.7	16.9
6	3	2630.	0.	0.	5656.	0.	0.	5337.	6000.	0. **	2630.	431.	.89	17.	105.7	F	17.0	17.8
7	3	2530.	0.	0.	5656.	0.	0.	5337.	6000.	0. **	2530.	431.	.89	16.	108.9	F	16.8	18.1
8	4	1500.	382.	0.	6038.	382.	0.	5719.	6383.	0. **	1500.	431.	.90	17.	85.5	F	17.0	17.9
9	4	700.	0.	0.	6038.	0.	0.	5719.	6440.	0. **	700.	431.	.89	16.	88.0	F	16.8	18.1
10	4	1500.	0.	1226.	6038.	0.	1216.	5719.	6156.	0. **	1500.	431.	.93	19.	75.9	F	18.0	16.7
11	3	750.	0.	0.	4812.	0.	0.	4471.	6000.	0. **	750.	431.	.75	10.	146.6	F	13.2	22.7
12	4	350.	562.	0.	5374.	562.	0.	5033.	6535.	0. **	350.	431.	.77	11.	114.4	F	13.7	22.0
13	4	350.	0.	0.	5374.	0.	0.	5033.	6640.	0. **	350.	431.	.76	11.	118.9	F	13.5	22.3
14	4	350.	0.	532.	5374.	0.	540.	5033.	6532.	0. **	350.	431.	.77	11.	114.3	F	13.7	22.0
15	3	700.	0.	0.	4842.	0.	0.	4493.	6000.	0. **	700.	431.	.75	10.	145.7	F	13.3	22.6
16	3	900.	763.	0.	5605.	763.	0.	5256.	5838.	0. **	900.	431.	.90	17.	103.2	F	17.1	17.7
17	3	1400.	438.	0.	6043.	438.	0.	5694.	5907.	0. **	1400.	213.	.96	22.	88.0	F	19.0	15.5
18	3	200.	0.	0.	6043.	0.	0.	5694.	6000.	0. **	200.	213.	.95	20.	93.3	F	18.6	15.9
19	3	1400.	0.	630.	6043.	0.	608.	5694.	5900.	0. **	1400.	206.	.97	22.	87.6	F	19.0	15.4
20	3	900.	0.	0.	5413.	0.	0.	5086.	6000.	0. **	900.	206.	.85	14.	119.8	F	15.7	19.5
21	4	100.	242.	0.	5655.	240.	0.	5326.	6172.	0. **	100.	206.	.86	15.	89.4	F	16.2	18.9
22	4	100.	0.	198.	5655.	0.	190.	5326.	6198.	0. **	100.	206.	.86	15.	90.5	F	16.1	19.1
23	3	600.	0.	0.	5457.	0.	0.	5136.	6000.	0. **	600.	206.	.86	15.	117.6	F	15.9	19.2
24	3	1500.	168.	0.	5625.	168.	0.	5304.	5958.	0. **	1500.	206.	.89	16.	107.9	F	16.8	18.1
25	3	1500.	0.	0.	5625.	0.	0.	5304.	6000.	0. **	1500.	206.	.88	16.	110.3	F	16.7	18.3
26	3	8000.	0.	0.	5625.	0.	0.	5304.	6000.	0. **	8000.	206.	.88	16.	110.3	F	16.7	18.3
27	5	100.	1406.	0.	7031.	1406.	0.	6710.	10000.	0. **	100.	206.	.67	8.	166.0	F	10.8	25.1
28	5	1000.	520.	0.	7551.	520.	0.	7230.	7750.	0. **	1000.	206.	.93	19.	75.6	F	18.1	16.6
29	5	1000.	520.	8071.	8071.	520.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1

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*   TOTAL  135469. =   25.7 MILES                    MAX(V/C) = 1.00  LOWEST LOS = F   AVG = 37.   47.1          18.9    14.7  *
*                                                                                                                              *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3876. VEH-HRS	3908. PASS-HRS	7775. VEH-HRS	7845. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	401. VEH-HRS	421. PASS-HRS	601. VEH-HRS	631. PASS-HRS
OFF-RAMP DELAY =	16. VEH-HRS	16. PASS-HRS	16. VEH-HRS	16. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4293. VEH-HRS	4345. PASS-HRS	8392. VEH-HRS	8493. PASS-HRS
TOTAL TRAV DISTANCE =	144381. VEH-MI.	145405. PASS-MI.	293853. VEH-MI.	295878. PASS-MI.
AVERAGE SYSTEM SPEED =	34. MPH.		38. MPH.	
AVERAGE DENSITY =	47. VPMPL		45. VPMPL	
TOTAL FUEL =	7785. GALLONS		15582. GALLONS	
TOTAL EMISSIONS =	2176. KILOGRAMS		4253. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	128.51	3	79.22	4	21.59	5	27.12
6	117.45	7	117.21	8	72.21	9	34.99	10	61.20
11	52.72	12	25.21	13	26.40	14	25.18	15	48.77
16	38.99	17	46.81	18	7.29	19	46.49	20	47.93
21	5.22	22	5.30	23	31.13	24	68.81	25	70.85
26	377.85	27	13.77	28	50.52	29	5.53		

***** TOTAL DELAY = 1654.3 VEH-HRS ***** AVERAGE DELAY = 18.55 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	6.94	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	6.94	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	4.90	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.90	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	6.95	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.95	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	11.15	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	11.15	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	2.	1.00	0.25	0.36	0.02	0.12	0.01	0.14
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	2.	1.00	0.25	0.36	0.02	0.12	0.01	0.14
ON-RAMP	9	RAMP	100.	100.00	11.63	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	11.63	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	32.	16.04		5.73	0.36	1.86	0.10	2.31

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	31.85	34.08	37.80	38.86	49.88
2	0.00	3.02	5.25	8.97	10.03	21.05
3	0.00	0.00	1.28	5.00	6.06	17.08
4	0.00	0.00	0.00	2.85	3.91	14.93

* 5 *	0.00	0.00	0.00	2.08	3.14	14.16	
* 6 *	0.00	0.00	0.00	0.00	0.19	11.21	
* 7 *	0.00	0.00	0.00	0.00	0.00	10.45	
* 8 *	0.00	0.00	0.00	0.00	0.00	1.04	
* 9 *	0.00	0.00	0.00	0.00	0.00	0.88	
* 10 *	0.00	0.00	0.00	0.00	0.00	0.22	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6510.	1302.	6510.	6510.	1302.	6510.	10000.	0.	0.	0.	.65	65.	20.0	C	19.2	14.0
2	3	99999.	0.	0.	5208.	0.	0.	5047.	7360.	0. *	3888.	161.	.69	54.	31.1	F	18.9	14.2
3	3	2740.	0.	0.	5208.	0.	0.	5047.	6000.	0. **	2740.	161.	.84	14.	121.5	F	15.4	19.8
4	3	600.	0.	0.	5208.	0.	0.	5047.	6000.	0. **	600.	161.	.84	14.	121.5	F	15.4	19.8
5	3	700.	0.	0.	5208.	0.	0.	5047.	6000.	0. **	700.	161.	.84	14.	121.5	F	15.4	19.8
6	3	2630.	0.	0.	5208.	0.	0.	5047.	6000.	0. **	2630.	161.	.84	14.	121.5	F	15.4	19.8
7	3	2530.	0.	0.	5208.	0.	0.	5047.	6000.	0. **	2530.	161.	.84	14.	121.5	F	15.4	19.8
8	4	1500.	278.	0.	5486.	278.	0.	5325.	6398.	0. **	1500.	161.	.83	13.	99.0	F	15.2	20.1
9	4	700.	0.	0.	5486.	0.	0.	5325.	6440.	0. **	700.	161.	.83	13.	100.8	F	15.0	20.3
10	4	1500.	0.	1109.	5486.	0.	1109.	5325.	6179.	0. **	1500.	161.	.86	15.	89.7	F	16.2	19.0
11	3	750.	0.	0.	4377.	0.	0.	4216.	6000.	0. **	750.	161.	.70	9.	157.7	F	11.7	24.1
12	4	350.	503.	0.	4880.	503.	0.	4719.	6544.	0. **	350.	161.	.72	9.	125.1	F	12.4	23.5
13	4	350.	0.	0.	4880.	0.	0.	4719.	6640.	0. **	350.	161.	.71	9.	129.2	F	12.0	23.8
14	4	350.	0.	455.	4880.	0.	455.	4719.	6546.	0. **	350.	161.	.72	9.	125.2	F	12.4	23.5
15	3	700.	0.	0.	4425.	0.	0.	4264.	6000.	0. **	700.	161.	.71	9.	155.7	F	12.0	23.8
16	3	900.	610.	0.	5035.	610.	0.	4874.	5870.	0. **	900.	161.	.83	13.	121.7	F	15.1	20.1
17	3	1400.	396.	0.	5431.	396.	0.	5270.	5915.	0. **	1400.	161.	.89	16.	107.0	F	16.9	18.1
18	3	200.	0.	0.	5431.	0.	0.	5270.	6000.	0. **	200.	161.	.88	16.	111.8	F	16.6	18.4
19	3	1400.	0.	524.	5431.	0.	525.	5270.	5914.	0. **	1400.	161.	.89	16.	106.9	F	16.9	18.0
20	3	900.	0.	0.	4907.	0.	0.	4745.	6000.	0. **	900.	161.	.79	12.	134.7	F	14.1	21.4
21	4	100.	194.	0.	5101.	196.	0.	4941.	6184.	0. **	100.	161.	.80	12.	102.5	F	14.3	21.2
22	4	100.	0.	173.	5101.	0.	173.	4941.	6202.	0. **	100.	161.	.80	12.	103.2	F	14.2	21.2
23	3	600.	0.	0.	4928.	0.	0.	4768.	6000.	0. **	600.	161.	.79	12.	133.7	F	14.2	21.3
24	3	1500.	200.	0.	5128.	200.	0.	4968.	5950.	0. **	1500.	161.	.83	14.	122.1	F	15.2	20.0
25	3	1500.	0.	0.	5128.	0.	0.	4968.	6000.	0. **	1500.	161.	.83	13.	125.0	F	15.0	20.2
26	3	8000.	0.	0.	5128.	0.	0.	4968.	6000.	0. **	8000.	161.	.83	13.	125.0	F	15.0	20.2
27	5	100.	1282.	0.	6410.	1282.	0.	6250.	10000.	0. **	100.	161.	.63	7.	178.0	F	9.9	26.3
28	5	1000.	750.	0.	7160.	750.	0.	7000.	7750.	0. **	1000.	161.	.90	17.	81.6	F	17.2	17.6
29	5	1000.	750.	7910.	7910.	750.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL	135469. =	25.7 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 31.	52.6			17.9	15.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4259. VEH-HRS	4293. PASS-HRS	12034. VEH-HRS	12139. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	401. VEH-HRS	421. PASS-HRS	1002. VEH-HRS	1052. PASS-HRS
OFF-RAMP DELAY =	16. VEH-HRS	16. PASS-HRS	32. VEH-HRS	32. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4676. VEH-HRS	4730. PASS-HRS	13068. VEH-HRS	13223. PASS-HRS
TOTAL TRAV DISTANCE =	133484. VEH-MI.	134464. PASS-MI.	427337. VEH-MI.	430342. PASS-MI.
AVERAGE SYSTEM SPEED =	29. MPH.		36. MPH.	
AVERAGE DENSITY =	53. VPMPL		48. VPMPL	
TOTAL FUEL =	7616. GALLONS		23198. GALLONS	
TOTAL EMISSIONS =	2137. KILOGRAMS		6390. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	308.16	3	148.89	4	32.60	5	38.04
6	142.92	7	137.48	8	89.27	9	42.61	10	78.65
11	58.00	12	28.35	13	29.44	14	28.37	15	53.21
16	49.44	17	63.61	18	9.64	19	63.56	20	56.44
21	6.32	22	6.38	23	37.24	24	82.37	25	84.79
26	452.23	27	15.04	28	56.88	29	5.53		

***** TOTAL DELAY = 2205.5 VEH-HRS ***** AVERAGE DELAY = 26.31 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	9.15	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	9.15	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	5.42	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	5.42	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	8.45	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.45	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	12.10	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	12.10	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	0.	1.00	0.04	0.36	0.02	0.12	0.01	0.14
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	0.	1.00	0.04	0.36	0.02	0.12	0.01	0.14
ON-RAMP	9	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	0.	16.04		5.73	0.36	1.86	0.10	2.31

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB NO. / SEC	LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	65		0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	1	1650.	350.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	65		0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp

20	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.21	22.52	23.39	23.59	25.87	0.00
3	0.00	0.00	0.00	0.00	2.14	4.41	0.00
4	0.00	0.00	0.00	0.00	0.00	3.53	0.00
5	0.00	0.00	0.00	0.00	0.00	3.22	0.00
6	0.00	0.00	0.00	0.00	0.00	3.06	0.00
7	0.00	0.00	0.00	0.00	0.00	2.32	0.00
8	0.00	0.00	0.00	0.00	0.00	2.16	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1524.	0.	1524.	1524.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
3	1	2740.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
4	1	600.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
5	1	700.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
6	1	2630.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
7	1	2530.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.3	D	23.4	11.7
8	1	1500.	54.	0.	1577.	54.	0.	1577.	1650.	0.	0.	0.	.96	56.	28.3	D	24.1	11.3
9	1	700.	0.	0.	1577.	0.	0.	1577.	1650.	0.	0.	0.	.96	56.	28.3	D	24.1	11.3
10	1	1500.	0.	289.	1577.	0.	285.	1577.	1650.	0.	0.	0.	.96	56.	28.3	D	24.1	11.3
11	1	750.	0.	0.	1288.	0.	0.	1288.	1650.	0.	0.	0.	.78	65.	19.8	C	20.0	13.7
12	1	350.	96.	0.	1384.	96.	0.	1384.	1650.	0.	0.	0.	.84	65.	21.3	C	20.0	13.7
13	1	350.	0.	0.	1384.	0.	0.	1384.	1650.	0.	0.	0.	.84	65.	21.3	C	20.0	13.7
14	1	350.	0.	105.	1384.	0.	105.	1384.	1650.	0.	0.	0.	.84	65.	21.3	C	20.0	13.7
15	1	700.	0.	0.	1279.	0.	0.	1279.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
16	1	900.	160.	0.	1440.	160.	0.	1440.	1650.	0.	0.	0.	.87	65.	22.1	C	20.0	13.7
17	1	1400.	87.	0.	1527.	87.	0.	1527.	1650.	0.	0.	0.	.93	58.	26.5	D	23.5	11.7
18	1	200.	0.	0.	1527.	0.	0.	1527.	1650.	0.	0.	0.	.93	58.	26.5	D	23.5	11.7
19	1	1400.	0.	81.	1527.	0.	81.	1527.	1650.	0.	0.	0.	.93	58.	26.5	D	23.5	11.7
20	1	900.	0.	0.	1446.	0.	0.	1446.	1650.	0.	0.	0.	.88	65.	22.2	C	20.0	13.7
21	1	100.	55.	0.	1501.	55.	0.	1501.	1650.	0.	0.	0.	.91	59.	25.6	C	23.2	11.9
22	1	100.	0.	22.	1501.	0.	22.	1501.	1650.	0.	0.	0.	.91	59.	25.6	C	23.2	11.9
23	1	600.	0.	0.	1479.	0.	0.	1479.	1650.	0.	0.	0.	.90	59.	24.9	C	22.9	12.0
24	1	1500.	46.	0.	1525.	46.	0.	1525.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
25	1	1500.	0.	0.	1525.	0.	0.	1525.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
26	1	8000.	0.	1525.	1525.	0.	1525.	1525.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
27																		
28																		
29																		
TOTAL		131999. =	25.0 MILES						MAX(V/C) = 0.96		LOWEST LOS = D		AVG = 58.		26.2		23.3	11.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	656. VEH-HRS	1311. PASS-HRS	656. VEH-HRS	1311. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	2. VEH-HRS	4. PASS-HRS	2. VEH-HRS	4. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	658. VEH-HRS	1315. PASS-HRS	658. VEH-HRS	1315. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	38010. VEH-MI.	76020. PASS-MI.	38010. VEH-MI.	76020. PASS-MI.
AVERAGE SYSTEM SPEED =	58. MPH.		58. MPH.	
AVERAGE DENSITY =	26. VPMPL		26. VPMPL	
TOTAL FUEL =	1631. GALLONS		1631. GALLONS	
TOTAL EMISSIONS =	448. KILOGRAMS		448. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	54.96	3	1.51	4	0.33	5	0.38
6	1.45	7	1.39	8	1.15	9	0.54	10	1.15
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.79	18	0.11	19	0.79	20	0.00
21	0.05	22	0.05	23	0.25	24	0.83	25	0.83
26	4.44	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 71.0 VEH-HRS ***** AVERAGE DELAY = 2.79 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	4.	1.90	0.65	0.04	0.21	0.01	0.27

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.80	20.11	20.91	21.11	23.14	0.00

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                                *  3 *   0.00  0.00  0.00  0.00  2.02  4.04  0.00
+                               *                                                 *
                                *  4 *   0.00  0.00  0.00  0.00  0.00  3.21  0.00
+                               *                                                 *
                                *  5 *   0.00  0.00  0.00  0.00  0.00  2.90  0.00
+                               *                                                 *
                                *  6 *   0.00  0.00  0.00  0.00  0.00  2.74  0.00
+                               *                                                 *
                                *  7 *   0.00  0.00  0.00  0.00  0.00  2.06  0.00
+                               *                                                 *
                                *  8 *   0.00  0.00  0.00  0.00  0.00  1.92  0.00
+                               *                                                 *
                                *  9 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                 *
                                * 10 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                 *
                                * 11 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                               *                                                 *
                                *    *                                            *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1414.	0.	1414.	1414.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
3	1	2740.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
4	1	600.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
5	1	700.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
6	1	2630.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
7	1	2530.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
8	1	1500.	57.	0.	1471.	57.	0.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.0
9	1	700.	0.	0.	1471.	0.	0.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.0
10	1	1500.	0.	284.	1471.	0.	283.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.0
11	1	750.	0.	0.	1187.	0.	0.	1187.	1650.	0.	0.	0.	.72	65.	18.3	C	20.0	13.7
12	1	350.	105.	0.	1292.	105.	0.	1292.	1650.	0.	0.	0.	.78	65.	19.9	C	20.0	13.7
13	1	350.	0.	0.	1292.	0.	0.	1292.	1650.	0.	0.	0.	.78	65.	19.9	C	20.0	13.7
14	1	350.	0.	108.	1292.	0.	108.	1292.	1650.	0.	0.	0.	.78	65.	19.9	C	20.0	13.7
15	1	700.	0.	0.	1184.	0.	0.	1184.	1650.	0.	0.	0.	.72	65.	18.2	C	20.0	13.7
16	1	900.	162.	0.	1345.	162.	0.	1345.	1650.	0.	0.	0.	.82	65.	20.7	C	20.0	13.7
17	1	1400.	93.	0.	1438.	93.	0.	1438.	1650.	0.	0.	0.	.87	65.	22.1	C	20.0	13.7
18	1	200.	0.	0.	1438.	0.	0.	1438.	1650.	0.	0.	0.	.87	65.	22.1	C	20.0	13.7
19	1	1400.	0.	100.	1438.	0.	100.	1438.	1650.	0.	0.	0.	.87	65.	22.1	C	20.0	13.7
20	1	900.	0.	0.	1338.	0.	0.	1338.	1650.	0.	0.	0.	.81	65.	20.6	C	20.0	13.7
21	1	100.	58.	0.	1396.	58.	0.	1396.	1650.	0.	0.	0.	.85	65.	21.5	C	20.0	13.7
22	1	100.	0.	32.	1396.	0.	32.	1396.	1650.	0.	0.	0.	.85	65.	21.5	C	20.0	13.7
23	1	600.	0.	0.	1364.	0.	0.	1364.	1650.	0.	0.	0.	.83	65.	21.0	C	20.0	13.7
24	1	1500.	42.	0.	1406.	42.	0.	1406.	1650.	0.	0.	0.	.85	65.	21.6	C	20.0	13.7
25	1	1500.	0.	0.	1406.	0.	0.	1406.	1650.	0.	0.	0.	.85	65.	21.6	C	20.0	13.7
26	1	8000.	0.	1406.	1406.	0.	1406.	1406.	1650.	0.	0.	0.	.85	65.	21.6	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES						MAX(V/C) = 0.89		LOWEST LOS = C			AVG = 65.		21.8		20.1	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	544. VEH-HRS	1088. PASS-HRS	1200. VEH-HRS	2400. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	5. VEH-HRS	9. PASS-HRS	7. VEH-HRS	13. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	549. VEH-HRS	1098. PASS-HRS	1206. VEH-HRS	2413. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	35269. VEH-MI.	70539. PASS-MI.	73279. VEH-MI.	146559. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		61. MPH.	
AVERAGE DENSITY =	22. VPMPL		24. VPMPL	
TOTAL FUEL =	1759. GALLONS		3389. GALLONS	
TOTAL EMISSIONS =	484. KILOGRAMS		931. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.58	9	0.27	10	0.58
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.06 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	6.	4.75	1.63	0.10	0.54	0.03	0.67

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1302.	0.	1302.	1302.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
3	1	2740.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
4	1	600.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
5	1	700.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
6	1	2630.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
7	1	2530.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
8	1	1500.	42.	0.	1344.	42.	0.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
9	1	700.	0.	0.	1344.	0.	0.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
10	1	1500.	0.	261.	1344.	0.	261.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
11	1	750.	0.	0.	1083.	0.	0.	1083.	1650.	0.	0.	0.	.66	65.	16.7	B	20.0	13.7
12	1	350.	96.	0.	1179.	96.	0.	1179.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
13	1	350.	0.	0.	1179.	0.	0.	1179.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
14	1	350.	0.	94.	1179.	0.	94.	1179.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
15	1	700.	0.	0.	1085.	0.	0.	1085.	1650.	0.	0.	0.	.66	65.	16.7	B	20.0	13.7
16	1	900.	130.	0.	1215.	130.	0.	1215.	1650.	0.	0.	0.	.74	65.	18.7	C	20.0	13.7
17	1	1400.	85.	0.	1300.	85.	0.	1300.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
18	1	200.	0.	0.	1300.	0.	0.	1300.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
19	1	1400.	0.	86.	1300.	0.	86.	1300.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
20	1	900.	0.	0.	1214.	0.	0.	1214.	1650.	0.	0.	0.	.74	65.	18.7	C	20.0	13.7
21	1	100.	46.	0.	1260.	46.	0.	1260.	1650.	0.	0.	0.	.76	65.	19.4	C	20.0	13.7
22	1	100.	0.	28.	1260.	0.	28.	1260.	1650.	0.	0.	0.	.76	65.	19.4	C	20.0	13.7
23	1	600.	0.	0.	1232.	0.	0.	1232.	1650.	0.	0.	0.	.75	65.	19.0	C	20.0	13.7
24	1	1500.	50.	0.	1282.	50.	0.	1282.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
25	1	1500.	0.	0.	1282.	0.	0.	1282.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
26	1	8000.	0.	1282.	1282.	0.	1282.	1282.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES						MAX(V/C) = 0.81 LOWEST LOS = C					AVG = 65.	19.9			20.0	13.7

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 3 OF 3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	499. VEH-HRS	997. PASS-HRS	1698. VEH-HRS	3397. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	3. VEH-HRS	6. PASS-HRS	9. VEH-HRS	19. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	502. VEH-HRS	1003. PASS-HRS	1708. VEH-HRS	3416. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	32413. VEH-MI.	64826. PASS-MI.	105692. VEH-MI.	211385. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		23. VPMPL	
TOTAL FUEL =	1622. GALLONS		5011. GALLONS	
TOTAL EMISSIONS =	446. KILOGRAMS		1377. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	0.	2.84	0.98	0.06	0.32	0.02	0.40

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPP      EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

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UNIVERSITY OF CALIFORNIA, BERKELEY

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7360.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6440.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6440.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6440.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6640.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6640.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6640.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6230.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6230.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 28 T2 =0.044
QUEUE COLLISION IN SECTION 10 T2 =0.830

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	22.73	23.87	27.22	28.32	46.33
2	0.00	1.50	2.64	5.99	7.09	25.10
3	0.00	0.00	0.69	4.04	5.14	23.15
4	0.00	0.00	0.00	2.80	3.90	21.92
5	0.00	0.00	0.00	2.20	3.29	21.31
6	0.00	0.00	0.00	0.00	0.20	18.21
7	0.00	0.00	0.00	0.00	0.00	17.39
8	0.00	0.00	0.00	0.00	0.00	1.39
9	0.00	0.00	0.00	0.00	0.00	1.14
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7619.	1524.	7619.	7619.	1524.	7619.	10000.	0.	0.	0.	.76	64.	23.8	C	19.6	13.7
2	3	99999.	0.	0.	6095.	0.	0.	6000.	7360.	0. *	1340.	95.	.82	61.	32.9	F	20.4	13.1
3	3	2740.	0.	0.	6095.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
4	3	600.	0.	0.	6095.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
5	3	700.	0.	0.	6095.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
6	3	2630.	0.	0.	6095.	0.	0.	3344.	6000.	0. *	1445.	2656.	.56	49.	22.7	F	23.5	11.3
7	3	2530.	0.	0.	6095.	0.	0.	3344.	6000.	0. **	2530.	2656.	.56	36.	30.6	F	21.8	12.0
8	4	1500.	336.	0.	6431.	286.	0.	3630.	6386.	0. **	1500.	2656.	.57	30.	30.6	F	20.2	12.9
9	4	700.	0.	0.	6431.	0.	0.	3630.	6440.	0. **	700.	2656.	.56	26.	34.3	F	19.4	13.4
10	4	1500.	0.	1231.	6431.	0.	1176.	3630.	6151.	0. **	1500.	2521.	.59	27.	33.3	F	19.9	13.2
11	3	750.	0.	0.	5200.	0.	0.	2454.	6000.	0. **	750.	2521.	.41	19.	42.9	F	17.2	15.2
12	4	350.	482.	0.	5682.	432.	0.	2886.	6544.	0. **	350.	2521.	.44	18.	39.3	F	15.9	16.4
13	4	350.	0.	0.	5682.	0.	0.	2886.	6640.	0. **	350.	2521.	.43	17.	42.1	F	15.7	16.6
14	4	350.	0.	495.	5682.	0.	470.	2886.	6535.	0. **	350.	2521.	.44	17.	43.5	F	15.5	16.7
15	3	700.	0.	0.	5187.	0.	0.	2416.	6000.	0. **	700.	2521.	.40	14.	55.6	F	16.0	16.1
16	3	900.	744.	0.	5931.	644.	0.	3060.	5834.	0. **	900.	2521.	.52	17.	60.7	F	16.4	15.5
17	3	1400.	393.	0.	6324.	293.	0.	3353.	5913.	0. **	1400.	2521.	.57	16.	67.8	F	16.3	15.7
18	3	200.	0.	0.	6324.	0.	0.	3353.	6000.	0. **	200.	2521.	.56	15.	73.0	F	15.7	16.2
19	3	1400.	0.	480.	6324.	0.	443.	3353.	5919.	0. **	1400.	2521.	.57	15.	76.0	F	15.5	16.5
20	3	900.	0.	0.	5844.	0.	0.	2910.	6000.	0. **	900.	2521.	.48	11.	85.4	F	14.1	17.9
21	4	100.	225.	0.	6069.	225.	0.	3135.	6175.	0. **	100.	2521.	.51	12.	67.9	F	13.0	19.5
22	4	100.	0.	129.	6069.	0.	120.	3135.	6208.	0. **	100.	2521.	.50	11.	69.0	F	12.9	19.6
23	3	600.	0.	0.	5940.	0.	0.	3015.	6000.	0. **	600.	2521.	.50	11.	92.1	F	13.6	18.4
24	3	1500.	184.	0.	6124.	184.	0.	3199.	5954.	0. **	1500.	2521.	.54	11.	97.4	F	13.4	18.7
25	3	1500.	0.	0.	6124.	0.	0.	3199.	6000.	0. **	1500.	2521.	.53	10.	109.1	F	12.6	19.8
26	3	8000.	0.	0.	6124.	0.	0.	3199.	6000.	0. **	8000.	2521.	.53	7.	148.9	F	10.5	23.5
27	5	100.	1531.	0.	7655.	1531.	0.	4730.	10000.	0. **	100.	2521.	.47	5.	208.2	F	8.7	28.0
28	5	1000.	1560.	0.	9215.	1460.	0.	6190.	7750.	0. **	1000.	1560.	.80	12.	100.6	F	14.4	20.9
29	5	1000.	1560.	10775.	10775.	1560.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. =	25.7 MILES			MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 38.		43.7		19.3	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3918. VEH-HRS	3956. PASS-HRS	3918. VEH-HRS	3956. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	200. VEH-HRS	210. PASS-HRS	200. VEH-HRS	210. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4118. VEH-HRS	4166. PASS-HRS	4118. VEH-HRS	4166. PASS-HRS
TOTAL TRAV DISTANCE =	149405. VEH-MI.	150405. PASS-MI.	149405. VEH-MI.	150405. PASS-MI.
AVERAGE SYSTEM SPEED =	36. MPH.		38. MPH.	
AVERAGE DENSITY =	44. VPMPL		44. VPMPL	
TOTAL FUEL =	7799. GALLONS		7799. GALLONS	
TOTAL EMISSIONS =	2077. KILOGRAMS		2077. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.49	2	125.12	3	11.72	4	2.57	5	2.99
6	14.67	7	33.26	8	30.47	9	17.12	10	34.26
11	23.02	12	12.25	13	13.37	14	13.83	15	29.28
16	35.18	17	58.45	18	9.06	19	65.90	20	51.67
21	5.87	22	5.97	23	36.23	24	91.96	25	101.80
26	690.76	27	18.65	28	77.66	29	5.53		

***** TOTAL DELAY = 1619.1 VEH-HRS ***** AVERAGE DELAY = 28.46 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	4.46	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	4.46	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	50.	25.00	3.11	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	3.11	8.93	0.55	2.90	0.15	3.60
ON-RAMP	4	RAMP	100.	50.00	4.03	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.03	17.85	1.11	5.79	0.31	7.21
ON-RAMP	5	RAMP	100.	50.00	7.63	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	7.63	17.85	1.11	5.79	0.31	7.21

ON-RAMP	9	RAMP	100.	50.00	2.40	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	2.40	17.85	1.11	5.79	0.31	7.21

QUEUE COLLISION IN SECTION 3 T2 =0.481

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DESTINATIONS ACROSS	1	2	3	4	5	6
1	0.24	27.59	29.56	32.55	33.43	42.66
2	0.00	2.46	4.43	7.42	8.30	17.53
3	0.00	0.00	1.12	4.10	4.98	14.21
4	0.00	0.00	0.00	2.20	3.08	12.31
5	0.00	0.00	0.00	1.59	2.47	11.70
6	0.00	0.00	0.00	0.00	0.15	9.39
7	0.00	0.00	0.00	0.00	0.00	8.76
8	0.00	0.00	0.00	0.00	0.00	0.95
9	0.00	0.00	0.00	0.00	0.00	0.81
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7071.	1414.	7071.	7071.	1414.	7071.	10000.	0.	0.	0.	.71	65.	21.8	C	19.2	14.0
2	3	99999.	0.	0.	5657.	0.	0.	5302.	7360.	0. *	2699.	355.	.72	60.	29.6	F	19.6	13.7
3	3	2740.	0.	0.	5657.	0.	0.	5302.	6000.	0. **	2740.	467.	.88	22.	81.0	F	18.6	15.7
4	3	600.	0.	0.	5657.	0.	0.	5302.	6000.	0. **	600.	467.	.88	19.	93.5	F	17.7	16.8
5	3	700.	0.	0.	5657.	0.	0.	5302.	6000.	0. **	700.	467.	.88	18.	98.5	F	17.4	17.2
6	3	2630.	0.	0.	5657.	0.	0.	5302.	6000.	0. **	2630.	467.	.88	16.	108.3	F	16.8	18.1
7	3	2530.	0.	0.	5657.	0.	0.	5302.	6000.	0. **	2530.	467.	.88	16.	110.4	F	16.7	18.3
8	4	1500.	382.	0.	6039.	382.	0.	5684.	6383.	0. **	1500.	467.	.89	16.	86.7	F	16.9	18.1
9	4	700.	0.	0.	6039.	0.	0.	5684.	6440.	0. **	700.	467.	.88	16.	89.1	F	16.7	18.3
10	4	1500.	0.	1226.	6039.	0.	1216.	5684.	6156.	0. **	1500.	467.	.92	18.	77.0	F	17.8	16.9
11	3	750.	0.	0.	4813.	0.	0.	4436.	6000.	0. **	750.	467.	.74	10.	148.1	F	13.1	22.8
12	4	350.	563.	0.	5376.	563.	0.	4999.	6535.	0. **	350.	467.	.77	11.	115.5	F	13.6	22.2
13	4	350.	0.	0.	5376.	0.	0.	4999.	6640.	0. **	350.	467.	.75	10.	120.0	F	13.4	22.5
14	4	350.	0.	532.	5376.	0.	540.	4999.	6532.	0. **	350.	467.	.77	11.	115.4	F	13.6	22.1
15	3	700.	0.	0.	4844.	0.	0.	4460.	6000.	0. **	700.	467.	.74	10.	147.1	F	13.2	22.7
16	3	900.	789.	0.	5633.	789.	0.	5249.	5833.	0. **	900.	467.	.90	17.	103.2	F	17.1	17.8
17	3	1400.	437.	0.	6070.	437.	0.	5686.	5907.	0. **	1400.	221.	.96	21.	88.4	F	19.0	15.5
18	3	200.	0.	0.	6070.	0.	0.	5686.	6000.	0. **	200.	221.	.95	20.	93.7	F	18.6	16.0
19	3	1400.	0.	631.	6070.	0.	606.	5686.	5901.	0. **	1400.	215.	.96	22.	88.1	F	19.0	15.5
20	3	900.	0.	0.	5439.	0.	0.	5080.	6000.	0. **	900.	215.	.85	14.	120.1	F	15.6	19.6
21	4	100.	242.	0.	5681.	240.	0.	5320.	6172.	0. **	100.	215.	.86	15.	89.6	F	16.2	19.0
22	4	100.	0.	199.	5681.	0.	191.	5320.	6198.	0. **	100.	215.	.86	15.	90.7	F	16.0	19.1
23	3	600.	0.	0.	5482.	0.	0.	5129.	6000.	0. **	600.	215.	.85	14.	118.0	F	15.9	19.2
24	3	1500.	168.	0.	5650.	168.	0.	5297.	5958.	0. **	1500.	215.	.89	16.	108.2	F	16.8	18.1
25	3	1500.	0.	0.	5650.	0.	0.	5297.	6000.	0. **	1500.	215.	.88	16.	110.6	F	16.7	18.3
26	3	8000.	0.	0.	5650.	0.	0.	5297.	6000.	0. **	8000.	215.	.88	16.	110.6	F	16.7	18.3
27	5	100.	1413.	0.	7063.	1413.	0.	6710.	10000.	0. **	100.	215.	.67	8.	166.0	F	10.8	25.1
28	5	1000.	520.	0.	7583.	520.	0.	7230.	7750.	0. **	1000.	215.	.93	19.	75.6	F	18.1	16.6
29	5	1000.	520.	8103.	8103.	520.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1

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*   TOTAL  135469. =   25.7 MILES                    MAX(V/C) = 1.00  LOWEST LOS = F   AVG = 37.   47.5          18.9    14.7  *
*                                                                                                                              *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3917. VEH-HRS	3949. PASS-HRS	7834. VEH-HRS	7905. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	401. VEH-HRS	421. PASS-HRS	601. VEH-HRS	631. PASS-HRS
OFF-RAMP DELAY =	16. VEH-HRS	16. PASS-HRS	16. VEH-HRS	16. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4334. VEH-HRS	4386. PASS-HRS	8451. VEH-HRS	8552. PASS-HRS
TOTAL TRAV DISTANCE =	144249. VEH-MI.	145273. PASS-MI.	293654. VEH-MI.	295679. PASS-MI.
AVERAGE SYSTEM SPEED =	33. MPH.		37. MPH.	
AVERAGE DENSITY =	48. VPMPL		46. VPMPL	
TOTAL FUEL =	7796. GALLONS		15595. GALLONS	
TOTAL EMISSIONS =	2180. KILOGRAMS		4257. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	146.13	3	86.42	4	23.01	5	28.71
6	121.47	7	119.61	8	73.63	9	35.65	10	62.62
11	53.43	12	25.54	13	26.72	14	25.50	15	49.42
16	39.03	17	47.13	18	7.33	19	46.86	20	48.10
21	5.24	22	5.32	23	31.24	24	69.10	25	71.14
26	379.40	27	13.77	28	50.52	29	5.53		

***** TOTAL DELAY = 1697.6 VEH-HRS ***** AVERAGE DELAY = 19.12 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	6.94	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	6.94	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	4.89	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.89	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	6.75	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.75	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	11.17	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	11.17	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	2.	1.00	0.25	0.36	0.02	0.12	0.01	0.14
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	2.	1.00	0.25	0.36	0.02	0.12	0.01	0.14
ON-RAMP	9	RAMP	100.	100.00	11.63	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	11.63	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	32.	16.04		5.73	0.36	1.86	0.10	2.31

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6
1	0.24	32.62	34.87	38.60	39.67	50.71
2	0.00	3.05	5.31	9.04	10.10	21.14
3	0.00	0.00	1.29	5.02	6.08	17.12
4	0.00	0.00	0.00	2.85	3.91	14.95

5	0.00	0.00	0.00	2.09	3.15	14.19	
6	0.00	0.00	0.00	0.00	0.19	11.23	
7	0.00	0.00	0.00	0.00	0.00	10.47	
8	0.00	0.00	0.00	0.00	0.00	1.04	
9	0.00	0.00	0.00	0.00	0.00	0.88	
10	0.00	0.00	0.00	0.00	0.00	0.22	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6510.	1302.	6510.	6510.	1302.	6510.	10000.	0.	0.	0.	.65	65.	20.0	C	19.2	14.0
2	3	99999.	0.	0.	5208.	0.	0.	5027.	7360.	0. *	4540.	181.	.68	52.	32.0	F	18.8	14.3
3	3	2740.	0.	0.	5208.	0.	0.	5027.	6000.	0. **	2740.	181.	.84	14.	122.4	F	15.3	19.9
4	3	600.	0.	0.	5208.	0.	0.	5027.	6000.	0. **	600.	181.	.84	14.	122.4	F	15.3	19.9
5	3	700.	0.	0.	5208.	0.	0.	5027.	6000.	0. **	700.	181.	.84	14.	122.4	F	15.3	19.9
6	3	2630.	0.	0.	5208.	0.	0.	5027.	6000.	0. **	2630.	181.	.84	14.	122.4	F	15.3	19.9
7	3	2530.	0.	0.	5208.	0.	0.	5027.	6000.	0. **	2530.	181.	.84	14.	122.4	F	15.3	19.9
8	4	1500.	278.	0.	5486.	278.	0.	5305.	6398.	0. **	1500.	181.	.83	13.	99.7	F	15.1	20.2
9	4	700.	0.	0.	5486.	0.	0.	5305.	6440.	0. **	700.	181.	.82	13.	101.5	F	14.9	20.4
10	4	1500.	0.	1109.	5486.	0.	1109.	5305.	6179.	0. **	1500.	181.	.86	15.	90.3	F	16.0	19.1
11	3	750.	0.	0.	4377.	0.	0.	4196.	6000.	0. **	750.	181.	.70	9.	158.6	F	11.6	24.2
12	4	350.	504.	0.	4881.	504.	0.	4700.	6544.	0. **	350.	181.	.72	9.	125.7	F	12.3	23.6
13	4	350.	0.	0.	4881.	0.	0.	4700.	6640.	0. **	350.	181.	.71	9.	129.8	F	11.9	23.9
14	4	350.	0.	455.	4881.	0.	455.	4700.	6546.	0. **	350.	181.	.72	9.	125.8	F	12.3	23.6
15	3	700.	0.	0.	4426.	0.	0.	4245.	6000.	0. **	700.	181.	.71	9.	156.5	F	11.9	23.9
16	3	900.	627.	0.	5053.	627.	0.	4872.	5866.	0. **	900.	181.	.83	13.	121.5	F	15.1	20.1
17	3	1400.	395.	0.	5448.	395.	0.	5267.	5915.	0. **	1400.	181.	.89	16.	107.1	F	16.9	18.1
18	3	200.	0.	0.	5448.	0.	0.	5267.	6000.	0. **	200.	181.	.88	16.	112.0	F	16.6	18.5
19	3	1400.	0.	524.	5448.	0.	525.	5267.	5914.	0. **	1400.	181.	.89	16.	107.1	F	16.9	18.1
20	3	900.	0.	0.	4924.	0.	0.	4742.	6000.	0. **	900.	181.	.79	12.	134.8	F	14.1	21.4
21	4	100.	194.	0.	5118.	196.	0.	4938.	6184.	0. **	100.	181.	.80	12.	102.6	F	14.3	21.2
22	4	100.	0.	174.	5118.	0.	174.	4938.	6202.	0. **	100.	181.	.80	12.	103.3	F	14.2	21.3
23	3	600.	0.	0.	4944.	0.	0.	4764.	6000.	0. **	600.	181.	.79	12.	133.9	F	14.2	21.3
24	3	1500.	200.	0.	5144.	200.	0.	4964.	5950.	0. **	1500.	181.	.83	14.	122.3	F	15.2	20.0
25	3	1500.	0.	0.	5144.	0.	0.	4964.	6000.	0. **	1500.	181.	.83	13.	125.1	F	15.0	20.2
26	3	8000.	0.	0.	5144.	0.	0.	4964.	6000.	0. **	8000.	181.	.83	13.	125.1	F	15.0	20.2
27	5	100.	1286.	0.	6430.	1286.	0.	6250.	10000.	0. **	100.	181.	.63	7.	178.0	F	9.9	26.3
28	5	1000.	750.	0.	7180.	750.	0.	7000.	7750.	0. **	1000.	181.	.90	17.	81.6	F	17.2	17.6
29	5	1000.	750.	7930.	7930.	750.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. = 25.7 MILES								MAX(V/C) = 1.00 LOWEST LOS = F				AVG = 31.	53.3		17.8	15.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4324. VEH-HRS	4358. PASS-HRS	12158. VEH-HRS	12263. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	401. VEH-HRS	421. PASS-HRS	1002. VEH-HRS	1052. PASS-HRS
OFF-RAMP DELAY =	16. VEH-HRS	16. PASS-HRS	32. VEH-HRS	32. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4741. VEH-HRS	4795. PASS-HRS	13193. VEH-HRS	13348. PASS-HRS
TOTAL TRAV DISTANCE =	133384. VEH-MI.	134364. PASS-MI.	427038. VEH-MI.	430042. PASS-MI.
AVERAGE SYSTEM SPEED =	28. MPH.		35. MPH.	
AVERAGE DENSITY =	53. VPMPL		48. VPMPL	
TOTAL FUEL =	7639. GALLONS		23234. GALLONS	
TOTAL EMISSIONS =	2143. KILOGRAMS		6400. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	364.65	3	150.41	4	32.94	5	38.43
6	144.37	7	138.88	8	90.11	9	43.00	10	79.48
11	58.42	12	28.54	13	29.62	14	28.56	15	53.58
16	49.38	17	63.72	18	9.65	19	63.68	20	56.51
21	6.33	22	6.39	23	37.30	24	82.53	25	84.96
26	453.11	27	15.04	28	56.88	29	5.53		

***** TOTAL DELAY = 2272.0 VEH-HRS ***** AVERAGE DELAY = 27.17 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	9.15	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	9.15	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	5.42	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	5.42	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	8.25	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.25	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	12.12	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	12.12	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	0.	1.00	0.04	0.36	0.02	0.12	0.01	0.14
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	0.	1.00	0.04	0.36	0.02	0.12	0.01	0.14
ON-RAMP	9	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	0.	16.04		5.73	0.36	1.86	0.10	2.31

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1														
2	1	1650.	99999.	65	O	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	1	1650.	2740.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	1	1650.	600.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	1	1650.	2630.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	1	1650.	2530.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	1	1650.	1500.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	1	1650.	700.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	1	1650.	1500.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	1	1650.	750.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	1	1650.	350.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	1	1650.	350.	65		0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	1	1650.	350.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	1	1650.	700.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	1	1650.	900.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	1	1650.	1400.	65	O	0.96	0.0 0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	1	1650.	200.	65		0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	1	1650.	1400.	65	D	0.96	0.0 0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp

20	1	1650.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	1	1650.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	1	1650.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	1	1650.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	1	1650.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	1	1650.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	1	1650.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	22.21	22.53	23.40	23.61	25.89	0.00
3	0.00	0.00	0.00	0.00	2.15	4.44	0.00
4	0.00	0.00	0.00	0.00	0.00	3.55	0.00
5	0.00	0.00	0.00	0.00	0.00	3.25	0.00
6	0.00	0.00	0.00	0.00	0.00	3.09	0.00
7	0.00	0.00	0.00	0.00	0.00	2.33	0.00
8	0.00	0.00	0.00	0.00	0.00	2.17	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1524.	0.	1524.	1524.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
3	1	2740.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
4	1	600.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
5	1	700.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
6	1	2630.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
7	1	2530.	0.	0.	1524.	0.	0.	1524.	1650.	0.	0.	0.	.92	58.	26.4	D	23.4	11.7
8	1	1500.	54.	0.	1578.	54.	0.	1578.	1650.	0.	0.	0.	.96	56.	28.3	D	24.1	11.3
9	1	700.	0.	0.	1578.	0.	0.	1578.	1650.	0.	0.	0.	.96	56.	28.3	D	24.1	11.3
10	1	1500.	0.	289.	1578.	0.	285.	1578.	1650.	0.	0.	0.	.96	56.	28.3	D	24.1	11.3
11	1	750.	0.	0.	1288.	0.	0.	1288.	1650.	0.	0.	0.	.78	65.	19.8	C	20.0	13.7
12	1	350.	96.	0.	1385.	96.	0.	1385.	1650.	0.	0.	0.	.84	65.	21.3	C	20.0	13.7
13	1	350.	0.	0.	1385.	0.	0.	1385.	1650.	0.	0.	0.	.84	65.	21.3	C	20.0	13.7
14	1	350.	0.	105.	1385.	0.	105.	1385.	1650.	0.	0.	0.	.84	65.	21.3	C	20.0	13.7
15	1	700.	0.	0.	1280.	0.	0.	1280.	1650.	0.	0.	0.	.78	65.	19.7	C	20.0	13.7
16	1	900.	166.	0.	1445.	166.	0.	1445.	1650.	0.	0.	0.	.88	65.	22.2	C	20.0	13.7
17	1	1400.	87.	0.	1533.	87.	0.	1533.	1650.	0.	0.	0.	.93	58.	26.7	D	23.5	11.7
18	1	200.	0.	0.	1533.	0.	0.	1533.	1650.	0.	0.	0.	.93	58.	26.7	D	23.5	11.7
19	1	1400.	0.	81.	1533.	0.	81.	1533.	1650.	0.	0.	0.	.93	58.	26.7	D	23.5	11.7
20	1	900.	0.	0.	1452.	0.	0.	1452.	1650.	0.	0.	0.	.88	60.	24.1	C	22.6	12.2
21	1	100.	55.	0.	1507.	55.	0.	1507.	1650.	0.	0.	0.	.91	58.	25.8	C	23.2	11.8
22	1	100.	0.	22.	1507.	0.	22.	1507.	1650.	0.	0.	0.	.91	58.	25.8	C	23.2	11.8
23	1	600.	0.	0.	1485.	0.	0.	1485.	1650.	0.	0.	0.	.90	59.	25.1	C	23.0	12.0
24	1	1500.	46.	0.	1531.	46.	0.	1531.	1650.	0.	0.	0.	.93	58.	26.6	D	23.5	11.7
25	1	1500.	0.	0.	1531.	0.	0.	1531.	1650.	0.	0.	0.	.93	58.	26.6	D	23.5	11.7
26	1	8000.	0.	1531.	1531.	0.	1531.	1531.	1650.	0.	0.	0.	.93	58.	26.6	D	23.5	11.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES							MAX(V/C) = 0.96		LOWEST LOS = D		AVG = 58.		26.3		23.4	11.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	657. VEH-HRS	1314. PASS-HRS	657. VEH-HRS	1314. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	2. VEH-HRS	4. PASS-HRS	2. VEH-HRS	4. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	659. VEH-HRS	1317. PASS-HRS	659. VEH-HRS	1317. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	38033. VEH-MI.	76066. PASS-MI.	38033. VEH-MI.	76066. PASS-MI.
AVERAGE SYSTEM SPEED =	58. MPH.		58. MPH.	
AVERAGE DENSITY =	26. VPMPL		26. VPMPL	
TOTAL FUEL =	1629. GALLONS		1629. GALLONS	
TOTAL EMISSIONS =	447. KILOGRAMS		447. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	55.03	3	1.51	4	0.33	5	0.39
6	1.45	7	1.39	8	1.15	9	0.54	10	1.15
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.82	18	0.12	19	0.82	20	0.30
21	0.05	22	0.05	23	0.26	24	0.86	25	0.86
26	4.61	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 71.7 VEH-HRS ***** AVERAGE DELAY = 2.82 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	4.	1.90	0.65	0.04	0.21	0.01	0.27

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.80	20.11	20.91	21.11	23.14	0.00

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                          *  3 *   0.00  0.00  0.00  0.00  2.02  4.04  0.00
+                                                                          *
                          *  4 *   0.00  0.00  0.00  0.00  0.00  3.21  0.00
+                                                                          *
                          *  5 *   0.00  0.00  0.00  0.00  0.00  2.90  0.00
+                                                                          *
                          *  6 *   0.00  0.00  0.00  0.00  0.00  2.74  0.00
+                                                                          *
                          *  7 *   0.00  0.00  0.00  0.00  0.00  2.06  0.00
+                                                                          *
                          *  8 *   0.00  0.00  0.00  0.00  0.00  1.92  0.00
+                                                                          *
                          *  9 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          * 10 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          * 11 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                                                                          *
                          *    *                                           *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1414.	0.	1414.	1414.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
3	1	2740.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
4	1	600.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
5	1	700.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
6	1	2630.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
7	1	2530.	0.	0.	1414.	0.	0.	1414.	1650.	0.	0.	0.	.86	65.	21.8	C	20.0	13.7
8	1	1500.	57.	0.	1471.	57.	0.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.0
9	1	700.	0.	0.	1471.	0.	0.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.0
10	1	1500.	0.	284.	1471.	0.	283.	1471.	1650.	0.	0.	0.	.89	60.	24.7	C	22.8	12.0
11	1	750.	0.	0.	1187.	0.	0.	1187.	1650.	0.	0.	0.	.72	65.	18.3	C	20.0	13.7
12	1	350.	105.	0.	1292.	105.	0.	1292.	1650.	0.	0.	0.	.78	65.	19.9	C	20.0	13.7
13	1	350.	0.	0.	1292.	0.	0.	1292.	1650.	0.	0.	0.	.78	65.	19.9	C	20.0	13.7
14	1	350.	0.	108.	1292.	0.	108.	1292.	1650.	0.	0.	0.	.78	65.	19.9	C	20.0	13.7
15	1	700.	0.	0.	1184.	0.	0.	1184.	1650.	0.	0.	0.	.72	65.	18.2	C	20.0	13.7
16	1	900.	167.	0.	1351.	167.	0.	1351.	1650.	0.	0.	0.	.82	65.	20.8	C	20.0	13.7
17	1	1400.	93.	0.	1444.	93.	0.	1444.	1650.	0.	0.	0.	.87	65.	22.2	C	20.0	13.7
18	1	200.	0.	0.	1444.	0.	0.	1444.	1650.	0.	0.	0.	.87	65.	22.2	C	20.0	13.7
19	1	1400.	0.	99.	1444.	0.	99.	1444.	1650.	0.	0.	0.	.87	65.	22.2	C	20.0	13.7
20	1	900.	0.	0.	1344.	0.	0.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
21	1	100.	58.	0.	1402.	58.	0.	1402.	1650.	0.	0.	0.	.85	65.	21.6	C	20.0	13.7
22	1	100.	0.	32.	1402.	0.	32.	1402.	1650.	0.	0.	0.	.85	65.	21.6	C	20.0	13.7
23	1	600.	0.	0.	1371.	0.	0.	1371.	1650.	0.	0.	0.	.83	65.	21.1	C	20.0	13.7
24	1	1500.	42.	0.	1413.	42.	0.	1413.	1650.	0.	0.	0.	.86	65.	21.7	C	20.0	13.7
25	1	1500.	0.	0.	1413.	0.	0.	1413.	1650.	0.	0.	0.	.86	65.	21.7	C	20.0	13.7
26	1	8000.	0.	1413.	1413.	0.	1413.	1413.	1650.	0.	0.	0.	.86	65.	21.7	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES						MAX(V/C) = 0.89		LOWEST LOS = C			AVG = 65.		21.8		20.1	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	544. VEH-HRS	1089. PASS-HRS	1201. VEH-HRS	2402. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	5. VEH-HRS	9. PASS-HRS	7. VEH-HRS	13. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	549. VEH-HRS	1098. PASS-HRS	1208. VEH-HRS	2416. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	35289. VEH-MI.	70578. PASS-MI.	73322. VEH-MI.	146644. PASS-MI.
AVERAGE SYSTEM SPEED =	64. MPH.		61. MPH.	
AVERAGE DENSITY =	22. VPMPL		24. VPMPL	
TOTAL FUEL =	1760. GALLONS		3389. GALLONS	
TOTAL EMISSIONS =	484. KILOGRAMS		931. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.58	9	0.27	10	0.58
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.06 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	6.	4.75	1.63	0.10	0.54	0.03	0.67

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	1	99999.	1302.	0.	1302.	1302.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
3	1	2740.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
4	1	600.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
5	1	700.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
6	1	2630.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
7	1	2530.	0.	0.	1302.	0.	0.	1302.	1650.	0.	0.	0.	.79	65.	20.0	C	20.0	13.7
8	1	1500.	42.	0.	1344.	42.	0.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
9	1	700.	0.	0.	1344.	0.	0.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
10	1	1500.	0.	261.	1344.	0.	261.	1344.	1650.	0.	0.	0.	.81	65.	20.7	C	20.0	13.7
11	1	750.	0.	0.	1083.	0.	0.	1083.	1650.	0.	0.	0.	.66	65.	16.7	B	20.0	13.7
12	1	350.	96.	0.	1179.	96.	0.	1179.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
13	1	350.	0.	0.	1179.	0.	0.	1179.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
14	1	350.	0.	94.	1179.	0.	94.	1179.	1650.	0.	0.	0.	.71	65.	18.1	C	20.0	13.7
15	1	700.	0.	0.	1085.	0.	0.	1085.	1650.	0.	0.	0.	.66	65.	16.7	B	20.0	13.7
16	1	900.	134.	0.	1219.	134.	0.	1219.	1650.	0.	0.	0.	.74	65.	18.8	C	20.0	13.7
17	1	1400.	85.	0.	1304.	85.	0.	1304.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
18	1	200.	0.	0.	1304.	0.	0.	1304.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
19	1	1400.	0.	86.	1304.	0.	86.	1304.	1650.	0.	0.	0.	.79	65.	20.1	C	20.0	13.7
20	1	900.	0.	0.	1218.	0.	0.	1218.	1650.	0.	0.	0.	.74	65.	18.7	C	20.0	13.7
21	1	100.	46.	0.	1264.	46.	0.	1264.	1650.	0.	0.	0.	.77	65.	19.5	C	20.0	13.7
22	1	100.	0.	28.	1264.	0.	28.	1264.	1650.	0.	0.	0.	.77	65.	19.5	C	20.0	13.7
23	1	600.	0.	0.	1236.	0.	0.	1236.	1650.	0.	0.	0.	.75	65.	19.0	C	20.0	13.7
24	1	1500.	50.	0.	1286.	50.	0.	1286.	1650.	0.	0.	0.	.78	65.	19.8	C	20.0	13.7
25	1	1500.	0.	0.	1286.	0.	0.	1286.	1650.	0.	0.	0.	.78	65.	19.8	C	20.0	13.7
26	1	8000.	0.	1286.	1286.	0.	1286.	1286.	1650.	0.	0.	0.	.78	65.	19.8	C	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES								MAX(V/C) = 0.81	LOWEST LOS = C			AVG = 65.	20.0		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	499. VEH-HRS	998. PASS-HRS	1700. VEH-HRS	3400. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	3. VEH-HRS	6. PASS-HRS	9. VEH-HRS	19. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	502. VEH-HRS	1003. PASS-HRS	1709. VEH-HRS	3419. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	32425. VEH-MI.	64851. PASS-MI.	105747. VEH-MI.	211495. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		23. VPMPL	
TOTAL FUEL =	1622. GALLONS		5011. GALLONS	
TOTAL EMISSIONS =	446. KILOGRAMS		1377. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	0.	2.84	0.98	0.06	0.32	0.02	0.40

APPENDIX N – YEAR 2018 LEISCH WEAVING ANALYSIS SHEETS

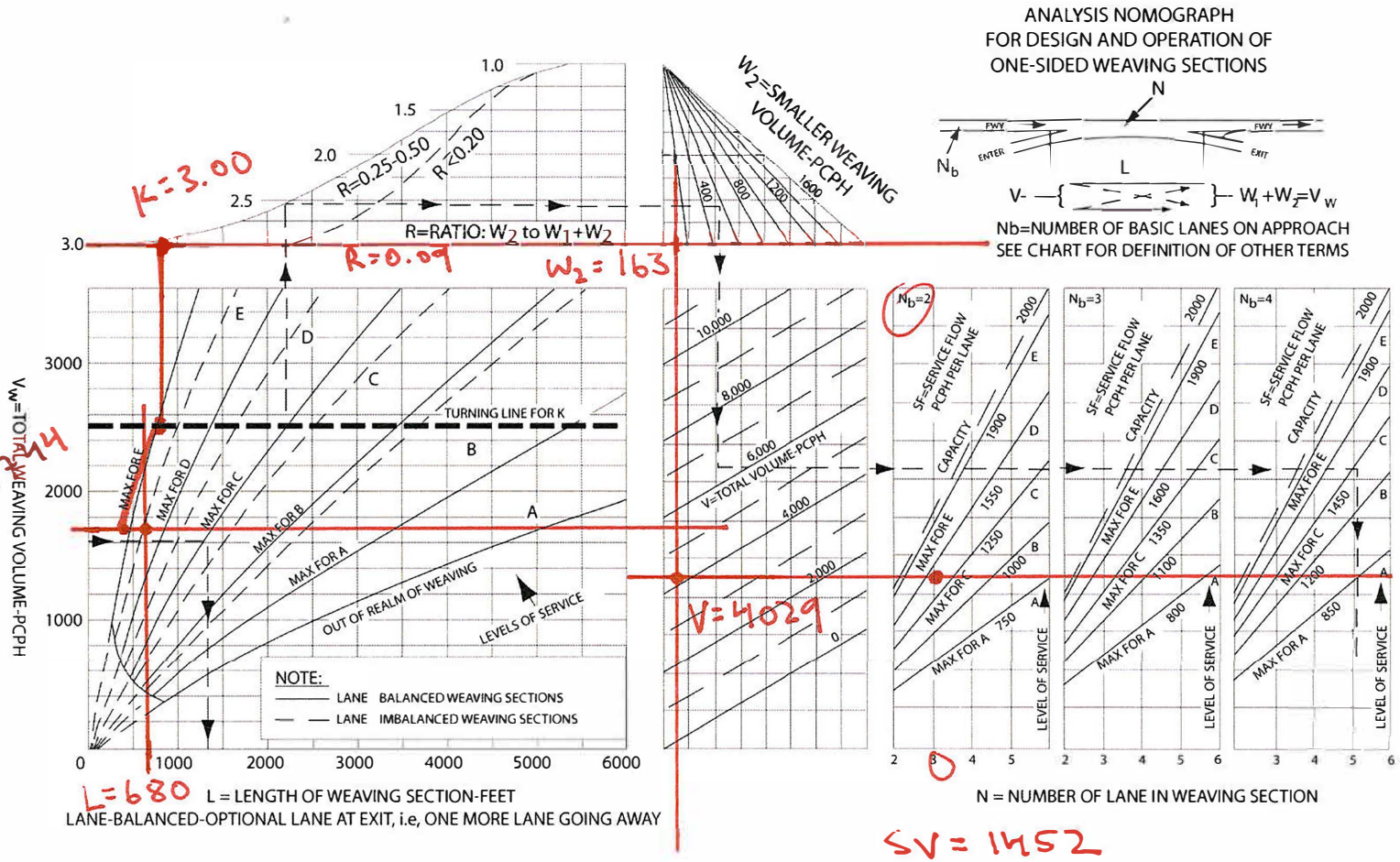

Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

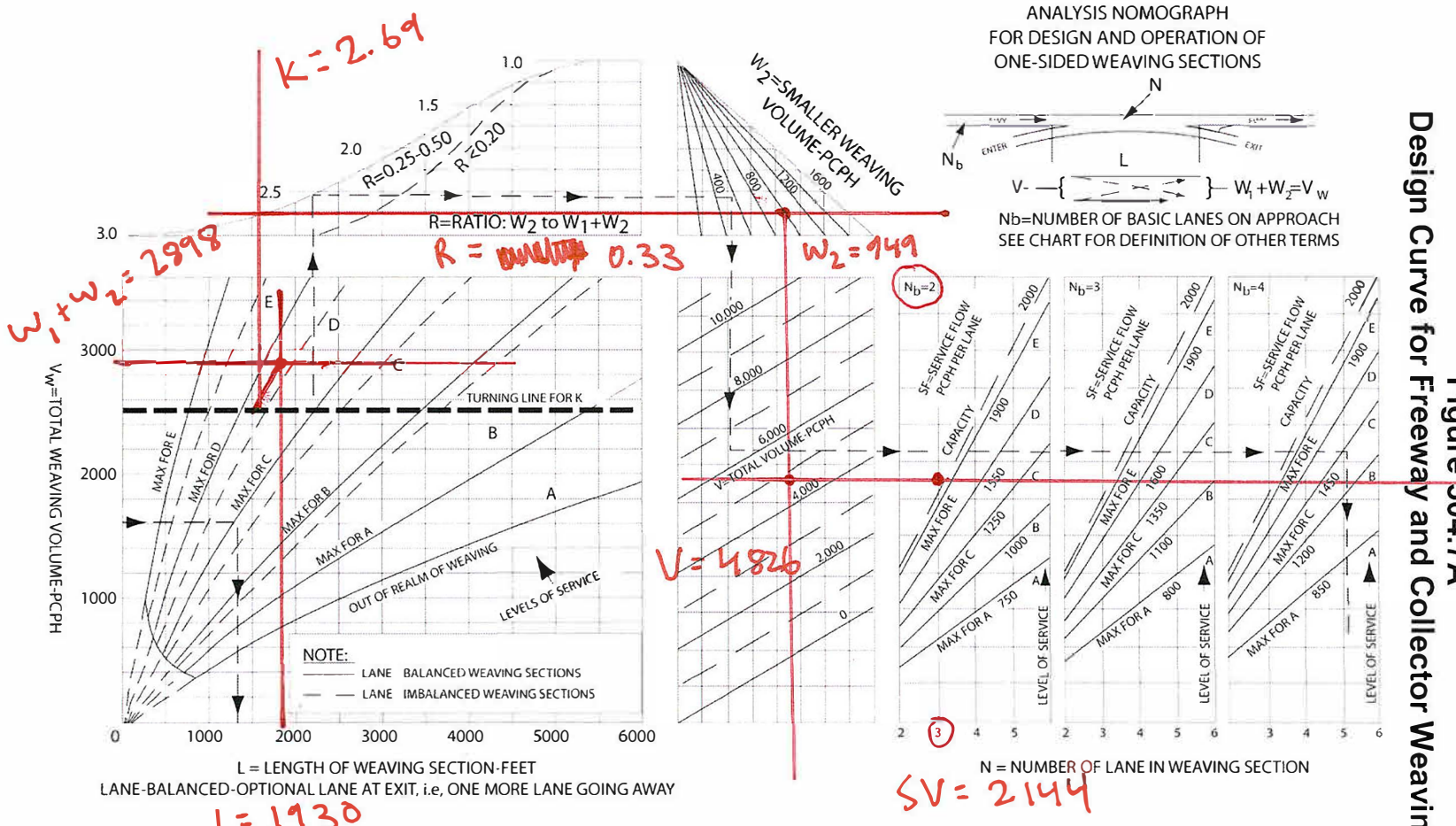

Figure 504.7A
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R = 0.26

K = 2.82

W_1+W_2 = 1644

W_2 = 326

V = 4531

L = 675

SV = 1281

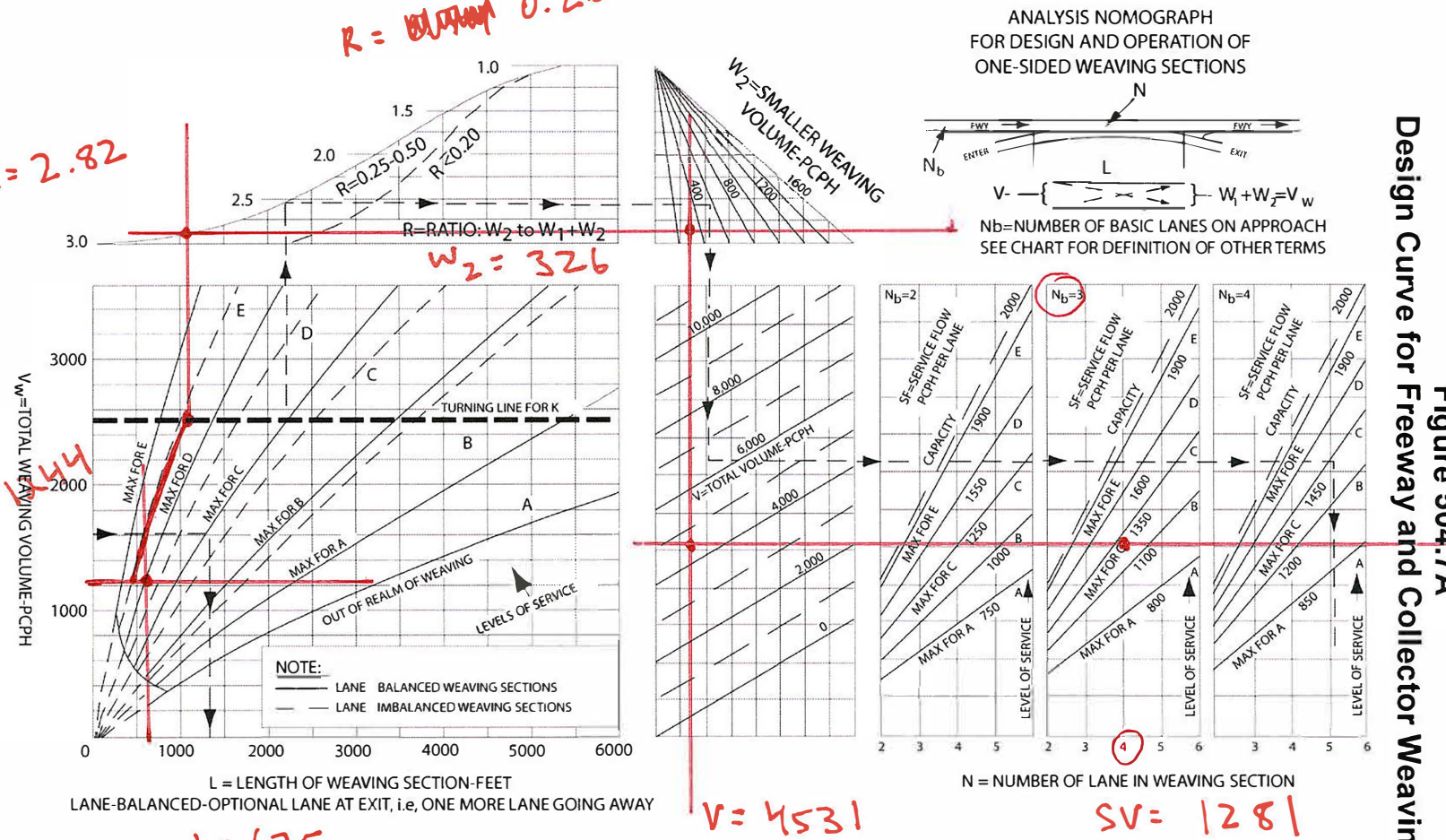

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

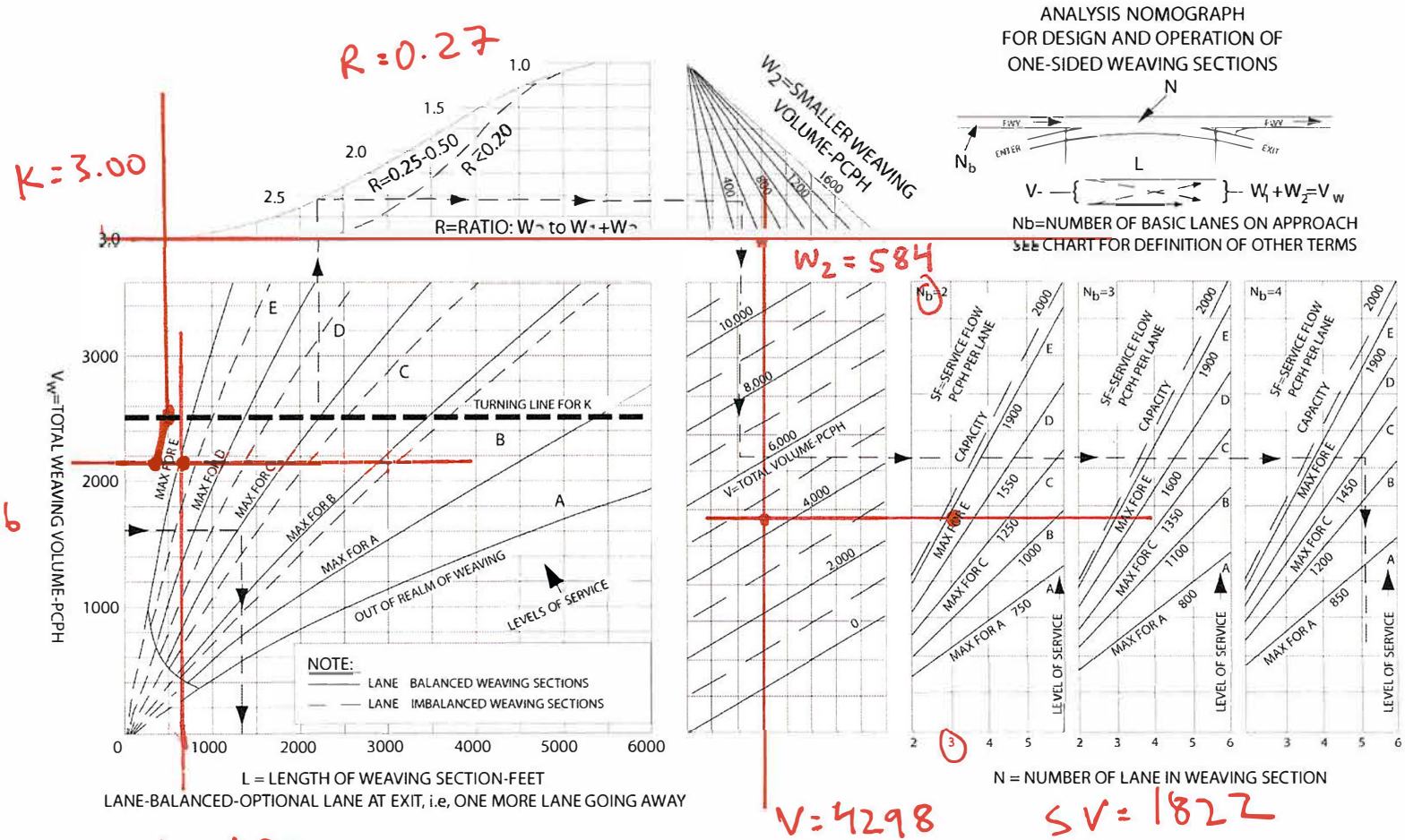

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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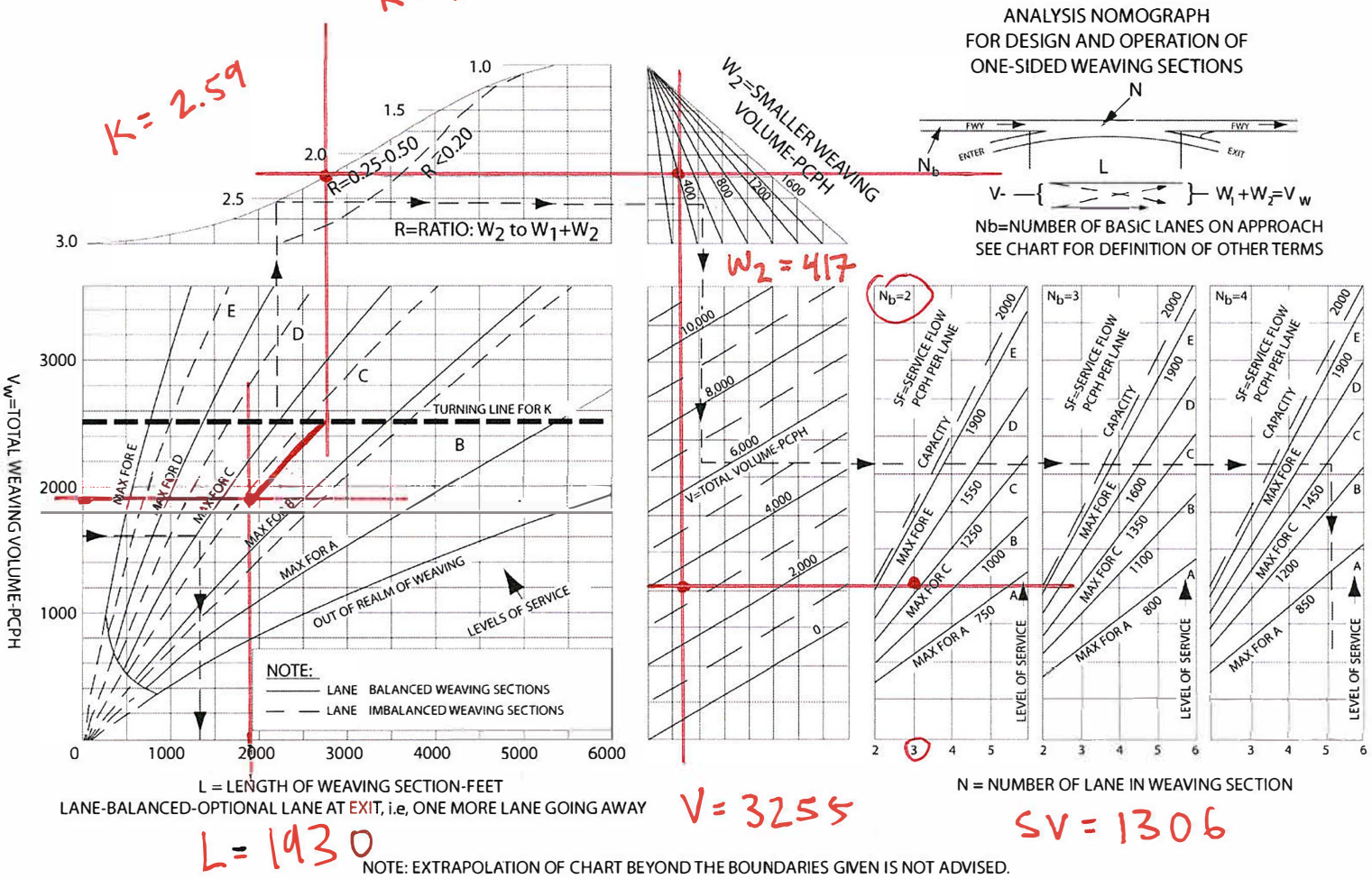
Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

R = 0.22

K = 2.59



W_1+W_2 = 1891

L = 1930

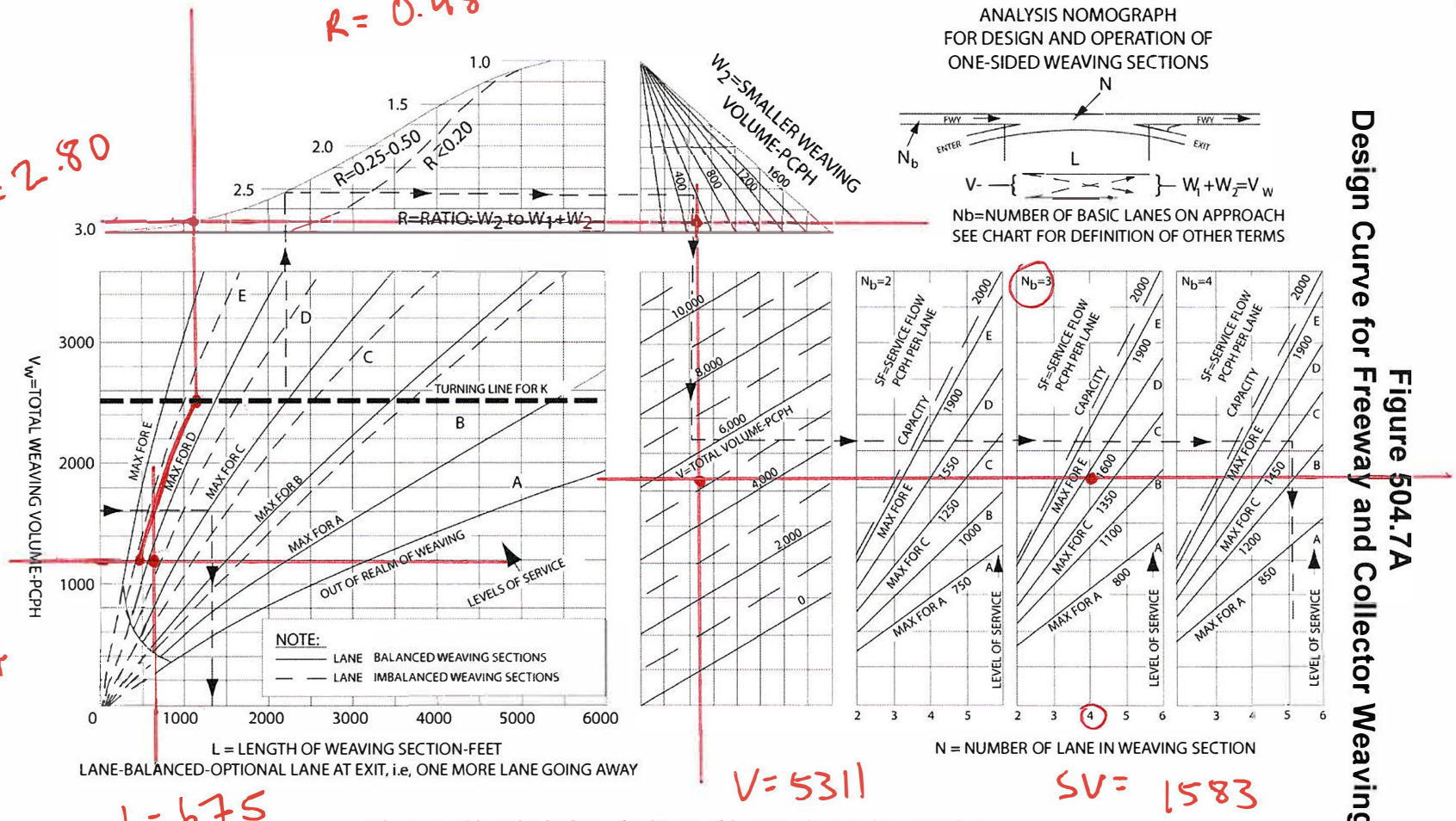
Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

R = 0.48

K = 2.80



W_1+W_2 = 1187

L = 675

V = 5311

SV = 1583

Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

LOS D

7

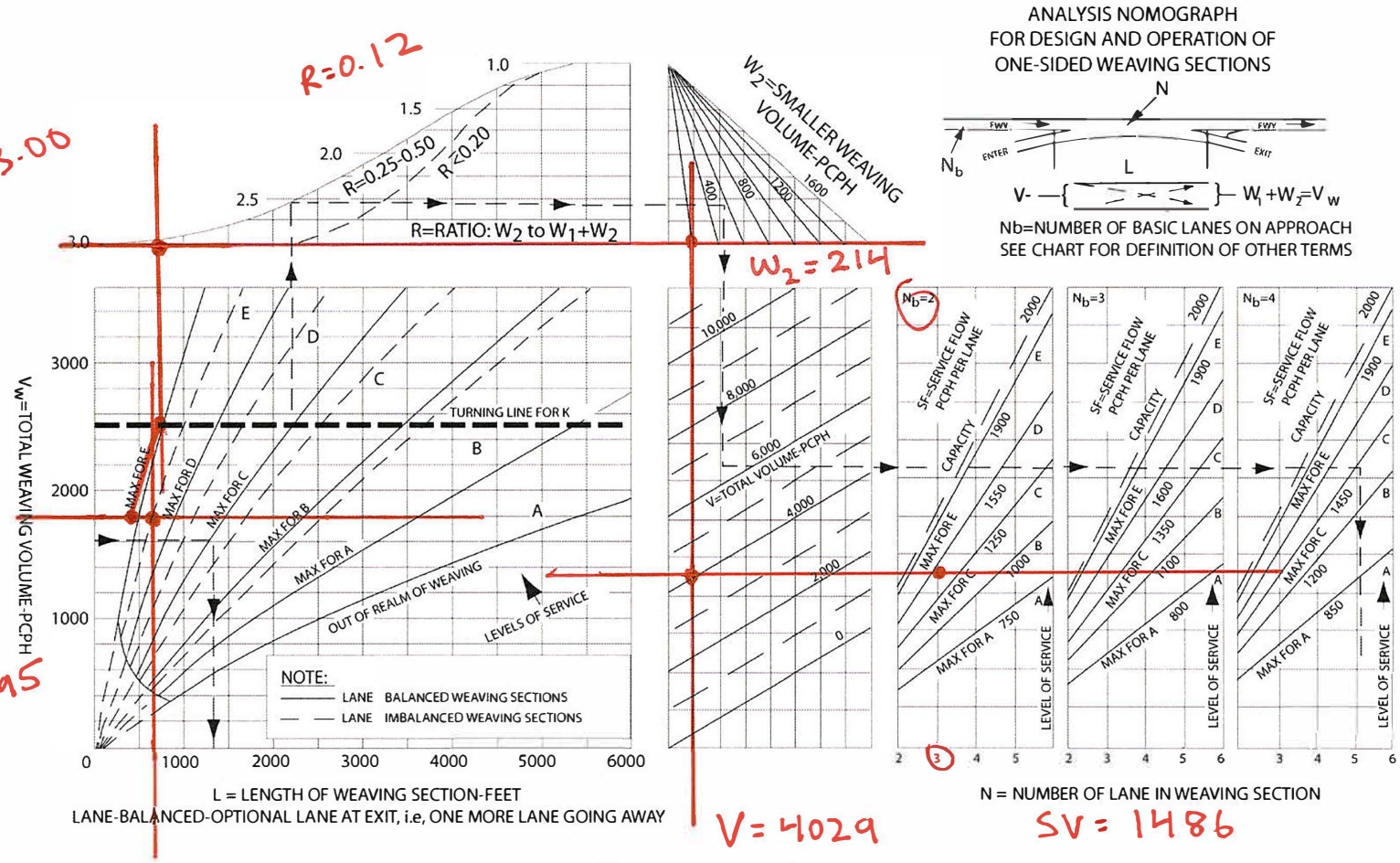


Figure 504.7A
Design Curve for Freeway and Collector Weaving

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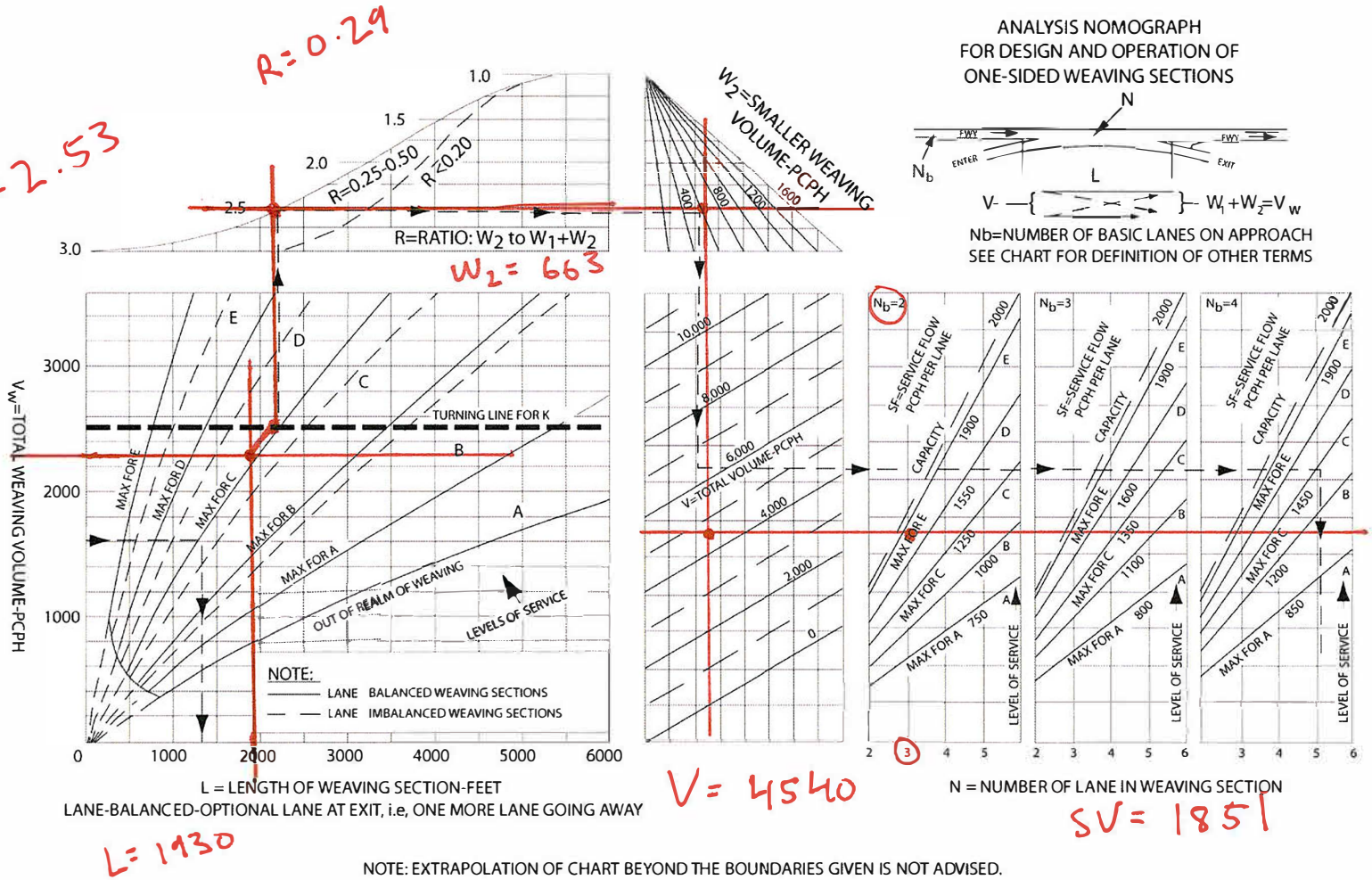
Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.



R=0.29

K=2.53

W_2= 663

W_1+W_2 = 2326

V= 4540

L= 1930

SV= 1851

Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

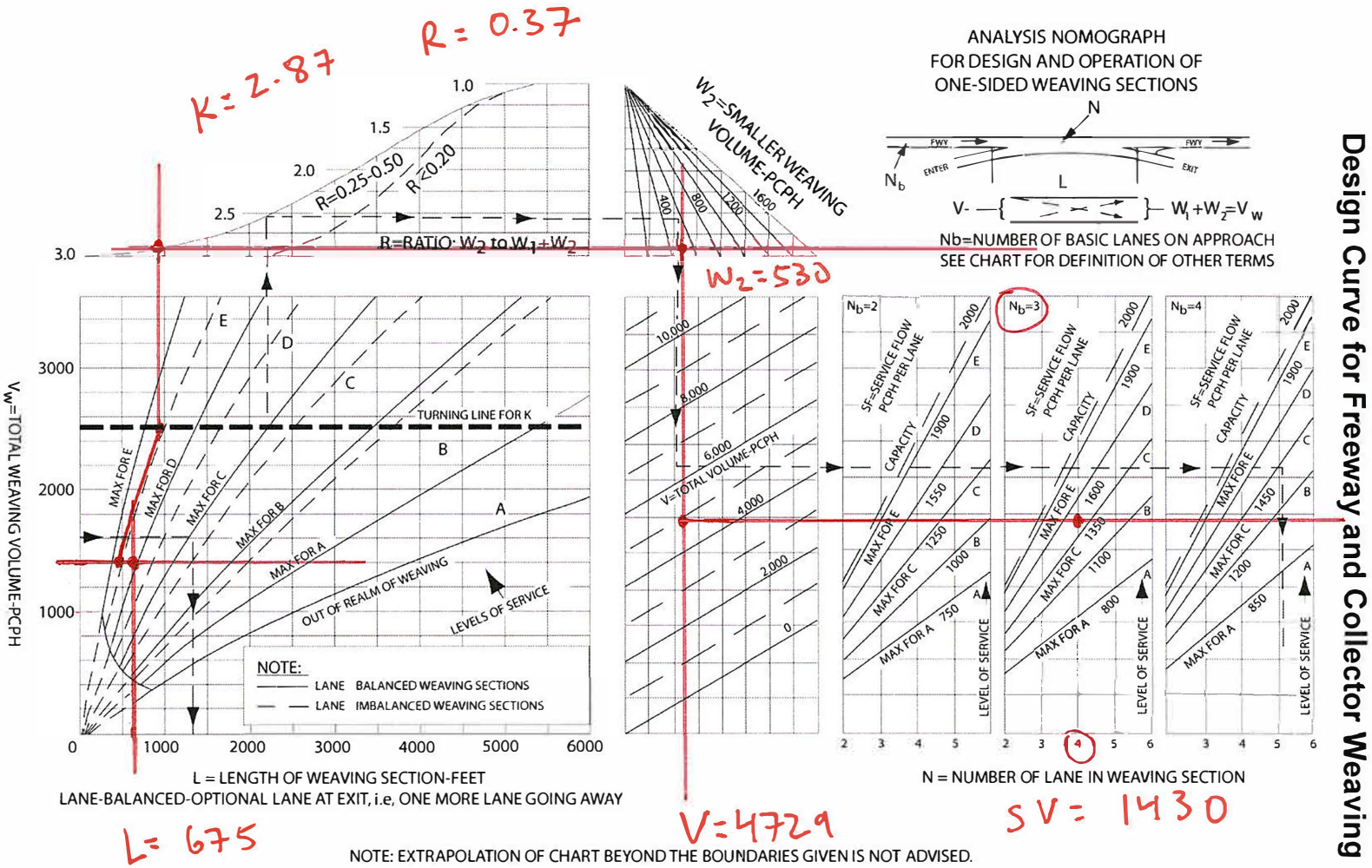


Figure 504.7A
Design Curve for Freeway and Collector Weaving

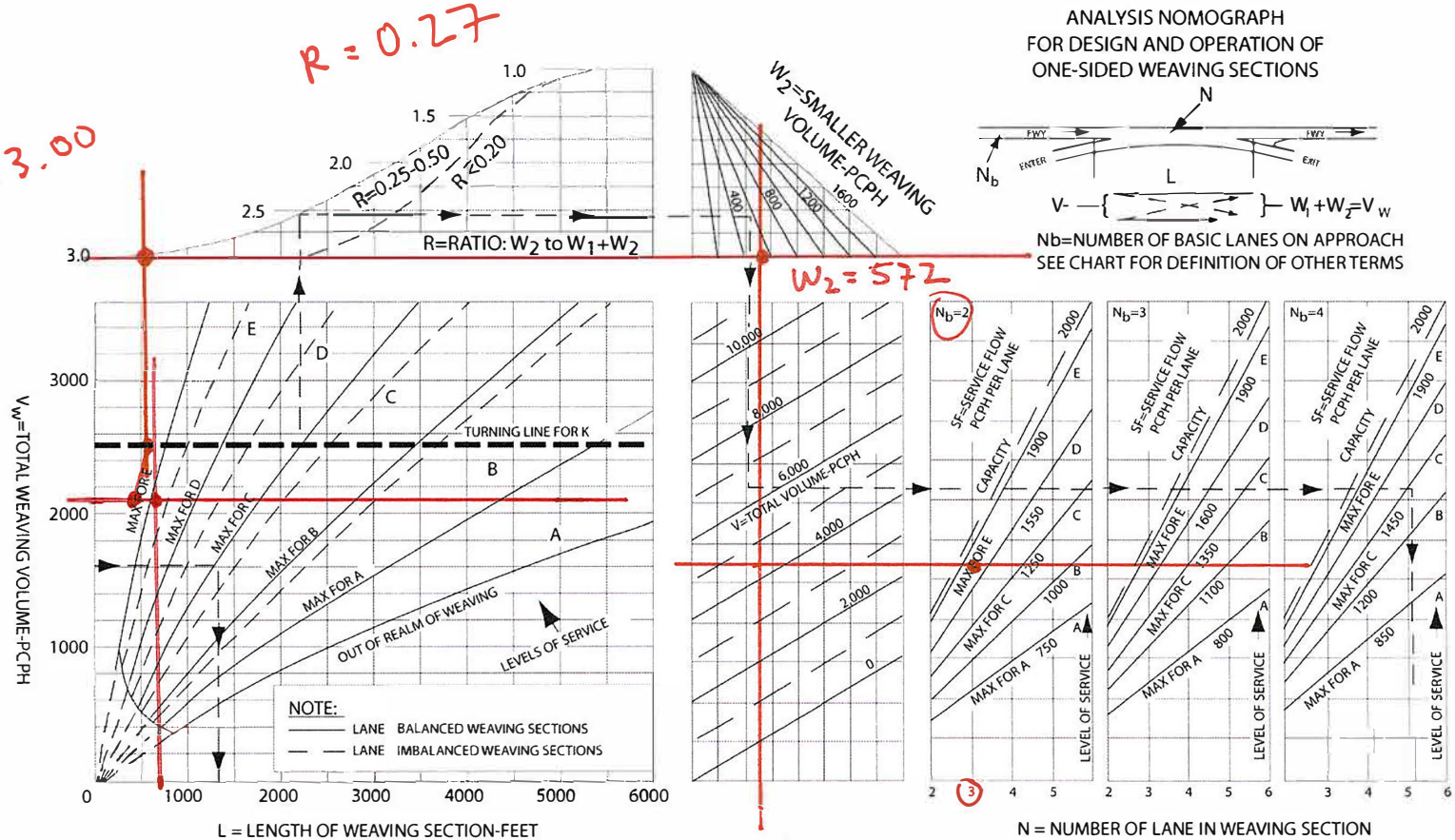
NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS IIne, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

K=2.87
R=0.37
W_2=530
W_1+W_2 = 1448
L=675
V=4729
SV=1430

R = 0.27

K = 3.00



W_1+W_2 = 2123

L = 680

SV = 1806

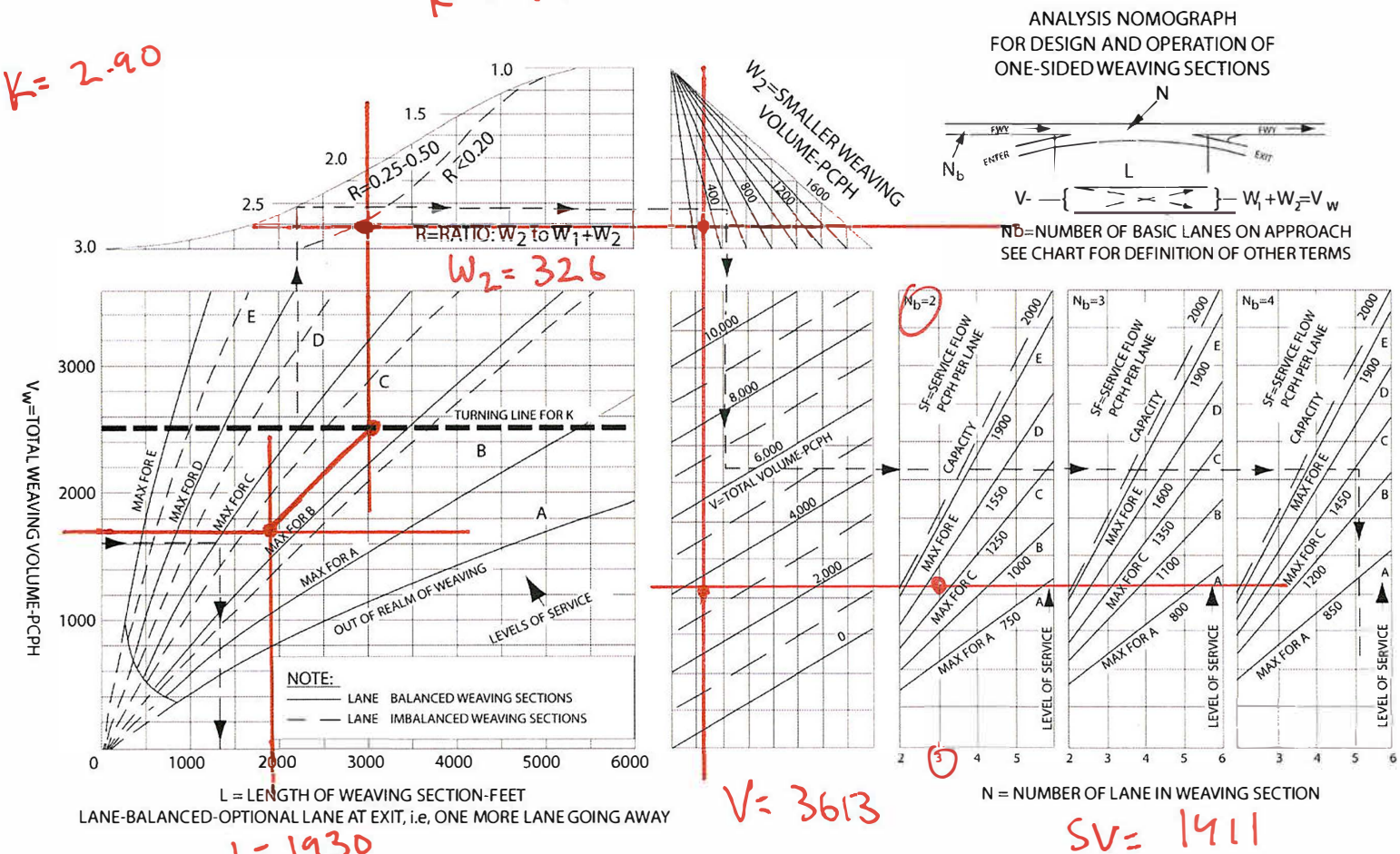
NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

Figure 504.7A
Design Curve for Freeway and Collector Weaving

R= 0.19

K= 2.90



W_1+W_2 = 1720

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

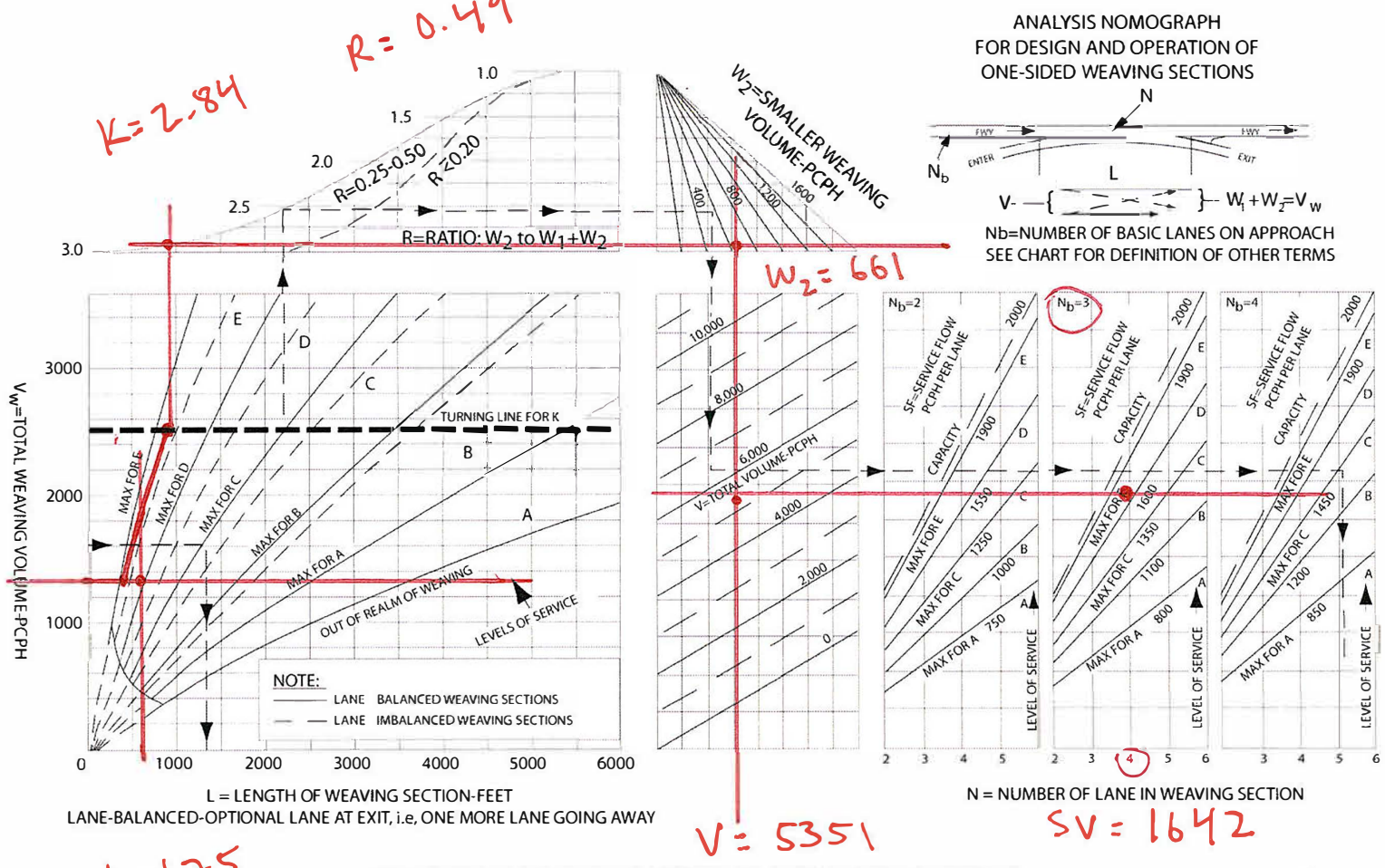
Figure 504.7A
Design Curve for Freeway and Collector Weaving

LOS E

12

R = 0.49

K = 2.84



W_1+W_2 = 1341

L = 675

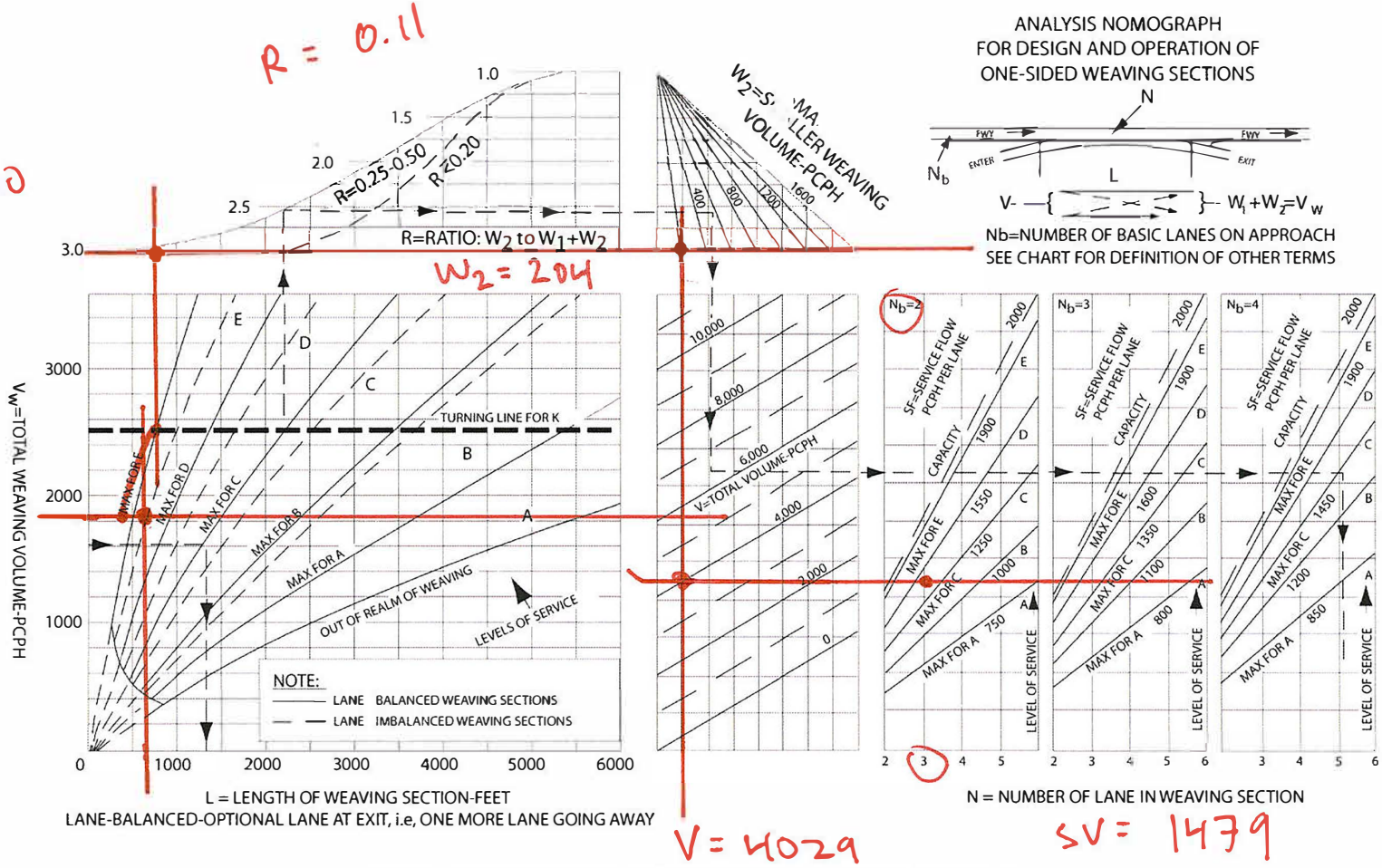
NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a cownward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

Figure 504.7A
Design Curve for Freeway and Collector Weaving

R = 0.11

K=3.00



W_1+W_2 = 1785

V = 4029

SV = 1479

L = 680

Figure 504.7A
Design Curve for Freeway and Collector Weaving

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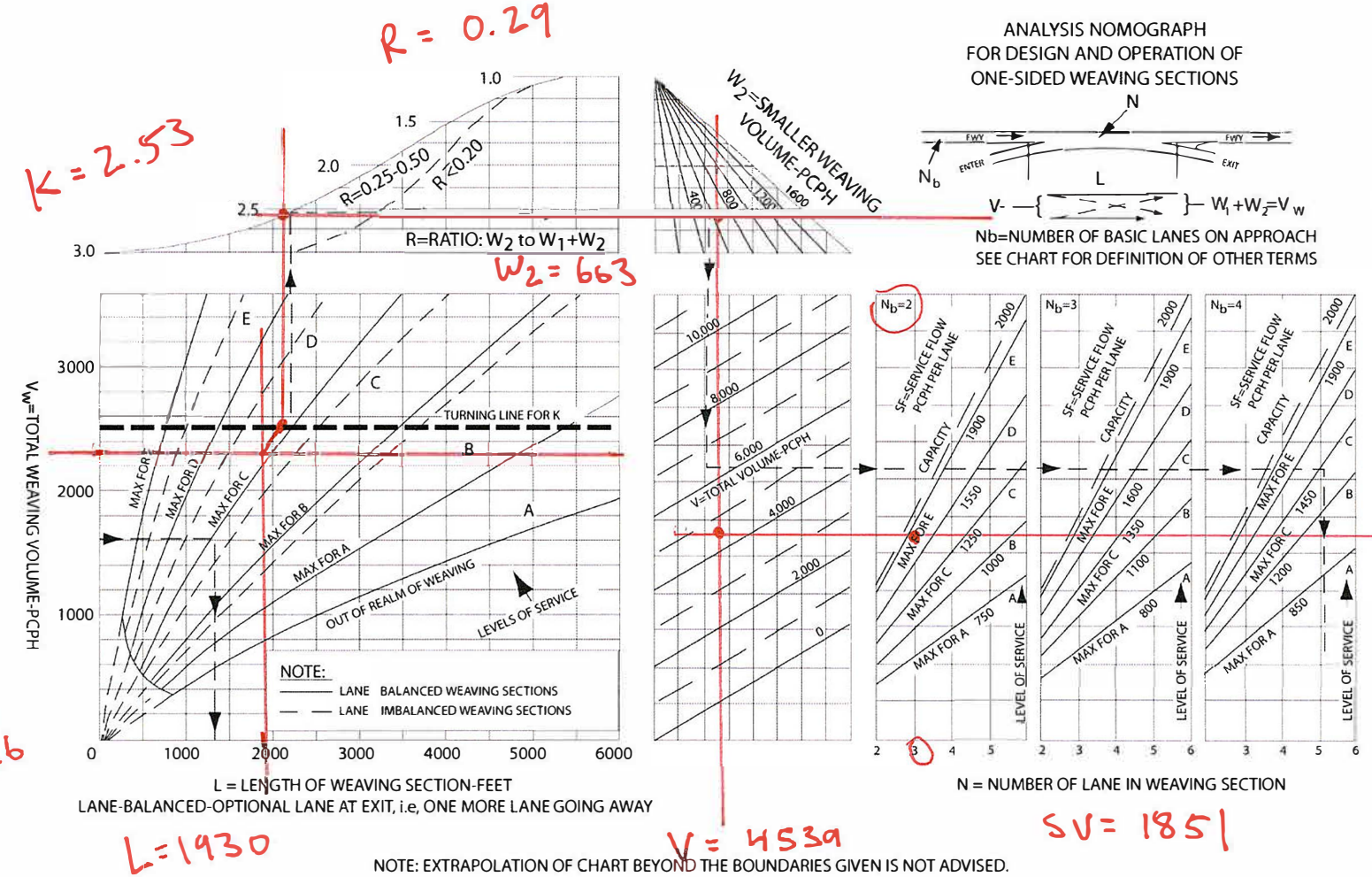
R = 0.29

K = 2.53



W_1+W_2 = 2326

L = 1930

V = 4539

SV = 1851

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

Figure 504.7A
Design Curve for Freeway and Collector Weaving

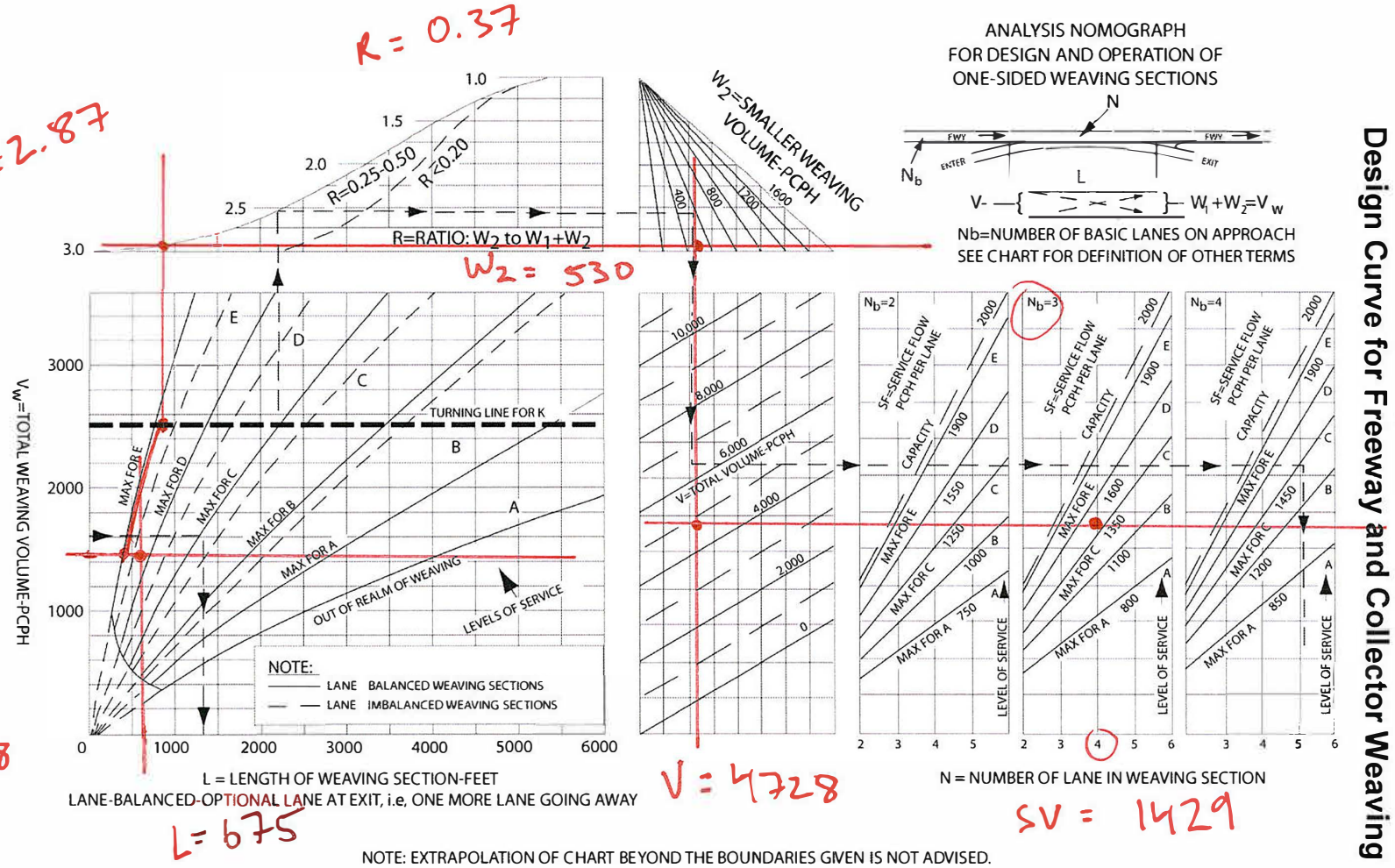
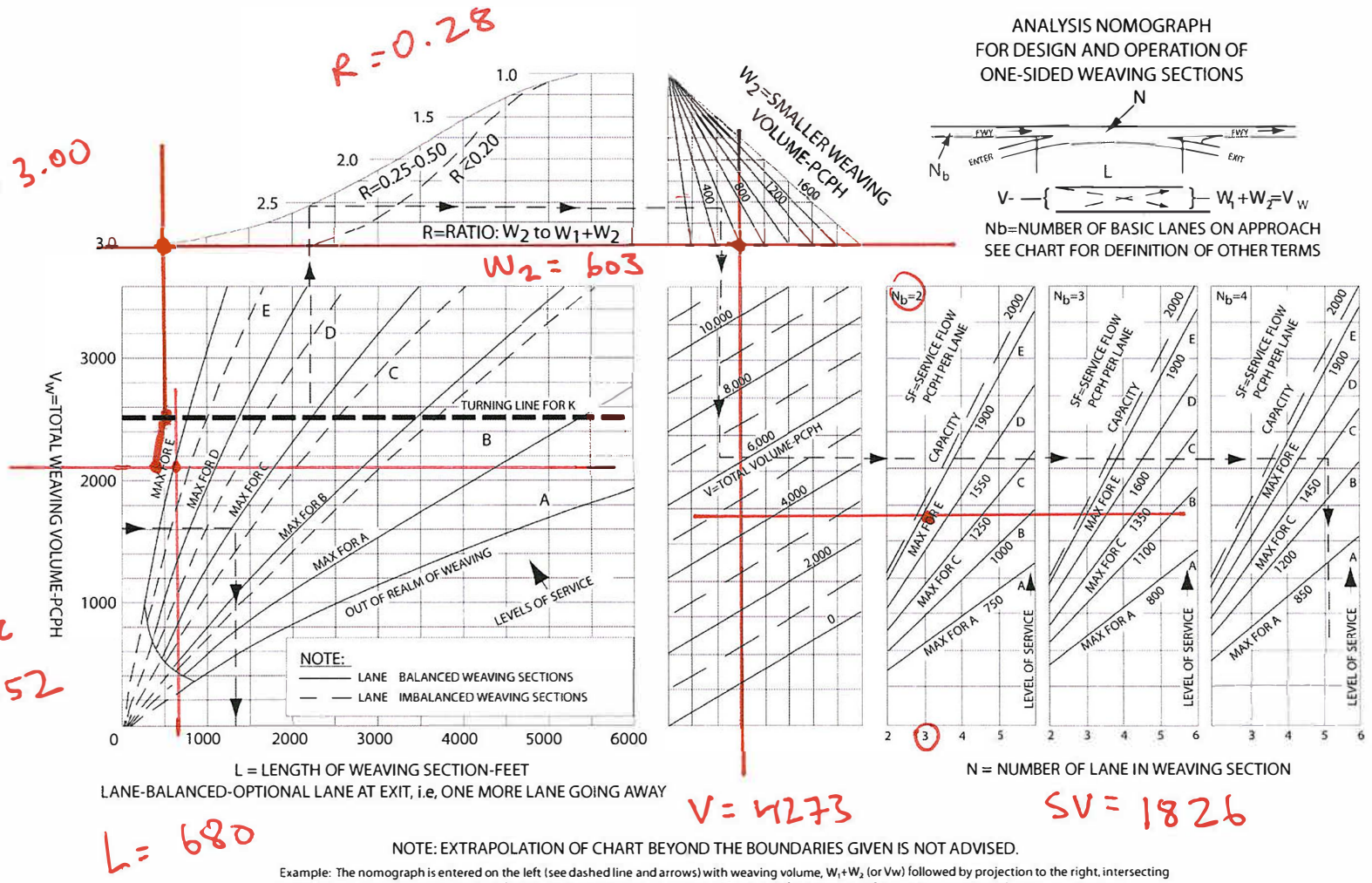


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.



R=0.28

K=3.00

W_2 = 603

W_1+W_2 = 2152

V = 4273

SV = 1826

L = 680

Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

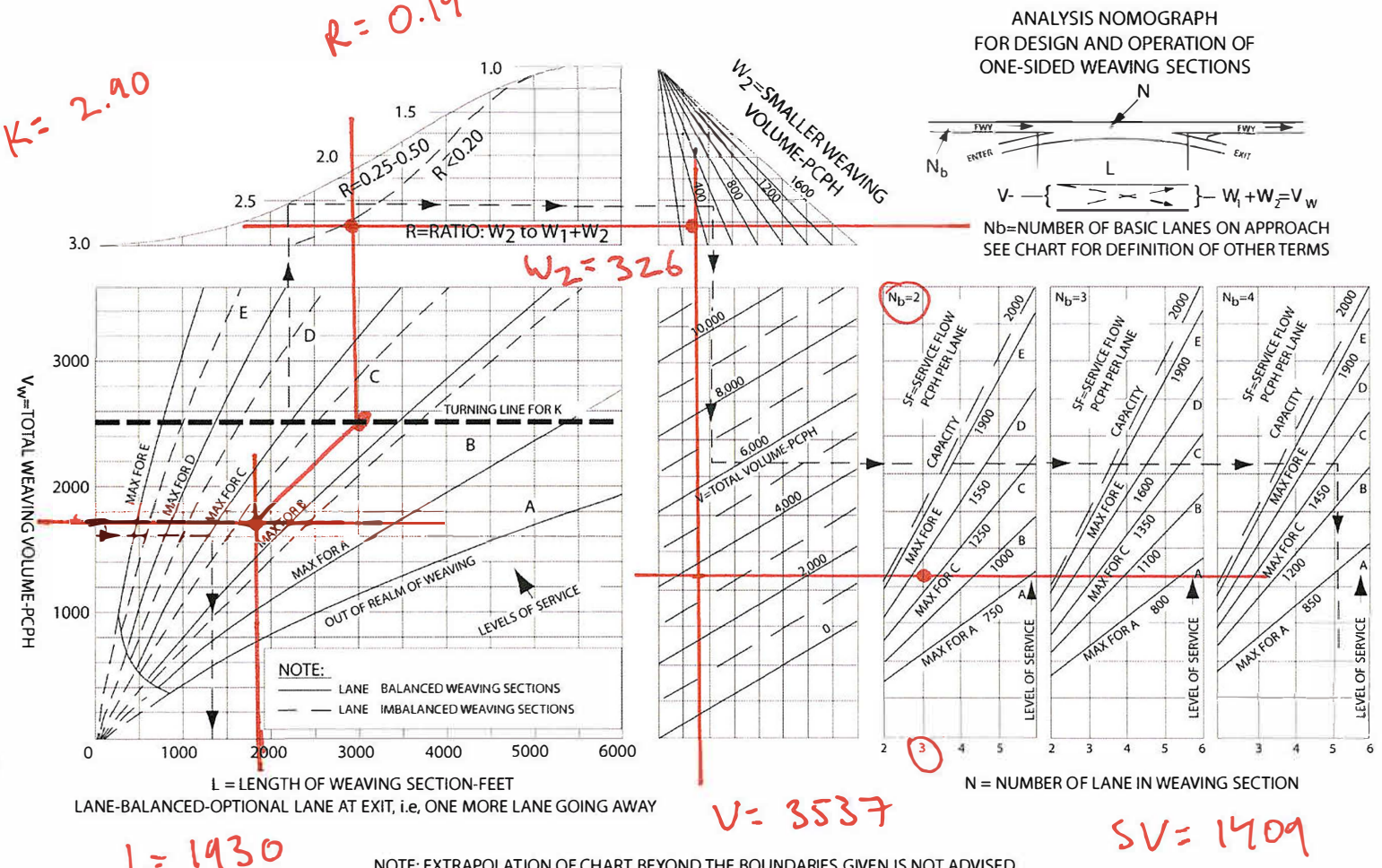


Figure 504.7A
Design Curve for Freeway and Collector Weaving

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

R= 0.19

K= 2.90

W_2= 326

W_1+W_2 = 1721

V= 3537

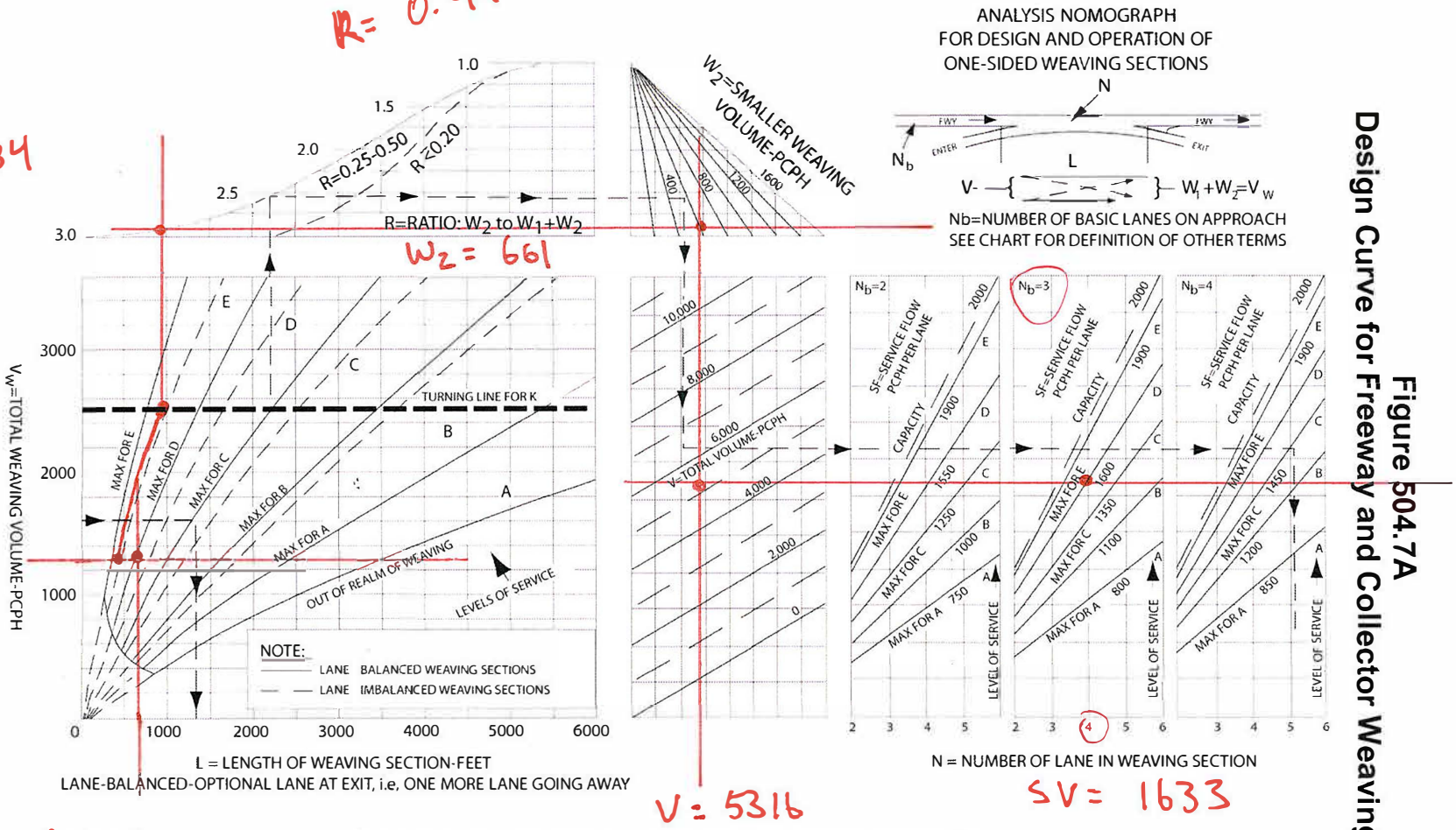
L= 1930

SV= 1409

R= 0.49

K=2.84

W_1+W_2 = 1342



W_1+W_2 = 1342

L= 675

NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K:" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

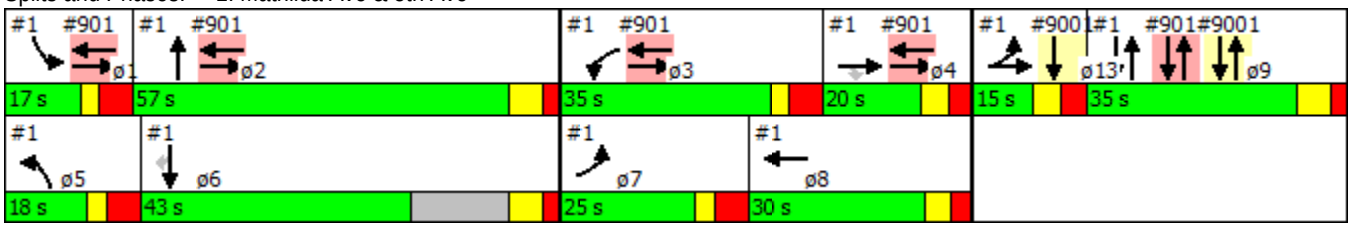
Figure 504.7A
Design Curve for Freeway and Collector Weaving

APPENDIX O – YEAR 2040 INTERSECTION CALCULATION SHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	30	30	90	60	30	200	840	40	520	110		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	35.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		43.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		24.0%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		Min	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 105.1
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



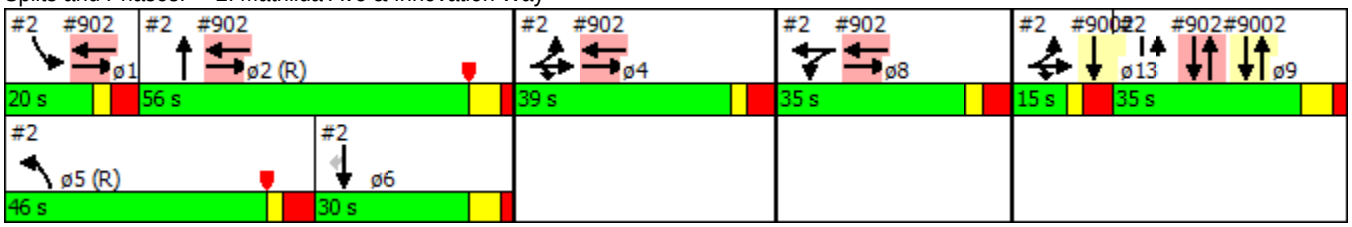
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	40	20	110	100	40	1070	1060	20	420	230		
Turn Type	Split	NA	Prot	Split	NA	Prot	NA	Prot	NA	custom		
Protected Phases	4 13	4 13	4 13	8	8	5	2 9	1	6 9		2	4
Permitted Phases										6		
Detector Phase	4	4	4	8	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)				10.0	10.0	13.0		10.0		12.0	12.0	14.0
Minimum Split (s)				35.0	35.0	20.0		16.8		30.0	19.0	39.0
Total Split (s)				35.0	35.0	46.0		20.0		30.0	56.0	39.0
Total Split (%)				17.5%	17.5%	23.0%		10.0%		15.0%	28%	20%
Yellow Time (s)				2.5	2.5	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)				4.5	4.5	4.5		4.3		2.3	2.3	4.5
Lost Time Adjust (s)				0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)				7.0	7.0	7.0		6.8		7.0		
Lead/Lag						Lead		Lead		Lag	Lag	
Lead-Lag Optimize?						Yes		Yes		Yes	Yes	
Recall Mode				None	None	C-Max		None		Min	C-Min	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 39 (20%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



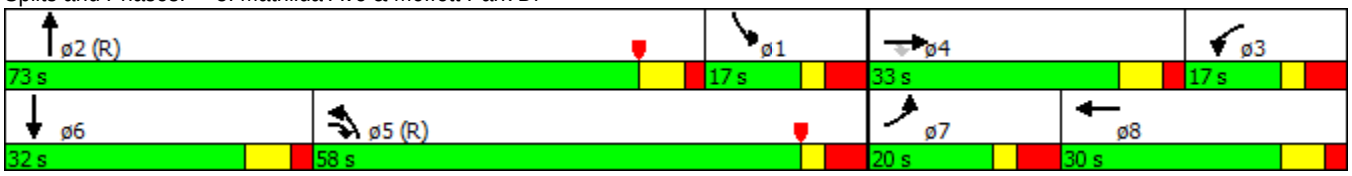
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	18%	8%
Yellow Time (s)	4.7	2.5
All-Red Time (s)	2.3	4.5
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	50	70	90	120	280	920	2380	30	420
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	4.0	8.0	8.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	11.0	15.0	30.0	11.0	32.9	11.0	10.9
Total Split (s)	20.0	33.0	58.0	17.0	30.0	58.0	73.0	17.0	32.0
Total Split (%)	14.3%	23.6%	41.4%	12.1%	21.4%	41.4%	52.1%	12.1%	22.9%
Yellow Time (s)	2.5	4.7	2.5	2.5	4.5	2.5	4.7	2.5	4.7
All-Red Time (s)	4.5	2.3	4.5	4.5	2.5	4.5	2.2	4.5	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	6.9
Lead/Lag	Lead	Lead	Lag	Lag	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	C-Max	None	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 120 (86%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

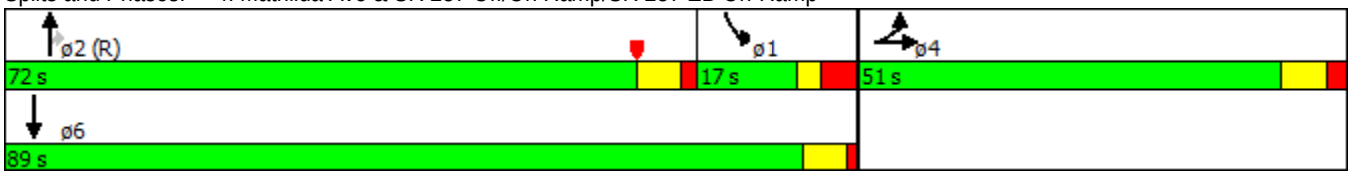
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	1110	0	2610	920	80	1030
Turn Type	Split	NA	NA	Perm	Prot	NA
Protected Phases	4	4	2		1	6
Permitted Phases				2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	12.0	20.2	20.2	10.4	9.9
Total Split (s)	51.0	51.0	72.0	72.0	17.0	89.0
Total Split (%)	36.4%	36.4%	51.4%	51.4%	12.1%	63.6%
Yellow Time (s)	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	1.5	1.5	3.9	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.4	5.9
Lead/Lag			Lead	Lead	Lag	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 134 (96%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated

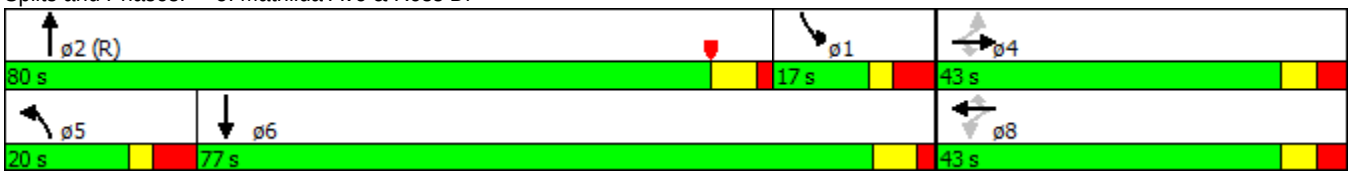
Splits and Phases: 4: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	90	70	40	130	40	300	70	3140	70	980
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	11.0	31.4	11.0	11.6
Total Split (s)	43.0	43.0	43.0	43.0	43.0	43.0	20.0	80.0	17.0	77.0
Total Split (%)	30.7%	30.7%	30.7%	30.7%	30.7%	30.7%	14.3%	57.1%	12.1%	55.0%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow, Master Intersection
Natural Cycle: 105
Control Type: Actuated-Coordinated

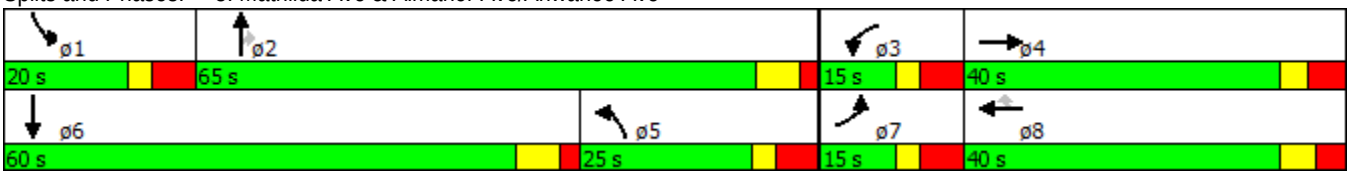
Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Volume (vph)	130	30	90	50	260	140	3430	70	160	1760
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	12.0	8.0	12.0
Minimum Split (s)	15.0	40.0	15.0	15.0	15.0	15.0	33.7	33.7	15.0	18.7
Total Split (s)	15.0	40.0	15.0	40.0	40.0	25.0	65.0	65.0	20.0	60.0
Total Split (%)	10.7%	28.6%	10.7%	28.6%	28.6%	17.9%	46.4%	46.4%	14.3%	42.9%
Yellow Time (s)	2.5	2.8	2.5	3.6	3.6	2.5	4.7	4.7	2.5	4.7
All-Red Time (s)	4.5	4.2	4.5	3.4	3.4	4.5	2.0	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	6.7	7.0	6.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Min	Min	None	Min

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 119.3
Natural Cycle: 145
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	230	20	40	1010
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	62.0	62.0	13.0	75.0
Total Split (%)	82.7%	82.7%	17.3%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

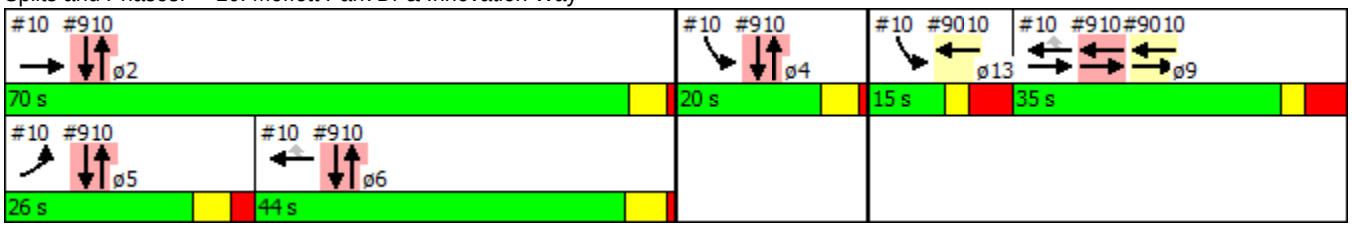
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 42.4
Natural Cycle: 40
Control Type: Semi Act-Uncoord

Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	WBR	SBL	ø2	ø4	ø6	ø9	ø13
Lane Configurations										
Volume (vph)	70	160	920	460	70					
Turn Type	Prot	NA	NA	Perm	Prot					
Protected Phases	5	2 9	6 9		4 13	2	4	6	9	13
Permitted Phases				6 9						
Detector Phase	5	2	6	6 9	4					
Switch Phase										
Minimum Initial (s)	8.0					10.0	10.0	10.0	28.0	8.0
Minimum Split (s)	14.5					14.9	15.0	15.5	35.0	15.0
Total Split (s)	26.0					70.0	20.0	44.0	35.0	15.0
Total Split (%)	18.6%					50%	14%	31%	25%	11%
Yellow Time (s)	4.0					3.9	4.0	4.5	2.5	2.5
All-Red Time (s)	2.5					1.0	1.0	1.0	4.5	4.5
Lost Time Adjust (s)	0.0									
Total Lost Time (s)	6.5									
Lead/Lag	Lead							Lag	Lag	Lead
Lead-Lag Optimize?	Yes							Yes	Yes	Yes
Recall Mode	None					Min	None	Min	None	None

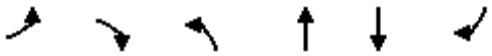
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 97.6
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations								
Volume (vph)	50	0	80	20	0	220	30	100
Sign Control		Stop			Stop		Stop	Stop

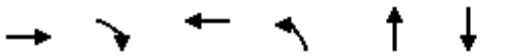
Intersection Summary
Control Type: Unsignalized



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	100	60	30	70	500	840
Sign Control	Stop			Stop	Stop	

Intersection Summary

Control Type: Unsignalized



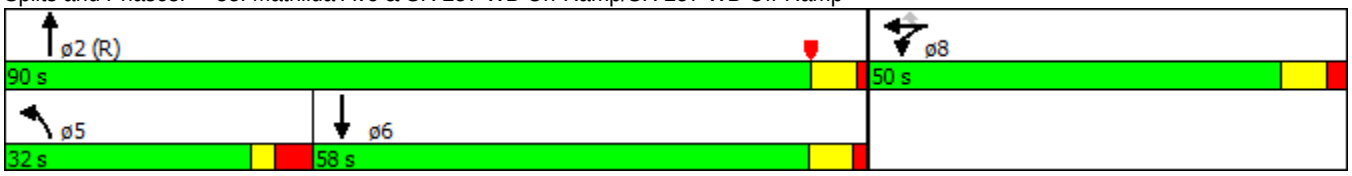
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Configurations						
Volume (vph)	50	120	20	50	130	60
Sign Control	Stop		Stop		Stop	Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Volume (vph)	670	0	620	180	3540	440
Turn Type	Split	NA	Perm	Prot	NA	NA
Protected Phases	8	8		5	2	6
Permitted Phases			8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	11.0	11.0	10.3	20.0	10.3
Total Split (s)	50.0	50.0	50.0	32.0	90.0	58.0
Total Split (%)	35.7%	35.7%	35.7%	22.9%	64.3%	41.4%
Yellow Time (s)	4.8	4.8	4.8	2.5	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	3.8	1.3	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.3	6.0	6.3
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	Max	Max	Max	None	C-Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 120 (86%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated

Splits and Phases: 33: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Network Performance **AM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	866.0	22.1	825.0	904.7
Total Delay (hours)	2,989	57	2,916	3,120
Average Stopped Delay (seconds)	813.6	23.0	771.4	845.3
Total Stopped Delay (hours)	2808	60	2734	2931
Total Stops	35,663	2,093	31,843	38,176
Average Stops	2.87	0.10	2.69	2.99
Total Distance Traveled (miles)	33,391	1,015	31,144	34,703
Average Speed (mph)	8.9	0.3	8.0	9.0
Total Travel Time (hours)	4,284.4	96.8	4,121.2	4,434.4
Vehicles Entered	9,942	269	9,381	10,261
Vehicles Exited	7,948	355	7,292	8,377
Percent Demand Served	79.9%	2.0%	77.4%	82.7%
Fuel Used (gallons)	1,574	25	1,542	1,610
HC Emissions (grams)	13,652	721	12,564	14,607
CO Emissions (grams)	406,064	13,253	388,754	423,729
NOx Emissions (grams)	44,452	1,844	41,285	46,461

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Volume and Delay by Movement **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	200	121	60.5%	45.2	6.9	D
	Through	840	518	61.7%	18.7	2.3	B
	Right Turn	80	49	60.8%	15.0	2.1	B
	Subtotal	1,120	688	61.4%	23.1	2.8	C
SB	Left Turn	40	41	103.3%	61.6	14.0	E
	Through	520	509	97.9%	46.4	54.2	D
	Right Turn	110	102	92.4%	40.5	83.8	D
	Subtotal	670	652	97.3%	45.9	54.4	D
EB	Left Turn	30	26	88.0%	40.4	16.5	D
	Through	30	32	107.3%	39.3	14.5	D
	Right Turn	90	87	97.0%	15.1	15.9	B
	Subtotal	150	146	97.3%	25.0	15.8	C
WB	Left Turn	60	55	91.0%	58.8	36.9	E
	Through	30	34	112.7%	51.7	34.8	D
	Right Turn	20	20	98.5%	32.0	51.0	C
	Subtotal	110	108	98.3%	51.8	38.4	D
Total		2,050	1,593	77.7%	33.5	23.9	C

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,070	629	58.7%	63.7	14.0	E
	Through	1,060	643	60.7%	26.8	4.2	C
	Right Turn	360	216	60.0%	25.4	5.3	C
	Subtotal	2,490	1,488	59.8%	42.2	8.3	D
SB	Left Turn	20	20	101.0%	263.3	189.8	F
	Through	420	354	84.3%	286.8	201.9	F
	Right Turn	230	214	93.2%	170.1	163.4	F
	Subtotal	670	588	87.8%	244.5	189.9	F
EB	Left Turn	40	33	82.5%	291.4	120.3	F
	Through	20	18	89.0%	283.9	121.1	F
	Right Turn	110	85	77.0%	323.0	136.2	F
	Subtotal	170	136	79.7%	310.2	130.2	F
WB	Left Turn	100	78	77.7%	289.6	198.8	F
	Through	40	36	89.8%	265.8	199.1	F
	Right Turn	20	18	91.5%	249.7	249.8	F
	Subtotal	160	132	82.4%	278.8	202.8	F
Total		3,490	2,344	67.2%	116.9	53.7	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Volume and Delay by Movement **AM Peak Hour**

Intersection 3 **Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn (Moffett Park)	920	551	59.9%	34.5	3.5	C
	Left Turn (SR 237 WB On-Ramp)	180	97	53.8%	68.7	9.0	E
	Through	3,540	2,112	59.7%	36.9	3.3	D
	Right Turn (Moffett Park)	860	517	60.1%	33.3	3.4	C
	Subtotal	5,500	3,277	59.6%	36.8	2.9	D
SB	Left Turn (Moffett Park)	30	24	80.7%	259.8	54.5	F
	Through	420	336	80.0%	487.2	72.1	F
	Right Turn (Moffett Park)	180	126	70.1%	806.9	83.3	F
	Right Turn (SR 237 WB On-Ramp)	190	151	79.2%	480.7	72.7	F
	Subtotal	820	637	77.9%	540.4	67.9	F
EB (Moffett Park)	Left Turn	50	47	94.8%	64.4	4.5	E
	Through	70	72	103.0%	61.6	5.3	E
	Right Turn	90	88	97.6%	24.6	2.1	C
	Subtotal	210	207	98.8%	46.6	2.6	D
WB (Moffett Park)	Left Turn	120	107	89.3%	366.3	132.3	F
	Through	280	252	90.0%	467.8	133.2	F
	Right Turn	60	53	87.7%	457.5	134.8	F
	Subtotal	460	412	89.5%	440.1	134.7	F
WB (SR 237 WB Off-Ramp)	Left Turn	670	367	54.8%	1469.8	129.1	F
	Through						F
	Right Turn	620	343	55.3%	1609.9	139.9	F
	Subtotal	1,290	710	55.0%	1537.5	135.6	F
Total		8,280	5,243	63.3%	885.2	50.5	F

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,610	1,286	49.3%	74.3	15.2	E
	Right Turn	920	461	50.1%	3.2	0.4	A
	Subtotal	3,530	1,747	49.5%	55.5	10.8	E
SB	Left Turn	80	66	82.8%	66.7	15.2	E
	Through	1,030	669	64.9%	15.1	2.2	B
	Right Turn						
	Subtotal	1,110	735	66.2%	19.7	2.7	B
EB	Left Turn	1,110	933	84.1%	805.4	209.3	F
	Through						
	Right Turn	80	67	84.1%	768.8	199.2	F
	Subtotal	1,190	1,000	84.1%	803.1	208.8	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,830	3,482	59.7%	257.7	43.7	F

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	31	43.6%	65.8	9.2	E
	Through	3,140	1,405	44.7%	602.9	209.9	F
	Right Turn	120	56	46.8%	96.2	13.7	F
	Subtotal	3,330	1,491	44.8%	572.7	196.9	F
SB	Left Turn	70	47	67.1%	67.8	10.6	E
	Through	980	652	66.5%	19.6	3.7	B
	Right Turn	60	37	60.8%	16.4	3.0	B
	Subtotal	1,110	735	66.2%	22.5	3.9	C
EB	Left Turn	90	93	102.9%	319.2	207.5	F
	Through	70	66	93.7%	270.7	193.2	F
	Right Turn	40	39	98.0%	226.7	179.6	F
	Subtotal	200	197	98.7%	284.4	196.0	F
WB	Left Turn	130	109	83.9%	547.4	176.4	F
	Through	40	36	89.0%	559.2	196.9	F
	Right Turn	300	256	85.3%	550.2	187.7	F
	Subtotal	470	401	85.2%	551.0	184.5	F
Total		5,110	2,825	55.3%	393.7	98.6	F

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	66	46.8%	1381.0	168.5	F
	Through	3,430	1,506	43.9%	1458.0	197.4	F
	Right Turn	70	31	44.6%	1574.5	253.4	F
	Subtotal	3,640	1,603	44.0%	1457.0	196.7	F
SB	Left Turn	160	136	84.7%	114.9	24.6	F
	Through	1,760	1,511	85.9%	41.4	2.1	D
	Right Turn	340	292	85.9%	31.0	2.3	C
	Subtotal	2,260	1,939	85.8%	45.1	3.0	D
EB	Left Turn	130	99	76.4%	558.9	361.3	F
	Through	30	24	79.0%	369.1	294.8	F
	Right Turn	40	34	83.8%	333.1	286.8	F
	Subtotal	200	157	78.3%	476.9	331.5	F
WB	Left Turn	90	75	83.0%	194.9	46.8	F
	Through	50	45	89.2%	190.6	73.5	F
	Right Turn	260	231	89.0%	213.5	97.3	F
	Subtotal	400	351	87.7%	207.7	81.5	F
Total		6,500	4,048	62.3%	619.7	30.4	F

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	230	227	98.7%	2.8	0.4	A
	Right Turn	20	19	96.0%	1.8	0.4	A
	Subtotal	250	246	98.5%	2.7	0.3	A
WB	Left Turn	40	24	60.3%	8.4	0.6	A
	Through	1,010	707	70.0%	3.4	0.3	A
	Right Turn						
	Subtotal	1,050	731	69.6%	3.6	0.3	A
Total		1,300	977	75.2%	3.4	0.3	A

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Volume and Delay by Movement **AM Peak Hour**

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	70	61	87.7%	37.5	4.4	D
	Through						
	Right Turn	130	110	84.6%	32.7	4.0	C
	Subtotal	200	171	85.7%	34.4	4.0	C
EB	Left Turn	70	61	87.6%	37.3	4.7	D
	Through	160	166	103.6%	4.6	1.0	A
	Right Turn						
	Subtotal	230	227	98.7%	13.3	1.3	B
WB	Left Turn						
	Through	920	623	67.8%	11.3	0.9	B
	Right Turn	460	310	67.3%	9.5	1.3	A
	Subtotal	1,380	933	67.6%	10.7	0.8	B
Total		1,810	1,332	73.6%	14.2	0.7	B

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	220	153	69.5%	12.7	1.0	B
	Through	30	24	80.3%	15.2	1.5	C
	Right Turn	180	128	71.1%	9.9	1.1	A
	Subtotal	430	305	70.9%	11.7	1.1	B
SB	Left Turn	60	41	67.5%	7.0	0.3	A
	Through	100	70	70.4%	12.7	1.1	B
	Right Turn	400	289	72.1%	9.7	0.7	A
	Subtotal	560	399	71.3%	9.9	0.6	A
EB	Left Turn	50	50	99.6%	12.4	2.6	B
	Through						
	Right Turn	80	81	100.8%	9.8	1.2	A
	Subtotal	130	130	100.3%	10.8	1.2	B
WB	Left Turn	20	21	107.0%	5.1	0.6	A
	Through						
	Right Turn	20	21	105.0%	3.3	0.2	A
	Subtotal	40	42	106.0%	4.2	0.2	A
Total		1,160	877	75.6%	10.4	0.4	B

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	30	26	87.7%	20.8	25.9	C
	Through	70	66	94.1%	88.0	94.0	F
	Right Turn						
	Subtotal	100	92	92.2%	67.5	70.9	F
SB	Left Turn						
	Through	500	340	67.9%	24.5	5.4	C
	Right Turn	840	542	64.5%	18.8	4.1	C
	Subtotal	1,340	882	65.8%	21.0	4.6	C
EB	Left Turn	100	82	82.4%	177.2	172.8	F
	Through						
	Right Turn	60	59	98.2%	9.5	2.4	A
	Subtotal	160	141	88.3%	100.6	90.2	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,600	1,115	69.7%	34.2	17.3	D

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	50	37	73.4%	5.5	1.5	A
	Through	130	234	179.9%	2.6	0.2	A
	Right Turn						
	Subtotal	180	271	150.3%	3.0	0.3	A
SB	Left Turn						
	Through	60	59	97.8%	8.4	0.8	A
	Right Turn	30	31	101.7%	7.2	2.8	A
	Subtotal	90	89	99.1%	7.9	1.2	A
EB	Left Turn	70	39	55.3%	6.4	0.5	A
	Through	50	35	70.8%	6.9	0.5	A
	Right Turn	120	77	64.3%	4.9	0.4	A
	Subtotal	240	151	63.0%	5.7	0.4	A
WB	Left Turn						
	Through	20	22	108.0%	5.4	0.5	A
	Right Turn						
	Subtotal	20	22	108.0%	5.4	0.5	A
Total		530	533	100.5%	4.7	0.4	A

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Queue Length **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	25	8	50	15	75	14	0%	0%
	Through	625	25	6	50	7	75	17	0%	0%
	Right Turn	625	50	19	100	35	125	34	0%	0%
NB	Left Turn	425	75	10	125	23	150	30	0%	0%
	Through	1,125	100	11	175	22	225	38	0%	0%
	Through/Right	1,125	125	12	225	23	250	35	0%	0%
SB	Left Turn	250	50	6	100	20	125	60	0%	0%
	Through	1,325	175	170	375	404	475	394	8%	0%
	Right Turn	250	25	23	100	80	175	107	0%	0%
WB	Left Turn	925	75	27	125	75	175	117	19%	0%
	Through/Right	75	50	6	100	8	100	1	11%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	50	14	100	23	125	26	0%	18%
	Through/Right	225	25	2	50	4	50	16	0%	70%
	Right Turn	225	175	29	250	34	250	30	0%	33%
NB	Left Turn	400	275	51	425	73	450	61	3%	0%
	Through	975	150	62	425	202	700	349	0%	0%
	Through/Right	975	200	36	375	81	475	191	0%	0%
SB	Left Turn	75	50	10	125	18	150	1	5%	0%
	Through	975	475	274	875	352	950	332	71%	8%
	Right Turn	225	200	24	350	45	275	0	10%	0%
WB	Left Turn	425	200	116	425	160	500	110	11%	1%
	Shared	225	150	41	250	39	225	3	26%	0%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Queue Length **AM Peak Hour**

Intersection 3 **Mathilda Avenue/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft)		95th Queue (ft)		Maximum Queue (ft)		Block Time	
			Average	Std. Dev.	Average	Std. Dev.	Average	Std. Dev.	Pocket	Upstream
EB (Moffett Park)	Left Turn	525	50	2	75	7	100	14	0%	0%
	Through/Right	1,125	75	10	150	20	150	14	0%	6%
	Right Turn	1,125	75	2	100	6	125	18	0%	0%
NB	Left Turn (Moffett Park)	125	50	3	50	6	50	11	0%	19%
	Through	300	275	13	325	20	350	21	0%	64%
	Through/Right (Moffett Park)	300	300	12	350	20	350	25	0%	81%
	Left Turn (SR 237 WB On-Ramp)	175	100	21	175	25	200	10	0%	5%
SB	Left Turn (Moffett Park)	175	25	6	75	12	100	20	0%	0%
	Through	1,100	1,050	64	1,200	83	1,125	70	7%	49%
	Through/Right (Moffett Park)	975	1,050	23	1,125	28	1,125	22	0%	60%
	Through/Right (SR 237 WB On-Ramp)	1,100	1,050	65	1,225	84	1,175	72	7%	49%
WB (Moffett Park)	Left Turn	300	1,025	194	1,500	152	1,375	102	0%	0%
	Through/Right	675	625	44	700	49	675	3	83%	51%
WB (SR 237 WB Off-Ramp)	Left Turn	1,075	1,175	1	1,200	6	1,200	6	0%	71%
	Left/Through	325	450	1	450	3	450	0	6%	0%
	Right Turn	325	13,150	569	17,875	500	15,425	57	85%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	6,425	1,982	9,700	2,356	9,275	2,221	84%	5%
	Shared	1,025	550	5	575	40	575	0	47%	0%
NB	Through	275	275	16	325	23	325	37	0%	62%
	Right Turn	275	75	29	250	64	300	24	0%	5%
SB	Left Turn	175	75	7	150	13	175	18	0%	1%
	Through	175	100	14	175	16	200	18	0%	1%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	500	324	1,000	522	1,025	481	79%	1%
	Through	1,575	75	7	125	5	100	0	34%	0%
	Right Turn	50	50	6	75	6	75	3	3%	0%
NB	Left Turn	150	50	6	100	10	125	19	0%	0%
	Through	2,800	1,100	72	1,100	94	1,100	48	1%	63%
	Through/Right	450	525	14	575	60	575	0	0%	85%
SB	Left Turn	225	50	13	100	35	125	55	3%	0%
	Through	225	100	22	225	33	250	39	6%	1%
	Through/Right	225	125	24	250	35	250	28	0%	2%
WB	Left Turn	100	2,325	915	3,600	1,364	3,425	1,254	35%	0%
	Through	225	100	4	125	13	100	0	12%	0%
	Right Turn	100	75	2	100	8	100	0	63%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	250	48	475	62	400	15	63%	40%
	Through/Right	125	100	11	225	16	225	0	1%	0%
NB	Left Turn	425	125	29	325	65	375	1	0%	0%
	Through	750	10,150	31	15,025	56	12,875	12	79%	0%
	Right Turn	75	25	9	100	21	100	0	0%	0%
SB	Left Turn	125	150	8	200	5	175	0	44%	0%
	Through	2,225	500	26	550	47	600	81	15%	0%
	Through/Right	2,225	325	20	475	23	525	20	0%	0%
WB	Left Turn	250	150	42	375	55	350	0	1%	0%
	Through	1,025	550	174	1,175	276	1,025	84	6%	0%
	Right Turn	75	125	3	150	4	125	0	69%	0%

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	25	5	75	15	100	19	0%	0%
	Right Turn	150	25	1	25	7	25	16	0%	0%
WB	Left Turn	850	25	3	50	4	75	8	0%	0%
	Through	850	25	0	25	0	25	0	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	225	50	6	100	9	125	22	0%	0%
	Through	850	25	5	75	11	100	19	0%	0%
SB	Left Turn	575	50	3	50	7	75	15	0%	0%
	Shared	575	100	5	175	10	200	14	0%	0%
WB	Through	1,150	125	13	200	22	250	59	0%	0%
	Right Turn	1,150	75	18	200	26	225	20	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	50	4	75	7	75	12	0%	0%
	Through/Right	325	25	4	50	4	50	16	0%	0%
	Right Turn	325	50	4	75	6	100	17	0%	0%
NB	Left Turn	125	25	3	50	4	75	7	0%	0%
	Left/Through	575	50	3	75	6	75	8	0%	0%
	Through/Right	575	50	4	75	10	75	15	0%	0%
SB	Left/Through	1,000	25	2	50	4	50	17	0%	0%
	Through/Right	1,000	75	4	125	13	150	35	0%	0%
WB	Left Turn	325	25	0	25	0	25	0	0%	0%
	Through/Right	325	25	0	25	0	25	0	0%	0%

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	150	120	375	297	450	262	0%	0%
	Right Turn	200	50	3	75	5	75	11	0%	0%
NB	Left Turn	125	25	9	75	33	100	56	0%	0%
	Through	1,000	100	29	175	78	200	76	11%	0%
SB	Through/Right	300	225	22	275	26	325	26	0%	7%
	Right Turn	300	250	16	300	19	300	18	0%	4%

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	50	4	75	5	75	13	0%	0%
	Right Turn	125	50	3	75	8	75	23	0%	0%
NB	Left Turn	325	25	3	50	4	75	12	0%	0%
	Through/Right	2,025	50	4	75	6	75	9	0%	0%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	50	3	75	8	75	18	0%	0%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	161.8	172.4	0.1	3
US 101 SB Diag. On-R	702	49.7	56.3	0.1	5
US 101 SB Loop On-Ra	701	122.9	130.7	0.1	3
US 101 NB Loop On-Ra	602	101.6	107.3	0.1	2
US 101 NB Diag.Off-R	601	138.8	145.6	0.1	2
Ross Dr	5	144.7	152.0	0.1	2
SR 237 EB On-Ramp	4	69.1	74.4	0.1	3
SR 237 WB Off-Ramp	33	25.2	29.0	0.0	6
Moffett Park Dr	3	4.1	6.8	0.0	22
Innovation Way	2	27.5	44.2	0.2	17
5th Ave	1	18.9	38.1	0.2	22
	107	4.4	26.5	0.3	37
Total		868.8	983.3	1.5	5

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	33.2	55.4	0.3	18
Innovation Way	2	277.6	294.7	0.2	3
Moffett Park Dr	3	447.2	461.5	0.2	2
SR 237 WB On-Ramp	33	5.5	8.5	0.0	18
SR 237 Off/On Ramp	4	14.2	18.3	0.0	9
Ross Dr	5	20.6	25.6	0.1	9
US 101 NB Diag.Off-R	601	5.0	13.3	0.1	25
US 101 NB Loop Off-R	602	2.2	7.9	0.1	41
US 101 SB Loop On-Ra	701	1.1	7.2	0.1	33
US 101 SB Off-Ramp	702	1.6	8.3	0.1	45
Almanor Ave	8	30.0	38.1	0.1	8
San Aleso Ave	201	4.1	15.5	0.1	33
Total		842.5	954.3	1.5	5

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	6.5	8.4	0.0	10
	38	1.4	6.5	0.0	23
	11	8.3	15.5	0.1	17
	200	9.1	25.5	0.2	22
Juniper Driveway	12	85.6	91.3	0.1	2
Driveway	217	62.9	65.7	0.0	2
	902	179.7	182.4	0.0	0
Mathilda Ave	2	26.3	27.8	0.0	3
	53	1.4	14.2	0.1	25
Bordeaux Dr	13	5.4	16.5	0.1	17
Total		386.6	453.8	0.6	5

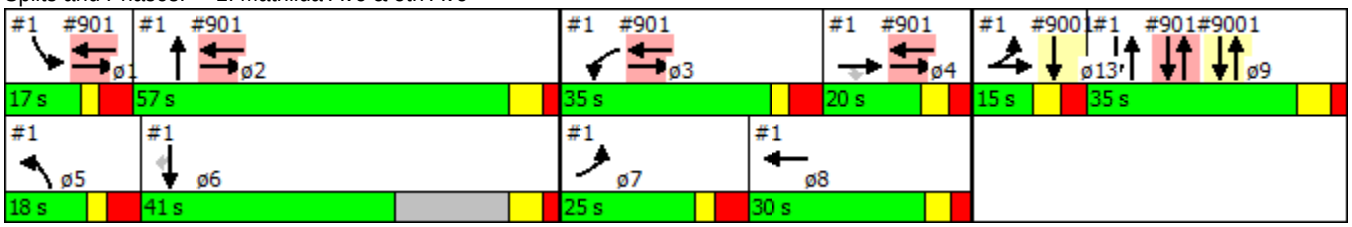
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	53	51.5	62.5	0.1	5
Mathilda Ave	2	214.8	225.6	0.1	2
	902	7.6	12.2	0.0	7
Driveway	217	2.7	4.6	0.0	17
Juniper Driveway	12	19.4	23.3	0.0	6
	200	3.0	9.5	0.1	21
11th Ave	11	10.1	25.7	0.2	22
	38	3.3	11.1	0.1	23
	910	20.0	24.4	0.0	6
Moffett Park Dr	10	15.3	18.6	0.0	4
Total		347.5	417.5	0.6	5

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	180	40	170	290	20	140	620	20	1120	30		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	35.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		41.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		22.9%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		Min	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 119.2
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



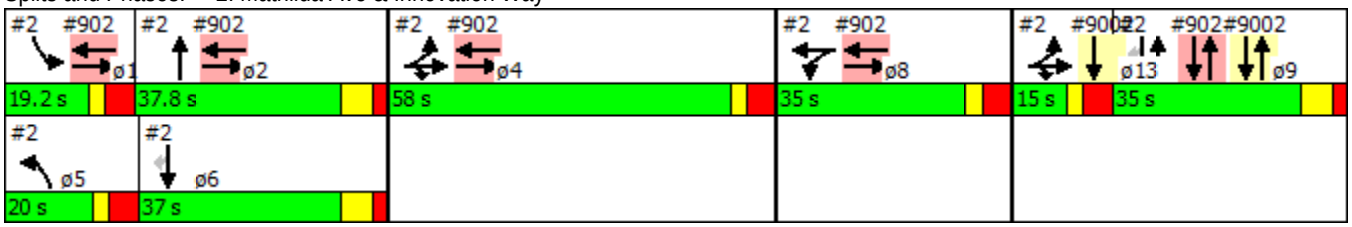
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	330	50	910	180	20	190	470	20	1490	70		
Turn Type	Split	NA	Prot	Split	NA	Prot	NA	Prot	NA	Perm		
Protected Phases	4 13	4 13	4 13	8	8	5	2 9	1	6 9		2	4
Permitted Phases										6 9		
Detector Phase	4	4	4	8	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)				10.0	10.0	13.0		10.0			12.0	14.0
Minimum Split (s)				35.0	35.0	20.0		16.8			19.0	39.0
Total Split (s)				35.0	35.0	20.0		19.2			37.8	58.0
Total Split (%)				17.5%	17.5%	10.0%		9.6%			19%	29%
Yellow Time (s)				2.5	2.5	2.5		2.5			4.7	2.5
All-Red Time (s)				4.5	4.5	4.5		4.3			2.3	4.5
Lost Time Adjust (s)				0.0	0.0	0.0		0.0				
Total Lost Time (s)				7.0	7.0	7.0		6.8				
Lead/Lag						Lead		Lead			Lag	
Lead-Lag Optimize?						Yes		Yes			Yes	
Recall Mode				None	None	None		None			Min	Max

Intersection Summary
Cycle Length: 200
Actual Cycle Length: 177
Natural Cycle: 175
Control Type: Actuated-Uncoordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



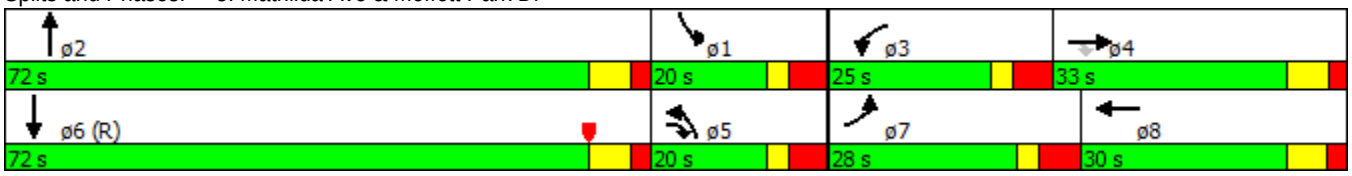
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	37.0	35.0	15.0
Total Split (%)	19%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	Min	None	None

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	180	270	640	390	330	180	620	60	2290
Turn Type	Prot	NA	pm+ov	Prot	NA	Prot	NA	Prot	NA
Protected Phases	7	4	5	3	8	5	2	1	6
Permitted Phases			4						
Detector Phase	7	4	5	3	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	4.0	8.0	8.0	4.0	4.0	4.0	4.0
Minimum Split (s)	15.0	15.0	11.0	15.0	30.0	11.0	34.9	11.0	10.9
Total Split (s)	28.0	33.0	20.0	25.0	30.0	20.0	72.0	20.0	72.0
Total Split (%)	18.7%	22.0%	13.3%	16.7%	20.0%	13.3%	48.0%	13.3%	48.0%
Yellow Time (s)	2.5	4.7	2.5	2.5	4.5	2.5	4.7	2.5	4.7
All-Red Time (s)	4.5	2.3	4.5	4.5	2.5	4.5	2.2	4.5	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.9	7.0	6.9
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	Max	Max	Max	None	Max	Max	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 135
Control Type: Actuated-Coordinated

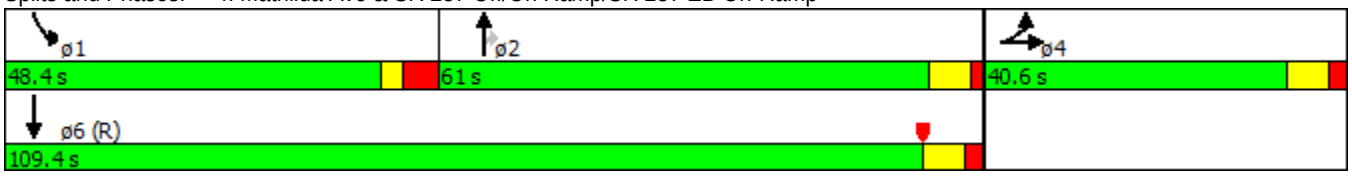
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr



Lane Group	EBL	EBT	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	280	0	600	860	460	3120
Turn Type	Split	NA	NA	Perm	Prot	NA
Protected Phases	4	4	2		1	6
Permitted Phases				2		
Detector Phase	4	4	2	2	1	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	4.0	4.0	4.0	4.0
Minimum Split (s)	12.0	12.0	20.2	20.2	10.4	10.9
Total Split (s)	40.6	40.6	61.0	61.0	48.4	109.4
Total Split (%)	27.1%	27.1%	40.7%	40.7%	32.3%	72.9%
Yellow Time (s)	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	1.5	1.5	3.9	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	6.2	6.2	6.4	6.9
Lead/Lag			Lag	Lag	Lead	
Lead-Lag Optimize?			Yes	Yes	Yes	
Recall Mode	Max	Max	None	None	Max	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 49 (33%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

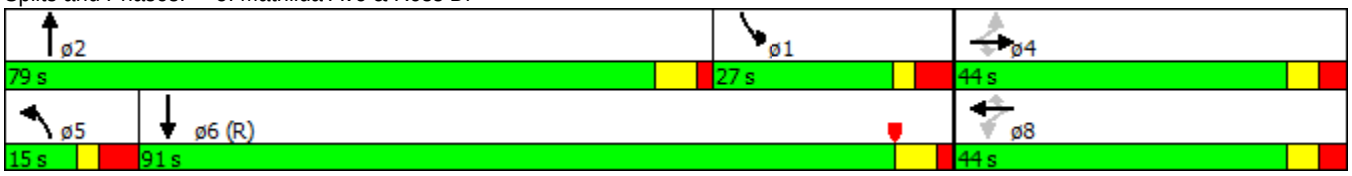
Splits and Phases: 4: Mathilda Ave & SR 237 Off/On Ramp/SR 237 EB On-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	60	200	60	290	70	130	120	1270	180	3040
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	41.0	41.0	41.0	13.0	13.0	13.0	11.0	31.4	11.0	11.6
Total Split (s)	44.0	44.0	44.0	44.0	44.0	44.0	15.0	79.0	27.0	91.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	29.3%	29.3%	10.0%	52.7%	18.0%	60.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	Max	Max	Max	Max	Max	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 35 (23%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated

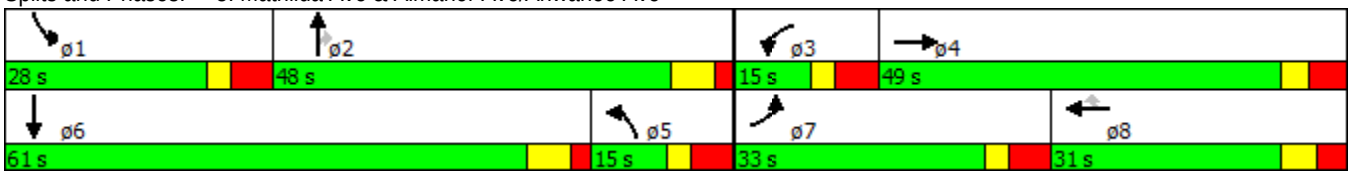
Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Configurations										
Volume (vph)	430	40	60	30	260	80	1790	60	260	2990
Turn Type	Prot	NA	Prot	NA	Perm	Prot	NA	Perm	Prot	NA
Protected Phases	7	4	3	8		5	2		1	6
Permitted Phases					8			2		
Detector Phase	7	4	3	8	8	5	2	2	1	6
Switch Phase										
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	12.0	8.0	12.0
Minimum Split (s)	15.0	49.0	15.0	15.0	15.0	15.0	36.7	36.7	15.0	27.7
Total Split (s)	33.0	49.0	15.0	31.0	31.0	15.0	48.0	48.0	28.0	61.0
Total Split (%)	23.6%	35.0%	10.7%	22.1%	22.1%	10.7%	34.3%	34.3%	20.0%	43.6%
Yellow Time (s)	2.5	2.8	2.5	3.6	3.6	2.5	4.7	4.7	2.5	4.7
All-Red Time (s)	4.5	4.2	4.5	3.4	3.4	4.5	2.0	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	6.7	7.0	6.7
Lead/Lag	Lead	Lag	Lead	Lag	Lag	Lag	Lag	Lag	Lead	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	Max	Max	None	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 120
Natural Cycle: 150
Control Type: Actuated-Uncoordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	1010	150	350	450
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	52.0	52.0	23.0	75.0
Total Split (%)	69.3%	69.3%	30.7%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	Max	Min

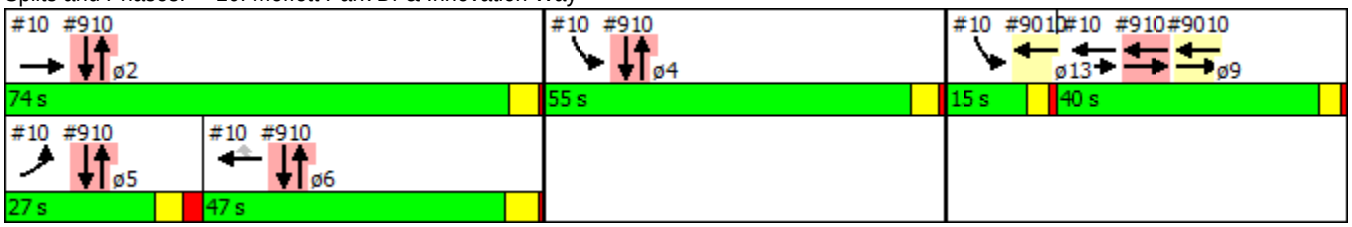
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 70.6
Natural Cycle: 70
Control Type: Semi Act-Uncoord

Splits and Phases: 9: US 101 On Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	WBR	SBL	ø2	ø4	ø9	ø13
Lane Configurations									
Volume (vph)	60	950	610	130	370				
Turn Type	Prot	NA	NA	custom	Prot				
Protected Phases	5	2 9	6 9		4 13	2	4	9	13
Permitted Phases				6					
Detector Phase	5	2	6	6	4				
Switch Phase									
Minimum Initial (s)	8.0			10.0		10.0	10.0	46.0	10.0
Minimum Split (s)	14.5			15.5		14.9	15.0	50.0	14.0
Total Split (s)	27.0			47.0		74.0	55.0	40.0	15.0
Total Split (%)	14.7%			25.5%		40%	30%	22%	8%
Yellow Time (s)	4.0			4.5		3.9	4.0	3.0	3.0
All-Red Time (s)	2.5			1.0		1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0			0.0					
Total Lost Time (s)	6.5			5.5					
Lead/Lag	Lead			Lag				Lag	Lead
Lead-Lag Optimize?	Yes			Yes				Yes	Yes
Recall Mode	None			Min		Min	None	None	None

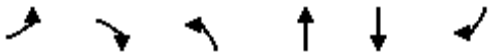
Intersection Summary
Cycle Length: 184
Actuated Cycle Length: 90.2
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way



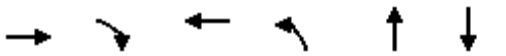
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations								
Volume (vph)	500	0	340	40	0	40	90	110
Sign Control		Stop			Stop		Stop	Stop

Intersection Summary
Control Type: Unsignalized



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	700	80	20	590	110	170
Sign Control	Stop			Stop	Stop	

Intersection Summary
Control Type: Unsignalized



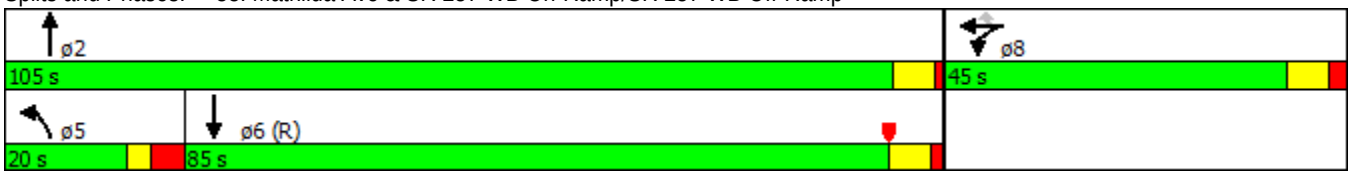
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Configurations						
Volume (vph)	30	70	30	60	50	180
Sign Control	Stop		Stop		Stop	Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	WBL	WBT	WBR	NBL	NBT	SBT
Lane Configurations						
Volume (vph)	820	0	240	110	770	2760
Turn Type	Split	NA	Perm	Prot	NA	NA
Protected Phases	8	8		5	2	6
Permitted Phases			8			
Detector Phase	8	8	8	5	2	6
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	11.0	11.0	11.0	10.3	19.0	10.3
Total Split (s)	45.0	45.0	45.0	20.0	105.0	85.0
Total Split (%)	30.0%	30.0%	30.0%	13.3%	70.0%	56.7%
Yellow Time (s)	4.8	4.8	4.8	2.5	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	3.8	1.3	1.6
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.3	6.0	6.3
Lead/Lag				Lead		Lag
Lead-Lag Optimize?				Yes		Yes
Recall Mode	Max	Max	Max	Max	Max	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 33 (22%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 33: Mathilda Ave & SR 237 WB On-Ramp/SR 237 WB Off-Ramp



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Network Performance **PM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	893.8	7.3	883.2	908.2
Total Delay (hours)	3,830	44	3,765	3,887
Average Stopped Delay (seconds)	858.3	8.8	845.5	876.9
Total Stopped Delay (hours)	3678	48	3605	3733
Total Stops	49,049	1,966	44,634	51,312
Average Stops	3.18	0.12	2.92	3.34
Total Distance Traveled (miles)	40,044	611	38,552	40,712
Average Speed (mph)	8.0	0.0	8.0	8.0
Total Travel Time (hours)	5,004.3	49.4	4,927.3	5,092.3
Vehicles Entered	12,488	110	12,347	12,691
Vehicles Exited	8,820	150	8,506	9,050
Percent Demand Served	70.6%	1.1%	68.7%	71.9%
Fuel Used (gallons)	1,872	14	1,853	1,896
HC Emissions (grams)	17,012	694	16,284	18,632
CO Emissions (grams)	487,345	12,394	471,828	514,562
NOx Emissions (grams)	57,274	1,721	55,265	61,414

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	84	60.1%	56.8	5.2	E
	Through	620	381	61.5%	22.5	3.0	C
	Right Turn	60	40	66.2%	13.9	3.3	B
	Subtotal	820	505	61.6%	27.6	3.0	C
SB	Left Turn	20	12	60.0%	881.2	152.6	F
	Through	1,120	662	59.1%	1028.6	183.0	F
	Right Turn	30	16	53.3%	1028.4	223.0	F
	Subtotal	1,170	690	59.0%	1025.6	182.1	F
EB	Left Turn	180	170	94.6%	50.4	10.2	D
	Through	40	38	94.8%	74.1	11.7	E
	Right Turn	170	167	98.0%	50.1	11.5	D
	Subtotal	390	375	96.1%	52.6	10.8	D
WB	Left Turn	290	140	48.4%	1463.1	454.6	F
	Through	20	7	34.0%	1462.2	512.1	F
	Right Turn	110	55	49.5%	1444.6	462.4	F
	Subtotal	420	202	48.0%	1458.1	457.8	F
Total		2,800	1,771	63.3%	565.6	60.4	F

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	190	141	74.3%	80.0	4.2	E
	Through	470	340	72.4%	37.2	4.9	D
	Right Turn	180	131	72.5%	29.0	5.5	C
	Subtotal	840	612	72.8%	45.4	3.6	D
SB	Left Turn	20	14	68.0%	376.8	46.6	F
	Through	1,490	911	61.2%	417.0	41.8	F
	Right Turn	70	41	58.7%	424.6	62.9	F
	Subtotal	1,580	966	61.1%	416.6	42.0	F
EB	Left Turn	330	146	44.2%	103.9	13.9	F
	Through	50	23	46.2%	102.4	13.6	F
	Right Turn	910	390	42.8%	109.0	16.4	F
	Subtotal	1,290	558	43.3%	107.4	15.6	F
WB	Left Turn	180	149	82.7%	146.1	50.0	F
	Through	20	17	85.5%	170.2	77.8	F
	Right Turn	20	18	88.0%	166.3	78.2	F
	Subtotal	220	184	83.5%	150.0	52.3	F
Total		3,930	2,320	59.0%	222.0	14.5	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 No Build**
Volume and Delay by Movement **PM Peak Hour**

Intersection 3 **Mathilda Avenue/Moffett Park Drive/SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn (Moffett Park)	180	133	74.1%	65.9	19.0	E
	Left Turn (SR 237 WB On-Ramp)	110	70	63.7%	80.5	4.2	F
	Through	770	598	77.6%	50.9	14.5	D
	Right Turn (Moffett Park)	210	168	79.8%	36.8	13.2	D
	Subtotal	1,270	969	76.5%	52.7	13.6	D
SB	Left Turn (Moffett Park)	60	33	54.8%	166.0	39.1	F
	Through	2,290	1,266	55.3%	227.9	26.6	F
	Right Turn (Moffett Park)	230	146	63.3%	280.9	25.0	F
	Right Turn (SR 237 WB On-Ramp)	560	306	54.6%	221.3	27.1	F
	Subtotal	3,140	1,750	55.8%	230.0	25.0	F
EB (Moffett Park)	Left Turn	180	100	55.4%	338.8	55.0	F
	Through	270	161	59.6%	346.0	64.9	F
	Right Turn	640	364	56.8%	345.9	49.6	F
	Subtotal	1,090	624	57.3%	344.8	53.5	F
WB (Moffett Park)	Left Turn	390	291	74.5%	962.2	104.5	F
	Through	330	254	76.8%	676.7	88.7	F
	Right Turn	40	30	75.3%	662.6	92.1	F
	Subtotal	760	574	75.6%	820.5	95.2	F
WB (SR 237 WB Off-Ramp)	Left Turn	820	654	79.7%	692.7	119.2	F
	Through						F
	Right Turn	240	187	77.7%	702.7	136.8	F
	Subtotal	1,060	840	79.3%	694.9	120.6	F
Total		7,320	4,757	65.0%	454.3	34.4	F

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	600	401	66.9%	39.8	7.2	D
	Right Turn	860	587	68.2%	10.0	0.9	A
	Subtotal	1,460	988	67.7%	22.0	2.6	C
SB	Left Turn	460	275	59.8%	34.0	3.1	C
	Through	3,120	1,995	63.9%	15.2	0.6	B
	Right Turn						
	Subtotal	3,580	2,270	63.4%	17.5	0.8	B
EB	Left Turn	280	269	96.1%	71.9	18.2	E
	Through						
	Right Turn	220	220	100.0%	58.7	38.6	E
	Subtotal	500	489	97.8%	65.8	26.9	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,540	3,748	67.6%	25.0	3.7	C

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	120	77	64.2%	109.3	38.0	F
	Through	1,270	872	68.7%	457.4	37.1	F
	Right Turn	350	236	67.3%	90.5	3.8	F
	Subtotal	1,740	1,185	68.1%	361.9	26.1	F
SB	Left Turn	180	121	67.3%	43.3	3.1	D
	Through	3,040	2,023	66.5%	12.9	1.9	B
	Right Turn	120	75	62.3%	9.8	2.8	A
	Subtotal	3,340	2,219	66.4%	14.5	1.7	B
EB	Left Turn	60	62	104.0%	56.3	7.5	E
	Through	200	196	98.2%	53.7	3.6	D
	Right Turn	60	65	108.0%	40.0	5.0	D
	Subtotal	320	324	101.1%	51.5	3.9	D
WB	Left Turn	290	134	46.2%	1412.8	95.3	F
	Through	70	33	46.9%	1391.3	156.5	F
	Right Turn	130	59	45.5%	1347.2	142.8	F
	Subtotal	490	226	46.1%	1392.3	108.2	F
Total		5,890	3,953	67.1%	200.0	9.3	F

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	46	57.1%	1156.4	90.2	F
	Through	1,790	923	51.6%	1272.9	93.0	F
	Right Turn	60	28	47.2%	1489.1	94.2	F
	Subtotal	1,930	997	51.7%	1273.6	92.7	F
SB	Left Turn	260	198	76.2%	122.4	11.2	F
	Through	2,990	2,241	74.9%	115.0	16.4	F
	Right Turn	100	76	76.2%	36.9	8.8	D
	Subtotal	3,350	2,515	75.1%	113.2	15.3	F
EB	Left Turn	430	269	62.5%	1089.2	329.9	F
	Through	40	27	67.3%	1045.0	324.7	F
	Right Turn	90	55	61.1%	1034.3	332.0	F
	Subtotal	560	351	62.6%	1077.0	330.0	F
WB	Left Turn	60	54	90.5%	162.2	65.6	F
	Through	30	28	94.0%	216.4	75.4	F
	Right Turn	260	260	99.9%	216.8	89.1	F
	Subtotal	350	342	97.8%	208.3	83.9	F
Total		6,190	4,205	67.9%	471.8	29.7	F

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,010	557	55.1%	116.9	26.1	F
	Right Turn	150	88	58.3%	60.6	15.8	E
	Subtotal	1,160	645	55.6%	109.3	24.9	F
WB	Left Turn	350	245	70.1%	28.5	2.2	C
	Through	450	314	69.7%	2.2	0.2	A
	Right Turn						
	Subtotal	800	559	69.9%	13.8	1.0	B
Total		1,960	1,204	61.4%	64.3	11.2	E

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	370	241	65.0%	375.7	51.4	F
	Through						
	Right Turn	190	121	63.7%	363.0	50.2	F
	Subtotal	560	362	64.6%	371.4	51.1	F
EB	Left Turn	60	28	47.0%	415.8	270.6	F
	Through	950	493	51.9%	371.8	54.3	F
	Right Turn						
	Subtotal	1,010	521	51.6%	370.0	53.1	F
WB	Left Turn						
	Through	610	439	72.0%	29.1	15.6	C
	Right Turn	130	83	64.0%	157.9	321.0	F
	Subtotal	740	523	70.6%	39.4	42.9	D
Total		2,310	1,406	60.8%	245.4	34.3	F

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	40	20	49.8%	556.7	1049.0	F
	Through	90	49	54.7%	704.8	1380.9	F
	Right Turn	20	11	56.0%	615.3	1243.9	F
	Subtotal	150	80	53.5%	605.1	1158.3	F
SB	Left Turn	30	24	80.3%	75.9	44.3	F
	Through	110	86	78.1%	144.2	80.5	F
	Right Turn	50	39	77.6%	173.7	104.7	F
	Subtotal	190	149	78.3%	139.6	78.4	F
EB	Left Turn	500	262	52.4%	832.3	311.2	F
	Through						
	Right Turn	340	185	54.4%	824.1	344.7	F
	Subtotal	840	447	53.2%	825.8	317.3	F
WB	Left Turn	40	39	98.3%	261.0	84.6	F
	Through						
	Right Turn	20	19	93.5%	32.4	15.2	D
	Subtotal	60	58	96.7%	185.3	52.8	F
Total		1,240	734	59.2%	545.1	173.2	F

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	20	11	56.0%	354.8	186.6	F
	Through	590	330	55.8%	445.4	219.5	F
	Right Turn						
	Subtotal	610	341	55.9%	442.3	217.7	F
SB	Left Turn						
	Through	110	85	76.9%	86.1	24.2	F
	Right Turn	170	115	67.7%	54.1	20.5	F
	Subtotal	280	200	71.3%	67.5	21.1	F
EB	Left Turn	700	229	32.6%	1585.0	102.2	F
	Through						
	Right Turn	80	71	89.3%	361.9	159.4	F
	Subtotal	780	300	38.4%	1295.5	90.6	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,670	840	50.3%	658.8	97.2	F

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	42	69.3%	5.3	0.6	A
	Through	50	50	100.6%	4.7	0.4	A
	Right Turn						
	Subtotal	110	92	83.5%	5.0	0.3	A
SB	Left Turn						
	Through	180	91	50.7%	10.9	1.4	B
	Right Turn	40	21	53.3%	7.2	1.0	A
	Subtotal	220	113	51.1%	10.2	1.2	B
EB	Left Turn	50	32	64.4%	6.8	0.6	A
	Through	30	19	62.3%	8.2	0.4	A
	Right Turn	70	49	69.3%	5.4	0.4	A
	Subtotal	150	99	66.3%	6.4	0.3	A
WB	Left Turn						
	Through	30	28	92.7%	5.2	0.5	A
	Right Turn						
	Subtotal	30	28	92.7%	5.2	0.5	A
Total		510	332	65.0%	7.1	0.5	A

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	125	17	225	26	250	34	26%	0%
	Through	625	25	5	75	7	100	16	0%	0%
	Right Turn	625	125	32	275	46	350	58	0%	0%
NB	Left Turn	425	75	7	125	16	125	29	0%	0%
	Through	1,125	75	10	150	17	200	42	0%	0%
	Through/Right	1,125	75	9	175	21	200	33	0%	0%
SB	Left Turn	250	75	26	250	55	300	1	0%	0%
	Through	1,325	2,500	333	4,225	469	4,600	465	94%	0%
	Right Turn	250	75	17	275	31	300	0	0%	0%
WB	Left Turn	925	3,700	488	6,050	564	5,125	316	90%	37%
	Through/Right	75	50	10	100	12	100	0	9%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	75	14	175	14	175	18	0%	36%
	Through/Right	225	25	3	50	8	75	19	0%	46%
	Right Turn	225	250	14	325	14	325	22	0%	55%
NB	Left Turn	400	75	11	150	19	175	34	0%	0%
	Through	975	100	10	175	22	225	33	0%	0%
	Through/Right	975	150	21	275	40	300	47	0%	0%
SB	Left Turn	225	25	7	100	16	150	0	0%	0%
	Through	75	1,200	2	1,200	6	1,225	15	90%	66%
	Right Turn	975	150	22	350	21	275	0	0%	0%
WB	Left Turn	425	200	50	450	71	575	41	8%	0%
	Shared	225	125	27	225	28	225	0	14%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft)		95th Queue (ft)		Maximum Queue (ft)		Block Time	
			Average	Std. Dev.	Average	Std. Dev.	Average	Std. Dev.	Pocket	Upstream
EB (Moffett Park)	Left Turn	525	225	56	400	60	375	2	1%	0%
	Through/Right	1,125	1,150	21	1,175	17	1,175	16	0%	55%
	Right Turn	1,125	1,150	4	1,150	9	1,175	13	0%	53%
NB	Left Turn (Moffett Park)	125	25	4	50	6	75	9	0%	12%
	Through	300	150	21	275	48	300	86	0%	36%
	Through/Right (Moffett Park)	300	150	17	275	39	300	78	0%	36%
	Left Turn (SR 237 WB On-Ramp)	175	75	9	150	20	175	27	0%	1%
SB	Left Turn (Moffett Park)	175	50	7	100	20	150	56	0%	0%
	Through	1,100	1,125	64	1,250	64	1,200	23	66%	53%
	Through/Right (Moffett Park)	975	1,075	4	1,100	13	1,125	11	0%	49%
	Through/Right (SR 237 WB On-Ramp)	1,100	1,125	60	1,225	59	1,200	23	66%	57%
WB (Moffett Park)	Left Turn	300	3,800	214	5,825	255	5,950	252	96%	0%
	Through/Right	675	650	1	650	2	650	2	24%	54%
WB (SR 237 WB Off-Ramp)	Left Turn	1,075	5,425	1,272	8,525	1,393	8,550	1,278	63%	0%
	Left/Through	325	450	1	450	4	450	0	62%	0%
	Right Turn	325	350	26	475	20	375	0	17%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Off-Ramp-SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	175	77	375	253	625	308	0%	0%
	Shared	1,025	200	39	400	89	450	95	5%	0%
NB	Through	275	50	10	100	24	150	62	0%	0%
	Right Turn	275	75	18	200	34	275	32	0%	1%
SB	Left Turn	175	100	12	175	15	200	12	0%	5%
	Through	175	200	8	225	13	225	10	0%	18%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	250	28	400	40	450	44	36%	0%
	Through	1,575	100	2	125	6	100	0	63%	0%
	Right Turn	50	50	3	75	4	75	4	12%	0%
NB	Left Turn	150	100	23	200	40	225	24	14%	0%
	Through	2,200	1,025	50	1,100	101	1,100	137	0%	51%
	Through/Right	450	525	2	550	7	575	6	0%	82%
SB	Left Turn	225	100	9	175	16	200	29	10%	0%
	Through	225	150	14	250	23	275	19	5%	1%
	Through/Right	225	150	15	250	23	300	1	0%	5%
WB	Left Turn	100	6,300	587	9,575	904	9,725	819	87%	0%
	Through	225	75	5	150	3	100	0	5%	0%
	Right Turn	100	50	8	100	9	75	1	4%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	350	31	350	28	350	13	89%	79%
	Through/Right	125	125	23	300	15	225	0	7%	0%
NB	Left Turn	425	100	26	275	67	375	3	0%	0%
	Through	750	4,725	35	7,725	57	7,675	17	86%	0%
	Right Turn	75	25	9	100	18	100	0	0%	0%
SB	Left Turn	125	175	5	200	6	175	0	58%	0%
	Through	2,225	1,400	46	1,775	54	1,900	27	36%	0%
	Through/Right	2,225	375	51	525	59	525	34	0%	0%
WB	Left Turn	250	175	42	400	69	375	0	1%	0%
	Through	1,025	600	214	1,025	249	975	147	8%	0%
	Right Turn	75	125	3	125	7	125	0	82%	0%

Intersection 9 **US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	700	64	1,125	33	900	2	63%	15%
	Right Turn	150	200	38	475	36	375	0	0%	0%
WB	Left Turn	850	150	8	250	28	300	40	0%	0%
	Through	850	25	1	25	12	25	34	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	225	175	33	425	36	350	0	7%	0%
	Through	850	850	52	1,050	77	925	9	87%	31%
SB	Left Turn	575	500	13	575	17	550	19	0%	61%
	Shared	575	525	7	575	10	550	10	0%	66%
WB	Through	1,150	200	153	400	372	400	314	1%	5%
	Right Turn	1,150	50	48	125	93	200	68	11%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	125	10	200	8	150	0	58%	0%
	Through/Right	325	3,075	1,111	5,850	1,571	5,850	1,285	45%	0%
	Right Turn	325	2,650	1,026	5,250	1,409	5,400	888	0%	0%
NB	Left Turn	125	25	2	25	15	75	44	0%	0%
	Left/Through	575	150	103	300	148	325	99	18%	12%
	Through/Right	575	125	98	225	143	250	107	0%	7%
SB	Left/Through	1,000	100	47	250	126	375	184	0%	0%
	Through/Right	1,000	150	65	350	137	425	178	0%	0%
WB	Left Turn	325	125	29	225	48	250	42	0%	0%
	Through/Right	325	25	4	50	7	75	10	0%	0%

Intersection 12 **Innovation Way/Juniper Driveway** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	9,425	707	14,950	1,052	15,225	1,081	0%	0%
	Right Turn	200	1,825	907	4,550	3,992	7,225	7,034	0%	0%
NB	Left Turn	125	50	19	175	38	175	0	0%	0%
	Through	1,000	650	215	1,100	242	1,100	204	89%	77%
SB	Through/Right	300	200	26	225	54	250	81	0%	4%
	Right Turn	300	200	40	250	55	250	28	0%	1%

Intersection 13 **Bordeaux Drive/Innovation Way** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	50	3	75	5	75	16	0%	0%
	Right Turn	125	25	3	75	5	75	20	0%	0%
NB	Left Turn	325	25	3	50	3	75	17	0%	0%
	Through/Right	2,025	25	2	50	4	75	11	0%	0%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	50	7	75	9	100	12	0%	0%
WB	Left/Through	125	25	0	25	0	25	0	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	236.6	247.0	0.1	2
US 101 SB Diag. On-R	702	27.2	33.7	0.1	9
US 101 SB Loop On-Ra	701	124.8	132.3	0.1	3
US 101 NB Loop On-Ra	602	92.5	98.1	0.1	2
US 101 NB Diag.Off-R	601	129.2	136.0	0.1	2
Ross Dr	5	75.7	83.4	0.1	4
SR 237 EB On-Ramp	4	36.9	42.1	0.1	6
SR 237 WB Off-Ramp	33	18.8	22.6	0.0	8
Moffett Park Dr	3	30.7	33.5	0.0	4
Innovation Way	2	38.1	55.0	0.2	14
5th Ave	1	23.5	42.5	0.2	20
	107	4.2	26.4	0.3	37
Total		838.3	952.6	1.5	5

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	629.0	647.8	0.3	2
Innovation Way	2	381.9	397.5	0.2	2
Moffett Park Dr	3	202.2	218.2	0.2	4
SR 237 WB On-Ramp	33	3.1	6.1	0.0	24
SR 237 Off/On Ramp	4	4.1	8.3	0.0	21
Ross Dr	5	10.9	15.9	0.1	15
US 101 NB Diag.Off-R	601	29.2	37.4	0.1	9
US 101 NB Loop Off-R	602	18.3	24.0	0.1	14
US 101 SB Loop On-Ra	701	6.2	12.3	0.1	19
US 101 SB Off-Ramp	702	7.8	14.4	0.1	26
Almanor Ave	8	51.2	59.3	0.1	5
San Aleso Ave	201	6.0	17.3	0.1	29
Total		1350.0	1458.5	1.5	4

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	24.3	26.2	0.0	3
	38	44.3	50.4	0.0	3
	11	244.1	253.7	0.1	1
	200	132.9	148.0	0.2	4
Juniper Driveway	12	200.9	208.5	0.1	1
Driveway	217	37.0	41.1	0.0	3
	902	56.3	60.0	0.0	1
Mathilda Ave	2	7.9	10.1	0.0	9
	53	1.5	14.5	0.1	24
Bordeaux Dr	13	6.5	15.9	0.1	18
Total		755.7	828.4	0.6	3

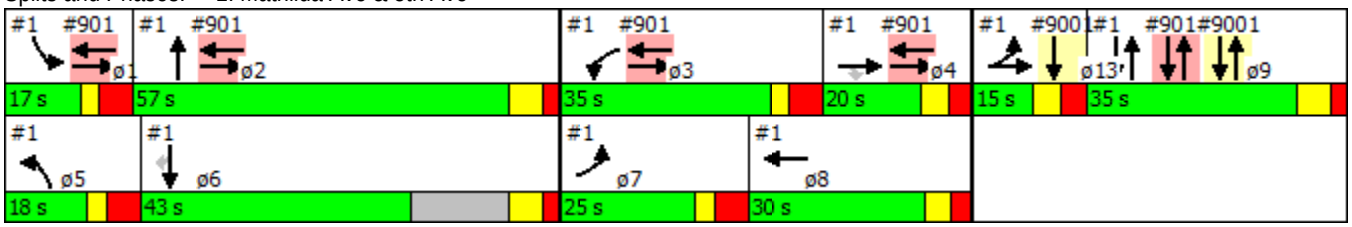
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	53	15.5	27.1	0.1	10
Mathilda Ave	2	139.6	149.7	0.1	2
	902	8.0	12.3	0.0	8
Driveway	217	1.8	4.3	0.0	17
Juniper Driveway	12	82.0	87.5	0.0	2
	200	1.9	11.0	0.1	19
11th Ave	11	145.4	167.1	0.2	3
	38	201.4	209.0	0.1	1
	910	115.7	120.7	0.0	1
Moffett Park Dr	10	19.6	22.8	0.0	4
Total		730.8	811.5	0.6	3

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	30	30	90	60	30	200	860	40	520	110		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	37.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		43.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		24.0%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 105.4
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



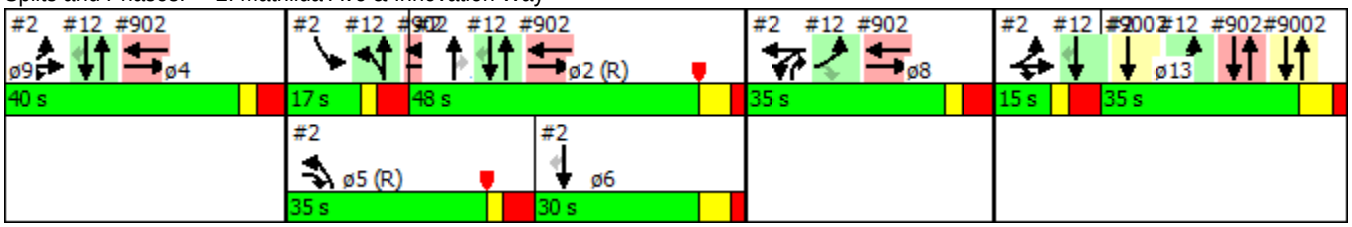
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	90	110	360	180	760	1020	1240	50	390	230		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	2	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	13.0		10.0	10.0			12.0	14.0
Minimum Split (s)			35.0	35.0	20.0		35.0	16.8			19.0	39.0
Total Split (s)			35.0	35.0	35.0		35.0	17.0			48.0	40.0
Total Split (%)			18.4%	18.4%	18.4%		18.4%	8.9%			25%	21%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			4.7	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lead			Lag	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	C-Max		None	None			C-Max	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 133 (70%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



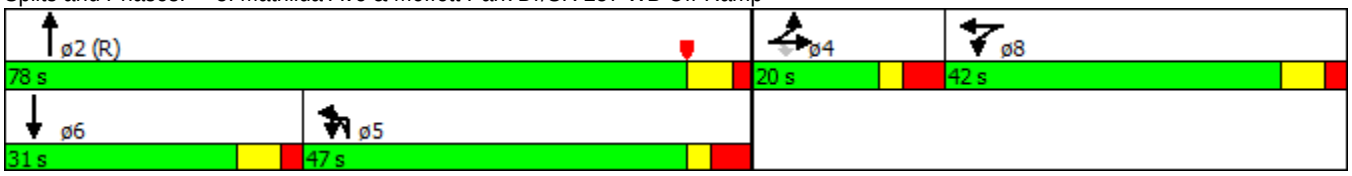
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	30.0	35.0	15.0
Total Split (%)	16%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	Min	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations							
Volume (vph)	0	110	670	300	920	2660	540
Turn Type	NA	Perm	Split	NA	Prot	NA	NA
Protected Phases	4		8	8	5	2	6
Permitted Phases		4					
Detector Phase	4	4	8	8	5	2	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	8.0	8.0
Minimum Split (s)	11.0	11.0	40.0	40.0	11.0	26.9	14.9
Total Split (s)	20.0	20.0	42.0	42.0	47.0	78.0	31.0
Total Split (%)	14.3%	14.3%	30.0%	30.0%	33.6%	55.7%	22.1%
Yellow Time (s)	2.5	2.5	4.5	4.5	2.5	4.7	4.7
All-Red Time (s)	4.5	4.5	2.5	2.5	4.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Recall Mode	Max	Max	Max	Max	None	C-Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 130 (93%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated

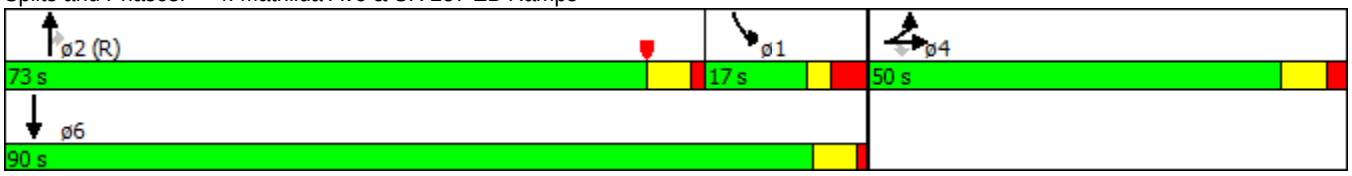
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr/SR 237 WB Off-Ramp



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	780	0	70	2980	920	80	1050
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	8.0	8.0	4.0	8.0
Minimum Split (s)	11.0	11.0	11.0	18.2	18.2	10.4	13.9
Total Split (s)	50.0	50.0	50.0	73.0	73.0	17.0	90.0
Total Split (%)	35.7%	35.7%	35.7%	52.1%	52.1%	12.1%	64.3%
Yellow Time (s)	4.8	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	2.2	1.5	1.5	3.9	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.2	6.2	6.4	5.9
Lead/Lag				Lead	Lead	Lag	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	Max	Max	Max	C-Max	C-Max	None	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 135 (96%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

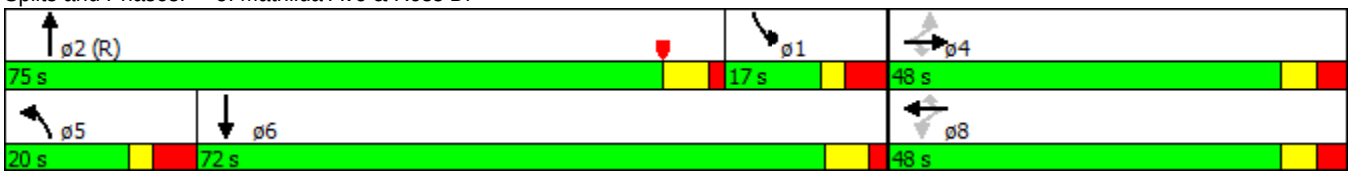
Splits and Phases: 4: Mathilda Ave & SR 237 EB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	90	70	40	130	40	300	80	3510	70	1000
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	20.0	75.0	17.0	72.0
Total Split (%)	34.3%	34.3%	34.3%	34.3%	34.3%	34.3%	14.3%	53.6%	12.1%	51.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow, Master Intersection
Natural Cycle: 125
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	770	780	2930	570	20	1150
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	44.0	16.0	80.0	80.0	16.0	96.0
Total Split (%)	31.4%	11.4%	57.1%	57.1%	11.4%	68.6%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 118 (84%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	380	520	3120	700	1730
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	8.0	8.0	8.0
Minimum Split (s)	10.9	10.9	14.9	14.9	14.9
Total Split (s)	40.0	40.0	100.0	100.0	100.0
Total Split (%)	28.6%	28.6%	71.4%	71.4%	71.4%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	None

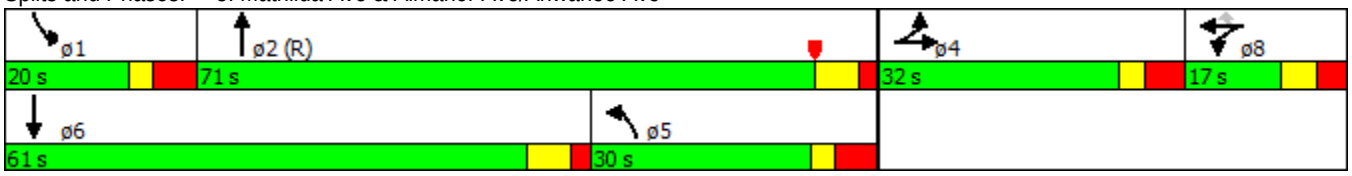
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 117 (84%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	130	30	90	50	260	140	3430	160	1760
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	32.0	32.0	15.0	15.0	15.0	15.0	36.7	15.0	18.7
Total Split (s)	32.0	32.0	17.0	17.0	17.0	30.0	71.0	20.0	61.0
Total Split (%)	22.9%	22.9%	12.1%	12.1%	12.1%	21.4%	50.7%	14.3%	43.6%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 103 (74%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	230	20	40	990
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	62.0	62.0	13.0	75.0
Total Split (%)	82.7%	82.7%	17.3%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

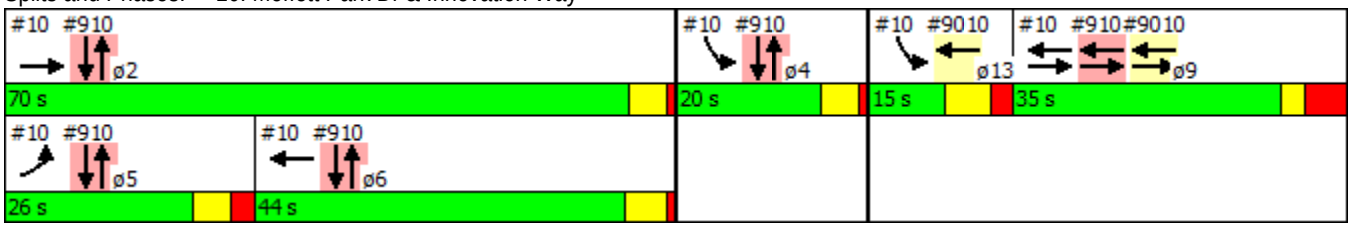
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 41.3
Natural Cycle: 40
Control Type: Semi Act-Uncoord

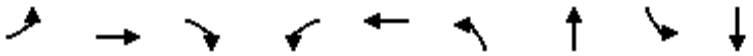
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	SBL	ø2	ø4	ø6	ø9	ø13
Lane Configurations									
Volume (vph)	140	90	900	70					
Turn Type	Prot	NA	NA	Prot					
Protected Phases	5	2 9	6 9	4 13	2	4	6	9	13
Permitted Phases									
Detector Phase	5	2	6	4					
Switch Phase									
Minimum Initial (s)	8.0				10.0	10.0	10.0	28.0	8.0
Minimum Split (s)	14.5				14.9	15.0	27.5	35.0	15.0
Total Split (s)	26.0				70.0	20.0	44.0	35.0	15.0
Total Split (%)	18.6%				50%	14%	31%	25%	11%
Yellow Time (s)	4.0				3.9	4.0	4.5	2.5	4.7
All-Red Time (s)	2.5				1.0	1.0	1.0	4.5	2.3
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.5								
Lead/Lag	Lead						Lag	Lag	Lead
Lead-Lag Optimize?	Yes						Yes	Yes	Yes
Recall Mode	None				Min	None	Min	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 107.7
Natural Cycle: 110
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way





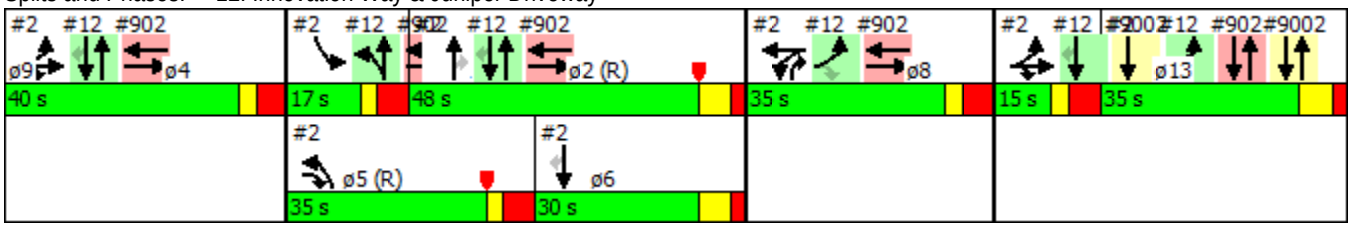
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	50	0	80	20	0	270	180	130	110
Sign Control		Stop			Stop		Stop		Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø4	ø5	ø6	ø8	ø9
Lane Configurations												
Volume (vph)	100	60	110	140	420	750						
Turn Type	Prot	Perm	Prot	NA	NA	Perm						
Protected Phases	8 9		1	1 2 4	2 4 13		2	4	5	6	8	9
Permitted Phases		8 9				2 4 13						
Detector Phase	8	8	1	1 2 4	2 4	2 4						
Switch Phase												
Minimum Initial (s)			10.0				12.0	14.0	13.0	12.0	10.0	28.0
Minimum Split (s)			16.8				19.0	39.0	20.0	30.0	35.0	35.0
Total Split (s)			17.0				48.0	40.0	35.0	30.0	35.0	35.0
Total Split (%)			8.9%				25%	21%	18%	16%	18%	18%
Yellow Time (s)			2.5				4.7	2.5	2.5	4.7	2.5	4.7
All-Red Time (s)			4.3				2.3	4.5	4.5	2.3	4.5	2.3
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lead				Lag		Lead	Lag		Lag
Lead-Lag Optimize?			Yes				Yes		Yes	Yes		Yes
Recall Mode			None				C-Max	None	C-Max	Min	None	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 133 (70%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 12: Innovation Way & Juniper Driveway



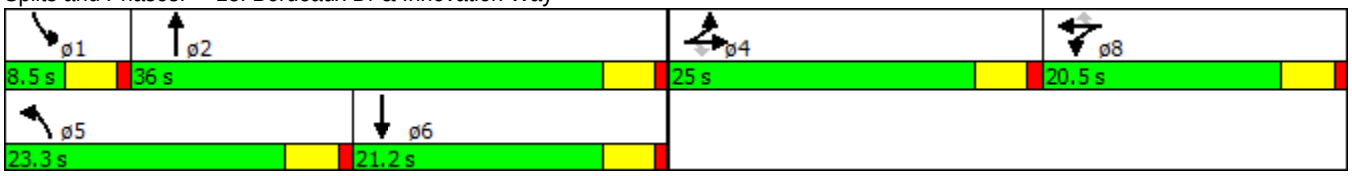
Lane Group	ø13
Lane Configurations	
Volume (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	8%
Yellow Time (s)	2.5
All-Red Time (s)	4.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None

Intersection Summary

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	ø1
Lane Configurations							
Volume (vph)	50	690	20	390	130	60	
Turn Type	NA	Perm	NA	Prot	NA	NA	
Protected Phases	4		8	5	2	6	1
Permitted Phases		4					
Detector Phase	4	4	8	5	2	6	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.5	20.5	20.5	8.5	20.5	20.5	8.5
Total Split (s)	25.0	25.0	20.5	23.3	36.0	21.2	8.5
Total Split (%)	27.8%	27.8%	22.8%	25.9%	40.0%	23.6%	9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag				Lead	Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	Max	Max	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 67.3
Natural Cycle: 90
Control Type: Semi Act-Uncoord

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Network Performance **AM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	519.3	24.4	476.5	543.2
Total Delay (hours)	1,948	100	1,747	2,050
Average Stopped Delay (seconds)	439.3	23.7	400.0	466.4
Total Stopped Delay (hours)	1648	94	1467	1749
Total Stops	49,230	1,277	46,781	50,679
Average Stops	3.65	0.07	3.54	3.74
Total Distance Traveled (miles)	49,422	625	47,925	50,059
Average Speed (mph)	15.6	0.7	15.0	17.0
Total Travel Time (hours)	3,345.2	119.7	3,135.1	3,519.4
Vehicles Entered	11,102	173	10,843	11,316
Vehicles Exited	9,802	128	9,529	9,937
Percent Demand Served	88.3%	1.6%	86.0%	91.1%
Fuel Used (gallons)	1,693	23	1,648	1,734
HC Emissions (grams)	20,805	1,310	18,497	22,916
CO Emissions (grams)	574,255	24,401	532,903	615,264
NOx Emissions (grams)	75,937	3,128	70,998	81,613

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	200	148	73.8%	45.2	5.4	D
	Through	860	641	74.5%	17.7	1.9	B
	Right Turn	80	60	74.9%	12.7	3.0	B
	Subtotal	1,140	849	74.4%	22.1	1.9	C
SB	Left Turn	40	36	90.0%	59.0	8.1	E
	Through	520	502	96.5%	28.7	0.9	C
	Right Turn	110	105	95.4%	12.2	1.2	B
	Subtotal	670	643	95.9%	27.7	0.8	C
EB	Left Turn	30	29	96.7%	36.1	3.6	D
	Through	30	35	115.7%	34.9	3.6	C
	Right Turn	90	90	99.6%	11.2	2.1	B
	Subtotal	150	153	102.2%	21.1	2.9	C
WB	Left Turn	60	60	100.2%	48.3	5.3	D
	Through	30	31	102.0%	42.2	11.2	D
	Right Turn	20	22	110.0%	18.1	6.0	B
	Subtotal	110	113	102.5%	40.7	5.9	D
Total		2,070	1,757	84.9%	25.3	1.3	C

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	760	590	77.6%	84.9	10.3	F
	Through	1,020	768	75.3%	37.6	1.6	D
	Right Turn	1,240	941	75.9%	95.7	10.3	F
	Subtotal	3,020	2,299	76.1%	73.5	5.5	E
SB	Left Turn	50	48	96.6%	108.3	12.8	F
	Through	390	372	95.4%	54.2	5.2	D
	Right Turn	230	234	101.6%	39.5	7.3	D
	Subtotal	670	654	97.6%	53.0	3.4	D
EB	Left Turn	40	33	82.0%	59.4	19.7	E
	Through	90	86	95.0%	59.5	18.0	E
	Right Turn	110	103	93.6%	52.8	18.1	D
	Subtotal	240	221	92.2%	56.3	18.2	E
WB	Left Turn	360	248	68.9%	228.6	7.0	F
	Through	180	129	71.7%	264.0	12.1	F
	Right Turn	80	55	68.5%	247.8	14.9	F
	Subtotal	620	432	69.6%	241.6	8.4	F
Total		4,550	3,606	79.2%	88.9	3.7	F

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,100	830	75.5%	65.9	8.8	E
	Through	2,660	1,921	72.2%	60.3	4.0	E
	Right Turn						
	Subtotal	3,760	2,751	73.2%	61.9	4.3	E
SB	Left Turn						
	Through	540	442	81.9%	91.5	21.3	F
	Right Turn	320	253	79.0%	179.5	89.4	F
	Subtotal	860	695	80.8%	122.8	44.2	F
EB	Left Turn	50	44	87.8%	69.7	16.3	E
	Through						
	Right Turn	110	99	90.4%	8.4	6.7	A
	Subtotal	160	143	89.6%	26.9	7.4	C
WB	Left Turn	670	648	96.7%	93.0	33.0	F
	Through	300	292	97.5%	115.0	41.5	F
	Right Turn	310	301	97.0%	129.0	54.1	F
	Subtotal	1,280	1,241	97.0%	107.0	40.1	F
Total		6,060	4,830	79.7%	81.4	9.9	F

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,980	2,309	77.5%	43.4	5.3	D
	Right Turn	920	723	78.5%	2.6	0.2	A
	Subtotal	3,900	3,031	77.7%	33.6	4.0	C
SB	Left Turn	80	72	90.1%	145.6	40.3	F
	Through	1,050	927	88.3%	39.1	11.7	D
	Right Turn						
	Subtotal	1,130	999	88.4%	46.7	10.6	D
EB	Left Turn	780	448	57.5%	1158.6	527.5	F
	Through						
	Right Turn	70	41	59.0%	877.6	451.8	F
	Subtotal	850	490	57.6%	1134.3	521.0	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,880	4,520	76.9%	142.3	24.8	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **AM Peak Hour**

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	56	70.5%	108.8	12.5	F
	Through	3,510	2,670	76.1%	73.5	13.0	E
	Right Turn	120	94	78.3%	56.3	8.0	E
	Subtotal	3,710	2,820	76.0%	73.6	12.8	E
SB	Left Turn	70	57	81.3%	53.4	2.6	D
	Through	1,000	882	88.2%	29.4	8.4	C
	Right Turn	50	46	91.4%	21.2	7.3	C
	Subtotal	1,120	985	87.9%	30.4	7.7	C
EB	Left Turn	90	88	97.2%	76.3	15.0	E
	Through	70	71	102.0%	40.3	6.3	D
	Right Turn	40	41	101.5%	14.5	4.2	B
	Subtotal	200	200	99.8%	50.6	8.2	D
WB	Left Turn	130	115	88.5%	213.9	192.4	F
	Through	40	38	95.5%	199.5	169.6	F
	Right Turn	300	277	92.2%	216.8	184.7	F
	Subtotal	470	430	91.5%	214.4	185.3	F
Total		5,500	4,434	80.6%	76.0	18.8	E

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,930	2,085	71.1%	72.7	15.1	E
	Right Turn	570	389	68.3%	12.0	1.8	B
	Subtotal	3,500	2,474	70.7%	63.2	12.9	E
SB	Left Turn	20	17	85.0%	58.5	4.6	E
	Through	1,150	1,033	89.9%	26.1	2.5	C
	Right Turn						
	Subtotal	1,170	1,050	89.8%	26.6	2.5	C
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	770	764	99.2%	177.8	80.1	F
	Through						
	Right Turn	780	754	96.7%	162.9	78.9	F
	Subtotal	1,550	1,518	97.9%	170.4	79.5	F
Total		6,220	5,043	81.1%	87.9	26.8	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **AM Peak Hour**

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	3,120	2,134	68.4%	62.4	16.8	E
	Right Turn	700	484	69.1%	24.2	5.0	C
	Subtotal	3,820	2,617	68.5%	55.4	14.6	E
SB	Left Turn						
	Through	1,730	1,619	93.6%	15.1	1.2	B
	Right Turn	190	169	88.9%	12.9	1.0	B
	Subtotal	1,920	1,788	93.1%	14.9	1.1	B
EB	Left Turn	380	374	98.4%	88.0	11.3	F
	Through						
	Right Turn	520	507	97.5%	36.3	5.2	D
	Subtotal	900	881	97.9%	58.2	7.3	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		6,640	5,286	79.6%	42.0	8.0	D

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	90	64.1%	927.5	89.7	F
	Through	3,430	2,237	65.2%	945.3	96.6	F
	Right Turn	70	48	68.6%	946.9	97.8	F
	Subtotal	3,640	2,375	65.3%	944.7	96.3	F
SB	Left Turn	160	151	94.1%	155.1	36.8	F
	Through	1,760	1,670	94.9%	42.4	3.9	D
	Right Turn	330	302	91.4%	48.6	5.0	D
	Subtotal	2,250	2,122	94.3%	51.3	5.4	D
EB	Left Turn	130	126	97.2%	75.7	5.8	E
	Through	30	29	96.7%	74.6	7.9	E
	Right Turn	40	43	106.8%	45.1	6.2	D
	Subtotal	200	198	99.0%	68.7	3.8	E
WB	Left Turn	90	88	98.2%	70.8	8.1	E
	Through	50	51	101.4%	73.5	12.9	E
	Right Turn	260	265	101.8%	35.4	10.9	D
	Subtotal	400	404	100.9%	47.9	9.6	D
Total		6,490	5,099	78.6%	466.2	32.9	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **AM Peak Hour**

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	230	224	97.5%	2.1	0.4	A
	Right Turn	20	19	95.5%	1.4	0.3	A
	Subtotal	250	243	97.3%	2.0	0.4	A
WB	Left Turn	40	30	75.0%	10.1	0.8	B
	Through	990	821	82.9%	5.6	0.6	A
	Right Turn						
	Subtotal	1,030	851	82.6%	5.7	0.6	A
Total		1,280	1,094	85.5%	4.9	0.5	A

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	70	59	84.6%	46.4	4.4	D
	Through						
	Right Turn	130	120	92.5%	38.9	4.0	D
	Subtotal	200	179	89.7%	41.3	3.8	D
EB	Left Turn	140	138	98.5%	43.8	8.2	D
	Through	90	86	95.9%	4.6	1.2	A
	Right Turn						
	Subtotal	230	224	97.5%	28.6	5.0	C
WB	Left Turn						
	Through	900	733	81.4%	19.6	1.6	B
	Right Turn	640	511	79.8%	24.8	2.7	C
	Subtotal	1,540	1,244	80.8%	21.7	1.9	C
Total		1,970	1,647	83.6%	24.8	1.9	C

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **AM Peak Hour**

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	270	228	84.6%	12.3	0.9	B
	Through	180	149	83.0%	12.5	0.7	B
	Right Turn	240	198	82.7%	8.3	0.6	A
	Subtotal	690	576	83.5%	11.0	0.7	B
SB	Left Turn	130	108	83.2%	7.8	0.6	A
	Through	110	91	82.9%	13.5	1.2	B
	Right Turn	240	198	82.4%	10.8	0.9	B
	Subtotal	480	397	82.7%	10.7	0.7	B
EB	Left Turn	50	50	100.2%	15.5	2.6	C
	Through						
	Right Turn	80	80	99.4%	11.9	2.1	B
	Subtotal	130	130	99.7%	13.3	1.5	B
WB	Left Turn	20	19	94.0%	5.0	0.5	A
	Through						
	Right Turn	20	19	95.0%	3.4	0.2	A
	Subtotal	40	38	94.5%	4.2	0.2	A
Total		1,340	1,141	85.1%	10.9	0.5	B

Intersection 12 **Innovation Way/Juniper Networks Driveway** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	96	87.5%	198.9	84.5	F
	Through	140	122	87.4%	43.3	33.9	E
	Right Turn						
	Subtotal	250	219	87.4%	113.2	59.5	F
SB	Left Turn						
	Through	420	337	80.2%	9.2	0.8	A
	Right Turn	750	619	82.5%	9.0	0.6	A
	Subtotal	1,170	956	81.7%	9.1	0.5	A
EB	Left Turn	100	100	100.1%	74.2	33.0	F
	Through						
	Right Turn	60	61	101.2%	13.2	2.2	B
	Subtotal	160	161	100.5%	50.7	18.6	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,580	1,335	84.5%	31.4	12.2	D

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **AM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	390	233	59.6%	489.7	124.0	F
	Through	130	76	58.2%	320.9	112.9	F
	Right Turn						
	Subtotal	520	308	59.3%	448.3	122.1	F
SB	Left Turn						
	Through	60	63	105.7%	96.1	58.6	F
	Right Turn	150	149	99.3%	94.8	55.1	F
	Subtotal	210	212	101.1%	95.1	55.9	F
EB	Left Turn	370	291	78.7%	38.7	2.5	E
	Through	50	37	73.6%	38.5	6.1	E
	Right Turn	690	537	77.8%	22.7	1.5	C
	Subtotal	1,110	865	77.9%	28.8	1.9	D
WB	Left Turn						
	Through	20	20	98.5%	63.3	18.0	F
	Right Turn						
	Subtotal	20	20	98.5%	63.3	18.0	F
Total		1,860	1,405	75.5%	130.2	28.4	F

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	25	5	50	6	75	16	0%	0%
	Through	625	25	5	50	8	75	13	0%	0%
	Right Turn	625	50	7	75	15	125	21	0%	0%
NB	Left Turn	425	75	6	125	13	175	31	0%	0%
	Through	1,125	100	12	200	20	225	21	0%	0%
	Through/Right	1,125	125	14	225	25	275	22	0%	0%
SB	Left Turn	250	50	5	75	11	100	26	0%	0%
	Through	1,325	100	7	175	15	225	32	0%	0%
	Right Turn	250	25	5	50	15	100	23	0%	0%
WB	Left Turn	925	75	10	125	20	150	23	15%	0%
	Through/Right	75	50	7	100	8	100	0	11%	0%

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	150	24	225	31	250	31	0%	6%
	Right Turn	225	25	4	50	6	75	15	0%	8%
NB	Left Turn	725	400	44	700	111	750	227	2%	0%
	Through	975	900	162	1,350	76	1,100	13	1%	5%
	Right Turn	975	975	53	1,200	68	1,075	12	0%	8%
SB	Left Turn	75	75	8	125	11	150	4	15%	0%
	Through	975	125	16	250	38	325	64	20%	0%
	Right Turn	225	150	17	250	28	275	21	4%	0%
WB	Left Turn	425	775	4	800	7	800	13	36%	44%
	Shared	225	250	1	250	3	250	2	77%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Shared	1,125	50	8	125	15	175	46	0%	0%
	Right Turn	1,125	25	10	75	33	100	61	0%	0%
NB	Left Turn	350	325	46	475	45	475	32	0%	11%
	Through	350	425	16	500	25	500	22	0%	33%
	Right Diagonal	350	175	11	225	9	200	14	0%	50%
SB	Through	975	400	159	700	268	725	246	0%	0%
	Through/Right	975	500	141	750	208	775	202	0%	1%
WB	Left Turn	525	425	84	550	82	575	64	8%	0%
	Left/Through	1,225	525	183	750	296	825	292	13%	1%
	Through/Right	1,225	575	168	775	226	850	242	0%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	5,275	2,490	9,625	3,258	9,825	3,084	0%	0%
	Left/Through	1,025	1,025	55	1,175	85	1,100	8	84%	38%
	Right Turn	450	225	63	675	78	575	0	0%	0%
NB	Through	275	225	28	275	45	275	38	0%	16%
	Right Turn	275	25	7	50	25	50	35	0%	0%
SB	Left Turn	325	200	25	325	56	350	51	2%	0%
	Through	350	300	32	400	39	450	40	0%	5%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	250	75	7	125	5	125	1	26%	0%
	Through	1,575	100	22	225	52	325	90	35%	0%
	Right Turn	50	50	6	100	10	100	3	5%	0%
NB	Left Turn	250	150	30	350	45	300	1	0%	0%
	Through	700	650	53	825	35	750	20	56%	8%
	Through/Right	225	275	4	275	16	275	0	39%	0%
SB	Left Turn	225	75	9	125	12	150	15	0%	0%
	Through	225	125	29	275	39	250	6	0%	17%
	Through/Right	225	150	29	300	38	275	18	0%	20%
WB	Left Turn	100	75	9	125	6	100	0	11%	0%
	Through	225	900	737	1,575	1,047	1,725	845	2%	0%
	Right Turn	100	100	1	125	2	125	0	70%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
NB	Through	575	600	64	725	40	675	24	0%	27%
	Right Turn	575	350	100	750	89	650	48	0%	0%
SB	Left Turn	375	25	7	75	32	175	134	0%	0%
	Through	700	200	26	400	49	450	87	1%	0%
WB	Left Turn	1,025	525	260	1,375	422	1,975	484	0%	0%
	Right Turn	1,025	150	7	175	15	175	18	0%	53%
0										

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	200	34	325	60	400	75	12%	0%
	Right Turn	1,050	25	1	25	13	25	37	0%	0%
NB	Through	750	625	95	925	96	800	15	0%	7%
	Right Turn	750	525	108	1,025	122	800	179	0%	7%
SB	Through	575	150	16	300	32	350	103	0%	0%
	Through/Right	575	175	20	325	27	350	15	0%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	75	5	150	13	200	41	4%	0%
	Through/Right	125	75	6	125	17	200	38	2%	0%
NB	Left Turn	425	200	23	500	31	425	0	0%	0%
	Through	750	9,275	588	13,875	532	12,300	49	75%	33%
	Through/Right	750	325	1	325	3	325	0	49%	0%
SB	Left Turn	275	225	34	350	44	350	1	20%	0%
	Through	750	300	30	550	72	725	129	10%	1%
	Through/Right	750	325	20	575	51	700	76	0%	0%
WB	Left Turn	250	100	14	200	46	250	87	0%	0%
	Through	1,025	175	39	350	113	475	242	24%	0%
	Right Turn	75	100	6	150	3	125	0	51%	0%

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
	Through	850	25	5	75	11	100	13	0%	0%
	Right Turn	150	25	2	25	11	25	19	0%	0%
EB										
	Left Turn	850	25	4	75	6	75	15	0%	0%
	Through	850	25	5	25	51	50	149	0%	0%
WB										

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
	Left Turn	225	100	11	175	23	200	32	0%	0%
	Through	850	25	8	75	33	125	70	0%	0%
EB										
	Left Turn	575	50	4	75	7	100	15	0%	0%
	Shared	575	125	8	200	12	250	14	0%	0%
SB										
	Through	1,150	200	28	350	124	625	428	0%	0%
	Through/Right	1,150	275	28	475	116	700	355	0%	0%
WB										

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Queue Length **AM Peak Hour**
Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	50	3	75	5	75	18	0%	0%
	Left/Through	325	25	3	50	6	50	14	0%	0%
	Right Turn	325	50	5	75	11	100	15	0%	0%
NB	Left Turn	125	75	7	100	14	125	24	1%	0%
	Through	575	100	4	200	6	250	10	0%	0%
	Through/Right	575	50	4	100	10	125	31	0%	0%
SB	Left Turn	175	50	3	75	9	100	18	0%	0%
	Through	1,000	25	3	50	5	50	14	0%	0%
	Through/Right	1,000	100	10	175	22	200	35	0%	0%
WB	Left Turn	325	25	2	50	2	50	9	0%	0%
	Through/Right	325	25	5	50	6	50	10	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	200	100	29	200	60	250	89	0%	0%
	Right Turn	200	50	5	75	8	75	16	0%	0%
NB	Left Turn	125	150	25	175	6	175	3	61%	0%
	Through	1,000	225	104	375	142	400	106	0%	0%
SB	Through	300	175	17	250	30	275	45	0%	0%
	Right Turn	300	125	10	225	24	275	35	0%	3%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Queue Length **AM Peak Hour**
Intersection 13 **Bordeaux Drive/Innovation Way** **Side-street Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	325	12	450	18	375	2	35%	10%
	Right Turn	125	125	2	150	11	150	0	19%	0%
NB	Left Turn	325	325	1	350	2	350	0	90%	0%
	Through/Right	2,025	800	6	825	26	800	2	1%	62%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	225	93	400	182	450	122	50%	1%
WB	Left/Through	525	25	6	75	10	100	19	0%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	99.4	110.4	0.1	5
	7	59.8	72.5	0.2	8
US 101 NB Ramps	6	70.5	80.4	0.1	6
Ross Dr	5	70.7	82.3	0.1	6
SR 237 EB Ramps	4	41.4	46.7	0.1	5
SR 237 WB On-Ramp	33	21.8	25.3	0.0	7
SR 237 WB Off-Ramp	3	36.4	39.5	0.0	3
Innovation Way	2	39.7	56.4	0.2	14
5th Ave	1	18.0	37.2	0.2	23
	107	4.5	26.6	0.3	37
Total		462.3	577.3	1.4	9

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	20.3	42.5	0.3	23
Innovation Way	2	55.3	73.4	0.2	12
Moffett Park Dr	3	88.4	105.3	0.2	7
SR 237 WB On-Ramp	33	11.0	14.1	0.0	10
SR 237 EB Ramps	4	32.5	36.3	0.0	5
Ross Dr	5	28.7	33.5	0.1	7
US 101 NB Ramps	6	29.4	40.9	0.1	13
US 101 SB Ramps	7	14.1	24.8	0.1	19
Almanor Ave	8	39.0	51.4	0.2	11
San Aleso Ave	201	4.1	15.4	0.1	33
Total		322.7	437.7	1.4	12

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	2.9	6.9	0.0	12
	43	1.4	6.4	0.0	23
	11	8.5	16.0	0.1	16
	200	18.8	35.4	0.2	16
Juniper Driveway	12	26.0	31.7	0.1	6
Driveway	217	6.4	9.7	0.0	14
	902	35.3	37.6	0.0	2
Mathilda Ave	2	17.1	19.5	0.0	5
	52	10.6	24.1	0.1	14
Bordeaux Dr	13	38.4	49.6	0.1	6
Total		165.4	236.9	0.6	9

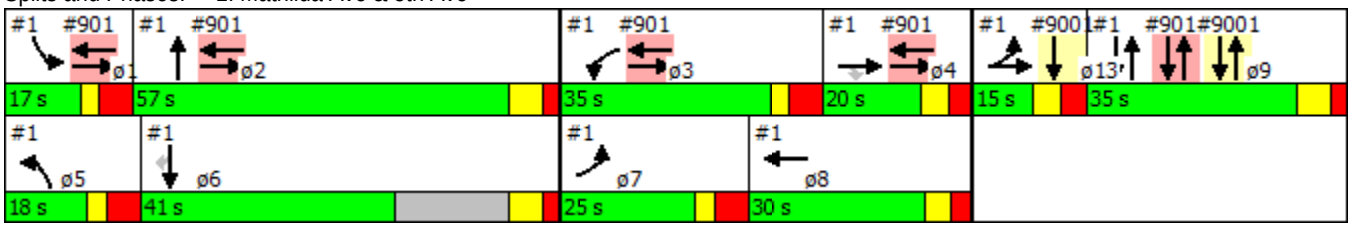
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	52	43.1	49.8	0.1	6
Mathilda Ave	2	175.6	187.4	0.1	2
	902	7.8	12.8	0.0	7
Driveway	217	0.9	3.1	0.0	24
Juniper Driveway	12	5.7	9.7	0.0	14
	200	1.4	7.8	0.1	26
11th Ave	11	12.4	28.1	0.2	20
	43	3.4	10.9	0.1	24
	910	24.3	28.7	0.0	5
Moffett Park Dr	10	19.4	22.9	0.0	4
Total		293.9	361.3	0.6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	180	40	170	290	20	140	660	20	1120	30		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	35.0	19.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		41.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		22.9%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.7	2.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 119.2
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



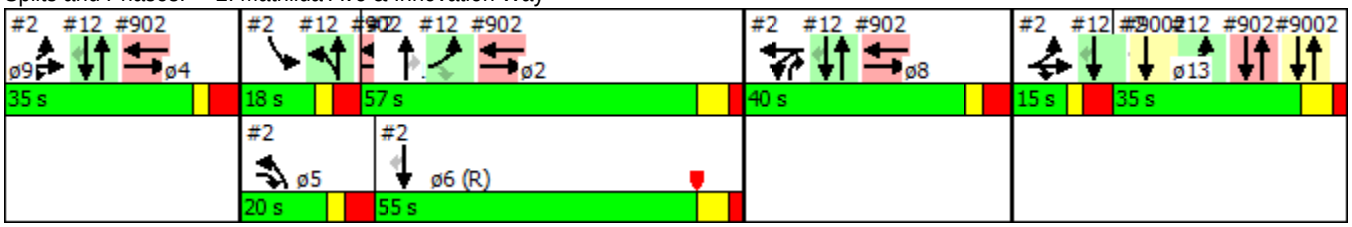
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	320	910	735	190	70	470	390	80	1430	70		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	2	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	13.0		10.0	10.0			12.0	14.0
Minimum Split (s)			35.0	35.0	20.0		35.0	16.8			19.0	39.0
Total Split (s)			40.0	40.0	20.0		40.0	18.0			57.0	35.0
Total Split (%)			20.0%	20.0%	10.0%		20.0%	9.0%			29%	18%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			4.7	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lead			Lag	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	None		None	None			Max	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



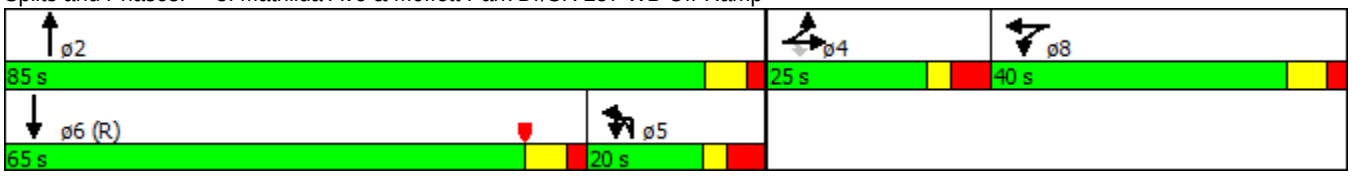
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	55.0	35.0	15.0
Total Split (%)	28%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	C-Min	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	SBT
Lane Configurations							
Volume (vph)	0	870	820	120	180	630	2680
Turn Type	NA	Perm	Split	NA	Prot	NA	NA
Protected Phases	4		8	8	5	2	6
Permitted Phases		4					
Detector Phase	4	4	8	8	5	2	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	8.0	8.0
Minimum Split (s)	11.0	11.0	40.0	40.0	11.0	26.9	14.9
Total Split (s)	25.0	25.0	40.0	40.0	20.0	85.0	65.0
Total Split (%)	16.7%	16.7%	26.7%	26.7%	13.3%	56.7%	43.3%
Yellow Time (s)	2.5	2.5	4.5	4.5	2.5	4.7	4.7
All-Red Time (s)	4.5	4.5	2.5	2.5	4.5	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	6.9	6.9
Lead/Lag					Lag		Lead
Lead-Lag Optimize?					Yes		Yes
Recall Mode	None	None	None	None	Max	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated

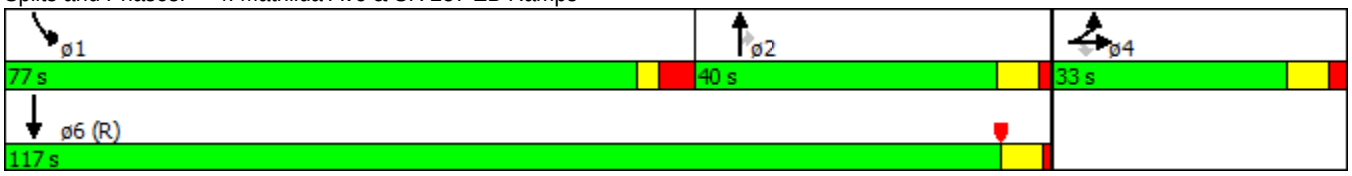
Splits and Phases: 3: Mathilda Ave & Moffett Park Dr/SR 237 WB Off-Ramp



Lane Group	EBL	EBT	EBR	NBT	NBR	SBL	SBT
Lane Configurations							
Volume (vph)	220	0	210	700	860	460	3160
Turn Type	Split	NA	Perm	NA	Perm	Prot	NA
Protected Phases	4	4		2		1	6
Permitted Phases			4		2		
Detector Phase	4	4	4	2	2	1	6
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	8.0	8.0	4.0	8.0
Minimum Split (s)	11.0	11.0	11.0	18.2	18.2	10.4	13.9
Total Split (s)	33.0	33.0	33.0	40.0	40.0	77.0	117.0
Total Split (%)	22.0%	22.0%	22.0%	26.7%	26.7%	51.3%	78.0%
Yellow Time (s)	4.8	4.8	4.8	4.7	4.7	2.5	4.7
All-Red Time (s)	2.2	2.2	2.2	1.5	1.5	3.9	1.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	6.2	6.2	6.4	5.9
Lead/Lag				Lag	Lag	Lead	
Lead-Lag Optimize?				Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 10 (7%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 60
Control Type: Actuated-Coordinated

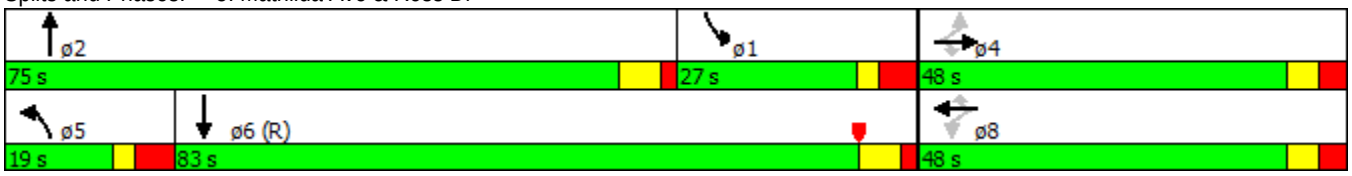
Splits and Phases: 4: Mathilda Ave & SR 237 EB Ramps



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	60	200	60	290	70	130	160	1370	180	3110
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	19.0	75.0	27.0	83.0
Total Split (%)	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	12.7%	50.0%	18.0%	55.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 20 (13%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	850	280	1600	340	40	3420
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	48.0	18.0	84.0	84.0	18.0	102.0
Total Split (%)	32.0%	12.0%	56.0%	56.0%	12.0%	68.0%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 27 (18%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	140	550	1800	680	2810
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	8.0	8.0	8.0
Minimum Split (s)	10.9	10.9	14.9	14.9	14.9
Total Split (s)	35.0	35.0	115.0	115.0	115.0
Total Split (%)	23.3%	23.3%	76.7%	76.7%	76.7%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	C-Max

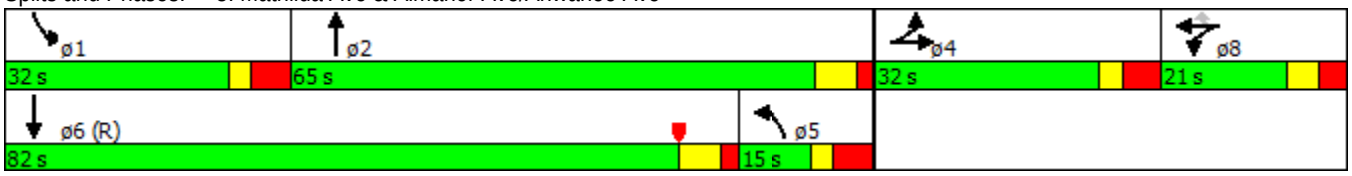
Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 27 (18%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	430	40	60	30	260	80	1790	260	3000
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	32.0	32.0	15.0	15.0	15.0	15.0	36.7	15.0	18.7
Total Split (s)	32.0	32.0	21.0	21.0	21.0	15.0	65.0	32.0	82.0
Total Split (%)	21.3%	21.3%	14.0%	14.0%	14.0%	10.0%	43.3%	21.3%	54.7%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 3 (2%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 130
Control Type: Actuated-Coordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	1010	150	350	315
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	52.0	52.0	23.0	75.0
Total Split (%)	69.3%	69.3%	30.7%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

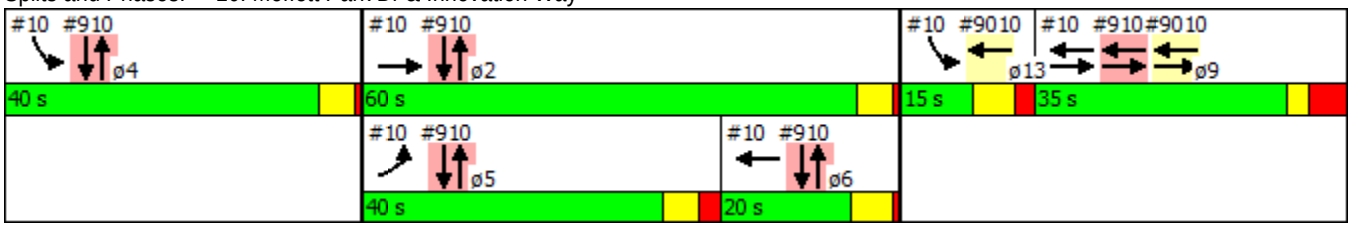
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 67.6
Natural Cycle: 70
Control Type: Actuated-Uncoordinated

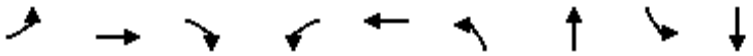
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	EBT	WBT	SBL	ø2	ø4	ø6	ø9	ø13
Lane Configurations									
Volume (vph)	330	680	475	370					
Turn Type	Prot	NA	NA	Prot					
Protected Phases	5	2 9	6 9	4 13	2	4	6	9	13
Permitted Phases									
Detector Phase	5	2	6	4					
Switch Phase									
Minimum Initial (s)	8.0				10.0	10.0	10.0	28.0	8.0
Minimum Split (s)	14.5				14.9	15.0	27.5	35.0	15.0
Total Split (s)	40.0				60.0	40.0	20.0	35.0	15.0
Total Split (%)	26.7%				40%	27%	13%	23%	10%
Yellow Time (s)	4.0				3.9	4.0	4.5	2.5	4.7
All-Red Time (s)	2.5				1.0	1.0	1.0	4.5	2.3
Lost Time Adjust (s)	0.0								
Total Lost Time (s)	6.5								
Lead/Lag	Lead						Lag	Lag	Lead
Lead-Lag Optimize?	Yes						Yes	Yes	Yes
Recall Mode	Max				Min	None	Min	None	None

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 110.9
Natural Cycle: 120
Control Type: Semi Act-Uncoord

Splits and Phases: 10: Moffett Park Dr & Innovation Way





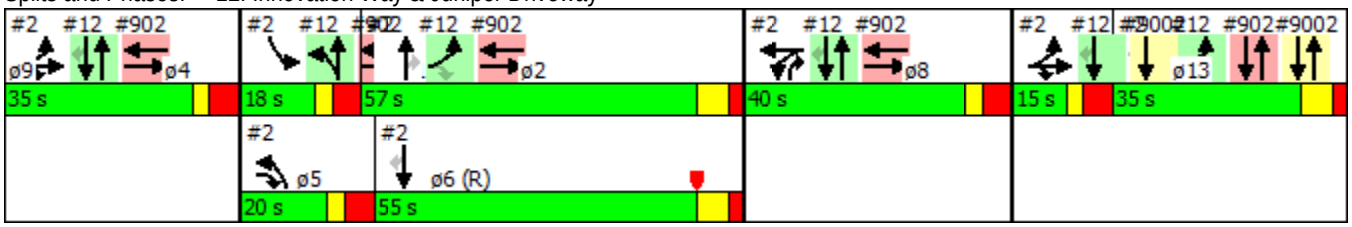
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	500	0	340	40	0	80	400	110	110
Sign Control		Stop			Stop		Stop		Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø4	ø5	ø6	ø8	ø9
Lane Configurations												
Volume (vph)	700	80	60	860	160	170						
Turn Type	Prot	Perm	Prot	NA	NA	Perm						
Protected Phases	2 9		1	1 4 8	4 8 13		2	4	5	6	8	9
Permitted Phases		2 9				4 8 13						
Detector Phase	2	2	1	1 4 8	4 8	4 8						
Switch Phase												
Minimum Initial (s)			10.0				12.0	14.0	13.0	12.0	10.0	28.0
Minimum Split (s)			16.8				19.0	39.0	20.0	30.0	35.0	35.0
Total Split (s)			18.0				57.0	35.0	20.0	55.0	40.0	35.0
Total Split (%)			9.0%				29%	18%	10%	28%	20%	18%
Yellow Time (s)			2.5				4.7	2.5	2.5	4.7	2.5	4.7
All-Red Time (s)			4.3				2.3	4.5	4.5	2.3	4.5	2.3
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lead				Lag		Lead	Lag		Lag
Lead-Lag Optimize?			Yes				Yes		Yes	Yes		Yes
Recall Mode			None				Max	None	None	C-Min	None	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 12: Innovation Way & Juniper Driveway



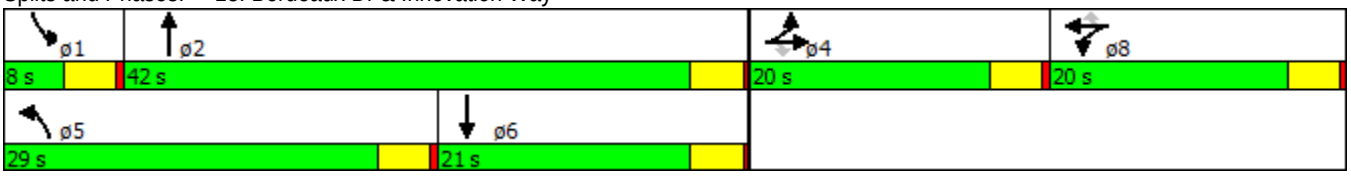
Lane Group	ø13
Lane Configurations	
Volume (vph)	
Turn Type	
Protected Phases	13
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	15.0
Total Split (s)	15.0
Total Split (%)	8%
Yellow Time (s)	2.5
All-Red Time (s)	4.5
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lead
Lead-Lag Optimize?	Yes
Recall Mode	None

Intersection Summary

Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	ø1
Lane Configurations							
Volume (vph)	30	230	30	630	50	180	
Turn Type	NA	Perm	NA	Prot	NA	NA	
Protected Phases	4		8	5	2	6	1
Permitted Phases		4					
Detector Phase	4	4	8	5	2	6	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	8.0	20.0	20.0	8.0
Total Split (s)	20.0	20.0	20.0	29.0	42.0	21.0	8.0
Total Split (%)	22.2%	22.2%	22.2%	32.2%	46.7%	23.3%	9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag				Lead	Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 69.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Network Performance **PM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	750.0	36.6	673.0	802.8
Total Delay (hours)	3,131	158	2,773	3,353
Average Stopped Delay (seconds)	700.8	36.5	626.6	752.8
Total Stopped Delay (hours)	2926	157	2582	3144
Total Stops	46,461	3,369	41,051	50,025
Average Stops	3.09	0.22	2.76	3.36
Total Distance Traveled (miles)	43,213	1,003	41,139	44,360
Average Speed (mph)	10.1	0.6	9.0	11.0
Total Travel Time (hours)	4,588.3	141.1	4,286.9	4,725.2
Vehicles Entered	12,144	112	12,010	12,335
Vehicles Exited	9,447	291	8,945	9,873
Percent Demand Served	77.8%	2.1%	74.1%	81.7%
Fuel Used (gallons)	1,866	25	1,823	1,903
HC Emissions (grams)	18,989	1,324	17,237	21,171
CO Emissions (grams)	531,324	23,124	499,096	566,150
NOx Emissions (grams)	67,226	3,127	62,534	71,857

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	94	67.2%	56.3	6.5	E
	Through	660	440	66.7%	17.0	1.4	B
	Right Turn	60	38	63.2%	12.0	3.4	B
	Subtotal	860	572	66.6%	23.1	2.1	C
SB	Left Turn	20	14	70.0%	620.3	182.0	F
	Through	1,120	765	68.3%	699.3	185.5	F
	Right Turn	30	20	65.3%	645.9	180.2	F
	Subtotal	1,170	799	68.3%	696.7	184.8	F
EB	Left Turn	180	177	98.4%	67.5	39.9	E
	Through	40	39	97.5%	89.6	42.9	F
	Right Turn	170	169	99.1%	65.5	40.7	E
	Subtotal	390	385	98.6%	68.8	40.4	E
WB	Left Turn	290	100	34.6%	79.3	28.5	E
	Through	20	6	28.5%	89.6	44.1	F
	Right Turn	110	37	33.8%	39.8	23.4	D
	Subtotal	420	143	34.1%	69.3	26.3	E
Total		2,840	1,899	66.9%	315.9	70.8	F

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	70	57	81.6%	94.4	13.4	F
	Through	470	372	79.2%	43.2	4.1	D
	Right Turn	390	309	79.3%	17.8	4.4	B
	Subtotal	930	739	79.5%	36.5	3.2	D
SB	Left Turn	80	53	66.5%	436.7	39.9	F
	Through	1,430	911	63.7%	408.2	23.5	F
	Right Turn	70	43	61.9%	360.7	44.8	F
	Subtotal	1,580	1,008	63.8%	407.6	23.9	F
EB	Left Turn	330	173	52.3%	87.3	13.9	F
	Through	320	169	52.7%	89.0	13.9	F
	Right Turn	910	452	49.7%	91.6	14.5	F
	Subtotal	1,560	794	50.9%	90.1	14.2	F
WB	Left Turn	735	251	34.1%	374.3	24.7	F
	Through	190	61	32.1%	402.4	33.5	F
	Right Turn	60	22	36.2%	393.2	36.8	F
	Subtotal	985	333	33.8%	380.9	26.0	F
Total		5,055	2,873	56.8%	220.9	8.3	F

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	290	224	77.2%	160.9	94.5	F
	Through	630	546	86.7%	32.6	16.9	C
	Right Turn						
	Subtotal	920	770	83.7%	67.7	33.2	E
SB	Left Turn						
	Through	2,680	1,389	51.8%	200.7	13.9	F
	Right Turn	395	215	54.4%	246.5	22.2	F
	Subtotal	3,075	1,603	52.1%	206.8	13.8	F
EB	Left Turn	180	97	54.1%	613.5	177.7	F
	Through						
	Right Turn	870	511	58.7%	398.0	29.4	F
	Subtotal	1,050	609	58.0%	430.2	38.0	F
WB	Left Turn	820	642	78.2%	296.9	57.3	F
	Through	120	98	81.9%	75.8	18.5	E
	Right Turn	120	95	79.4%	59.5	26.6	E
	Subtotal	1,060	835	78.8%	243.9	49.1	F
Total		6,105	3,817	62.5%	221.4	22.4	F

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	700	577	82.4%	38.0	22.3	D
	Right Turn	860	723	84.1%	57.2	9.6	E
	Subtotal	1,560	1,300	83.3%	48.6	9.8	D
SB	Left Turn	460	256	55.7%	105.9	28.4	F
	Through	3,160	1,877	59.4%	27.9	4.4	C
	Right Turn						
	Subtotal	3,620	2,133	58.9%	37.2	5.2	D
EB	Left Turn	220	201	91.1%	111.5	65.5	F
	Through						
	Right Turn	210	201	95.9%	68.2	27.8	E
	Subtotal	430	402	93.5%	88.4	35.6	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,610	3,835	68.4%	46.5	9.4	D

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **PM Peak Hour**

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	160	134	83.7%	219.4	39.5	F
	Through	1,370	1,169	85.4%	147.0	29.6	F
	Right Turn	350	295	84.4%	204.0	52.4	F
	Subtotal	1,880	1,599	85.0%	163.7	31.2	F
SB	Left Turn	180	106	58.8%	57.0	7.5	E
	Through	3,110	1,930	62.1%	29.5	3.7	C
	Right Turn	80	52	64.9%	21.8	4.1	C
	Subtotal	3,370	2,088	62.0%	30.7	3.5	C
EB	Left Turn	60	55	92.2%	56.6	12.7	E
	Through	200	204	102.1%	52.5	11.5	D
	Right Turn	60	63	105.3%	35.4	8.6	D
	Subtotal	320	323	100.8%	49.7	10.0	D
WB	Left Turn	290	179	61.8%	989.8	167.2	F
	Through	70	46	66.3%	986.4	169.5	F
	Right Turn	130	82	63.4%	979.8	191.0	F
	Subtotal	490	308	62.8%	986.0	172.7	F
Total		6,060	4,317	71.2%	148.3	17.8	F

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,600	1,407	87.9%	95.0	35.7	F
	Right Turn	340	307	90.4%	8.9	2.5	A
	Subtotal	1,940	1,714	88.4%	79.7	30.1	E
SB	Left Turn	40	24	59.8%	88.2	11.3	F
	Through	3,420	2,160	63.2%	48.7	6.0	D
	Right Turn						
	Subtotal	3,460	2,184	63.1%	49.1	5.8	D
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	850	711	83.6%	335.1	199.0	F
	Through						
	Right Turn	280	232	82.7%	325.8	198.2	F
	Subtotal	1,130	942	83.4%	332.9	198.7	F
Total		6,530	4,840	74.1%	112.6	41.2	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **PM Peak Hour**

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,800	1,630	90.6%	53.6	32.8	D
	Right Turn	680	638	93.9%	17.6	4.7	B
	Subtotal	2,480	2,269	91.5%	43.5	25.0	D
SB	Left Turn						
	Through	2,810	1,960	69.7%	9.6	1.9	A
	Right Turn	1,460	916	62.7%	18.9	3.3	B
	Subtotal	4,270	2,875	67.3%	12.5	2.2	B
EB	Left Turn	140	127	90.7%	133.2	49.3	F
	Through						
	Right Turn	550	557	101.3%	34.8	10.9	C
	Subtotal	690	684	99.1%	52.8	17.3	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		7,440	5,828	78.3%	29.0	11.7	C

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	73	91.5%	176.4	95.5	F
	Through	1,790	1,653	92.3%	133.3	115.1	F
	Right Turn	60	56	93.2%	126.2	119.9	F
	Subtotal	1,930	1,782	92.3%	134.9	114.3	F
SB	Left Turn	260	197	75.7%	95.3	11.1	F
	Through	3,000	2,242	74.7%	23.9	1.3	C
	Right Turn	100	77	77.2%	18.8	3.0	B
	Subtotal	3,360	2,516	74.9%	29.4	2.0	C
EB	Left Turn	430	423	98.3%	104.7	9.5	F
	Through	40	39	97.5%	107.2	11.4	F
	Right Turn	90	93	102.8%	74.8	7.2	E
	Subtotal	560	554	99.0%	99.9	9.0	F
WB	Left Turn	60	64	106.0%	64.3	12.1	E
	Through	30	31	103.3%	64.0	7.1	E
	Right Turn	260	254	97.8%	21.8	6.4	C
	Subtotal	350	349	99.7%	33.2	6.4	C
Total		6,200	5,201	83.9%	71.5	34.1	E

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,010	615	60.9%	134.4	34.5	F
	Right Turn	150	92	61.0%	74.0	20.6	E
	Subtotal	1,160	707	60.9%	126.5	32.2	F
WB	Left Turn	350	211	60.3%	27.9	2.5	C
	Through	315	197	62.5%	3.6	0.4	A
	Right Turn						
	Subtotal	665	408	61.3%	16.2	1.4	B
Total		1,825	1,115	61.1%	85.4	17.9	F

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn	370	195	52.6%	520.4	150.1	F
	Through						
	Right Turn	190	97	50.8%	497.7	141.7	F
	Subtotal	560	291	52.0%	513.0	147.6	F
EB	Left Turn	330	195	59.0%	246.5	47.8	F
	Through	680	400	58.9%	388.7	71.9	F
	Right Turn						
	Subtotal	1,010	595	58.9%	342.3	63.3	F
WB	Left Turn						
	Through	475	309	65.0%	49.5	9.1	D
	Right Turn	220	146	66.3%	44.1	11.8	D
	Subtotal	695	455	65.4%	47.7	9.9	D
Total		2,265	1,341	59.2%	273.7	38.3	F

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	49	61.8%	33.1	28.3	D
	Through	400	245	61.2%	41.1	29.6	E
	Right Turn	50	28	55.8%	41.3	38.0	E
	Subtotal	530	322	60.8%	39.7	29.6	E
SB	Left Turn	110	58	53.1%	51.0	68.8	F
	Through	110	54	49.0%	119.7	75.8	F
	Right Turn	20	12	62.0%	131.4	107.3	F
	Subtotal	240	125	52.0%	87.5	65.3	F
EB	Left Turn	500	314	62.9%	493.9	164.4	F
	Through						
	Right Turn	340	144	42.2%	935.7	225.9	F
	Subtotal	840	458	54.5%	629.5	171.4	F
WB	Left Turn	40	38	95.0%	166.8	74.3	F
	Through						
	Right Turn	20	22	108.5%	9.6	6.8	A
	Subtotal	60	60	99.5%	107.9	44.6	F
Total		1,670	964	57.7%	321.5	63.9	F

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	36	59.7%	139.4	48.5	F
	Through	860	569	66.2%	103.4	47.7	F
	Right Turn						
	Subtotal	920	605	65.8%	105.5	47.4	F
SB	Left Turn						
	Through	160	80	49.8%	64.3	8.7	E
	Right Turn	170	85	49.9%	7.4	1.6	A
	Subtotal	330	164	49.8%	35.1	4.5	D
EB	Left Turn	700	230	32.8%	1802.4	203.0	F
	Through						
	Right Turn	80	57	71.8%	975.6	382.1	F
	Subtotal	780	287	36.8%	1637.6	240.6	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,030	1,057	52.0%	499.8	82.7	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Volume and Delay by Movement **PM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	630	159	25.2%	1609.7	140.7	F
	Through	50	11	21.6%	1378.4	123.3	F
	Right Turn						
	Subtotal	680	170	24.9%	1594.7	139.3	F
SB	Left Turn						
	Through	180	65	35.8%	1776.5	163.9	F
	Right Turn	230	79	34.4%	1792.9	159.1	F
	Subtotal	410	144	35.0%	1786.0	160.5	F
EB	Left Turn	90	60	67.1%	30.2	2.8	C
	Through	30	21	69.3%	30.6	3.3	C
	Right Turn	230	154	66.7%	6.5	1.8	A
	Subtotal	350	235	67.1%	14.7	1.9	B
WB	Left Turn						
	Through	30	30	100.7%	160.9	45.1	F
	Right Turn						
	Subtotal	30	30	100.7%	160.9	45.1	F
Total		1,470	578	39.3%	919.1	27.3	F

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	125	14	250	19	300	25	29%	0%
	Through	625	50	8	100	14	125	21	0%	0%
	Right Turn	625	175	109	350	141	400	135	0%	0%
NB	Left Turn	425	75	6	125	14	150	20	0%	0%
	Through	1,125	75	6	150	11	200	25	0%	0%
	Through/Right	1,125	75	9	175	27	225	36	0%	0%
SB	Left Turn	250	100	31	275	63	300	0	0%	0%
	Through	1,325	1,800	362	3,075	493	3,425	513	84%	0%
	Right Turn	250	100	27	300	49	300	0	0%	0%
WB	Left Turn	925	100	29	225	95	325	123	29%	0%
	Through/Right	75	50	5	100	6	100	0	6%	0%

Intersection 2 **Mathilda Avenue/Innovation Way-Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	275	8	350	13	325	15	0%	59%
	Right Turn	225	225	11	325	14	325	14	0%	24%
NB	Left Turn	725	50	9	75	22	100	35	0%	0%
	Through	975	150	20	300	85	400	277	0%	0%
	Right Turn	975	125	24	300	97	425	281	0%	0%
SB	Left Turn	75	100	15	175	9	150	0	35%	0%
	Through	975	1,200	24	1,250	51	1,225	24	89%	60%
	Right Turn	225	150	25	350	29	275	0	0%	0%
WB	Left Turn	425	750	2	775	4	775	13	65%	70%
	Shared	225	225	2	250	4	250	0	71%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Off-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Shared	1,125	1,175	4	1,200	12	1,225	18	0%	92%
	Right Turn	1,125	1,175	5	1,200	5	1,225	13	0%	87%
NB	Left Turn	350	250	60	350	80	375	68	0%	12%
	Through	350	125	5	175	19	225	53	0%	0%
	Right Diagonal	350	150	22	225	18	200	13	0%	52%
SB	Through	975	1,050	9	1,100	22	1,100	26	0%	34%
	Through/Right	975	1,100	5	1,150	18	1,150	12	0%	49%
WB	Left Turn	525	600	3	625	8	625	0	72%	0%
	Left/Through	1,225	1,150	23	1,250	60	1,200	7	77%	54%
	Through/Right	1,225	200	19	325	34	400	52	0%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	1,025	150	51	275	167	375	296	0%	0%
	Left/Through	1,025	150	66	325	197	475	319	3%	0%
	Right Turn	450	175	57	400	123	450	130	4%	0%
NB	Through	275	150	33	300	73	275	63	0%	7%
	Right Turn	275	225	21	300	31	275	15	25%	14%
SB	Left Turn	325	300	19	375	16	350	15	32%	9%
	Through	350	350	50	475	42	500	31	0%	14%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	250	50	6	125	10	125	0	5%	0%
	Through	225	225	32	400	62	525	102	58%	0%
	Right Turn	700	50	7	125	9	100	0	13%	0%
NB	Left Turn	250	275	17	350	14	325	0	23%	0%
	Through	700	650	87	850	74	775	23	63%	48%
	Through/Right	225	275	10	300	38	275	0	79%	0%
SB	Left Turn	250	100	11	200	19	225	23	0%	1%
	Through	700	225	24	300	34	275	13	0%	23%
	Through/Right	225	275	24	325	37	300	14	0%	61%
WB	Left Turn	250	2,100	4	4,500	12	5,275	0	84%	0%
	Through	225	4,275	770	6,375	1,155	6,400	994	8%	0%
	Right Turn	700	250	7	550	8	450	2	8%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
NB	Through	575	475	104	750	139	675	69	0%	31%
	Right Turn	575	100	73	400	238	550	266	0%	2%
SB	Left Turn	375	50	14	150	69	275	173	0%	0%
	Through	700	525	81	775	36	725	36	11%	1%
WB	Left Turn	1,025	1,500	494	3,650	712	4,450	749	0%	0%
	Right Turn	1,025	100	14	175	24	150	21	0%	33%
0										

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Queue Length **PM Peak Hour**

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	100	14	150	20	150	10	0%	40%
	Right Turn	1,050	50	40	125	75	200	100	0%	0%
NB	Through	750	325	142	775	308	750	273	0%	7%
	Right Turn	750	250	146	750	286	800	161	0%	8%
SB	Through	575	125	31	275	55	350	87	0%	0%
	Through/Right	575	275	53	450	88	525	111	0%	0%

Intersection 8 **Mathilda Avenue/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	300	25	425	40	450	12	56%	6%
	Through/Right	125	175	11	275	8	225	0	10%	0%
NB	Left Turn	425	125	36	300	89	400	96	0%	0%
	Through	750	500	102	700	164	700	106	59%	13%
	Through/Right	750	300	15	375	24	325	0	27%	0%
SB	Left Turn	275	200	18	325	25	325	12	12%	0%
	Through	750	225	36	375	82	500	176	1%	0%
	Through/Right	750	200	10	300	19	300	29	0%	0%
SB	Left Turn	250	75	10	150	31	200	105	0%	0%
	Through	1,025	100	20	225	63	350	173	12%	0%
	Right Turn	75	100	6	125	4	125	0	35%	0%

Intersection 9 **US 101 NB Slip Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	800	57	1,075	100	900	2	69%	26%
	Right Turn	150	225	30	500	24	375	0	0%	0%
WB	Left Turn	850	125	13	225	22	250	40	0%	0%
	Through	850	25	1	25	15	50	43	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	225	325	40	450	50	350	0	12%	0%
	Through	850	875	34	975	62	925	6	98%	33%
SB	Left Turn	575	500	6	575	12	550	15	0%	32%
	Shared	575	525	8	575	14	550	15	0%	73%
WB	Through	1,150	150	23	250	64	300	100	0%	0%
	Through/Right	1,150	200	24	325	96	425	290	0%	0%

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Queue Length **PM Peak Hour**
Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	75	12	150	19	150	3	6%	0%
	Left/Through	325	2,325	629	5,050	1,125	5,325	1,120	10%	0%
	Right Turn	325	2,400	603	4,925	1,079	5,275	1,104	0%	0%
NB	Left Turn	125	50	10	100	29	150	44	0%	0%
	Through	575	150	30	300	72	425	78	9%	1%
	Through/Right	575	75	27	175	72	225	77	0%	2%
SB	Left Turn	175	50	22	125	55	150	52	5%	0%
	Through	1,000	50	24	125	93	175	148	4%	0%
	Through/Right	1,000	75	31	175	82	225	109	0%	0%
WB	Left Turn	325	75	16	175	37	225	47	0%	0%
	Through/Right	325	25	3	50	5	75	10	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	9,225	438	11,975	170	10,575	13	0%	44%
	Right Turn	200	6,025	1,209	11,100	1,132	10,525	35	0%	5%
NB	Left Turn	125	75	15	150	23	175	0	3%	0%
	Through	1,000	425	127	750	170	900	159	44%	3%
SB	Through	300	200	21	225	43	250	71	0%	0%
	Right Turn	300	50	26	150	39	175	40	0%	0%
0										

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **Alternative 1 Year 2040**
Queue Length **PM Peak Hour**
Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	75	9	125	16	175	33	3%	0%
	Right Turn	125	75	7	125	16	125	7	1%	0%
NB	Left Turn	325	850	3	900	6	900	4	97%	0%
	Through/Right	2,025	775	1	775	2	775	2	3%	81%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	4,525	83	4,800	132	4,625	25	95%	76%
WB	Left/Through	125	75	14	125	24	175	39	13%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	73.8	84.9	0.1	6
	7	47.6	60.0	0.2	9
US 101 NB Ramps	6	91.9	101.8	0.1	5
Ross Dr	5	144.6	156.2	0.1	3
SR 237 EB Ramps	4	33.7	39.1	0.1	6
SR 237 WB On-Ramp	33	16.1	19.5	0.0	9
SR 237 WB Off-Ramp	3	15.7	18.9	0.0	7
Innovation Way	2	44.2	60.7	0.2	13
5th Ave	1	18.9	38.0	0.2	22
	107	3.9	26.2	0.3	37
Total		490.4	605.3	1.4	9

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	478.4	498.3	0.3	2
Innovation Way	2	381.6	400.2	0.2	2
Moffett Park Dr	3	194.6	210.8	0.2	4
SR 237 WB On-Ramp	33	12.4	15.6	0.0	9
SR 237 EB Ramps	4	17.0	20.8	0.0	8
Ross Dr	5	23.7	28.5	0.1	8
US 101 NB Ramps	6	48.7	60.1	0.1	9
US 101 SB Ramps	7	8.6	19.3	0.1	25
Almanor Ave	8	22.4	35.1	0.2	16
San Aleso Ave	201	4.7	16.1	0.1	31
Total		1192.3	1304.9	1.4	4

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	7.0	11.1	0.0	7
	43	3.1	8.8	0.0	17
	11	33.4	41.8	0.1	6
	200	42.2	58.7	0.2	10
Juniper Driveway	12	61.6	68.2	0.1	3
Driveway	217	23.1	26.5	0.0	5
	902	46.9	49.3	0.0	2
Mathilda Ave	2	10.1	12.4	0.0	7
	52	5.3	20.1	0.1	17
Bordeaux Dr	13	30.8	41.9	0.1	7
Total		263.5	338.7	0.6	7

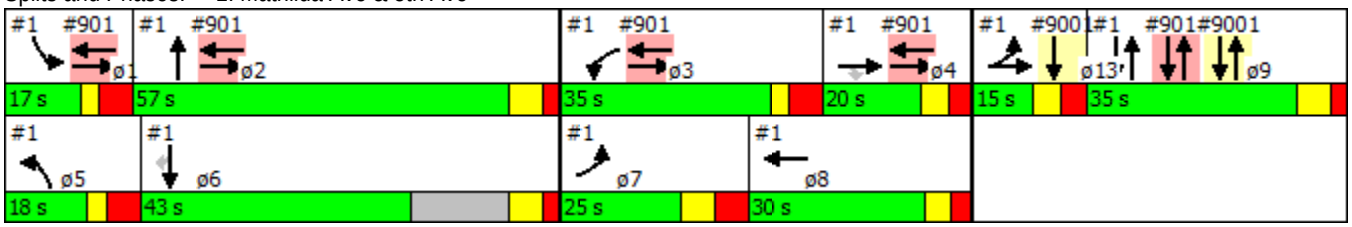
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	52	83.8	93.8	0.1	3
Mathilda Ave	2	239.0	250.1	0.1	1
	902	7.7	12.7	0.0	7
Driveway	217	0.4	2.6	0.0	30
Juniper Driveway	12	60.6	64.6	0.0	2
	200	1.8	8.3	0.1	25
11th Ave	11	124.6	140.7	0.2	4
	43	250.2	255.5	0.1	1
	910	142.2	146.3	0.0	1
Moffett Park Dr	10	29.9	33.5	0.0	2
Total		940.1	1008.0	0.6	2

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	30	30	90	60	30	200	860	40	520	110		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	34.8	21.0
Total Split (s)			20.0	35.0	30.0	18.0		17.0		43.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		24.0%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.5	4.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	2.3	4.5
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 105.3
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



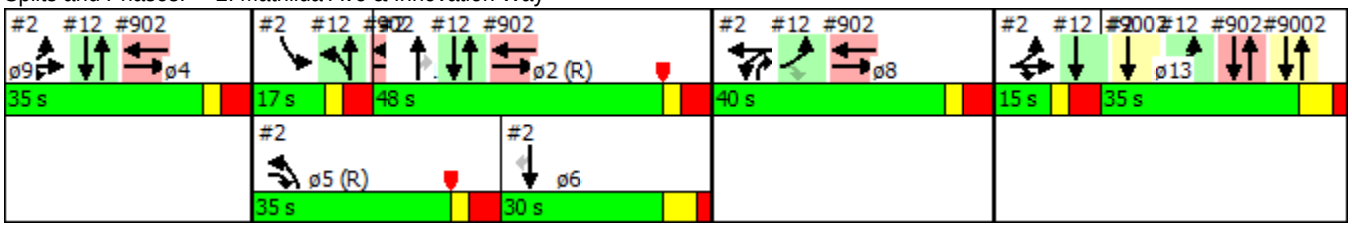
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	90	140	360	180	1060	970	1240	50	390	230		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	2	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	13.0		10.0	10.0			12.0	14.0
Minimum Split (s)			35.0	35.0	20.0		35.0	16.8			19.0	39.0
Total Split (s)			40.0	40.0	35.0		40.0	17.0			48.0	35.0
Total Split (%)			21.1%	21.1%	18.4%		21.1%	8.9%			25%	18%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			2.5	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			4.5	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lead			Lag	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	C-Max		None	Max			C-Max	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 0 (0%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



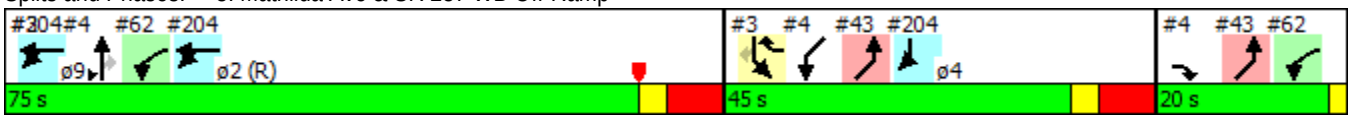
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	30.0	35.0	15.0
Total Split (%)	16%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	None	None	None

Intersection Summary

Lane Group	WBR	SBL	SBR2	NEL	ø9
Lane Configurations					
Volume (vph)	610	380	510	2660	
Turn Type	Prot	Prot	Perm	Prot	
Protected Phases	4	4		2	9
Permitted Phases			4		
Detector Phase	4	4	4	2	
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.7	26.7	26.7	26.7	18.0
Total Split (s)	45.0	45.0	45.0	75.0	20.0
Total Split (%)	32.1%	32.1%	32.1%	53.6%	14%
Yellow Time (s)	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	6.0	6.0	6.0	6.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	Max	Max	Max	C-Max	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 126 (90%), Referenced to phase 2:NEL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

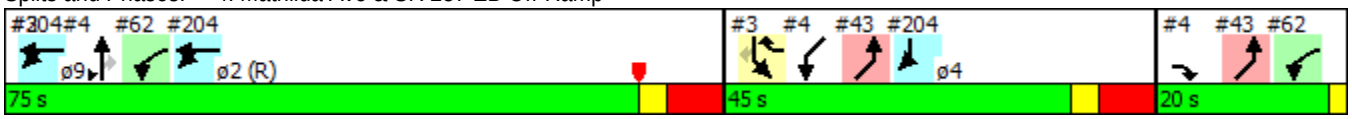
Splits and Phases: 3: Mathilda Ave & SR 237 WB Off-Ramp



Lane Group	EBR	NBT	NBR2	SWL	ø9
Lane Configurations					
Volume (vph)	70	2980	920	970	
Turn Type	custom	NA	Perm	Prot	
Protected Phases	2 9	2		4	9
Permitted Phases			2		
Detector Phase	2	2	2	4	
Switch Phase					
Minimum Initial (s)		4.0	4.0	4.0	4.0
Minimum Split (s)		26.7	26.7	26.7	18.0
Total Split (s)		75.0	75.0	45.0	20.0
Total Split (%)		53.6%	53.6%	32.1%	14%
Yellow Time (s)		3.0	3.0	3.0	2.0
All-Red Time (s)		6.0	6.0	6.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode		C-Max	C-Max	Max	Max

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 126 (90%), Referenced to phase 2:NEL, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

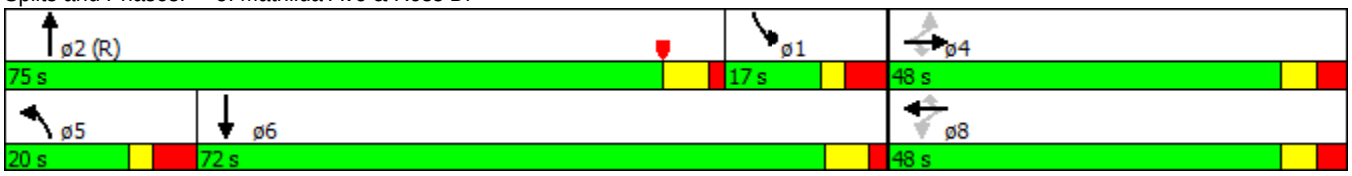
Splits and Phases: 4: Mathilda Ave & SR 237 EB Off-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	90	70	40	130	40	300	80	3510	70	920
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	5.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	20.0	75.0	17.0	72.0
Total Split (%)	34.3%	34.3%	34.3%	34.3%	34.3%	34.3%	14.3%	53.6%	12.1%	51.4%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	Max	Max	Max	None	None	None	None	C-Max	Max	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Yellow, Master Intersection
Natural Cycle: 125
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	770	780	2930	570	20	1070
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	44.0	16.0	80.0	80.0	16.0	96.0
Total Split (%)	31.4%	11.4%	57.1%	57.1%	11.4%	68.6%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	C-Max	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 119 (85%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	380	520	3120	700	1650
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	8.0	8.0	8.0
Minimum Split (s)	10.9	10.9	14.9	14.9	14.9
Total Split (s)	40.0	40.0	100.0	100.0	100.0
Total Split (%)	28.6%	28.6%	71.4%	71.4%	71.4%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	C-Max	C-Max	None

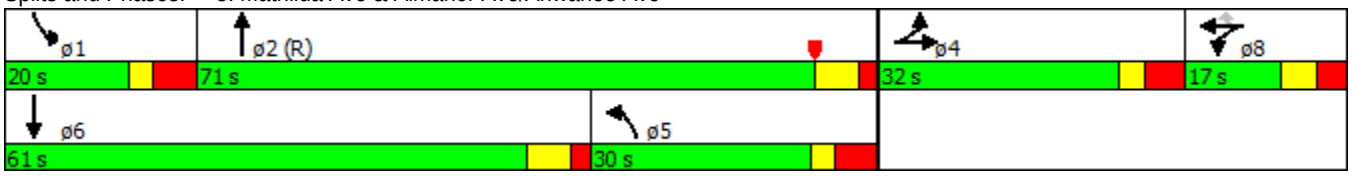
Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 116 (83%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	130	30	90	50	260	140	3430	160	1680
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	32.0	32.0	15.0	15.0	15.0	15.0	36.7	15.0	18.7
Total Split (s)	32.0	32.0	17.0	17.0	17.0	30.0	71.0	20.0	61.0
Total Split (%)	22.9%	22.9%	12.1%	12.1%	12.1%	21.4%	50.7%	14.3%	43.6%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	C-Max	None	None

Intersection Summary
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 102 (73%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

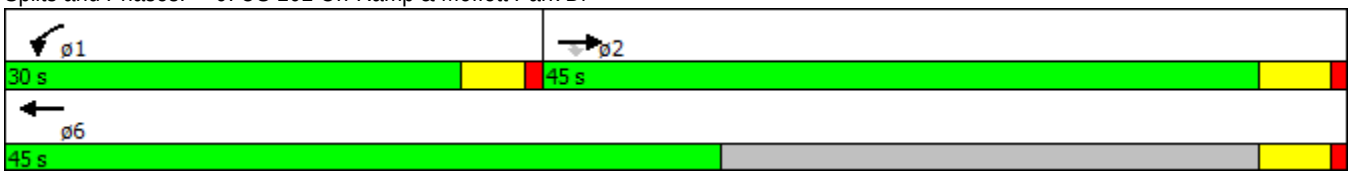
Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	230	20	40	990
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	45.0	45.0	30.0	45.0
Total Split (%)	60.0%	60.0%	40.0%	60.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 41.4
Natural Cycle: 40
Control Type: Semi Act-Uncoord

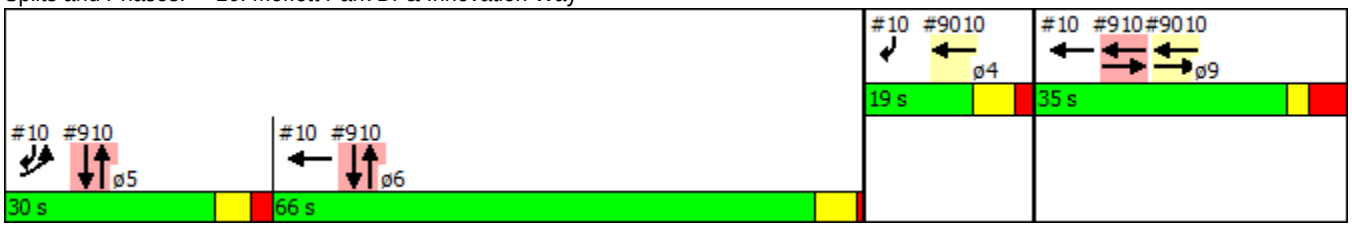
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

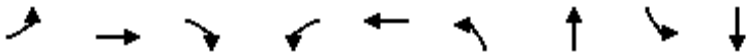


Lane Group	EBL	WBT	SBR	ø4	ø6	ø9
Lane Configurations						
Volume (vph)	230	750	280			
Turn Type	Prot	NA	pt+ov			
Protected Phases	5	6 9	4 5	4	6	9
Permitted Phases						
Detector Phase	5	6	5			
Switch Phase						
Minimum Initial (s)	8.0			8.0	10.0	28.0
Minimum Split (s)	14.5			15.0	27.5	35.0
Total Split (s)	30.0			19.0	66.0	35.0
Total Split (%)	20.0%			13%	44%	23%
Yellow Time (s)	4.0			4.7	4.5	2.5
All-Red Time (s)	2.5			2.3	1.0	4.5
Lost Time Adjust (s)	0.0					
Total Lost Time (s)	6.5					
Lead/Lag	Lead				Lag	
Lead-Lag Optimize?	Yes				Yes	
Recall Mode	None			None	Min	None

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 90.4
Natural Cycle: 95
Control Type: Actuated-Uncoordinated

Splits and Phases: 10: Moffett Park Dr & Innovation Way





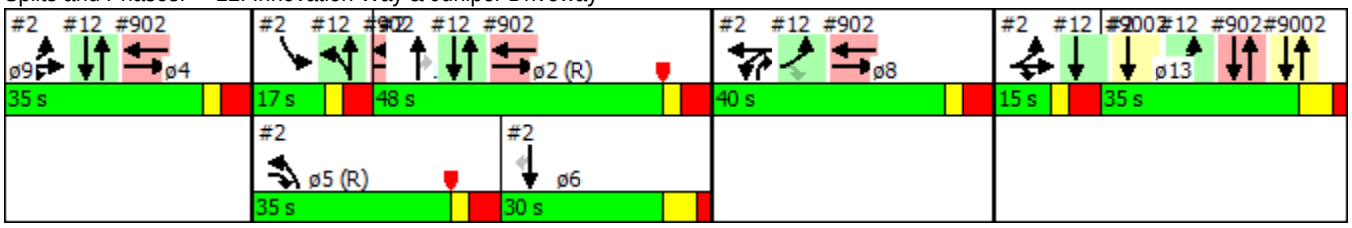
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	50	0	30	20	0	130	260	130	240
Sign Control		Stop			Stop		Stop		Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	ø2	ø4	ø5	ø6	ø8	ø9	ø13
Lane Configurations												
Volume (vph)	100	60	110	220	720							
Turn Type	Prot	Perm	Prot	NA	NA							
Protected Phases	8 9		1	1 4 2	4 2 13	2	4	5	6	8	9	13
Permitted Phases		8 9										
Detector Phase	2	2	1	1 4 2	4 8							
Switch Phase												
Minimum Initial (s)			10.0			12.0	14.0	13.0	12.0	10.0	28.0	8.0
Minimum Split (s)			16.8			19.0	39.0	20.0	30.0	35.0	35.0	15.0
Total Split (s)			17.0			48.0	35.0	35.0	30.0	40.0	35.0	15.0
Total Split (%)			8.9%			25%	18%	18%	16%	21%	18%	8%
Yellow Time (s)			2.5			2.5	2.5	2.5	4.7	2.5	4.7	2.5
All-Red Time (s)			4.3			4.5	4.5	4.5	2.3	4.5	2.3	4.5
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lead			Lag		Lead	Lag		Lag	Lead
Lead-Lag Optimize?			Yes			Yes		Yes	Yes		Yes	Yes
Recall Mode			Max			C-Max	None	C-Max	None	None	None	None

Intersection Summary
Cycle Length: 190
Actuated Cycle Length: 190
Offset: 0 (0%), Referenced to phase 2:NBT and 5:NBL, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

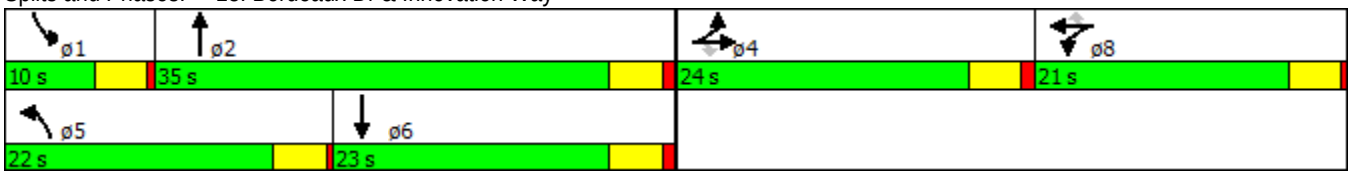
Splits and Phases: 12: Innovation Way & Juniper Driveway



Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	ø1
Lane Configurations							
Volume (vph)	50	690	20	390	130	60	
Turn Type	NA	Perm	NA	Prot	NA	NA	
Protected Phases	4		8	5	2	6	1
Permitted Phases		4					
Detector Phase	4	4	8	5	2	6	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.5	20.5	20.0	8.0	20.5	20.5	8.0
Total Split (s)	24.0	24.0	21.0	22.0	35.0	23.0	10.0
Total Split (%)	26.7%	26.7%	23.3%	24.4%	38.9%	25.6%	11%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	0.5	0.5	1.0	1.0	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.0	4.0	4.5	4.5	
Lead/Lag				Lead	Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	Min	Min	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 62.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 Build Alternative 2**
Network Performance **AM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	698.2	27.0	657.4	727.6
Total Delay (hours)	2,582	103	2,428	2,698
Average Stopped Delay (seconds)	636.3	27.1	595.8	673.6
Total Stopped Delay (hours)	2352	102	2205	2463
Total Stops	46,288	1,115	43,949	47,289
Average Stops	3.48	0.07	3.35	3.57
Total Distance Traveled (miles)	46,033	473	45,083	46,532
Average Speed (mph)	12.5	0.5	12.0	13.0
Total Travel Time (hours)	3,899.6	138.4	3,683.8	4,042.0
Vehicles Entered	10,721	120	10,527	10,880
Vehicles Exited	8,952	168	8,674	9,177
Percent Demand Served	83.5%	1.8%	81.4%	86.5%
Fuel Used (gallons)	1,728	27	1,686	1,762
HC Emissions (grams)	19,720	972	18,678	21,633
CO Emissions (grams)	547,149	17,431	531,025	581,300
NOx Emissions (grams)	70,094	2,711	67,431	75,022

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	200	143	71.6%	45.2	6.6	D
	Through	860	638	74.2%	16.8	1.9	B
	Right Turn	80	60	74.8%	13.7	3.9	B
	Subtotal	1,140	841	73.8%	21.4	2.0	C
SB	Left Turn	40	39	97.8%	48.7	5.1	D
	Through	520	516	99.2%	19.3	2.1	B
	Right Turn	110	112	102.2%	2.9	0.6	A
	Subtotal	670	667	99.6%	18.2	1.8	B
EB	Left Turn	30	30	99.3%	34.0	3.3	C
	Through	30	31	104.7%	33.2	3.6	C
	Right Turn	90	95	106.0%	10.3	2.4	B
	Subtotal	150	157	104.4%	19.3	2.9	B
WB	Left Turn	60	41	67.5%	44.6	4.8	D
	Through	30	21	69.3%	41.5	8.1	D
	Right Turn	20	13	66.5%	13.8	3.0	B
	Subtotal	110	75	67.8%	38.5	2.9	D
Total		2,070	1,739	84.0%	20.7	1.2	C

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,060	765	72.1%	107.0	7.6	F
	Through	970	702	72.4%	37.1	2.3	D
	Right Turn	1,240	905	73.0%	62.2	12.1	E
	Subtotal	3,270	2,372	72.5%	69.2	5.8	E
SB	Left Turn	50	48	96.2%	147.9	29.6	F
	Through	390	383	98.3%	71.6	6.7	E
	Right Turn	230	222	96.3%	54.5	8.5	D
	Subtotal	670	653	97.5%	71.4	7.1	E
EB	Left Turn	90	80	88.3%	76.1	15.0	E
	Through	90	80	88.4%	78.4	16.3	E
	Right Turn	140	121	86.1%	71.4	14.2	E
	Subtotal	320	280	87.4%	74.7	14.7	E
WB	Left Turn	360	242	67.2%	233.0	22.9	F
	Through	180	133	73.8%	263.1	25.5	F
	Right Turn	80	58	71.9%	246.1	24.5	F
	Subtotal	620	432	69.7%	244.1	23.5	F
Total		4,880	3,737	76.6%	90.0	4.5	F

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	1,100	795	72.3%	12.5	0.9	B
	Through	2,660	1,912	71.9%	36.4	1.9	D
	Right Turn						
	Subtotal	3,760	2,707	72.0%	29.4	1.6	C
SB	Left Turn						
	Through	380	330	86.8%	56.2	6.5	E
	Right Turn	510	420	82.3%	133.5	37.3	F
	Subtotal	890	749	84.3%	99.5	23.7	F
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	670	494	73.7%	603.5	170.6	F
	Through						
	Right Turn	610	441	72.2%	851.6	188.5	F
	Subtotal	1,280	935	73.0%	720.4	179.0	F
Total		5,930	4,391	74.3%	188.4	43.1	F

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,980	2,104	70.6%	32.8	1.1	C
	Right Turn	920	653	70.9%	2.9	0.2	A
	Subtotal	3,900	2,757	70.7%	25.7	0.9	C
SB	Left Turn	80	67	83.6%	4.2	1.1	A
	Through	970	769	79.3%	47.3	6.9	D
	Right Turn						
	Subtotal	1,050	836	79.6%	43.8	6.4	D
EB	Left Turn	780	616	79.0%	704.3	292.8	F
	Through						
	Right Turn	70	56	80.1%	464.6	255.5	F
	Subtotal	850	672	79.1%	684.3	289.7	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,800	4,265	73.8%	133.0	47.5	F

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	53	65.6%	124.5	9.1	F
	Through	3,510	2,498	71.2%	75.7	3.2	E
	Right Turn	120	84	69.9%	48.6	3.9	D
	Subtotal	3,710	2,635	71.0%	75.8	3.1	E
SB	Left Turn	70	56	80.6%	52.9	16.7	D
	Through	920	722	78.5%	30.4	2.6	C
	Right Turn	50	40	79.4%	24.2	4.3	C
	Subtotal	1,040	818	78.7%	31.6	2.2	C
EB	Left Turn	90	59	65.0%	906.6	396.5	F
	Through	70	51	72.4%	795.3	389.1	F
	Right Turn	40	29	71.8%	756.6	412.9	F
	Subtotal	200	138	69.0%	835.0	397.6	F
WB	Left Turn	130	91	70.1%	753.4	168.3	F
	Through	40	28	69.8%	746.3	161.2	F
	Right Turn	300	213	70.9%	778.5	150.7	F
	Subtotal	470	332	70.6%	769.0	155.0	F
Total		5,420	3,922	72.4%	149.8	21.4	F

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	2,930	1,883	64.3%	104.7	5.3	F
	Right Turn	570	346	60.7%	13.2	0.8	B
	Subtotal	3,500	2,229	63.7%	90.5	4.7	F
SB	Left Turn	20	17	83.5%	38.7	12.5	D
	Through	1,070	833	77.9%	11.2	1.3	B
	Right Turn						
	Subtotal	1,090	850	78.0%	11.7	1.5	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	770	792	102.8%	156.7	36.3	F
	Through						
	Right Turn	780	755	96.8%	141.5	36.5	F
	Subtotal	1,550	1,547	99.8%	149.3	36.4	F
Total		6,140	4,626	75.3%	95.6	11.5	F

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	3,120	1,855	59.5%	106.6	8.8	F
	Right Turn	700	421	60.2%	27.0	3.3	C
	Subtotal	3,820	2,276	59.6%	91.9	7.9	F
SB	Left Turn						
	Through	1,650	1,474	89.4%	13.2	1.4	B
	Right Turn	190	145	76.3%	10.6	1.1	B
	Subtotal	1,840	1,619	88.0%	13.0	1.3	B
EB	Left Turn	380	382	100.5%	105.8	26.9	F
	Through						
	Right Turn	520	524	100.7%	44.4	18.8	D
	Subtotal	900	906	100.6%	70.2	21.7	E
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		6,560	4,801	73.2%	61.1	6.8	E

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Aven** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	78	55.5%	1269.3	85.4	F
	Through	3,430	1,878	54.7%	1315.2	89.8	F
	Right Turn	70	41	59.1%	1300.2	91.3	F
	Subtotal	3,640	1,997	54.9%	1313.1	89.7	F
SB	Left Turn	160	149	92.9%	205.2	59.7	F
	Through	1,680	1,557	92.6%	39.5	5.8	D
	Right Turn	330	298	90.3%	43.0	5.3	D
	Subtotal	2,170	2,003	92.3%	52.4	8.4	D
EB	Left Turn	130	131	100.5%	62.5	6.7	E
	Through	30	35	115.3%	57.8	10.6	E
	Right Turn	40	41	103.5%	27.7	5.4	C
	Subtotal	200	207	103.4%	54.9	5.1	D
WB	Left Turn	90	90	100.1%	73.1	9.4	E
	Through	50	53	106.8%	68.2	8.1	E
	Right Turn	260	270	104.0%	21.5	5.3	C
	Subtotal	400	414	103.5%	38.9	5.1	D
Total		6,410	4,621	72.1%	595.3	29.3	F

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	230	230	100.1%	3.2	0.4	A
	Right Turn	20	23	115.0%	2.3	0.5	A
	Subtotal	250	253	101.3%	3.1	0.3	A
WB	Left Turn	40	31	77.8%	9.4	0.9	A
	Through	990	753	76.1%	3.7	0.4	A
	Right Turn						
	Subtotal	1,030	784	76.2%	3.9	0.4	A
Total		1,280	1,038	81.1%	3.7	0.3	A

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	280	228	81.3%	30.0	2.0	C
	Subtotal	280	228	81.3%	30.0	2.0	C
EB	Left Turn	230	232	100.8%	34.3	3.0	C
	Through						
	Right Turn						
	Subtotal	230	232	100.8%	34.3	3.0	C
WB	Left Turn						
	Through	750	556	74.1%	12.3	0.8	B
	Right Turn	490	368	75.0%	15.6	2.2	B
	Subtotal	1,240	923	74.5%	13.6	1.1	B
Total		1,750	1,383	79.0%	19.8	1.0	B

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	130	101	77.9%	9.8	0.3	A
	Through	260	223	85.7%	11.6	0.5	B
	Right Turn	240	203	84.7%	7.6	0.5	A
	Subtotal	630	527	83.7%	9.7	0.4	A
SB	Left Turn	130	103	79.1%	9.1	0.7	A
	Through	240	186	77.4%	12.5	0.7	B
	Right Turn	410	324	79.0%	13.7	1.4	B
	Subtotal	780	612	78.5%	12.6	1.0	B
EB	Left Turn	50	50	100.6%	10.1	2.0	B
	Through						
	Right Turn	30	29	97.3%	6.8	1.1	A
	Subtotal	80	80	99.4%	8.9	1.6	A
WB	Left Turn	20	21	104.5%	5.2	0.3	A
	Through						
	Right Turn	20	20	101.5%	2.5	0.5	A
	Subtotal	40	41	103.0%	3.8	0.3	A
Total		1,530	1,260	82.4%	10.8	0.5	B

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	110	88	79.5%	301.5	103.7	F
	Through	220	194	88.2%	103.0	59.8	F
	Right Turn						
	Subtotal	330	282	85.3%	164.9	74.5	F
SB	Left Turn						
	Through	720	549	76.3%	15.1	1.5	B
	Right Turn	750	565	75.4%	14.2	1.4	B
	Subtotal	1,470	1,115	75.8%	14.6	1.4	B
EB	Left Turn	100	88	87.7%	232.5	214.7	F
	Through						
	Right Turn	60	62	102.5%	14.6	2.9	B
	Subtotal	160	149	93.3%	137.2	108.4	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		1,960	1,545	78.8%	53.4	17.6	D

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	390	242	61.9%	1686.4	516.0	F
	Through	130	82	63.2%	1534.8	503.2	F
	Right Turn						
	Subtotal	520	324	62.3%	1648.6	515.0	F
SB	Left Turn						
	Through	60	52	85.8%	100.1	31.2	F
	Right Turn	150	139	92.4%	97.2	39.1	F
	Subtotal	210	190	90.5%	98.1	36.9	F
EB	Left Turn	370	274	73.9%	45.3	7.7	D
	Through	50	40	79.4%	47.5	9.5	D
	Right Turn	690	510	73.8%	29.1	6.3	C
	Subtotal	1,110	823	74.1%	35.4	7.0	D
WB	Left Turn						
	Through	20	19	97.0%	80.2	25.7	F
	Right Turn						
	Subtotal	20	19	97.0%	80.2	25.7	F
Total		1,860	1,356	72.9%	422.2	103.7	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 Build Alternative 2**
Queue Length **AM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	50	8	75	15	100	15	0%	0%
	Through	625	50	3	75	5	100	12	0%	0%
	Right Turn	625	50	6	100	11	150	15	0%	0%
NB	Left Turn	425	75	8	125	14	150	22	0%	0%
	Through	1,125	100	13	175	23	225	39	0%	0%
	Through/Right	1,125	125	9	225	19	250	34	0%	0%
SB	Left Turn	250	50	4	100	9	100	21	0%	0%
	Through	1,325	100	12	175	20	200	33	0%	0%
	Right Turn	250	25	4	50	15	75	30	0%	0%
WB	Left Turn	925	50	5	100	11	100	19	9%	0%
	Through/Right	75	50	7	75	9	100	3	6%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	200	11	300	16	325	23	0%	23%
	Right Turn	225	25	5	50	11	75	16	0%	8%
NB	Left Turn	725	550	42	900	25	800	1	11%	0%
	Through	975	425	113	1,025	213	1,075	111	2%	2%
	Right Turn	975	650	115	1,200	171	1,150	83	0%	3%
SB	Left Turn	75	75	8	150	9	150	1	20%	0%
	Through	975	175	27	300	66	375	103	25%	0%
	Right Turn	225	175	19	275	35	275	17	8%	0%
WB	Left Turn	425	775	2	800	4	800	10	32%	44%
	Shared	225	225	1	250	4	250	0	74%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NE	Left Turn	150	50	7	150	13	175	20	0%	1%
	Through	400	425	14	500	15	500	22	0%	6%
SB	Through	975	625	139	900	210	950	185	22%	0%
WB	Left Turn	1,075	700	76	1,125	105	1,125	51	0%	3%
	Right Turn	550	675	3	675	8	675	14	80%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	20,775	3,525	415	6,125	522	6,475	517	28%	0%
	Right Turn	450	200	52	600	73	575	53	0%	0%
NB	Through	150	225	10	275	10	275	16	0%	43%
	Right Turn	150	25	0	25	0	25	0	0%	0%
SB	Left/Through	200	25	1	25	8	25	19	0%	0%
	Through	400	250	22	300	30	350	36	0%	1%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	125	7	125	9	125	0	88%	0%
	Through	1,575	1,175	500	1,775	511	1,675	190	18%	34%
	Right Turn	50	25	5	75	9	100	3	2%	0%
NB	Left Turn	250	125	24	300	33	275	1	0%	0%
	Through	700	675	18	800	41	750	15	75%	18%
	Through/Right	700	575	9	775	32	725	12	0%	3%
SB	Left Turn	225	50	8	100	26	150	44	0%	0%
	Through	225	125	18	200	26	200	16	0%	2%
	Through/Right	225	150	17	250	24	250	16	0%	9%
WB	Left Turn	100	50	10	125	13	100	6	10%	0%
	Through	225	3,200	818	5,000	1,188	5,075	1,124	2%	0%
	Right Turn	100	100	1	125	5	125	0	89%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Through	575	650	8	700	19	700	17	0%	45%
	Right Turn	575	350	64	800	51	700	41	0%	0%
SB	Left Turn	375	25	4	50	9	75	10	0%	0%
	Through	700	125	18	250	30	275	38	0%	0%
WB	Left Turn	1,025	800	144	1,475	223	1,950	258	10%	0%
	Right Turn	1,025	400	7	425	13	400	12	0%	0%

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	250	69	400	103	425	99	27%	1%
	Right Turn	1,050	25	2	25	16	25	33	0%	0%
NB	Through	750	750	37	875	55	825	20	0%	18%
	Right Turn	750	725	53	975	91	800	10	0%	16%
SB	Through	575	125	18	225	31	250	35	0%	0%
	Through/Right	575	150	23	275	24	300	16	0%	0%

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	100	9	150	14	175	24	4%	0%
	Through/Right	125	75	4	125	13	150	21	1%	0%
NB	Left Turn	425	225	39	575	46	500	0	0%	0%
	Through	725	11,625	469	16,450	334	14,100	34	80%	43%
	Through/Right	725	300	0	300	1	300	0	31%	0%
SB	Left Turn	275	250	44	375	28	350	0	37%	0%
	Through	750	275	86	525	112	650	138	9%	1%
	Through/Right	750	325	28	525	57	575	96	0%	0%
WB	Left Turn	250	100	13	200	32	250	69	0%	0%
	Through	1,025	125	34	275	68	325	97	25%	0%
	Right Turn	75	100	5	150	3	125	0	34%	0%

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Through	850	25	6	75	17	125	24	0%	0%
	Right Turn	150	25	1	25	3	50	1	0%	0%
WB	Left Turn	850	25	4	50	3	75	9	0%	0%
	Through	850	25	18	150	173	400	505	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	850	100	14	175	26	200	44	0%	0%
SB	Right Turn	575	50	6	100	10	125	17	0%	0%
WB	Through	1,150	100	10	200	19	250	38	0%	0%
	Through/Right	1,150	175	12	275	22	325	46	0%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	125	25	3	75	5	75	10	0%	0%
	Left/Through	325	25	3	50	5	50	10	0%	0%
	Right Turn	325	25	3	50	3	75	8	0%	0%
NB	Left Turn	125	50	3	75	6	100	13	0%	0%
	Through	575	75	7	175	11	250	22	0%	0%
	Through/Right	575	50	6	100	15	125	29	0%	0%
SB	Left Turn	175	50	3	75	7	100	18	0%	0%
	Through	1,000	50	4	100	15	150	44	0%	0%
	Through/Right	1,000	125	14	200	42	275	70	0%	0%
WB	Left Turn	325	25	3	50	3	50	10	0%	0%
	Through/Right	325	25	2	50	2	50	1	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	200	225	193	500	442	550	449	0%	0%
	Right Turn	200	50	5	75	9	100	19	0%	0%
NB	Left Turn	125	150	17	200	10	175	1	71%	0%
	Through	1,000	400	125	700	178	800	167	5%	0%
SB	Through	300	75	17	150	37	175	60	0%	2%
	Through/Right	300	275	22	300	35	325	34	0%	3%

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	300	26	450	18	400	3	33%	7%
	Right Turn	125	125	2	150	7	150	0	15%	0%
NB	Left Turn	325	1,600	112	2,875	146	3,025	140	95%	0%
	Through/Right	2,025	1,000	7	1,050	35	1,025	1	1%	54%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	225	55	425	100	550	126	46%	0%
WB	Left/Through	125	25	7	75	14	100	24	1%	0%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	123.9	134.8	0.1	4
	7	104.6	116.8	0.2	5
US 101 NB Ramps	6	104.8	114.9	0.1	4
Ross Dr	5	75.4	86.9	0.1	6
	4	31.5	36.1	0.0	5
SR 237 EB Off-Ramp	43	2.9	7.2	0.0	17
Mathilda Ave	57	5.8	10.7	0.0	12
Mathilda Ave	3	20.1	24.3	0.0	6
Innovation Way	2	32.3	51.1	0.2	15
5th Ave	1	17.1	36.3	0.2	23
	107	4.4	26.7	0.3	37
Total		523.0	645.8	1.5	8

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	19.3	40.6	0.3	24
Innovation Way	2	71.2	89.6	0.2	10
	3	54.9	85.5	0.2	9
Ross Dr	5	30.6	36.3	0.0	5
US 101 NB Ramps	6	12.6	24.1	0.1	22
US 101 SB Ramps	7	12.4	23.3	0.1	21
Almanor Ave	8	36.2	48.4	0.2	11
San Aleso Ave	201	3.6	15.0	0.1	34
Total		240.8	362.9	1.4	13

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	2.5	7.2	0.0	11
	53	0.9	5.7	0.0	26
	11	8.9	16.4	0.1	16
	200	66.8	83.1	0.2	7
Juniper Driveway	12	36.7	42.5	0.1	5
Driveway	217	13.0	16.2	0.0	8
	902	45.0	47.3	0.0	2
Mathilda Ave	2	17.6	19.5	0.0	5
	16	7.6	20.8	0.1	16
Bordeaux Dr	13	39.2	51.2	0.1	6
Total		238.3	309.8	0.6	7

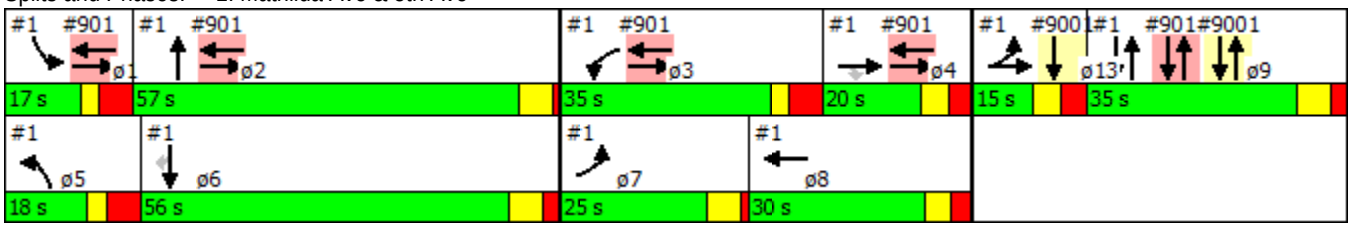
Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	16	47.2	57.0	0.1	5
Mathilda Ave	2	171.1	182.6	0.1	2
	902	9.0	14.1	0.0	7
Driveway	217	1.9	3.7	0.0	19
Juniper Driveway	12	10.5	14.4	0.0	9
	200	2.0	8.5	0.1	24
11th Ave	11	10.6	26.4	0.2	22
	53	3.2	10.7	0.1	24
	910	15.0	19.4	0.0	8
Moffett Park Dr	10	12.3	17.2	0.0	5
Total		282.7	353.9	0.6	6

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	ø2	ø7
Lane Configurations												
Volume (vph)	180	40	170	290	20	140	660	20	1120	30		
Turn Type	Prot	NA	custom	Prot	NA	Prot	NA	Prot	NA	custom		
Protected Phases	7 13	4 13		3	8	5	2 9	1	6 9		2	7
Permitted Phases			4							6		
Detector Phase	7	4	4	3	8	5	2	1	6	6		
Switch Phase												
Minimum Initial (s)			13.0	12.0	8.0	11.0		10.0		12.0	12.0	12.0
Minimum Split (s)			20.0	19.0	29.5	18.0		17.0		41.0	33.5	17.5
Total Split (s)			20.0	35.0	30.0	18.0		17.0		56.0	57.0	25.0
Total Split (%)			11.2%	19.6%	16.8%	10.1%		9.5%		31.3%	32%	14%
Yellow Time (s)			3.6	2.5	3.6	2.5		2.5		4.7	4.5	4.5
All-Red Time (s)			3.4	4.5	2.9	4.5		4.5		2.3	1.0	1.0
Lost Time Adjust (s)			0.0	0.0	0.0	0.0		0.0		0.0		
Total Lost Time (s)			7.0	7.0	6.5	7.0		7.0		7.0		
Lead/Lag			Lag	Lead	Lag	Lead		Lead		Lag	Lag	Lead
Lead-Lag Optimize?			Yes	Yes	Yes	Yes		Yes		Yes	Yes	Yes
Recall Mode			None	None	None	None		None		None	Min	None

Intersection Summary
Cycle Length: 179
Actuated Cycle Length: 119
Natural Cycle: 160
Control Type: Actuated-Uncoordinated

Splits and Phases: 1: Mathilda Ave & 5th Ave



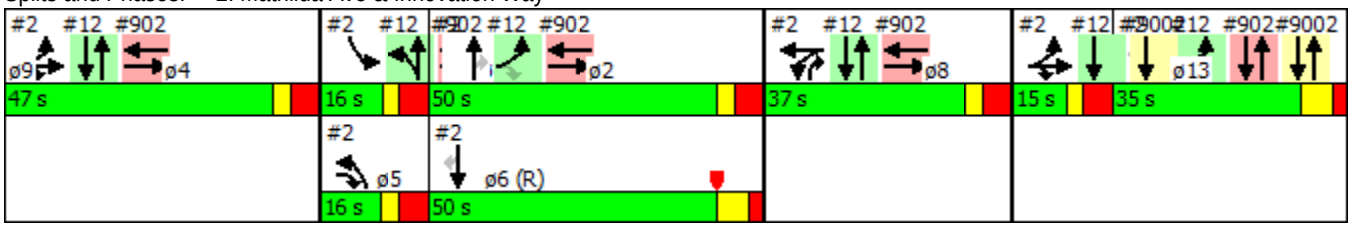
Lane Group	ø9	ø13
Lane Configurations		
Volume (vph)		
Turn Type		
Protected Phases	9	13
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	28.0	8.0
Minimum Split (s)	35.0	15.0
Total Split (s)	35.0	15.0
Total Split (%)	20%	8%
Yellow Time (s)	4.7	3.6
All-Red Time (s)	2.3	3.4
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes
Recall Mode	None	None

Intersection Summary

Lane Group	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	ø2	ø4
Lane Configurations												
Volume (vph)	320	1240	735	190	190	290	390	80	1430	70		
Turn Type	NA	pt+ov	Split	NA	Prot	NA	pm+ov	Prot	NA	Perm		
Protected Phases	4 13	4 13 5	8	8	5	2 9	8	1	6 9		2	4
Permitted Phases							2 9			6 9		
Detector Phase	4	4	8	8	5	2	8	1	6	6		
Switch Phase												
Minimum Initial (s)			10.0	10.0	10.0		10.0	10.0			12.0	14.0
Minimum Split (s)			35.0	35.0	17.0		35.0	16.8			19.0	39.0
Total Split (s)			37.0	37.0	16.0		37.0	16.0			50.0	47.0
Total Split (%)			18.5%	18.5%	8.0%		18.5%	8.0%			25%	24%
Yellow Time (s)			2.5	2.5	2.5		2.5	2.5			2.5	2.5
All-Red Time (s)			4.5	4.5	4.5		4.5	4.3			4.5	4.5
Lost Time Adjust (s)			0.0	0.0	0.0		0.0	0.0				
Total Lost Time (s)			7.0	7.0	7.0		7.0	6.8				
Lead/Lag					Lead			Lead			Lag	
Lead-Lag Optimize?					Yes			Yes			Yes	
Recall Mode			None	None	None		None	None			None	None

Intersection Summary
Cycle Length: 200
Actuated Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

Splits and Phases: 2: Mathilda Ave & Innovation Way



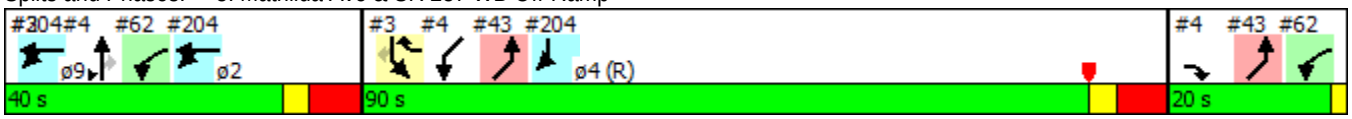
Lane Group	ø6	ø9	ø13
Lane Configurations			
Volume (vph)			
Turn Type			
Protected Phases	6	9	13
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	12.0	28.0	8.0
Minimum Split (s)	30.0	35.0	15.0
Total Split (s)	50.0	35.0	15.0
Total Split (%)	25%	18%	8%
Yellow Time (s)	4.7	4.7	2.5
All-Red Time (s)	2.3	2.3	4.5
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag	Lag	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes
Recall Mode	C-Max	None	None

Intersection Summary

Lane Group	WBR	SBL	SBR2	NEL	ø9
Lane Configurations					
Volume (vph)	240	2260	1145	630	
Turn Type	Prot	Prot	Perm	Prot	
Protected Phases	4	4		2	9
Permitted Phases			4		
Detector Phase	4	4	4	2	
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	26.7	26.7	26.7	26.7	18.0
Total Split (s)	90.0	90.0	90.0	40.0	20.0
Total Split (%)	60.0%	60.0%	60.0%	26.7%	13%
Yellow Time (s)	3.0	3.0	3.0	3.0	2.0
All-Red Time (s)	6.0	6.0	6.0	6.0	0.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	9.0	9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	C-Max	C-Max	C-Max	None	Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 4:SBL, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated

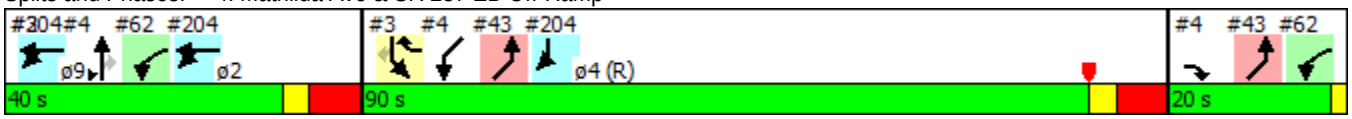
Splits and Phases: 3: Mathilda Ave & SR 237 WB Off-Ramp



Lane Group	EBR	NBT	NBR2	SWL	ø9
Lane Configurations					
Volume (vph)	210	700	860	2620	
Turn Type	custom	NA	Perm	Prot	
Protected Phases	2 9	2		4	9
Permitted Phases			2		
Detector Phase	2	2	2	4	
Switch Phase					
Minimum Initial (s)		4.0	4.0	4.0	4.0
Minimum Split (s)		26.7	26.7	26.7	18.0
Total Split (s)		40.0	40.0	90.0	20.0
Total Split (%)		26.7%	26.7%	60.0%	13%
Yellow Time (s)		3.0	3.0	3.0	2.0
All-Red Time (s)		6.0	6.0	6.0	0.0
Lost Time Adjust (s)		0.0	0.0	0.0	
Total Lost Time (s)		9.0	9.0	9.0	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode		None	None	C-Max	Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 4:SBL, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated

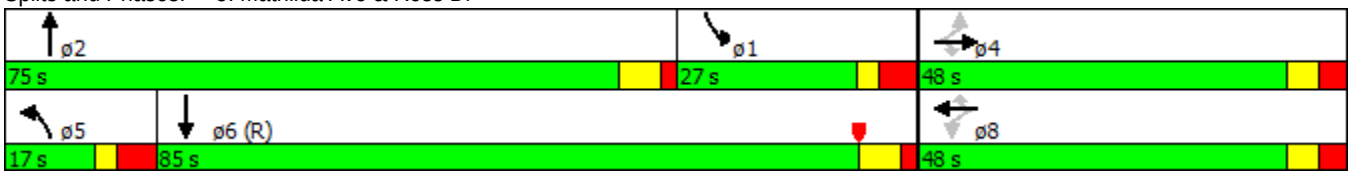
Splits and Phases: 4: Mathilda Ave & SR 237 EB Off-Ramp



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations										
Volume (vph)	60	200	60	290	70	130	160	1370	180	2570
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Prot	NA	Prot	NA
Protected Phases		4			8		5	2	1	6
Permitted Phases	4		4	8		8				
Detector Phase	4	4	4	8	8	8	5	2	1	6
Switch Phase										
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.0	4.0	4.0	5.0
Minimum Split (s)	48.0	48.0	48.0	19.0	19.0	19.0	11.0	31.4	11.0	11.6
Total Split (s)	48.0	48.0	48.0	48.0	48.0	48.0	17.0	75.0	27.0	85.0
Total Split (%)	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	11.3%	50.0%	18.0%	56.7%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	3.4	3.4	3.4	3.4	3.4	3.4	4.5	1.7	4.5	1.9
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	7.0	6.4	7.0	6.6
Lead/Lag							Lead	Lead	Lag	Lag
Lead-Lag Optimize?							Yes	Yes	Yes	Yes
Recall Mode	None	None	None	Max	Max	Max	Max	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 140 (93%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated

Splits and Phases: 5: Mathilda Ave & Ross Dr



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	850	280	1600	340	40	2880
Turn Type	Prot	pm+ov	NA	Perm	Prot	NA
Protected Phases	8	1	2		1	6
Permitted Phases		8		2		
Detector Phase	8	1	2	2	1	6
Switch Phase						
Minimum Initial (s)	8.0	4.0	8.0	8.0	4.0	4.0
Minimum Split (s)	14.9	9.7	39.9	39.9	9.7	10.9
Total Split (s)	48.0	18.0	84.0	84.0	18.0	102.0
Total Split (%)	32.0%	12.0%	56.0%	56.0%	12.0%	68.0%
Yellow Time (s)	4.7	3.5	4.7	4.7	3.5	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	5.7	6.9	6.9	5.7	6.9
Lead/Lag		Lead	Lag	Lag	Lead	
Lead-Lag Optimize?		Yes	Yes	Yes	Yes	
Recall Mode	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 120 (80%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated

Splits and Phases: 6: Mathilda Ave & US 101 NB Ramps

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Configurations					
Volume (vph)	140	550	1800	680	2270
Turn Type	Prot	Prot	NA	Perm	NA
Protected Phases	7	7	2		6
Permitted Phases				2	
Detector Phase	7	7	2	2	6
Switch Phase					
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	10.9	10.9	22.9	22.9	22.9
Total Split (s)	35.0	35.0	115.0	115.0	115.0
Total Split (%)	23.3%	23.3%	76.7%	76.7%	76.7%
Yellow Time (s)	4.7	4.7	4.7	4.7	4.7
All-Red Time (s)	2.2	2.2	2.2	2.2	2.2
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.9	6.9	6.9	6.9	6.9
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	None	None	C-Max

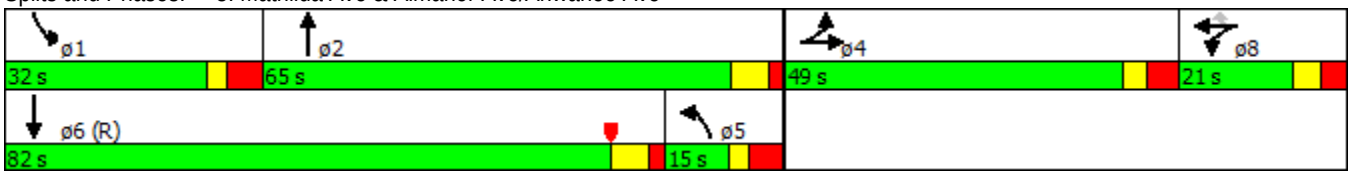
Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 122 (81%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated

Splits and Phases: 7: Mathilda Ave & US 101 SB Ramps

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	430	40	60	30	260	80	1790	260	2460
Turn Type	Split	NA	Split	NA	Perm	Prot	NA	Prot	NA
Protected Phases	4	4	8	8		5	2	1	6
Permitted Phases					8				
Detector Phase	4	4	8	8	8	5	2	1	6
Switch Phase									
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0	8.0	12.0	8.0	12.0
Minimum Split (s)	49.0	49.0	15.0	15.0	15.0	15.0	36.7	15.0	27.7
Total Split (s)	49.0	49.0	21.0	21.0	21.0	15.0	65.0	32.0	82.0
Total Split (%)	29.3%	29.3%	12.6%	12.6%	12.6%	9.0%	38.9%	19.2%	49.1%
Yellow Time (s)	2.8	2.8	3.6	3.6	3.6	2.5	4.7	2.5	4.7
All-Red Time (s)	4.2	4.2	3.4	3.4	3.4	4.5	2.0	4.5	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	7.0	7.0	7.0	7.0	7.0	7.0	6.7	7.0	6.7
Lead/Lag						Lag	Lag	Lead	Lead
Lead-Lag Optimize?						Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None	None	C-Max

Intersection Summary
Cycle Length: 167
Actuated Cycle Length: 167
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 140
Control Type: Actuated-Coordinated

Splits and Phases: 8: Mathilda Ave & Almanor Ave/Ahwanee Ave



Lane Group	EBT	EBR	WBL	WBT
Lane Configurations				
Volume (vph)	1010	150	350	315
Turn Type	NA	Perm	Prot	NA
Protected Phases	2		1	6
Permitted Phases		2		
Detector Phase	2	2	1	6
Switch Phase				
Minimum Initial (s)	15.0	15.0	6.0	15.0
Minimum Split (s)	20.0	20.0	10.5	20.0
Total Split (s)	52.0	52.0	23.0	75.0
Total Split (%)	69.3%	69.3%	30.7%	100.0%
Yellow Time (s)	4.0	4.0	3.5	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	4.5	5.0
Lead/Lag	Lag	Lag	Lead	
Lead-Lag Optimize?				
Recall Mode	Min	Min	None	Min

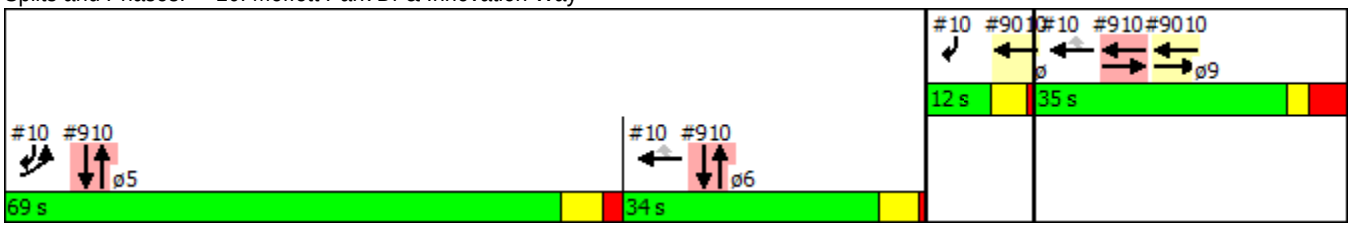
Intersection Summary
Cycle Length: 75
Actuated Cycle Length: 67.2
Natural Cycle: 70
Control Type: Semi Act-Uncoord

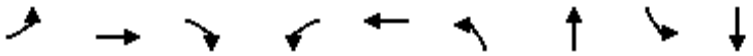
Splits and Phases: 9: US 101 On-Ramp & Moffett Park Dr

Lane Group	EBL	WBT	WBR	SBR	ø4	ø6	ø9
Lane Configurations							
Volume (vph)	1010	415	160	250			
Turn Type	Prot	NA	Perm	pt+ov			
Protected Phases	5	6 9		4 5	4	6	9
Permitted Phases			6 9				
Detector Phase	5	6	6 9	5			
Switch Phase							
Minimum Initial (s)	8.0				4.0	10.0	28.0
Minimum Split (s)	15.0				9.0	27.5	35.0
Total Split (s)	69.0				12.0	34.0	35.0
Total Split (%)	46.0%				8%	23%	23%
Yellow Time (s)	4.7				4.0	4.5	2.5
All-Red Time (s)	2.3				1.0	1.0	4.5
Lost Time Adjust (s)	0.0						
Total Lost Time (s)	7.0						
Lead/Lag	Lead					Lag	
Lead-Lag Optimize?	Yes					Yes	
Recall Mode	Max				None	Min	None

Intersection Summary
Cycle Length: 150
Actuated Cycle Length: 137.7
Natural Cycle: 110
Control Type: Semi Act-Uncoord

Splits and Phases: 10: Moffett Park Dr & Innovation Way





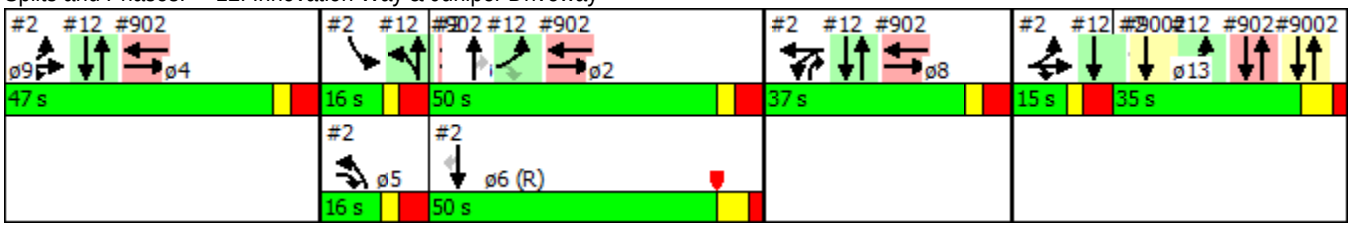
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Configurations									
Volume (vph)	500	0	80	40	0	200	910	110	60
Sign Control		Stop			Stop		Stop		Stop

Intersection Summary
Control Type: Unsignalized

Lane Group	EBL	EBR	NBL	NBT	SBT	ø2	ø4	ø5	ø6	ø8	ø9	ø13
Lane Configurations												
Volume (vph)	700	80	60	1370	280							
Turn Type	Prot	Perm	Prot	NA	NA							
Protected Phases	2 9		1	1 4 8	4 8 13	2	4	5	6	8	9	13
Permitted Phases		2 9										
Detector Phase	2	2	1	1 4 8	4 8							
Switch Phase												
Minimum Initial (s)			10.0			12.0	14.0	10.0	12.0	10.0	28.0	8.0
Minimum Split (s)			16.8			19.0	39.0	17.0	30.0	35.0	35.0	15.0
Total Split (s)			16.0			50.0	47.0	16.0	50.0	37.0	35.0	15.0
Total Split (%)			8.0%			25%	24%	8%	25%	19%	18%	8%
Yellow Time (s)			2.5			2.5	2.5	2.5	4.7	2.5	4.7	2.5
All-Red Time (s)			4.3			4.5	4.5	4.5	2.3	4.5	2.3	4.5
Lost Time Adjust (s)			0.0									
Total Lost Time (s)			6.8									
Lead/Lag			Lead			Lag		Lead	Lag		Lag	Lead
Lead-Lag Optimize?			Yes			Yes		Yes	Yes		Yes	Yes
Recall Mode			None			None	None	None	C-Max	None	None	None

Intersection Summary
Cycle Length: 200
Actual Cycle Length: 200
Offset: 0 (0%), Referenced to phase 6:SBT, Start of Yellow
Natural Cycle: 175
Control Type: Actuated-Coordinated

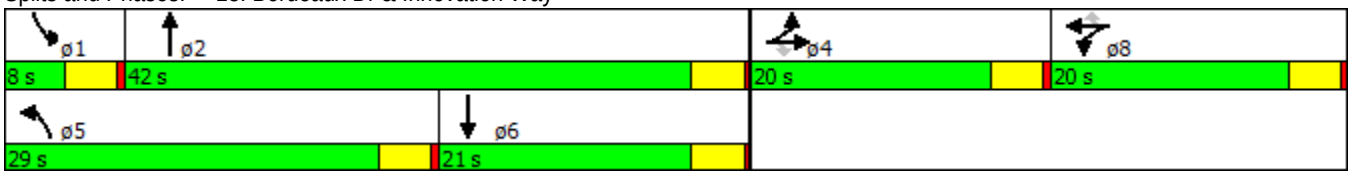
Splits and Phases: 12: Innovation Way & Juniper Driveway



Lane Group	EBT	EBR	WBT	NBL	NBT	SBT	ø1
Lane Configurations							
Volume (vph)	30	230	30	630	50	180	
Turn Type	NA	Perm	NA	Prot	NA	NA	
Protected Phases	4		8	5	2	6	1
Permitted Phases		4					
Detector Phase	4	4	8	5	2	6	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	8.0
Total Split (s)	20.0	20.0	20.0	29.0	42.0	21.0	8.0
Total Split (%)	22.2%	22.2%	22.2%	32.2%	46.7%	23.3%	9%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	
Lead/Lag				Lead	Lag	Lag	Lead
Lead-Lag Optimize?				Yes	Yes	Yes	Yes
Recall Mode	None	None	None	None	None	None	None

Intersection Summary
Cycle Length: 90
Actuated Cycle Length: 69.3
Natural Cycle: 100
Control Type: Actuated-Uncoordinated

Splits and Phases: 13: Bordeaux Dr & Innovation Way



SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 Build Alternative 2**
Network Performance **PM Peak Hour**

Performance Measure	Average	Std. Dev.	Minimum	Maximum
Average Delay (seconds)	805.9	20.6	779.7	842.4
Total Delay (hours)	3,262	77	3,146	3,353
Average Stopped Delay (seconds)	765.6	20.8	737.5	804.0
Total Stopped Delay (hours)	3099	77	2968	3180
Total Stops	45,667	2,869	39,342	49,375
Average Stops	3.13	0.18	2.76	3.41
Total Distance Traveled (miles)	42,106	740	40,281	42,804
Average Speed (mph)	9.8	0.4	9.0	10.0
Total Travel Time (hours)	4,661.5	85.5	4,511.0	4,794.6
Vehicles Entered	11,709	139	11,398	11,870
Vehicles Exited	8,923	247	8,295	9,163
Percent Demand Served	76.2%	1.7%	72.8%	78.1%
Fuel Used (gallons)	1,857	22	1,810	1,891
HC Emissions (grams)	18,337	1,136	15,905	20,074
CO Emissions (grams)	512,188	22,448	465,696	545,304
NOx Emissions (grams)	67,436	3,261	60,577	71,637

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 Build Alternative 2**
Volume and Delay by Movement **PM Peak Hour**

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	140	74	52.7%	58.6	6.1	E
	Through	660	352	53.3%	19.1	4.1	B
	Right Turn	60	34	56.8%	55.1	72.1	E
	Subtotal	860	460	53.5%	28.0	8.2	C
SB	Left Turn	20	15	73.5%	300.1	233.7	F
	Through	1,120	953	85.1%	182.1	61.4	F
	Right Turn	30	29	95.0%	137.6	71.3	F
	Subtotal	1,170	997	85.2%	182.2	61.0	F
EB	Left Turn	180	179	99.3%	66.2	35.6	E
	Through	40	32	80.5%	116.3	59.7	F
	Right Turn	170	158	92.6%	61.6	37.3	E
	Subtotal	390	369	94.5%	68.3	37.7	E
WB	Left Turn	290	98	33.8%	115.1	30.4	F
	Through	20	7	35.0%	97.8	42.8	F
	Right Turn	110	43	38.8%	66.0	24.9	E
	Subtotal	420	148	35.2%	99.3	26.7	F
Total		2,840	1,973	69.5%	117.9	31.7	F

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	190	171	90.1%	201.5	60.0	F
	Through	290	255	87.9%	32.8	2.5	C
	Right Turn	390	347	88.9%	19.8	2.6	B
	Subtotal	870	773	88.9%	64.7	14.8	E
SB	Left Turn	80	61	76.5%	419.0	52.8	F
	Through	1,430	1,058	74.0%	336.6	54.0	F
	Right Turn	70	52	74.7%	290.4	43.2	F
	Subtotal	1,580	1,171	74.1%	338.9	52.5	F
EB	Left Turn	510	186	36.5%	90.0	16.0	F
	Through	320	121	37.8%	92.6	12.4	F
	Right Turn	1,240	467	37.6%	93.8	18.2	F
	Subtotal	2,070	774	37.4%	92.6	16.5	F
WB	Left Turn	735	264	36.0%	363.1	80.7	F
	Through	190	70	36.7%	354.0	63.2	F
	Right Turn	60	23	38.8%	344.7	33.8	F
	Subtotal	985	357	36.3%	359.8	73.0	F
Total		5,505	3,076	55.9%	209.0	24.9	F

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	290	231	79.7%	3.7	3.9	A
	Through	630	526	83.4%	45.6	2.7	D
	Right Turn						
	Subtotal	920	757	82.3%	32.8	3.1	C
SB	Left Turn						
	Through	2,260	1,031	45.6%	102.0	16.6	F
	Right Turn	1,145	754	65.8%	182.9	40.3	F
	Subtotal	3,405	1,785	54.2%	136.1	26.6	F
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	820	820	100.0%	80.1	5.3	F
	Through						
	Right Turn	240	247	103.0%	28.2	0.8	C
	Subtotal	1,060	1,067	100.7%	68.1	4.3	E
Total		5,385	3,609	73.8%	94.4	15.1	F

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	700	538	76.8%	61.9	4.2	E
	Right Turn	860	670	77.9%	2.5	0.2	A
	Subtotal	1,560	1,208	77.4%	28.9	2.0	C
SB	Left Turn	460	204	44.4%	4.8	0.2	A
	Through	2,620	1,643	62.7%	28.7	1.1	C
	Right Turn						
	Subtotal	3,080	1,848	60.7%	26.1	1.0	C
EB	Left Turn	220	220	100.2%	30.2	7.1	C
	Through						
	Right Turn	210	217	103.2%	45.9	11.2	D
	Subtotal	430	437	101.7%	38.0	9.1	D
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		5,070	3,493	71.6%	28.6	2.4	C

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	160	123	76.9%	193.4	68.3	F
	Through	1,370	1,074	78.4%	129.2	8.6	F
	Right Turn	350	278	79.5%	250.0	4.9	F
	Subtotal	1,880	1,476	78.5%	157.7	10.1	F
SB	Left Turn	180	120	66.5%	49.0	4.0	D
	Through	2,570	1,687	65.6%	16.2	2.3	B
	Right Turn	80	54	67.1%	10.3	2.8	B
	Subtotal	2,830	1,860	65.7%	18.1	2.1	B
EB	Left Turn	60	57	95.2%	49.2	3.6	D
	Through	200	206	102.8%	46.0	2.9	D
	Right Turn	60	59	98.5%	23.2	3.4	C
	Subtotal	320	322	100.6%	42.4	2.5	D
WB	Left Turn	290	180	62.1%	1023.4	166.3	F
	Through	70	46	65.4%	1056.9	195.7	F
	Right Turn	130	82	63.0%	990.1	180.5	F
	Subtotal	490	308	62.8%	1019.2	172.5	F
Total		5,520	3,965	71.8%	149.0	11.2	F

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,600	1,221	76.3%	178.9	8.2	F
	Right Turn	340	240	70.7%	10.6	0.6	B
	Subtotal	1,940	1,461	75.3%	151.2	6.7	F
SB	Left Turn	40	26	64.5%	71.2	9.0	E
	Through	2,880	1,894	65.8%	42.5	20.2	D
	Right Turn						
	Subtotal	2,920	1,920	65.8%	42.9	20.0	D
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	850	798	93.9%	257.5	162.8	F
	Through						
	Right Turn	280	260	93.0%	245.5	160.3	F
	Subtotal	1,130	1,058	93.6%	254.5	162.1	F
Total		5,990	4,439	74.1%	127.7	40.2	F

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through	1,800	1,346	74.8%	161.9	12.6	F
	Right Turn	680	528	77.7%	36.3	4.1	D
	Subtotal	2,480	1,874	75.6%	126.5	9.6	F
SB	Left Turn						
	Through	2,270	1,747	77.0%	16.9	3.0	B
	Right Turn	1,460	948	64.9%	32.9	12.6	C
	Subtotal	3,730	2,695	72.2%	22.6	5.9	C
EB	Left Turn	140	126	89.9%	330.0	726.1	F
	Through						
	Right Turn	550	513	93.2%	110.9	271.4	F
	Subtotal	690	639	92.5%	132.2	290.5	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		6,900	5,207	75.5%	66.5	16.1	E

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Aven** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	80	61	75.6%	566.2	96.1	F
	Through	1,790	1,236	69.0%	594.1	112.6	F
	Right Turn	60	38	62.5%	614.5	124.1	F
	Subtotal	1,930	1,334	69.1%	593.4	111.9	F
SB	Left Turn	260	202	77.8%	112.3	17.1	F
	Through	2,460	1,959	79.6%	37.8	2.5	D
	Right Turn	100	84	83.7%	29.1	3.9	C
	Subtotal	2,820	2,245	79.6%	44.2	3.5	D
EB	Left Turn	430	418	97.2%	136.2	42.9	F
	Through	40	43	108.3%	116.4	37.6	F
	Right Turn	90	90	100.3%	97.1	41.3	F
	Subtotal	560	552	98.5%	128.2	41.9	F
WB	Left Turn	60	58	96.8%	76.8	11.3	E
	Through	30	26	86.0%	112.6	44.4	F
	Right Turn	260	256	98.3%	57.3	29.5	E
	Subtotal	350	340	97.0%	65.0	26.2	E
Total		5,660	4,470	79.0%	219.4	32.1	F

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	1,010	377	37.4%	257.1	55.2	F
	Right Turn	150	66	43.9%	150.5	20.9	F
	Subtotal	1,160	443	38.2%	241.1	49.6	F
WB	Left Turn	350	283	81.0%	47.3	13.4	D
	Through	315	247	78.5%	3.0	0.7	A
	Right Turn						
	Subtotal	665	531	79.8%	26.6	7.4	C
Total		1,825	974	53.4%	122.3	15.7	F

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
SB	Left Turn						
	Through						
	Right Turn	250	219	87.5%	23.8	2.9	C
	Subtotal	250	219	87.5%	23.8	2.9	C
EB	Left Turn	1,010	374	37.0%	565.1	106.3	F
	Through						
	Right Turn						
	Subtotal	1,010	374	37.0%	565.1	106.3	F
WB	Left Turn						
	Through	415	311	74.9%	35.1	6.0	D
	Right Turn	160	76	47.3%	468.6	229.5	F
	Subtotal	575	387	67.2%	116.2	45.0	F
Total		1,835	979	53.4%	262.4	33.7	F

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	200	78	38.9%	192.5	44.2	F
	Through	910	352	38.7%	299.4	65.9	F
	Right Turn	50	18	35.2%	287.2	75.5	F
	Subtotal	1,160	447	38.6%	280.4	62.5	F
SB	Left Turn	110	61	55.2%	43.0	8.9	E
	Through	60	33	54.3%	32.2	14.0	D
	Right Turn	190	104	54.6%	23.9	7.9	C
	Subtotal	360	197	54.7%	31.2	7.8	D
EB	Left Turn	500	390	78.0%	540.1	111.9	F
	Through						
	Right Turn	80	80	100.3%	88.5	25.3	F
	Subtotal	580	470	81.1%	461.6	93.6	F
WB	Left Turn	40	39	96.3%	28.5	19.4	D
	Through						
	Right Turn	20	21	105.0%	78.4	22.2	F
	Subtotal	60	60	99.2%	46.6	16.0	E
Total		2,160	1,174	54.4%	294.5	35.8	F

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	60	31	52.2%	333.7	44.2	F
	Through	1,370	731	53.4%	308.9	40.6	F
	Right Turn						
	Subtotal	1,430	762	53.3%	310.0	40.6	F
SB	Left Turn						
	Through	280	182	65.1%	79.7	18.3	E
	Right Turn	170	111	65.4%	60.7	10.1	E
	Subtotal	450	294	65.2%	72.5	14.7	E
EB	Left Turn	700	43	6.1%	2141.6	43.0	F
	Through						
	Right Turn	80	15	18.1%	1737.6	130.4	F
	Subtotal	780	57	7.3%	2034.8	56.7	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		2,660	1,113	41.8%	335.8	49.0	F

SimTraffic Post-Processor **Mathilda Avenue Improvements**
Average Results from 10 Runs **2040 Build Alternative 2**
Volume and Delay by Movement **PM Peak Hour**

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Served Volume (vph) Percent	Total Delay (sec/veh) Average	Total Delay (sec/veh) Std. Dev.	LOS
NB	Left Turn	630	177	28.1%	3297.8	437.2	F
	Through	50	16	32.2%	3107.8	449.1	F
	Right Turn						
	Subtotal	680	193	28.4%	3282.1	439.2	F
SB	Left Turn						
	Through	180	67	37.3%	1161.3	237.5	F
	Right Turn	230	93	40.4%	1162.7	254.4	F
	Subtotal	410	160	39.0%	1162.4	247.4	F
EB	Left Turn	90	61	67.7%	33.5	3.2	C
	Through	30	20	67.3%	32.8	6.8	C
	Right Turn	230	153	66.4%	10.3	3.3	B
	Subtotal	350	234	66.8%	18.4	3.1	B
WB	Left Turn						
	Through	30	27	89.3%	159.7	123.1	F
	Right Turn						
	Subtotal	30	27	89.3%	159.7	123.1	F
Total		1,470	614	41.7%	1334.8	133.7	F

Intersection 1 **Mathilda Avenue/5th Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	625	150	22	300	46	400	82	32%	0%
	Through	625	100	67	250	130	325	164	0%	0%
	Right Turn	625	125	73	300	135	425	162	0%	0%
NB	Left Turn	425	75	6	100	12	125	23	0%	0%
	Through	1,125	75	13	150	35	200	58	0%	0%
	Through/Right	1,125	75	26	175	60	200	75	0%	0%
SB	Left Turn	250	75	35	250	50	300	1	3%	0%
	Through	1,325	600	128	1,175	263	1,250	212	57%	5%
	Right Turn	250	75	27	225	70	300	0	0%	0%
WB	Left Turn	925	125	32	250	75	325	146	45%	0%
	Through/Right	75	50	9	100	9	100	0	8%	0%

Intersection 2 **Mathilda Avenue/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	225	300	7	350	10	375	12	0%	64%
	Right Turn	225	200	15	300	21	325	21	0%	17%
NB	Left Turn	725	200	54	300	73	350	87	0%	0%
	Through	975	100	12	175	20	200	19	0%	0%
	Right Turn	975	125	22	275	44	375	47	0%	0%
SB	Left Turn	75	125	17	175	8	150	0	51%	0%
	Through	975	1,150	45	1,300	53	1,225	15	91%	43%
	Right Turn	225	175	25	375	23	275	0	0%	0%
WB	Left Turn	425	775	2	800	3	800	9	68%	67%
	Shared	225	225	2	250	4	250	0	76%	0%

Intersection 3 **Mathilda Avenue/Moffett Park Drive-SR 237 WB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
NB	Left Turn	350	25	6	50	28	75	48	0%	0%
	Through	400	175	10	200	16	225	23	0%	1%
SB	Through	975	1,125	7	1,175	16	1,175	11	9%	44%
WB	Left Turn	1,075	325	25	450	30	475	35	0%	0%
	Right Turn	550	150	9	225	19	250	25	0%	0%

Intersection 4 **Mathilda Avenue/SR 237 EB On-Ramp** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	1,050	100	8	175	21	200	42	0%	0%
	Right Turn	450	225	25	300	33	375	38	0%	0%
NB	Through	150	125	11	200	15	225	35	0%	4%
	Right Turn	150	25	3	50	33	150	89	0%	0%
SB	Left/Through	400	25	2	50	10	75	26	0%	0%
	Through	400	325	12	375	13	375	20	0%	3%

Intersection 5 **Mathilda Avenue/Ross Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	250	50	9	125	15	125	0	2%	0%
	Through	1,575	200	16	350	38	425	68	60%	0%
	Right Turn	50	50	10	125	11	100	0	12%	0%
NB	Left Turn	250	175	42	250	39	250	19	22%	0%
	Through	700	725	62	800	71	775	38	14%	45%
	Through/Right	700	725	5	750	9	750	21	0%	43%
SB	Left Turn	225	125	7	200	10	225	12	0%	1%
	Through	225	125	14	175	21	175	36	0%	1%
	Through/Right	225	200	22	300	28	275	12	0%	27%
WB	Left Turn	100	100	1	125	5	100	0	87%	0%
	Through	225	4,500	783	6,850	975	6,875	739	7%	0%
	Right Turn	100	50	10	100	15	100	0	5%	0%

Intersection 6 **Mathilda Avenue/US 101 NB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
NB	Through	575	675	4	700	15	700	15	0%	73%
	Right Turn	575	75	24	350	86	700	12	0%	0%
SB	Left Turn	375	50	23	150	98	275	163	0%	0%
	Through	700	400	120	525	129	575	145	12%	2%
WB	Left Turn	1,025	1,525	524	2,475	661	2,750	656	31%	0%
	Right Turn	1,025	325	44	500	36	400	25	0%	0%

Intersection 7 **Mathilda Avenue/US 101 SB Ramps** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,050	450	161	950	251	1,075	249	9%	0%
	Right Turn	1,050	25	4	50	29	100	69	0%	0%
NB	Through	750	700	53	925	63	800	19	0%	22%
	Right Turn	750	675	78	1,050	67	825	52	0%	33%
SB	Through	575	425	132	700	158	650	33	0%	6%
	Through/Right	575	475	113	700	79	650	15	0%	8%

Intersection 8 **Mathilda Avenue-US 101 On-Ramp/Almanor Avenue-Ahwanee Avenue** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left Turn	1,025	550	197	1,000	310	1,175	331	61%	0%
	Through/Right	125	150	16	275	16	225	0	7%	0%
NB	Left Turn	425	225	21	550	32	500	0	0%	0%
	Through	750	2,775	497	5,450	610	5,650	577	85%	0%
	Through/Right	750	300	3	325	16	300	0	48%	0%
SB	Left Turn	275	250	21	375	17	325	0	17%	0%
	Through	750	350	44	550	39	575	53	12%	0%
	Through/Right	750	300	37	450	40	475	59	0%	0%
WB	Left Turn	250	100	26	225	79	325	68	0%	0%
	Through	1,025	200	85	450	200	550	217	16%	0%
	Right Turn	75	100	6	150	5	125	0	55%	0%

Intersection 9 **Innovation Way-US 101 On-Ramp/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Through	850	875	4	900	24	900	2	85%	44%
	Right Turn	150	250	44	525	20	375	0	0%	0%
WB	Left Turn	850	200	30	375	88	450	114	0%	0%
	Through	850	25	16	125	101	275	205	0%	0%

Intersection 10 **Innovation Way/Moffett Park Drive** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	850	925	4	925	4	950	8	0%	65%
SB	Right Turn	575	50	8	100	13	125	21	0%	0%
WB	Through	1,150	350	160	650	261	700	228	6%	6%
	Right Turn	1,150	225	36	300	36	275	1	58%	0%

Intersection 11 **Innovation Way/11th Avenue** **All-way Stop**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	125	150	3	150	8	150	0	53%	0%
	Left/Through	325	2,175	480	3,500	810	3,650	973	96%	0%
	Right Turn	325	725	201	1,325	352	1,800	548	0%	0%
NB	Left Turn	125	125	15	250	5	175	0	2%	0%
	Through	575	450	5	475	7	475	12	99%	55%
	Through/Right	575	350	3	350	5	375	11	0%	90%
SB	Left Turn	175	75	8	125	14	150	24	1%	0%
	Through	1,000	25	4	75	9	100	23	0%	0%
	Through/Right	1,000	100	16	175	31	200	39	0%	0%
WB	Left Turn	325	50	8	75	23	100	60	0%	0%
	Through/Right	325	50	7	75	17	75	20	0%	0%

Intersection 12 **Innovation Way/Juniper Networks Driveway** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Std. Dev.	95th Queue (ft) Average	Std. Dev.	Maximum Queue (ft) Average	Std. Dev.	Block Time Pocket	Upstream
EB	Left Turn	200	11,550	337	17,150	289	15,600	8	0%	21%
	Right Turn	200	6,000	479	11,575	1,162	15,300	328	0%	0%
NB	Left Turn	125	75	13	175	20	175	1	0%	0%
	Through	1,000	1,125	5	1,150	9	1,150	16	77%	62%
SB	Through	300	225	13	225	24	225	28	0%	4%
	Through/Right	300	200	16	250	17	275	16	0%	2%

Intersection 13 **Bordeaux Drive/Innovation Way** **Signal**

Direction	Lane Group	Storage (ft)	Average Queue (ft) Average	Average Queue (ft) Std. Dev.	95th Queue (ft) Average	95th Queue (ft) Std. Dev.	Maximum Queue (ft) Average	Maximum Queue (ft) Std. Dev.	Block Time Pocket	Block Time Upstream
EB	Left/Through	375	75	6	125	19	200	40	3%	0%
	Right Turn	125	75	6	125	11	125	1	0%	0%
NB	Left Turn	325	8,775	35	13,600	21	11,950	8	100%	0%
	Through/Right	2,025	1,000	1	1,000	1	1,025	1	1%	75%
SB	Left Turn	125	25	0	25	0	25	0	0%	0%
	Through/Right	725	725	1	725	2	725	3	94%	79%
WB	Left/Through	125	75	31	150	84	175	111	10%	1%
	Right Turn	125	25	0	25	0	25	0	0%	0%

Arterial Level of Service: NB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
Ahwanee Ave	8	167.9	178.7	0.1	3
	7	150.9	162.8	0.2	3
US 101 NB Ramps	6	177.1	186.9	0.1	3
Ross Dr	5	123.4	134.8	0.1	4
	4	65.3	73.4	0.0	2
SR 237 EB Off-Ramp	43	1.2	5.6	0.0	21
Mathilda Ave	57	1.3	6.2	0.0	21
Mathilda Ave	3	42.7	46.8	0.0	3
Innovation Way	2	29.0	53.5	0.2	15
5th Ave	1	21.1	41.2	0.2	21
	107	3.6	25.7	0.3	38
Total		783.6	915.5	1.5	6

Arterial Level of Service: SB Mathilda Ave

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
5th Ave	1	179.3	199.5	0.3	5
Innovation Way	2	317.5	341.0	0.2	3
	3	99.4	130.3	0.2	6
Ross Dr	5	9.3	16.3	0.0	11
US 101 NB Ramps	6	44.3	55.6	0.1	10
US 101 SB Ramps	7	15.4	26.1	0.1	19
Almanor Ave	8	36.3	48.8	0.2	11
San Aleso Ave	201	5.5	16.9	0.1	30
Total		707.1	834.4	1.4	6

Arterial Level of Service: NB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	910	19.6	23.8	0.0	4
	53	61.4	65.8	0.0	2
	11	216.5	223.6	0.1	1
	200	196.9	213.1	0.2	3
Juniper Driveway	12	91.6	99.7	0.1	2
Driveway	217	30.1	34.1	0.0	4
	902	42.6	44.7	0.0	2
Mathilda Ave	2	14.5	17.1	0.0	6
	16	5.3	19.3	0.1	17
Bordeaux Dr	13	28.6	40.4	0.1	7
Total		707.2	781.6	0.6	3

Arterial Level of Service: SB Innovation Way

Cross Street	Node	Delay (s/veh)	Travel time (s)	Dist (mi)	Arterial Speed
	16	90.8	104.4	0.1	3
Mathilda Ave	2	191.3	202.3	0.1	2
	902	9.8	15.1	0.0	7
Driveway	217	2.0	4.1	0.0	17
Juniper Driveway	12	73.6	78.4	0.0	2
	200	2.5	9.0	0.1	23
11th Ave	11	28.7	44.6	0.2	13
	53	3.2	10.7	0.1	24
	910	11.7	15.9	0.0	9
Moffett Park Dr	10	10.5	15.2	0.0	6
Total		424.2	499.6	0.6	4

APPENDIX P – YEAR 2040 FREQ MAINLINE CALCULATION SHEETS

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4570.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	3	4570.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4570.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	5330.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	5330.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	5330.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	5000.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4470.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4470.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	10000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.80	21.36	22.31	22.84	23.12	25.09
2	0.00	0.18	0.74	1.69	2.23	2.50	4.47
3	0.00	0.00	0.38	1.34	1.87	2.14	4.11
4	0.00	0.00	0.00	0.53	1.06	1.34	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3301.	0.	3301.	3301.	0.	3301.	6000.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0
2	3	99999.	0.	825.	3301.	0.	825.	3301.	6000.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0
3	2	12000.	0.	0.	2476.	0.	0.	2476.	4000.	0.	0.	0.	.62	62.	20.0	C	20.3	13.0
4	3	350.	306.	0.	2782.	306.	0.	2782.	4526.	0.	0.	0.	.61	62.	15.0	B	20.3	13.0
5	3	300.	0.	0.	2782.	0.	0.	2782.	4570.	0.	0.	0.	.61	62.	15.0	B	20.3	13.0
6	3	350.	0.	867.	2782.	0.	867.	2782.	4317.	0.	0.	0.	.64	62.	15.0	B	20.3	13.0
7	2	940.	0.	0.	1915.	0.	0.	1915.	4000.	0.	0.	0.	.48	62.	15.4	B	20.3	13.0
8	3	700.	1878.	0.	3793.	1608.	0.	3523.	4938.	0.	0.	0.	.71	62.	18.9	C	20.3	13.0
9	3	700.	0.	0.	3793.	0.	0.	3523.	5330.	0.	0.	0.	.66	62.	18.9	C	20.3	13.0
10	3	700.	0.	855.	3793.	0.	789.	3523.	5215.	0.	0.	0.	.68	62.	18.9	C	20.3	13.0
11	2	2300.	0.	0.	2938.	0.	0.	2734.	4000.	0.	0.	0.	.68	62.	22.0	C	20.3	13.0
12	3	700.	307.	0.	3245.	307.	0.	3041.	4916.	0.	0.	0.	.62	62.	16.3	B	20.3	13.0
13	3	800.	0.	0.	3245.	0.	0.	3041.	4470.	0.	0.	0.	.68	62.	16.3	B	20.3	13.0
14	3	1400.	0.	306.	3245.	0.	285.	3041.	4433.	0.	0.	0.	.69	62.	16.3	B	20.3	13.0
15	2	1400.	0.	0.	2939.	0.	0.	2756.	4000.	0.	0.	0.	.69	62.	22.2	C	20.3	13.0
16	2	1500.	0.	196.	2939.	0.	182.	2756.	3974.	0.	0.	0.	.69	62.	22.2	C	20.3	13.0
17	2	1500.	0.	0.	2743.	0.	0.	2574.	4000.	0.	0.	0.	.64	62.	20.8	C	20.3	13.0
18	2	10000.	0.	0.	2743.	0.	0.	2574.	4000.	0.	0.	0.	.64	62.	20.8	C	20.3	13.0
19	3	750.	914.	3657.	3657.	914.	3488.	3488.	5600.	0.	0.	0.	.62	62.	18.8	C	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 0.71	LOWEST LOS = C			AVG = 62.		18.3		20.3	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1310. VEH-HRS	1568. PASS-HRS	1310. VEH-HRS	1568. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	135. VEH-HRS	135. PASS-HRS	135. VEH-HRS	135. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1445. VEH-HRS	1703. PASS-HRS	1445. VEH-HRS	1703. PASS-HRS
TOTAL TRAV DISTANCE =	81203. VEH-MI.	97189. PASS-MI.	81203. VEH-MI.	97189. PASS-MI.
AVERAGE SYSTEM SPEED =	56. MPH.		62. MPH.	
AVERAGE DENSITY =	18. VPMPL		18. VPMPL	
TOTAL FUEL =	4041. GALLONS		4041. GALLONS	
TOTAL EMISSIONS =	1079. KILOGRAMS		1079. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.23	2	46.54	3	4.19	4	0.14	5	0.12
6	0.14	7	0.25	8	0.35	9	0.35	10	0.35
11	0.89	12	0.30	13	0.34	14	0.60	15	0.54
16	0.58	17	0.54	18	3.63	19	0.37		

***** TOTAL DELAY = 60.4 VEH-HRS ***** AVERAGE DELAY = 1.16 MIN/VEH *****

***** RAMP DELAYS *****

		QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP 3	RAMP	270.	135.00	3.57	48.68	3.01	15.74	0.83	19.59
	FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	TOTAL	270.	135.00	3.57	48.68	3.01	15.74	0.83	19.59

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.88	21.44	22.40	22.95	23.23	25.22
2	0.00	0.18	0.74	1.70	2.25	2.53	4.52
3	0.00	0.00	0.38	1.35	1.90	2.17	4.16
4	0.00	0.00	0.00	0.53	1.08	1.36	3.35
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4531.	0.	4531.	4531.	0.	4531.	6000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
2	3	99999.	0.	1133.	4531.	0.	1133.	4531.	6000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
3	2	12000.	0.	0.	3398.	0.	0.	3398.	4000.	0.	0.	0.	.85	60.	28.4	D	21.4	12.3
4	3	350.	498.	0.	3896.	498.	0.	3896.	4499.	0.	0.	0.	.87	62.	20.9	C	20.3	13.0
5	3	300.	0.	0.	3896.	0.	0.	3896.	4570.	0.	0.	0.	.85	62.	20.9	C	20.3	13.0
6	3	350.	0.	1221.	3896.	0.	1221.	3896.	4221.	0.	0.	0.	.92	62.	20.9	C	20.3	13.0
7	2	940.	0.	0.	2675.	0.	0.	2675.	4000.	0.	0.	0.	.67	62.	21.6	C	20.3	13.0
8	3	700.	2053.	0.	4728.	1579.	0.	4254.	4910.	0.	0.	0.	.87	62.	22.9	C	20.3	13.0
9	3	700.	0.	0.	4728.	0.	0.	4254.	5330.	0.	0.	0.	.80	62.	22.9	C	20.3	13.0
10	3	700.	0.	1116.	4728.	0.	991.	4254.	5163.	0.	0.	0.	.82	62.	22.9	C	20.3	13.0
11	2	2300.	0.	0.	3612.	0.	0.	3263.	4000.	0.	0.	0.	.82	61.	26.9	D	21.0	12.6
12	3	700.	417.	0.	4029.	417.	0.	3680.	4885.	0.	0.	0.	.75	62.	19.8	C	20.3	13.0
13	3	800.	0.	0.	4029.	0.	0.	3680.	4470.	0.	0.	0.	.82	62.	19.8	C	20.3	13.0
14	3	1400.	0.	367.	4029.	0.	332.	3680.	4421.	0.	0.	0.	.83	62.	19.8	C	20.3	13.0
15	2	1400.	0.	0.	3662.	0.	0.	3348.	4000.	0.	0.	0.	.84	60.	27.8	D	21.3	12.4
16	2	1500.	0.	254.	3662.	0.	229.	3348.	3962.	0.	0.	0.	.84	60.	27.9	D	21.4	12.4
17	2	1500.	0.	0.	3408.	0.	0.	3119.	4000.	0.	0.	0.	.78	61.	25.4	C	20.7	12.8
18	2	10000.	0.	0.	3408.	0.	0.	3119.	4000.	0.	0.	0.	.78	61.	25.4	C	20.7	12.8
19	3	750.	1136.	4544.	4544.	1136.	4255.	4255.	5600.	0.	0.	0.	.76	62.	22.9	C	20.3	13.0
TOTAL		136889. = 25.9 MILES											MAX(V/C) = 0.92	LOWEST LOS = D	AVG = 62.		24.8	20.5	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1774. VEH-HRS	2127. PASS-HRS	3084. VEH-HRS	3695. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	507. VEH-HRS	507. PASS-HRS	642. VEH-HRS	642. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2281. VEH-HRS	2634. PASS-HRS	3726. VEH-HRS	4337. PASS-HRS
TOTAL TRAV DISTANCE =	109549. VEH-MI.	131450. PASS-MI.	190753. VEH-MI.	228639. PASS-MI.
AVERAGE SYSTEM SPEED =	48. MPH.		62. MPH.	
AVERAGE DENSITY =	25. VPMPL		22. VPMPL	
TOTAL FUEL =	5537. GALLONS		9578. GALLONS	
TOTAL EMISSIONS =	1494. KILOGRAMS		2573. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.32	2	63.88	3	10.40	4	0.19	5	0.16
6	0.19	7	0.35	8	0.42	9	0.42	10	0.42
11	1.56	12	0.36	13	0.42	14	0.73	15	1.10
16	1.24	17	0.81	18	5.41	19	0.45		

***** TOTAL DELAY = 88.8 VEH-HRS ***** AVERAGE DELAY = 1.29 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	3	RAMP	744.	507.00	11.09	182.82	11.30	59.12	3.13	73.56
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	744.	507.00	11.09	182.82	11.30	59.12	3.13	73.56

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	12000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	350.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	1	1650.	300.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	1	1650.	350.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	1	1650.	940.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	1	1650.	700.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	1	1650.	700.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	1	1650.	800.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

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** 19
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** FREEWAY TRAVEL TIME (MINUTES) **
** **
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****
* ORIGINS DESTINATIONS ACROSS *
* DOWN *
* 1 2 3 4 5 6 7 8 *
* *
* 1 * 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 *
* 2 * 0.00 2.38 2.94 3.89 4.42 4.70 6.53 0.00 *
* 3 * 0.00 0.00 0.00 0.00 2.23 2.50 4.33 0.00 *
* 4 * 0.00 0.00 0.00 0.00 0.00 2.14 3.98 0.00 *
* 5 * 0.00 0.00 0.00 0.00 0.00 0.00 3.17 0.00 *
* 6 * 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.00 *
* *
****

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	ADJUSTED VOLUMES SSEC	ORG	DES	SSEC	CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	825.	0.	825.	825.	0.	825.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
4	1	350.	45.	0.	870.	45.	0.	870.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
5	1	300.	0.	0.	870.	0.	0.	870.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
6	1	350.	0.	253.	870.	0.	253.	870.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
7	1	940.	0.	0.	616.	0.	0.	616.	1650.	0.	0.	0.	.37	62.	9.9	A	21.6	12.8
8	1	700.	392.	0.	1009.	392.	0.	1009.	1650.	0.	0.	0.	.61	62.	16.3	B	21.6	12.8
9	1	700.	0.	0.	1009.	0.	0.	1009.	1650.	0.	0.	0.	.61	62.	16.3	B	21.6	12.8
10	1	700.	0.	116.	1009.	0.	116.	1009.	1650.	0.	0.	0.	.61	62.	16.3	B	21.6	12.8
11	1	2300.	0.	0.	893.	0.	0.	893.	1650.	0.	0.	0.	.54	62.	14.4	B	21.6	12.8
12	1	700.	85.	0.	978.	85.	0.	978.	1650.	0.	0.	0.	.59	62.	15.8	B	21.6	12.8
13	1	800.	0.	0.	978.	0.	0.	978.	1650.	0.	0.	0.	.59	62.	15.8	B	21.6	12.8
14	1	1400.	0.	37.	978.	0.	37.	978.	1650.	0.	0.	0.	.59	62.	15.8	B	21.6	12.8
15	1	1400.	0.	0.	941.	0.	0.	941.	1650.	0.	0.	0.	.57	62.	15.2	B	21.6	12.8
16	1	1500.	0.	27.	941.	0.	27.	941.	1650.	0.	0.	0.	.57	62.	15.2	B	21.6	12.8
17	1	1500.	0.	0.	914.	0.	0.	914.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
18	1	10000.	0.	914.	914.	0.	914.	914.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
19																		
TOTAL		35640. = 6.8 MILES								MAX(V/C) = 0.61		LOWEST LOS = B		AVG = 62.	14.3		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	97. VEH-HRS	193. PASS-HRS	97. VEH-HRS	193. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	97. VEH-HRS	193. PASS-HRS	97. VEH-HRS	193. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	5984. VEH-MI.	11967. PASS-MI.	5984. VEH-MI.	11967. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	278. GALLONS		278. GALLONS	
TOTAL EMISSIONS =	76. KILOGRAMS		76. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.40	4	0.04	5	0.04
6	0.04	7	0.08	8	0.10	9	0.10	10	0.10
11	0.29	12	0.10	13	0.11	14	0.19	15	0.19
16	0.20	17	0.19	18	1.29	19	0.00		

***** TOTAL DELAY = 4.5 VEH-HRS ***** AVERAGE DELAY = 0.30 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	6.53	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	4.33	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.98	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	1133.	0.	1133.	1133.	0.	1133.	1650.	0.	0.	0.	.69	62.	18.3	C	21.6	12.8
4	1	350.	71.	0.	1204.	71.	0.	1204.	1650.	0.	0.	0.	.73	62.	19.4	C	21.6	12.8
5	1	300.	0.	0.	1204.	0.	0.	1204.	1650.	0.	0.	0.	.73	62.	19.4	C	21.6	12.8
6	1	350.	0.	349.	1204.	0.	349.	1204.	1650.	0.	0.	0.	.73	62.	19.4	C	21.6	12.8
7	1	940.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
8	1	700.	421.	0.	1276.	421.	0.	1276.	1650.	0.	0.	0.	.77	62.	20.6	C	21.6	12.8
9	1	700.	0.	0.	1276.	0.	0.	1276.	1650.	0.	0.	0.	.77	62.	20.6	C	21.6	12.8
10	1	700.	0.	168.	1276.	0.	168.	1276.	1650.	0.	0.	0.	.77	62.	20.6	C	21.6	12.8
11	1	2300.	0.	0.	1108.	0.	0.	1108.	1650.	0.	0.	0.	.67	62.	17.9	B	21.6	12.8
12	1	700.	115.	0.	1223.	115.	0.	1223.	1650.	0.	0.	0.	.74	62.	19.7	C	21.6	12.8
13	1	800.	0.	0.	1223.	0.	0.	1223.	1650.	0.	0.	0.	.74	62.	19.7	C	21.6	12.8
14	1	1400.	0.	49.	1223.	0.	49.	1223.	1650.	0.	0.	0.	.74	62.	19.7	C	21.6	12.8
15	1	1400.	0.	0.	1174.	0.	0.	1174.	1650.	0.	0.	0.	.71	62.	18.9	C	21.6	12.8
16	1	1500.	0.	39.	1174.	0.	39.	1174.	1650.	0.	0.	0.	.71	62.	18.9	C	21.6	12.8
17	1	1500.	0.	0.	1136.	0.	0.	1136.	1650.	0.	0.	0.	.69	62.	18.3	C	21.6	12.8
18	1	10000.	0.	1136.	1136.	0.	1136.	1136.	1650.	0.	0.	0.	.69	62.	18.3	C	21.6	12.8
19																		
TOTAL		35640. = 6.8 MILES									MAX(V/C) = 0.77		LOWEST LOS = C	AVG = 62.	18.5		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	125. VEH-HRS	249. PASS-HRS	221. VEH-HRS	443. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	125. VEH-HRS	249. PASS-HRS	221. VEH-HRS	443. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	7734. VEH-MI.	15469. PASS-MI.	13718. VEH-MI.	27436. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	18. VPMPL		16. VPMPL	
TOTAL FUEL =	359. GALLONS		637. GALLONS	

TOTAL EMISSIONS = 99. KILOGRAMS 175. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.92	4	0.06	5	0.05
6	0.06	7	0.11	8	0.13	9	0.13	10	0.13
11	0.36	12	0.12	13	0.14	14	0.24	15	0.23
16	0.25	17	0.24	18	1.60	19	0.00		

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.30 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4570.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	3	4570.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4570.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4930.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4930.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4930.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	4470.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4470.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4470.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	10000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.80	21.36	22.31	22.84	23.12	25.09
2	0.00	0.18	0.74	1.69	2.23	2.50	4.47
3	0.00	0.00	0.38	1.34	1.87	2.14	4.11
4	0.00	0.00	0.00	0.53	1.06	1.34	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3301.	0.	3301.	3301.	0.	3301.	6000.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0
2	3	99999.	0.	825.	3301.	0.	825.	3301.	6000.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0
3	2	12000.	0.	0.	2476.	0.	0.	2476.	4000.	0.	0.	0.	.62	62.	20.0	C	20.3	13.0
4	3	350.	303.	0.	2779.	303.	0.	2779.	4523.	0.	0.	0.	.61	62.	14.9	B	20.3	13.0
5	3	300.	0.	0.	2779.	0.	0.	2779.	4570.	0.	0.	0.	.61	62.	14.9	B	20.3	13.0
6	3	350.	0.	867.	2779.	0.	867.	2779.	4317.	0.	0.	0.	.64	62.	14.9	B	20.3	13.0
7	2	940.	0.	0.	1912.	0.	0.	1912.	4000.	0.	0.	0.	.48	62.	15.4	B	20.3	13.0
8	3	700.	1618.	0.	3530.	1618.	0.	3530.	4567.	0.	0.	0.	.77	62.	19.0	C	20.3	13.0
9	3	700.	0.	0.	3530.	0.	0.	3530.	4930.	0.	0.	0.	.72	62.	19.0	C	20.3	13.0
10	3	700.	0.	595.	3530.	0.	595.	3530.	4844.	0.	0.	0.	.73	62.	19.0	C	20.3	13.0
11	2	2300.	0.	0.	2935.	0.	0.	2935.	4000.	0.	0.	0.	.73	62.	23.7	C	20.3	13.0
12	3	700.	455.	0.	3390.	455.	0.	3390.	4345.	0.	0.	0.	.78	62.	18.2	C	20.3	13.0
13	3	800.	0.	0.	3390.	0.	0.	3390.	4470.	0.	0.	0.	.76	62.	18.2	C	20.3	13.0
14	3	1400.	0.	324.	3390.	0.	324.	3390.	4430.	0.	0.	0.	.77	62.	18.2	C	20.3	13.0
15	2	1400.	0.	0.	3066.	0.	0.	3066.	4000.	0.	0.	0.	.77	62.	24.7	C	20.3	13.0
16	2	1500.	0.	207.	3066.	0.	207.	3066.	3971.	0.	0.	0.	.77	62.	24.7	C	20.3	13.0
17	2	1500.	0.	0.	2859.	0.	0.	2859.	4000.	0.	0.	0.	.71	62.	23.1	C	20.3	13.0
18	2	10000.	0.	0.	2859.	0.	0.	2859.	4000.	0.	0.	0.	.71	62.	23.1	C	20.3	13.0
19	3	750.	953.	3812.	3812.	953.	3812.	3812.	5600.	0.	0.	0.	.68	62.	20.5	C	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 0.78		LOWEST LOS = C		AVG = 62.		18.6		20.3	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1328. VEH-HRS	1586. PASS-HRS	1328. VEH-HRS	1586. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1328. VEH-HRS	1586. PASS-HRS	1328. VEH-HRS	1586. PASS-HRS
TOTAL TRAV DISTANCE =	82322. VEH-MI.	98322. PASS-MI.	82322. VEH-MI.	98322. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	4047. GALLONS		4047. GALLONS	
TOTAL EMISSIONS =	1074. KILOGRAMS		1074. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.23	2	46.54	3	4.19	4	0.14	5	0.12
6	0.14	7	0.25	8	0.35	9	0.35	10	0.35
11	0.95	12	0.33	13	0.38	14	0.67	15	0.61
16	0.65	17	0.60	18	4.03	19	0.40		

***** TOTAL DELAY = 61.3 VEH-HRS ***** AVERAGE DELAY = 1.16 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.88	21.44	22.41	22.99	23.28	25.31
2	0.00	0.18	0.74	1.71	2.29	2.58	4.61
3	0.00	0.00	0.38	1.36	1.94	2.22	4.26
4	0.00	0.00	0.00	0.53	1.11	1.40	3.43
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4531.	0.	4531.	4531.	0.	4531.	6000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
2	3	99999.	0.	1133.	4531.	0.	1133.	4531.	6000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
3	2	12000.	0.	0.	3398.	0.	0.	3398.	4000.	0.	0.	0.	.85	60.	28.4	D	21.4	12.3
4	3	350.	495.	0.	3893.	432.	0.	3830.	4495.	0.	0.	0.	.85	62.	20.6	C	20.3	13.0
5	3	300.	0.	0.	3893.	0.	0.	3830.	4570.	0.	0.	0.	.84	62.	20.6	C	20.3	13.0
6	3	350.	0.	1252.	3893.	0.	1229.	3830.	4213.	0.	0.	0.	.91	62.	20.6	C	20.3	13.0
7	2	940.	0.	0.	2641.	0.	0.	2601.	4000.	0.	0.	0.	.65	62.	21.0	C	20.3	13.0
8	3	700.	1910.	0.	4551.	1581.	0.	4182.	4511.	0.	0.	0.	.93	62.	22.5	C	20.3	13.0
9	3	700.	0.	0.	4551.	0.	0.	4182.	4930.	0.	0.	0.	.85	62.	22.5	C	20.3	13.0
10	3	700.	0.	818.	4551.	0.	745.	4182.	4804.	0.	0.	0.	.87	62.	22.5	C	20.3	13.0
11	2	2300.	0.	0.	3733.	0.	0.	3437.	4000.	0.	0.	0.	.86	59.	28.9	D	21.5	12.3
12	3	700.	624.	0.	4357.	598.	0.	4035.	4299.	0.	0.	0.	.94	62.	21.7	C	20.3	13.0
13	3	800.	0.	0.	4357.	0.	0.	4035.	4470.	0.	0.	0.	.90	62.	21.7	C	20.3	13.0
14	3	1400.	0.	415.	4357.	0.	381.	4035.	4416.	0.	0.	0.	.91	62.	21.7	C	20.3	13.0
15	2	1400.	0.	0.	3942.	0.	0.	3654.	4000.	0.	0.	0.	.91	57.	32.0	D	22.2	11.8
16	2	1500.	0.	286.	3942.	0.	263.	3654.	3958.	0.	0.	0.	.92	57.	32.2	D	22.3	11.7
17	2	1500.	0.	0.	3656.	0.	0.	3391.	4000.	0.	0.	0.	.85	60.	28.3	D	21.4	12.3
18	2	10000.	0.	0.	3656.	0.	0.	3391.	4000.	0.	0.	0.	.85	60.	28.3	D	21.4	12.3
19	3	750.	1219.	4875.	4875.	1219.	4610.	4610.	5600.	0.	0.	0.	.82	62.	24.8	C	20.3	13.0
TOTAL		136889. = 25.9 MILES								MAX(V/C) = 0.94		LOWEST LOS = D		AVG = 62.	25.2		20.5	12.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1796. VEH-HRS	2150. PASS-HRS	3124. VEH-HRS	3736. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	209. VEH-HRS	209. PASS-HRS	209. VEH-HRS	209. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2005. VEH-HRS	2359. PASS-HRS	3333. VEH-HRS	3945. PASS-HRS
TOTAL TRAV DISTANCE =	110578. VEH-MI.	132491. PASS-MI.	192900. VEH-MI.	230812. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		62. MPH.	

AVERAGE DENSITY =	25. VPMPL	22. VPMPL
TOTAL FUEL =	5461. GALLONS	9508. GALLONS
TOTAL EMISSIONS =	1459. KILOGRAMS	2533. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.32	2	63.88	3	10.40	4	0.19	5	0.16
6	0.19	7	0.34	8	0.41	9	0.41	10	0.41
11	2.15	12	0.40	13	0.46	14	0.80	15	2.04
16	2.34	17	1.28	18	8.55	19	0.49		

***** TOTAL DELAY = 95.2 VEH-HRS ***** AVERAGE DELAY = 1.38 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	63.	31.43	3.81	11.33	0.70	3.66	0.19	4.56
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	63.	31.43	3.81	11.33	0.70	3.66	0.19	4.56
ON-RAMP	3	RAMP	329.	164.50	4.24	59.32	3.67	19.18	1.02	23.87
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	329.	164.50	4.24	59.32	3.67	19.18	1.02	23.87
ON-RAMP	4	RAMP	26.	13.00	1.25	4.69	0.29	1.52	0.08	1.89
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	26.	13.00	1.25	4.69	0.29	1.52	0.08	1.89

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111      2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111     222       PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222        PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	12000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	350.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	1	1650.	300.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	1	1650.	350.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	1	1650.	940.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	1	1650.	700.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	1	1650.	700.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	1	1650.	800.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	6.53	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	4.33	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.98	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	ADJUSTED VOLUMES SSEC	ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	825.	0.	825.	825.	0.	825.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
4	1	350.	47.	0.	872.	47.	0.	872.	1650.	0.	0.	0.	.53	62.	14.1	B	21.6	12.8
5	1	300.	0.	0.	872.	0.	0.	872.	1650.	0.	0.	0.	.53	62.	14.1	B	21.6	12.8
6	1	350.	0.	253.	872.	0.	253.	872.	1650.	0.	0.	0.	.53	62.	14.1	B	21.6	12.8
7	1	940.	0.	0.	619.	0.	0.	619.	1650.	0.	0.	0.	.38	62.	10.0	A	21.6	12.8
8	1	700.	363.	0.	982.	363.	0.	982.	1650.	0.	0.	0.	.60	62.	15.8	B	21.6	12.8
9	1	700.	0.	0.	982.	0.	0.	982.	1650.	0.	0.	0.	.60	62.	15.8	B	21.6	12.8
10	1	700.	0.	86.	982.	0.	86.	982.	1650.	0.	0.	0.	.60	62.	15.8	B	21.6	12.8
11	1	2300.	0.	0.	896.	0.	0.	896.	1650.	0.	0.	0.	.54	62.	14.5	B	21.6	12.8
12	1	700.	125.	0.	1021.	125.	0.	1021.	1650.	0.	0.	0.	.62	62.	16.5	B	21.6	12.8
13	1	800.	0.	0.	1021.	0.	0.	1021.	1650.	0.	0.	0.	.62	62.	16.5	B	21.6	12.8
14	1	1400.	0.	40.	1021.	0.	40.	1021.	1650.	0.	0.	0.	.62	62.	16.5	B	21.6	12.8
15	1	1400.	0.	0.	981.	0.	0.	981.	1650.	0.	0.	0.	.59	62.	15.8	B	21.6	12.8
16	1	1500.	0.	29.	981.	0.	29.	981.	1650.	0.	0.	0.	.59	62.	15.8	B	21.6	12.8
17	1	1500.	0.	0.	953.	0.	0.	953.	1650.	0.	0.	0.	.58	62.	15.4	B	21.6	12.8
18	1	10000.	0.	953.	953.	0.	953.	953.	1650.	0.	0.	0.	.58	62.	15.4	B	21.6	12.8
19																		
TOTAL		35640. = 6.8 MILES						MAX(V/C) = 0.62			LOWEST LOS = B		AVG = 62.		14.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	98. VEH-HRS	197. PASS-HRS	98. VEH-HRS	197. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	98. VEH-HRS	197. PASS-HRS	98. VEH-HRS	197. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	6106. VEH-MI.	12212. PASS-MI.	6106. VEH-MI.	12212. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	15. VPMPL		15. VPMPL	
TOTAL FUEL =	283. GALLONS		283. GALLONS	
TOTAL EMISSIONS =	78. KILOGRAMS		78. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 2

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.40	4	0.04	5	0.04
6	0.04	7	0.08	8	0.10	9	0.10	10	0.10
11	0.29	12	0.10	13	0.12	14	0.20	15	0.19
16	0.21	17	0.20	18	1.34	19	0.00		

***** TOTAL DELAY = 4.5 VEH-HRS ***** AVERAGE DELAY = 0.30 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	6.53	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	4.33	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.98	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	1133.	0.	1133.	1133.	0.	1133.	1650.	0.	0.	0.	.69	62.	18.3	C	21.6	12.8
4	1	350.	75.	0.	1208.	75.	0.	1208.	1650.	0.	0.	0.	.73	62.	19.5	C	21.6	12.8
5	1	300.	0.	0.	1208.	0.	0.	1208.	1650.	0.	0.	0.	.73	62.	19.5	C	21.6	12.8
6	1	350.	0.	357.	1208.	0.	357.	1208.	1650.	0.	0.	0.	.73	62.	19.5	C	21.6	12.8
7	1	940.	0.	0.	851.	0.	0.	851.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
8	1	700.	419.	0.	1270.	419.	0.	1270.	1650.	0.	0.	0.	.77	62.	20.5	C	21.6	12.8
9	1	700.	0.	0.	1270.	0.	0.	1270.	1650.	0.	0.	0.	.77	62.	20.5	C	21.6	12.8
10	1	700.	0.	126.	1270.	0.	126.	1270.	1650.	0.	0.	0.	.77	62.	20.5	C	21.6	12.8
11	1	2300.	0.	0.	1144.	0.	0.	1144.	1650.	0.	0.	0.	.69	62.	18.5	C	21.6	12.8
12	1	700.	171.	0.	1315.	171.	0.	1315.	1650.	0.	0.	0.	.80	62.	21.2	C	21.6	12.8
13	1	800.	0.	0.	1315.	0.	0.	1315.	1650.	0.	0.	0.	.80	62.	21.2	C	21.6	12.8
14	1	1400.	0.	54.	1315.	0.	54.	1315.	1650.	0.	0.	0.	.80	62.	21.2	C	21.6	12.8
15	1	1400.	0.	0.	1261.	0.	0.	1261.	1650.	0.	0.	0.	.76	62.	20.3	C	21.6	12.8
16	1	1500.	0.	43.	1261.	0.	43.	1261.	1650.	0.	0.	0.	.76	62.	20.3	C	21.6	12.8
17	1	1500.	0.	0.	1219.	0.	0.	1219.	1650.	0.	0.	0.	.74	62.	19.7	C	21.6	12.8
18	1	10000.	0.	1219.	1219.	0.	1219.	1219.	1650.	0.	0.	0.	.74	62.	19.7	C	21.6	12.8
19																		
TOTAL		35640. = 6.8 MILES							MAX(V/C) = 0.80		LOWEST LOS = C		AVG = 62.		19.2		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	129. VEH-HRS	259. PASS-HRS	228. VEH-HRS	456. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	129. VEH-HRS	259. PASS-HRS	228. VEH-HRS	456. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	8027. VEH-MI.	16053. PASS-MI.	14132. VEH-MI.	28265. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		17. VPMPL	
TOTAL FUEL =	372. GALLONS		656. GALLONS	

TOTAL EMISSIONS = 102. KILOGRAMS 180. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.92	4	0.06	5	0.05
6	0.06	7	0.11	8	0.13	9	0.13	10	0.13
11	0.37	12	0.13	13	0.15	14	0.26	15	0.25
16	0.27	17	0.26	18	1.72	19	0.00		

***** TOTAL DELAY = 6.0 VEH-HRS ***** AVERAGE DELAY = 0.30 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222     PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222      PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222        PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	4570.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	3	4570.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	4570.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	4930.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	4930.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	4930.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	4470.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4470.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4470.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	10000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	3	5600.	750.	62	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of the network

***** INPUT HAS BEEN COMPLETED *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.80	21.36	22.31	22.84	23.12	25.09
2	0.00	0.18	0.74	1.69	2.23	2.50	4.47
3	0.00	0.00	0.38	1.34	1.87	2.14	4.11
4	0.00	0.00	0.00	0.53	1.06	1.34	3.31
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3302.	0.	3302.	3302.	0.	3302.	6000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
2	3	99999.	0.	825.	3302.	0.	825.	3302.	6000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
3	2	12000.	0.	0.	2477.	0.	0.	2477.	4000.	0.	0.	0.	.62	62.	20.0	C	20.3	13.0
4	3	350.	303.	0.	2780.	303.	0.	2780.	4523.	0.	0.	0.	.61	62.	14.9	B	20.3	13.0
5	3	300.	0.	0.	2780.	0.	0.	2780.	4570.	0.	0.	0.	.61	62.	14.9	B	20.3	13.0
6	3	350.	0.	867.	2780.	0.	867.	2780.	4317.	0.	0.	0.	.64	62.	14.9	B	20.3	13.0
7	2	940.	0.	0.	1913.	0.	0.	1913.	4000.	0.	0.	0.	.48	62.	15.4	B	20.3	13.0
8	3	700.	1618.	0.	3531.	1618.	0.	3531.	4567.	0.	0.	0.	.77	62.	19.0	C	20.3	13.0
9	3	700.	0.	0.	3531.	0.	0.	3531.	4930.	0.	0.	0.	.72	62.	19.0	C	20.3	13.0
10	3	700.	0.	595.	3531.	0.	595.	3531.	4844.	0.	0.	0.	.73	62.	19.0	C	20.3	13.0
11	2	2300.	0.	0.	2936.	0.	0.	2936.	4000.	0.	0.	0.	.73	62.	23.7	C	20.3	13.0
12	3	700.	416.	0.	3352.	416.	0.	3352.	4356.	0.	0.	0.	.77	62.	18.0	C	20.3	13.0
13	3	800.	0.	0.	3352.	0.	0.	3352.	4470.	0.	0.	0.	.75	62.	18.0	C	20.3	13.0
14	3	1400.	0.	322.	3352.	0.	322.	3352.	4430.	0.	0.	0.	.76	62.	18.0	C	20.3	13.0
15	2	1400.	0.	0.	3030.	0.	0.	3030.	4000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
16	2	1500.	0.	207.	3030.	0.	207.	3030.	3971.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
17	2	1500.	0.	0.	2823.	0.	0.	2823.	4000.	0.	0.	0.	.71	62.	22.8	C	20.3	13.0
18	2	10000.	0.	0.	2823.	0.	0.	2823.	4000.	0.	0.	0.	.71	62.	22.8	C	20.3	13.0
19	3	750.	941.	3764.	3764.	941.	3764.	3764.	5600.	0.	0.	0.	.67	62.	20.2	C	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 0.77		LOWEST LOS = C		AVG = 62.		18.6		20.3	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1326. VEH-HRS	1584. PASS-HRS	1326. VEH-HRS	1584. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1326. VEH-HRS	1584. PASS-HRS	1326. VEH-HRS	1584. PASS-HRS
TOTAL TRAV DISTANCE =	82218. VEH-MI.	98215. PASS-MI.	82218. VEH-MI.	98215. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	4042. GALLONS		4042. GALLONS	
TOTAL EMISSIONS =	1073. KILOGRAMS		1073. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.23	2	46.55	3	4.19	4	0.14	5	0.12
6	0.14	7	0.25	8	0.35	9	0.35	10	0.35
11	0.95	12	0.33	13	0.38	14	0.66	15	0.60
16	0.64	17	0.60	18	3.98	19	0.40		

***** TOTAL DELAY = 61.2 VEH-HRS ***** AVERAGE DELAY = 1.16 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.88	21.44	22.42	23.00	23.29	25.34
2	0.00	0.18	0.74	1.72	2.30	2.59	4.64
3	0.00	0.00	0.38	1.36	1.95	2.23	4.28
4	0.00	0.00	0.00	0.53	1.12	1.40	3.45
5	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4530.	0.	4530.	4530.	0.	4530.	6000.	0.	0.	0.	.75	62.	24.4	C	20.3	13.0
2	3	99999.	0.	1132.	4530.	0.	1132.	4530.	6000.	0.	0.	0.	.75	62.	24.4	C	20.3	13.0
3	2	12000.	0.	0.	3398.	0.	0.	3398.	4000.	0.	0.	0.	.85	60.	28.4	D	21.4	12.3
4	3	350.	493.	0.	3891.	493.	0.	3891.	4494.	0.	0.	0.	.87	62.	20.9	C	20.3	13.0
5	3	300.	0.	0.	3891.	0.	0.	3891.	4570.	0.	0.	0.	.85	62.	20.9	C	20.3	13.0
6	3	350.	0.	1221.	3891.	0.	1221.	3891.	4221.	0.	0.	0.	.92	62.	20.9	C	20.3	13.0
7	2	940.	0.	0.	2670.	0.	0.	2670.	4000.	0.	0.	0.	.67	62.	21.5	C	20.3	13.0
8	3	700.	1751.	0.	4421.	1616.	0.	4286.	4547.	0.	0.	0.	.94	62.	23.0	C	20.3	13.0
9	3	700.	0.	0.	4421.	0.	0.	4286.	4930.	0.	0.	0.	.87	62.	23.0	C	20.3	13.0
10	3	700.	0.	794.	4421.	0.	767.	4286.	4803.	0.	0.	0.	.89	62.	23.0	C	20.3	13.0
11	2	2300.	0.	0.	3627.	0.	0.	3519.	4000.	0.	0.	0.	.88	59.	30.0	D	21.7	12.1
12	3	700.	569.	0.	4196.	569.	0.	4088.	4315.	0.	0.	0.	.95	62.	22.0	C	20.3	13.0
13	3	800.	0.	0.	4196.	0.	0.	4088.	4470.	0.	0.	0.	.91	62.	22.0	C	20.3	13.0
14	3	1400.	0.	400.	4196.	0.	389.	4088.	4416.	0.	0.	0.	.93	62.	22.0	C	20.3	13.0
15	2	1400.	0.	0.	3796.	0.	0.	3699.	4000.	0.	0.	0.	.92	57.	32.7	D	22.4	11.7
16	2	1500.	0.	275.	3796.	0.	267.	3699.	3957.	0.	0.	0.	.93	56.	33.0	D	22.5	11.6
17	2	1500.	0.	0.	3521.	0.	0.	3432.	4000.	0.	0.	0.	.86	59.	28.8	D	21.5	12.3
18	2	10000.	0.	0.	3521.	0.	0.	3432.	4000.	0.	0.	0.	.86	59.	28.8	D	21.5	12.3
19	3	750.	1173.	4694.	4694.	1173.	4605.	4605.	5600.	0.	0.	0.	.82	62.	24.8	C	20.3	13.0
TOTAL		136889. = 25.9 MILES							MAX(V/C) = 0.95		LOWEST LOS = D		AVG = 62.		25.3		20.5	12.9

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1802. VEH-HRS	2155. PASS-HRS	3128. VEH-HRS	3739. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	68. VEH-HRS	68. PASS-HRS	68. VEH-HRS	68. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1869. VEH-HRS	2222. PASS-HRS	3195. VEH-HRS	3807. PASS-HRS
TOTAL TRAV DISTANCE =	110803. VEH-MI.	132706. PASS-MI.	193021. VEH-MI.	230921. PASS-MI.
AVERAGE SYSTEM SPEED =	59. MPH.		62. MPH.	

AVERAGE DENSITY =	25. VPMPL	22. VPMPL
TOTAL FUEL =	5418. GALLONS	9460. GALLONS
TOTAL EMISSIONS =	1440. KILOGRAMS	2513. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.32	2	63.87	3	10.40	4	0.19	5	0.16
6	0.19	7	0.35	8	0.42	9	0.42	10	0.42
11	2.53	12	0.40	13	0.46	14	0.81	15	2.24
16	2.59	17	1.39	18	9.26	19	0.49		

***** TOTAL DELAY = 96.9 VEH-HRS ***** AVERAGE DELAY = 1.41 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	3	RAMP	135.	67.50	1.90	24.34	1.50	7.87	0.42	9.79
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	135.	67.50	1.90	24.34	1.50	7.87	0.42	9.79

SR-237_EB_AM_P2_2040_PL


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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	12000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	350.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude On-Ramp
5	1	1650.	300.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	1	1650.	350.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-ramp
7	1	1650.	940.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	1	1650.	700.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	1	1650.	700.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	1	1650.	800.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	10000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

**
** 19
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**
** FREEWAY TRAVEL TIME (MINUTES) **
**

ORIGINS / DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	6.53	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	4.33	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.98	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	ADJUSTED VOLUMES SSEC	ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	825.	0.	825.	825.	0.	825.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
4	1	350.	47.	0.	873.	47.	0.	873.	1650.	0.	0.	0.	.53	62.	14.1	B	21.6	12.8
5	1	300.	0.	0.	873.	0.	0.	873.	1650.	0.	0.	0.	.53	62.	14.1	B	21.6	12.8
6	1	350.	0.	253.	873.	0.	253.	873.	1650.	0.	0.	0.	.53	62.	14.1	B	21.6	12.8
7	1	940.	0.	0.	619.	0.	0.	619.	1650.	0.	0.	0.	.38	62.	10.0	A	21.6	12.8
8	1	700.	363.	0.	982.	363.	0.	982.	1650.	0.	0.	0.	.60	62.	15.8	B	21.6	12.8
9	1	700.	0.	0.	982.	0.	0.	982.	1650.	0.	0.	0.	.60	62.	15.8	B	21.6	12.8
10	1	700.	0.	86.	982.	0.	86.	982.	1650.	0.	0.	0.	.60	62.	15.8	B	21.6	12.8
11	1	2300.	0.	0.	896.	0.	0.	896.	1650.	0.	0.	0.	.54	62.	14.4	B	21.6	12.8
12	1	700.	114.	0.	1010.	114.	0.	1010.	1650.	0.	0.	0.	.61	62.	16.3	B	21.6	12.8
13	1	800.	0.	0.	1010.	0.	0.	1010.	1650.	0.	0.	0.	.61	62.	16.3	B	21.6	12.8
14	1	1400.	0.	40.	1010.	0.	40.	1010.	1650.	0.	0.	0.	.61	62.	16.3	B	21.6	12.8
15	1	1400.	0.	0.	970.	0.	0.	970.	1650.	0.	0.	0.	.59	62.	15.6	B	21.6	12.8
16	1	1500.	0.	29.	970.	0.	29.	970.	1650.	0.	0.	0.	.59	62.	15.6	B	21.6	12.8
17	1	1500.	0.	0.	941.	0.	0.	941.	1650.	0.	0.	0.	.57	62.	15.2	B	21.6	12.8
18	1	10000.	0.	941.	941.	0.	941.	941.	1650.	0.	0.	0.	.57	62.	15.2	B	21.6	12.8
19																		
TOTAL		35640. = 6.8 MILES						MAX(V/C) = 0.61			LOWEST LOS = B		AVG = 62.		14.5		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	98. VEH-HRS	196. PASS-HRS	98. VEH-HRS	196. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	98. VEH-HRS	196. PASS-HRS	98. VEH-HRS	196. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	6068. VEH-MI.	12136. PASS-MI.	6068. VEH-MI.	12136. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	282. GALLONS		282. GALLONS	
TOTAL EMISSIONS =	77. KILOGRAMS		77. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.40	4	0.04	5	0.04
6	0.04	7	0.08	8	0.10	9	0.10	10	0.10
11	0.29	12	0.10	13	0.11	14	0.20	15	0.19
16	0.21	17	0.20	18	1.33	19	0.00		

***** TOTAL DELAY = 4.5 VEH-HRS ***** AVERAGE DELAY = 0.30 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	6.53	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	4.33	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.98	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.17	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	1132.	0.	1132.	1132.	0.	1132.	1650.	0.	0.	0.	.69	62.	18.3	C	21.6	12.8
4	1	350.	76.	0.	1208.	76.	0.	1208.	1650.	0.	0.	0.	.73	62.	19.5	C	21.6	12.8
5	1	300.	0.	0.	1208.	0.	0.	1208.	1650.	0.	0.	0.	.73	62.	19.5	C	21.6	12.8
6	1	350.	0.	349.	1208.	0.	349.	1208.	1650.	0.	0.	0.	.73	62.	19.5	C	21.6	12.8
7	1	940.	0.	0.	859.	0.	0.	859.	1650.	0.	0.	0.	.52	62.	13.9	B	21.6	12.8
8	1	700.	384.	0.	1243.	384.	0.	1243.	1650.	0.	0.	0.	.75	62.	20.0	C	21.6	12.8
9	1	700.	0.	0.	1243.	0.	0.	1243.	1650.	0.	0.	0.	.75	62.	20.0	C	21.6	12.8
10	1	700.	0.	128.	1243.	0.	128.	1243.	1650.	0.	0.	0.	.75	62.	20.0	C	21.6	12.8
11	1	2300.	0.	0.	1115.	0.	0.	1115.	1650.	0.	0.	0.	.68	62.	18.0	B	21.6	12.8
12	1	700.	156.	0.	1271.	156.	0.	1271.	1650.	0.	0.	0.	.77	62.	20.5	C	21.6	12.8
13	1	800.	0.	0.	1271.	0.	0.	1271.	1650.	0.	0.	0.	.77	62.	20.5	C	21.6	12.8
14	1	1400.	0.	55.	1271.	0.	55.	1271.	1650.	0.	0.	0.	.77	62.	20.5	C	21.6	12.8
15	1	1400.	0.	0.	1216.	0.	0.	1216.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
16	1	1500.	0.	43.	1216.	0.	43.	1216.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
17	1	1500.	0.	0.	1173.	0.	0.	1173.	1650.	0.	0.	0.	.71	62.	18.9	C	21.6	12.8
18	1	10000.	0.	1173.	1173.	0.	1173.	1173.	1650.	0.	0.	0.	.71	62.	18.9	C	21.6	12.8
19																		
TOTAL		35640. = 6.8 MILES									MAX(V/C) = 0.77		LOWEST LOS = C	AVG = 62.	18.8		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	127. VEH-HRS	253. PASS-HRS	225. VEH-HRS	449. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	127. VEH-HRS	253. PASS-HRS	225. VEH-HRS	449. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	7856. VEH-MI.	15713. PASS-MI.	13925. VEH-MI.	27849. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		17. VPMPL	
TOTAL FUEL =	365. GALLONS		646. GALLONS	

TOTAL EMISSIONS = 100. KILOGRAMS 178. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.92	4	0.06	5	0.05
6	0.06	7	0.11	8	0.12	9	0.12	10	0.12
11	0.36	12	0.13	13	0.14	14	0.25	15	0.24
16	0.26	17	0.25	18	1.65	19	0.00		

***** TOTAL DELAY = 5.8 VEH-HRS ***** AVERAGE DELAY = 0.30 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	5010.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	3	5010.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	5010.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	5330.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	5330.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	5330.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	5320.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4400.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4400.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	5000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	2	4000.	5000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Enter SSec Description
20	3	2500.	750.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	End of the network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 2 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 2 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.80	21.56	25.37	28.90	32.34	64.72
2	0.00	0.18	0.94	4.75	8.28	11.72	44.10
3	0.00	0.00	0.58	4.40	7.92	11.37	43.75
4	0.00	0.00	0.00	2.47	6.00	9.44	41.82
5	0.00	0.00	0.00	0.00	0.00	0.00	13.92
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2660.	0.	2660.	2660.	0.	2660.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
2	3	99999.	0.	692.	2660.	0.	692.	2660.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
3	2	12000.	0.	0.	1968.	0.	0.	1968.	4000.	0.	0.	0.	.49	62.	15.9	B	20.3	13.0
4	3	350.	875.	0.	2843.	775.	0.	2743.	4835.	0.	0.	0.	.57	62.	14.7	B	20.3	13.0
5	3	300.	0.	0.	2843.	0.	0.	2743.	5010.	0.	0.	0.	.55	62.	14.7	B	20.3	13.0
6	3	350.	0.	708.	2843.	0.	680.	2743.	4848.	0.	0.	0.	.57	62.	14.7	B	20.3	13.0
7	2	940.	0.	0.	2135.	0.	0.	2063.	4000.	0.	0.	0.	.52	62.	16.6	B	20.3	13.0
8	3	700.	712.	0.	2847.	712.	0.	987.	5168.	0.	* 116.	1788.	.19	62.	5.3	F	20.3	13.1
9	3	700.	0.	0.	2847.	0.	0.	987.	5330.	0.	** 700.	1788.	.19	43.	7.6	F	20.0	13.2
10	3	700.	0.	383.	2847.	0.	372.	987.	5266.	0.	** 700.	1788.	.19	30.	11.1	F	19.6	13.5
11	2	2300.	0.	0.	2464.	0.	0.	615.	4000.	0.	** 2300.	1788.	.15	19.	15.8	F	19.1	13.7
12	3	700.	639.	0.	3103.	539.	0.	1154.	5149.	0.	** 700.	1788.	.22	14.	26.8	F	17.7	14.7
13	3	800.	0.	0.	3103.	0.	0.	1154.	4400.	0.	** 800.	1788.	.26	14.	26.5	F	17.2	15.1
14	3	1400.	0.	174.	3103.	0.	164.	1154.	4377.	0.	** 1400.	1788.	.26	12.	31.3	F	16.6	15.5
15	2	1400.	0.	0.	2929.	0.	0.	990.	4000.	0.	** 1400.	1788.	.25	10.	48.8	F	16.1	15.9
16	2	1500.	0.	477.	2929.	0.	451.	990.	3910.	0.	** 1500.	1788.	.25	9.	56.7	F	15.4	16.6
17	2	1500.	0.	0.	2452.	0.	0.	539.	4000.	0.	** 1500.	1788.	.13	5.	54.5	F	15.8	16.2
18	2	5000.	0.	0.	2452.	0.	0.	539.	4000.	0.	** 5000.	1788.	.13	3.	87.6	F	13.8	18.3
19	2	5000.	861.	0.	3313.	861.	0.	1400.	4000.	0.	** 5000.	1788.	.35	4.	169.8	F	9.4	25.7
20	3	750.	1100.	4413.	4413.	1100.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. = 25.9 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 32.		24.3		19.4	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1984. VEH-HRS	2304. PASS-HRS	1984. VEH-HRS	2304. PASS-HRS

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	100. PASS-HRS	100. VEH-HRS	100. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2084. VEH-HRS	2404. PASS-HRS	2084. VEH-HRS	2404. PASS-HRS
TOTAL TRAV DISTANCE =	63737. VEH-MI.	77590. PASS-MI.	63737. VEH-MI.	77590. PASS-MI.
AVERAGE SYSTEM SPEED =	31. MPH.		32. MPH.	
AVERAGE DENSITY =	24. VPMPL		24. VPMPL	
TOTAL FUEL =	3317. GALLONS		3317. GALLONS	
TOTAL EMISSIONS =	879. KILOGRAMS		879. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.19	2	37.50	3	3.33	4	0.14	5	0.12
6	0.14	7	0.27	8	0.32	9	2.76	10	6.42
11	33.44	12	18.18	13	19.97	14	41.36	15	46.05
16	55.64	17	74.28	18	324.70	19	338.27	20	0.26

***** TOTAL DELAY = 1003.3 VEH-HRS ***** AVERAGE DELAY = 74.02 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	3.43	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.43	18.03	1.11	5.83	0.31	7.25
ON-RAMP	4	RAMP	100.	50.00	4.69	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.69	18.03	1.11	5.83	0.31	7.25

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	18.42	32.65	39.85	48.32	52.15	55.11	76.15
2	0.00	1.92	9.13	17.59	21.42	24.39	45.43
3	0.00	0.00	4.39	12.86	16.68	19.65	40.69
4	0.00	0.00	0.00	4.13	7.96	10.92	31.96
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3011.	0.	3011.	3011.	0.	3011.	6000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
2	3	99999.	0.	783.	3011.	0.	783.	3011.	6000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
3	2	12000.	0.	0.	2228.	0.	0.	1273.	4000.	0.	* 10266.	955.	.32	11.	57.5	F	15.3	16.7
4	3	350.	1053.	0.	3281.	900.	0.	2173.	4803.	0.	** 350.	955.	.45	6.	115.4	F	9.7	25.0
5	3	300.	0.	0.	3281.	0.	0.	2173.	5010.	0.	** 300.	955.	.43	6.	127.7	F	9.5	25.5
6	3	350.	0.	825.	3281.	0.	782.	2173.	4825.	0.	** 350.	955.	.45	6.	125.4	F	9.3	26.1
7	2	940.	0.	0.	2456.	0.	0.	1392.	4000.	0.	** 940.	955.	.35	4.	183.3	F	9.0	26.8

* 8	3	700.	1132.	0.	3588.	1132.	0.	2524.	5073.	0.	**	700.	955.	.50	6.	145.4	F	8.9	27.7 *
* 9	3	700.	0.	0.	3588.	0.	0.	2524.	5330.	0.	**	700.	955.	.47	5.	161.1	F	8.5	28.6 *
* 10	3	700.	0.	469.	3588.	0.	453.	2524.	5261.	0.	**	700.	955.	.48	5.	157.8	F	8.5	28.5 *
* 11	2	2300.	0.	0.	3119.	0.	0.	2071.	4000.	0.	**	2300.	955.	.52	6.	171.8	F	9.0	27.6 *
* 12	3	700.	704.	0.	3823.	704.	0.	2775.	5162.	0.	**	700.	955.	.54	6.	144.0	F	9.3	27.2 *
* 13	3	800.	0.	0.	3823.	0.	0.	2775.	4400.	0.	**	800.	955.	.63	9.	107.9	F	11.2	24.6 *
* 14	3	1400.	0.	289.	3823.	0.	278.	2775.	4366.	0.	**	1400.	955.	.64	9.	106.3	F	11.3	24.5 *
* 15	2	1400.	0.	0.	3534.	0.	0.	2496.	4000.	0.	**	1400.	955.	.62	8.	148.6	F	11.0	24.8 *
* 16	2	1500.	0.	549.	3534.	0.	539.	2496.	3903.	0.	**	1500.	955.	.64	9.	141.7	F	11.5	24.3 *
* 17	2	1500.	0.	393.	2985.	0.	368.	1957.	3893.	0.	**	1500.	955.	.50	6.	170.3	F	8.8	28.0 *
* 18	2	5000.	0.	0.	2592.	0.	0.	1589.	4000.	0.	**	5000.	955.	.40	4.	198.0	F	8.3	28.9 *
* 19	2	5000.	911.	0.	3503.	911.	0.	2500.	4000.	0.	**	5000.	955.	.63	8.	148.4	F	11.0	24.8 *
* 20	3	750.	0.	3503.	3503.	0.	2500.	2500.	2500.	0.		0.	0.	1.00	62.	13.4	E	20.3	13.0 *
*																			*
*																			*
* TOTAL	136889. =	25.9 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 25.		44.5		17.4	15.1 *
*																			*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2901. VEH-HRS	3248. PASS-HRS	4885. VEH-HRS	5552. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	277. VEH-HRS	277. PASS-HRS	377. VEH-HRS	377. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3177. VEH-HRS	3525. PASS-HRS	5261. VEH-HRS	5929. PASS-HRS
TOTAL TRAV DISTANCE =	71917. VEH-MI.	87744. PASS-MI.	135654. VEH-MI.	165335. PASS-MI.
AVERAGE SYSTEM SPEED =	23. MPH.		28. MPH.	
AVERAGE DENSITY =	44. VPMPL		34. VPMPL	
TOTAL FUEL =	4231. GALLONS		7548. GALLONS	
TOTAL EMISSIONS =	1126. KILOGRAMS		2005. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.21	2	42.45	3	323.29	4	22.40	5	21.23
6	24.03	7	64.84	8	53.07	9	58.93	10	57.63
11	135.76	12	51.63	13	42.58	14	73.24	15	68.61
16	69.59	17	88.22	18	351.82	19	244.57	20	0.26

***** TOTAL DELAY = 1794.4 VEH-HRS ***** AVERAGE DELAY = 57.52 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	253.	176.50	9.18	63.65	3.93	20.58	1.09	25.61
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	253.	176.50	9.18	63.65	3.93	20.58	1.09	25.61
ON-RAMP	4	RAMP	100.	100.00	7.46	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.46	36.06	2.23	11.66	0.62	14.51

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.99	58.19	64.45	71.45	74.70	77.15	95.76
2	0.00	2.14	8.41	15.40	18.65	21.10	39.71
3	0.00	0.00	3.74	10.74	13.99	16.43	35.05
4	0.00	0.00	0.00	3.64	6.89	9.34	27.95
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2260.	0.	2260.	2260.	0.	2260.	6000.	0.	0.	0.	.38	62.	12.2	B	20.3	13.0
2	3	99999.	0.	588.	2260.	0.	588.	2035.	6000.	0.	* 872.	225.	.34	60.	11.3	F	20.3	13.1
3	2	12000.	0.	0.	1672.	0.	0.	1447.	4000.	0.	**12000.	225.	.36	4.	196.7	F	8.6	28.1
4	3	350.	817.	0.	2489.	900.	0.	2347.	4856.	0.	** 350.	225.	.48	5.	145.0	F	8.6	28.4
5	3	300.	0.	0.	2489.	0.	0.	2347.	5010.	0.	** 300.	225.	.47	5.	152.3	F	8.4	28.7
6	3	350.	0.	679.	2489.	0.	700.	2347.	4859.	0.	** 350.	225.	.48	5.	145.2	F	8.6	28.4
7	2	940.	0.	0.	1810.	0.	0.	1648.	4000.	0.	** 940.	225.	.41	4.	194.8	F	8.3	28.9
8	3	700.	1151.	0.	2961.	1151.	0.	2799.	5077.	0.	** 700.	225.	.55	7.	139.1	F	9.5	26.8
9	3	700.	0.	0.	2961.	0.	0.	2799.	5330.	0.	** 700.	225.	.53	6.	151.1	F	9.1	27.5
10	3	700.	0.	391.	2961.	0.	400.	2799.	5279.	0.	** 700.	225.	.53	6.	148.7	F	9.2	27.4
11	2	2300.	0.	0.	2570.	0.	0.	2399.	4000.	0.	** 2300.	225.	.60	8.	153.9	F	10.4	25.5
12	3	700.	571.	0.	3141.	571.	0.	2970.	5201.	0.	** 700.	225.	.57	7.	138.8	F	9.8	26.3
13	3	800.	0.	0.	3141.	0.	0.	2970.	4400.	0.	** 800.	225.	.67	10.	100.8	F	12.7	23.1
14	3	1400.	0.	254.	3141.	0.	257.	2970.	4373.	0.	** 1400.	225.	.68	10.	99.5	F	12.9	23.0
15	2	1400.	0.	0.	2887.	0.	0.	2712.	4000.	0.	** 1400.	225.	.68	10.	136.8	F	12.9	23.0
16	2	1500.	0.	514.	2887.	0.	518.	2712.	3919.	0.	** 1500.	225.	.69	10.	131.0	F	13.2	22.6
17	2	1500.	0.	391.	2373.	0.	390.	2194.	3892.	0.	** 1500.	225.	.56	7.	157.3	F	9.7	26.5
18	2	5000.	0.	0.	1982.	0.	0.	1804.	4000.	0.	** 5000.	225.	.45	5.	186.3	F	8.3	28.9
19	2	5000.	696.	0.	2678.	696.	0.	2500.	4000.	0.	** 5000.	225.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	2678.	2678.	0.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. = 25.9 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 18.		51.9		16.1	16.3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3133. VEH-HRS	3424. PASS-HRS	8017. VEH-HRS	8977. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	312. VEH-HRS	312. PASS-HRS	688. VEH-HRS	688. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3444. VEH-HRS	3736. PASS-HRS	8705. VEH-HRS	9665. PASS-HRS
TOTAL TRAV DISTANCE =	57390. VEH-MI.	69519. PASS-MI.	193044. VEH-MI.	234854. PASS-MI.
AVERAGE SYSTEM SPEED =	17. MPH.		24. MPH.	
AVERAGE DENSITY =	52. VPMPL		40. VPMPL	
TOTAL FUEL =	3677. GALLONS		11225. GALLONS	
TOTAL EMISSIONS =	981. KILOGRAMS		2986. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.16	2	53.51	3	848.56	4	26.45	5	23.92
6	26.48	7	64.84	8	49.63	9	54.40	10	53.44
11	117.99	12	49.15	13	38.91	14	67.07	15	61.48
16	62.60	17	79.81	18	326.51	19	244.57	20	0.26

***** TOTAL DELAY = 2249.7 VEH-HRS ***** AVERAGE DELAY = 72.21 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	170.	211.50	11.86	76.27	4.71	24.66	1.31	30.68
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	170.	211.50	11.86	76.27	4.71	24.66	1.31	30.68
ON-RAMP	4	RAMP	100.	100.00	8.94	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.94	36.06	2.23	11.66	0.62	14.51

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	12000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	350.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	1	1650.	300.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	1	1650.	350.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	1	1650.	940.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	1	1650.	700.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	1	1650.	700.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	1	1650.	800.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	5000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	692.	0.	692.	692.	0.	692.	1650.	0.	0.	0.	.42	62.	11.2	B	21.6	12.8
4	1	350.	175.	0.	866.	175.	0.	866.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
5	1	300.	0.	0.	866.	0.	0.	866.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
6	1	350.	0.	162.	866.	0.	162.	866.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
7	1	940.	0.	0.	704.	0.	0.	704.	1650.	0.	0.	0.	.43	62.	11.4	B	21.6	12.8
8	1	700.	163.	0.	867.	163.	0.	867.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
9	1	700.	0.	0.	867.	0.	0.	867.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
10	1	700.	0.	64.	867.	0.	64.	867.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
11	1	2300.	0.	0.	803.	0.	0.	803.	1650.	0.	0.	0.	.49	62.	12.9	B	21.6	12.8
12	1	700.	171.	0.	974.	171.	0.	974.	1650.	0.	0.	0.	.59	62.	15.7	B	21.6	12.8
13	1	800.	0.	0.	974.	0.	0.	974.	1650.	0.	0.	0.	.59	62.	15.7	B	21.6	12.8
14	1	1400.	0.	23.	974.	0.	23.	974.	1650.	0.	0.	0.	.59	62.	15.7	B	21.6	12.8
15	1	1400.	0.	0.	951.	0.	0.	951.	1650.	0.	0.	0.	.58	62.	15.3	B	21.6	12.8
16	1	1500.	0.	90.	951.	0.	90.	951.	1650.	0.	0.	0.	.58	62.	15.3	B	21.6	12.8
17	1	1500.	0.	0.	861.	0.	0.	861.	1650.	0.	0.	0.	.52	62.	13.9	B	21.6	12.8
18	1	5000.	0.	861.	861.	0.	861.	861.	1650.	0.	0.	0.	.52	62.	13.9	B	21.6	12.8
19																		
20																		
TOTAL		30640. = 5.8 MILES							MAX(V/C) = 0.59		LOWEST LOS = B		AVG = 62.		13.0		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	75. VEH-HRS	151. PASS-HRS	75. VEH-HRS	151. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	75. VEH-HRS	151. PASS-HRS	75. VEH-HRS	151. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4673. VEH-MI.	9346. PASS-MI.	4673. VEH-MI.	9346. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	13. VPMPL		13. VPMPL	
TOTAL FUEL =	217. GALLONS		217. GALLONS	
TOTAL EMISSIONS =	60. KILOGRAMS		60. KILOGRAMS	

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 10: 6 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.04	5	0.04
6	0.04	7	0.09	8	0.09	9	0.09	10	0.09
11	0.26	12	0.10	13	0.11	14	0.19	15	0.19
16	0.20	17	0.18	18	0.61	19	0.00	20	0.00

***** TOTAL DELAY = 3.5 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 10: 6 PAGE 6
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 10: 6 PAGE 7
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	783.	0.	783.	783.	0.	783.	1650.	0.	0.	0.	.47	62.	12.6	B	21.6	12.8
4	1	350.	207.	0.	990.	207.	0.	990.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
5	1	300.	0.	0.	990.	0.	0.	990.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
6	1	350.	0.	185.	990.	0.	185.	990.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
7	1	940.	0.	0.	804.	0.	0.	804.	1650.	0.	0.	0.	.49	62.	13.0	B	21.6	12.8
8	1	700.	257.	0.	1061.	257.	0.	1061.	1650.	0.	0.	0.	.64	62.	17.1	B	21.6	12.8
9	1	700.	0.	0.	1061.	0.	0.	1061.	1650.	0.	0.	0.	.64	62.	17.1	B	21.6	12.8
10	1	700.	0.	69.	1061.	0.	69.	1061.	1650.	0.	0.	0.	.64	62.	17.1	B	21.6	12.8
11	1	2300.	0.	0.	992.	0.	0.	992.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
12	1	700.	158.	0.	1150.	158.	0.	1150.	1650.	0.	0.	0.	.70	62.	18.5	C	21.6	12.8
13	1	800.	0.	0.	1150.	0.	0.	1150.	1650.	0.	0.	0.	.70	62.	18.5	C	21.6	12.8
14	1	1400.	0.	34.	1150.	0.	34.	1150.	1650.	0.	0.	0.	.70	62.	18.5	C	21.6	12.8
15	1	1400.	0.	0.	1116.	0.	0.	1116.	1650.	0.	0.	0.	.68	62.	18.0	B	21.6	12.8
16	1	1500.	0.	98.	1116.	0.	98.	1116.	1650.	0.	0.	0.	.68	62.	18.0	B	21.6	12.8
17	1	1500.	0.	107.	1018.	0.	107.	1018.	1650.	0.	0.	0.	.62	62.	16.4	B	21.6	12.8
18	1	5000.	0.	911.	911.	0.	911.	911.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
19																		
20																		
TOTAL		30640. = 5.8 MILES								MAX(V/C) = 0.70		LOWEST LOS = C		AVG = 62.	14.9		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	86. VEH-HRS	173. PASS-HRS	162. VEH-HRS	324. PASS-HRS

FREEWAY MERGE DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	86.	VEH-HRS	173.	PASS-HRS	162.	VEH-HRS	324. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	5360.	VEH-MI.	10719.	PASS-MI.	10033.	VEH-MI.	20066. PASS-MI.
AVERAGE SYSTEM SPEED =	62.	MPH.			62.	MPH.	
AVERAGE DENSITY =	15.	VPMPL			14.	VPMPL	
TOTAL FUEL =	249.	GALLONS			466.	GALLONS	
TOTAL EMISSIONS =	68.	KILOGRAMS			128.	KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.32	4	0.05	5	0.04
6	0.05	7	0.11	8	0.10	9	0.10	10	0.10
11	0.32	12	0.11	13	0.13	14	0.23	15	0.22
16	0.24	17	0.22	18	0.64	19	0.00	20	0.00

***** TOTAL DELAY = 4.0 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	588.	0.	588.	588.	0.	588.	1650.	0.	0.	0.	.36	62.	9.5	A	21.6	12.8
4	1	350.	154.	0.	742.	154.	0.	742.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
5	1	300.	0.	0.	742.	0.	0.	742.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
6	1	350.	0.	151.	742.	0.	151.	742.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
7	1	940.	0.	0.	591.	0.	0.	591.	1650.	0.	0.	0.	.36	62.	9.5	A	21.6	12.8
8	1	700.	253.	0.	844.	253.	0.	844.	1650.	0.	0.	0.	.51	62.	13.6	B	21.6	12.8
9	1	700.	0.	0.	844.	0.	0.	844.	1650.	0.	0.	0.	.51	62.	13.6	B	21.6	12.8
10	1	700.	0.	51.	844.	0.	51.	844.	1650.	0.	0.	0.	.51	62.	13.6	B	21.6	12.8
11	1	2300.	0.	0.	794.	0.	0.	794.	1650.	0.	0.	0.	.48	62.	12.8	B	21.6	12.8
12	1	700.	119.	0.	912.	119.	0.	912.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
13	1	800.	0.	0.	912.	0.	0.	912.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
14	1	1400.	0.	27.	912.	0.	27.	912.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
15	1	1400.	0.	0.	885.	0.	0.	885.	1650.	0.	0.	0.	.54	62.	14.3	B	21.6	12.8
16	1	1500.	0.	81.	885.	0.	81.	885.	1650.	0.	0.	0.	.54	62.	14.3	B	21.6	12.8
17	1	1500.	0.	108.	804.	0.	108.	804.	1650.	0.	0.	0.	.49	62.	13.0	B	21.6	12.8
18	1	5000.	0.	696.	696.	0.	696.	696.	1650.	0.	0.	0.	.42	62.	11.2	B	21.6	12.8
19																		
20																		

```
*****************************************************************************************************************************************
*                                                                                                                                       *
*   TOTAL   30640. =    5.8 MILES                      MAX(V/C) = 0.55  LOWEST LOS = B   AVG = 62.   11.5          21.6    12.8  *
*                                                                                                                                       *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	67. VEH-HRS	133. PASS-HRS	229. VEH-HRS	457. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	67. VEH-HRS	133. PASS-HRS	229. VEH-HRS	457. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4138. VEH-MI.	8277. PASS-MI.	14171. VEH-MI.	28342. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	12. VPMPL		13. VPMPL	
TOTAL FUEL =	192. GALLONS		658. GALLONS	
TOTAL EMISSIONS =	53. KILOGRAMS		181. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.99	4	0.04	5	0.03
6	0.04	7	0.08	8	0.08	9	0.08	10	0.08
11	0.26	12	0.09	13	0.10	14	0.18	15	0.17
16	0.19	17	0.17	18	0.49	19	0.00	20	0.00

***** TOTAL DELAY = 3.1 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	5010.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	3	5010.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	5010.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	5330.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	5330.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	5330.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	5320.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4400.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4400.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	5000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	2	4000.	5000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Enter SSec Description
20	3	2500.	750.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	End of the network

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UNIVERSITY OF CALIFORNIA, BERKELEY

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 2 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 2 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 12:50 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	18.42	20.80	21.42	24.50	27.44	30.61	61.73
2	0.00	0.18	0.80	3.88	6.83	10.00	41.11
3	0.00	0.00	0.45	3.53	6.47	9.64	40.75
4	0.00	0.00	0.00	2.01	4.96	8.13	39.24
5	0.00	0.00	0.00	0.00	0.00	0.00	13.81
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 12:50 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2661.	0.	2661.	2661.	0.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
2	3	99999.	0.	692.	2661.	0.	692.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
3	2	12000.	0.	0.	1969.	0.	0.	1969.	4000.	0.	0.	0.	.49	62.	15.9	B	20.3	13.0
4	3	350.	875.	0.	2844.	775.	0.	2744.	4836.	0.	0.	0.	.57	62.	14.8	B	20.3	13.0
5	3	300.	0.	0.	2844.	0.	0.	2744.	5010.	0.	0.	0.	.55	62.	14.8	B	20.3	13.0
6	3	350.	0.	708.	2844.	0.	680.	2744.	4848.	0.	0.	0.	.57	62.	14.8	B	20.3	13.0
7	2	940.	0.	0.	2136.	0.	0.	2064.	4000.	0.	0.	0.	.52	62.	16.6	B	20.3	13.0
8	3	700.	677.	0.	2813.	677.	0.	2741.	5185.	0.	0.	0.	.53	62.	14.7	B	20.3	13.0
9	3	700.	0.	0.	2813.	0.	0.	1063.	5330.	0. *	136.	1678.	.20	61.	5.8	F	20.3	13.1
10	3	700.	0.	347.	2813.	0.	337.	1063.	5271.	0. **	700.	1678.	.20	42.	8.4	F	20.0	13.3
11	2	2300.	0.	0.	2466.	0.	0.	726.	4000.	0. **	2300.	1678.	.18	24.	14.8	F	19.3	13.6
12	3	700.	745.	0.	3211.	645.	0.	1371.	5135.	0. **	700.	1678.	.27	18.	25.6	F	17.8	14.6
13	3	800.	0.	0.	3211.	0.	0.	1371.	4400.	0. **	800.	1678.	.31	18.	25.7	F	17.3	15.0
14	3	1400.	0.	228.	3211.	0.	215.	1371.	4371.	0. **	1400.	1678.	.31	15.	30.4	F	16.7	15.5
15	2	1400.	0.	0.	2983.	0.	0.	1155.	4000.	0. **	1400.	1678.	.29	12.	47.8	F	16.1	15.9
16	2	1500.	0.	619.	2983.	0.	586.	1155.	3885.	0. **	1500.	1678.	.30	10.	55.2	F	15.4	16.6
17	2	1500.	0.	0.	2364.	0.	0.	569.	4000.	0. **	1500.	1678.	.14	5.	52.9	F	15.9	16.1
18	2	5000.	0.	0.	2364.	0.	0.	569.	4000.	0. **	5000.	1678.	.14	3.	86.7	F	13.8	18.3
19	2	5000.	831.	0.	3195.	831.	0.	1400.	4000.	0. **	5000.	1678.	.35	4.	168.4	F	9.5	25.7
20	3	750.	1100.	4295.	4295.	1100.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 33.		24.2		19.4	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1927. VEH-HRS	2246. PASS-HRS	1927. VEH-HRS	2246. PASS-HRS

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	100. PASS-HRS	100. VEH-HRS	100. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2027. VEH-HRS	2346. PASS-HRS	2027. VEH-HRS	2346. PASS-HRS
TOTAL TRAV DISTANCE =	64035. VEH-MI.	77915. PASS-MI.	64035. VEH-MI.	77915. PASS-MI.
AVERAGE SYSTEM SPEED =	32. MPH.		33. MPH.	
AVERAGE DENSITY =	24. VPMPL		24. VPMPL	
TOTAL FUEL =	3332. GALLONS		3332. GALLONS	
TOTAL EMISSIONS =	883. KILOGRAMS		883. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.19	2	37.52	3	3.33	4	0.14	5	0.12
6	0.14	7	0.27	8	0.27	9	0.34	10	2.92
11	24.54	12	14.64	13	16.43	14	34.77	15	40.04
16	48.63	17	69.26	18	312.08	19	335.58	20	0.26

***** TOTAL DELAY = 941.5 VEH-HRS ***** AVERAGE DELAY = 65.27 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	3.43	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.43	18.03	1.11	5.83	0.31	7.25
ON-RAMP	4	RAMP	100.	50.00	4.03	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.03	18.03	1.11	5.83	0.31	7.25

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	18.42	30.15	36.95	44.85	48.37	51.30	72.22
2	0.00	1.71	8.51	16.41	19.92	22.86	43.78
3	0.00	0.00	4.35	12.25	15.76	18.70	39.61
4	0.00	0.00	0.00	3.71	7.23	10.17	31.08
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3010.	0.	3010.	3010.	0.	3010.	6000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
2	3	99999.	0.	783.	3010.	0.	783.	3010.	6000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
3	2	12000.	0.	0.	2227.	0.	0.	1312.	4000.	0. *	9109.	915.	.33	14.	48.2	F	16.1	16.0
4	3	350.	1051.	0.	3278.	900.	0.	2212.	4801.	0. **	350.	915.	.46	7.	103.9	F	10.3	23.8
5	3	300.	0.	0.	3278.	0.	0.	2212.	5010.	0. **	300.	915.	.44	6.	115.3	F	10.1	24.3
6	3	350.	0.	825.	3278.	0.	782.	2212.	4825.	0. **	350.	915.	.46	6.	113.6	F	9.8	24.8
7	2	940.	0.	0.	2453.	0.	0.	1430.	4000.	0. **	940.	915.	.36	4.	164.3	F	9.6	25.4

8	3	700.	1061.	0.	3514.	1061.	0.	2491.	5093.	0.	**	700.	915.	.49	6.	136.6	F	9.2	26.7
9	3	700.	0.	0.	3514.	0.	0.	2491.	5330.	0.	**	700.	915.	.47	5.	158.2	F	8.5	28.3
10	3	700.	0.	388.	3514.	0.	375.	2491.	5272.	0.	**	700.	915.	.47	5.	159.6	F	8.5	28.6
11	2	2300.	0.	0.	3126.	0.	0.	2115.	4000.	0.	**	2300.	915.	.53	6.	169.3	F	9.2	27.4
12	3	700.	812.	0.	3938.	812.	0.	2927.	5146.	0.	**	700.	915.	.57	7.	137.7	F	9.8	26.4
13	3	800.	0.	0.	3938.	0.	0.	2927.	4400.	0.	**	800.	915.	.67	10.	102.4	F	12.3	23.5
14	3	1400.	0.	337.	3938.	0.	326.	2927.	4360.	0.	**	1400.	915.	.67	10.	100.5	F	12.6	23.3
15	2	1400.	0.	0.	3601.	0.	0.	2602.	4000.	0.	**	1400.	915.	.65	9.	142.8	F	11.8	24.0
16	2	1500.	0.	641.	3601.	0.	632.	2602.	3887.	0.	**	1500.	915.	.67	10.	134.8	F	12.5	23.3
17	2	1500.	0.	395.	2960.	0.	371.	1970.	3895.	0.	**	1500.	915.	.51	6.	169.8	F	8.8	27.9
18	2	5000.	0.	0.	2565.	0.	0.	1599.	4000.	0.	**	5000.	915.	.40	4.	197.4	F	8.3	28.9
19	2	5000.	901.	0.	3466.	901.	0.	2500.	4000.	0.	**	5000.	915.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	3466.	3466.	0.	2500.	2500.	2500.	0.		0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL	136889. =	25.9 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 26.		43.0			17.6	15.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2807. VEH-HRS	3155. PASS-HRS	4733. VEH-HRS	5400. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	275. VEH-HRS	275. PASS-HRS	375. VEH-HRS	375. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3082. VEH-HRS	3430. PASS-HRS	5109. VEH-HRS	5776. PASS-HRS
TOTAL TRAV DISTANCE =	72266. VEH-MI.	88111. PASS-MI.	136300. VEH-MI.	166026. PASS-MI.
AVERAGE SYSTEM SPEED =	23. MPH.		29. MPH.	
AVERAGE DENSITY =	43. VPMPL		34. VPMPL	
TOTAL FUEL =	4216. GALLONS		7549. GALLONS	
TOTAL EMISSIONS =	1126. KILOGRAMS		2009. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.21	2	42.44	3	260.33	4	20.32	5	19.36
6	21.97	7	59.63	8	50.67	9	58.27	10	58.38
11	133.33	12	48.81	13	39.70	14	67.97	15	65.13
16	65.21	17	87.86	18	350.64	19	244.57	20	0.26

***** TOTAL DELAY = 1695.1 VEH-HRS ***** AVERAGE DELAY = 52.67 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	251.	175.50	9.15	63.29	3.91	20.47	1.08	25.46
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	251.	175.50	9.15	63.29	3.91	20.47	1.08	25.46
ON-RAMP	4	RAMP	100.	100.00	6.58	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.58	36.06	2.23	11.66	0.62	14.51

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	52.58	58.84	65.41	68.43	70.86	89.37
2	0.00	2.08	8.33	14.91	17.93	20.35	38.87
3	0.00	0.00	3.81	10.39	13.41	15.83	34.35
4	0.00	0.00	0.00	3.34	6.36	8.78	27.30
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2261.	0.	2261.	2261.	0.	2261.	6000.	0.	0.	0.	.38	62.	12.2	B	20.3	13.0
2	3	99999.	0.	588.	2261.	0.	588.	2261.	6000.	0.	0.	0.	.38	62.	12.2	B	20.3	13.0
3	2	12000.	0.	0.	1673.	0.	0.	1488.	4000.	0.	* 11674.	185.	.37	4.	175.1	F	9.1	26.5
4	3	350.	813.	0.	2486.	900.	0.	2388.	4854.	0.	** 350.	185.	.49	6.	143.5	F	8.7	28.2
5	3	300.	0.	0.	2486.	0.	0.	2388.	5010.	0.	** 300.	185.	.48	5.	150.9	F	8.5	28.5
6	3	350.	0.	679.	2486.	0.	701.	2388.	4859.	0.	** 350.	185.	.49	6.	143.7	F	8.7	28.2
7	2	940.	0.	0.	1807.	0.	0.	1688.	4000.	0.	** 940.	185.	.42	4.	192.6	F	8.3	28.9
8	3	700.	1085.	0.	2892.	1085.	0.	2773.	5095.	0.	** 700.	185.	.54	7.	140.9	F	9.4	27.0
9	3	700.	0.	0.	2892.	0.	0.	2773.	5330.	0.	** 700.	185.	.52	6.	152.1	F	9.0	27.6
10	3	700.	0.	319.	2892.	0.	327.	2773.	5288.	0.	** 700.	185.	.52	6.	150.1	F	9.1	27.5
11	2	2300.	0.	0.	2573.	0.	0.	2445.	4000.	0.	** 2300.	185.	.61	8.	151.4	F	10.7	25.2
12	3	700.	651.	0.	3224.	651.	0.	3096.	5191.	0.	** 700.	185.	.60	8.	133.7	F	10.4	25.6
13	3	800.	0.	0.	3224.	0.	0.	3096.	4400.	0.	** 800.	185.	.70	11.	96.2	F	13.4	22.3
14	3	1400.	0.	290.	3224.	0.	295.	3096.	4369.	0.	** 1400.	185.	.71	11.	94.8	F	13.4	22.2
15	2	1400.	0.	0.	2934.	0.	0.	2802.	4000.	0.	** 1400.	185.	.70	11.	131.9	F	13.3	22.4
16	2	1500.	0.	588.	2934.	0.	594.	2802.	3907.	0.	** 1500.	185.	.72	11.	125.3	F	13.6	22.0
17	2	1500.	0.	394.	2346.	0.	393.	2207.	3894.	0.	** 1500.	185.	.57	7.	156.8	F	9.8	26.4
18	2	5000.	0.	0.	1952.	0.	0.	1814.	4000.	0.	** 5000.	185.	.45	5.	185.7	F	8.3	28.9
19	2	5000.	686.	0.	2638.	686.	0.	2500.	4000.	0.	** 5000.	185.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	2638.	2638.	0.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL	136889. =	25.9 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 19.		50.4		16.2	16.2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3004. VEH-HRS	3291. PASS-HRS	7737. VEH-HRS	8691. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	307. VEH-HRS	307. PASS-HRS	683. VEH-HRS	683. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3311. VEH-HRS	3598. PASS-HRS	8420. VEH-HRS	9374. PASS-HRS
TOTAL TRAV DISTANCE =	57702. VEH-MI.	69859. PASS-MI.	194002. VEH-MI.	235885. PASS-MI.
AVERAGE SYSTEM SPEED =	17. MPH.		25. MPH.	
AVERAGE DENSITY =	50. VPMPL		39. VPMPL	
TOTAL FUEL =	3663. GALLONS		11212. GALLONS	
TOTAL EMISSIONS =	979. KILOGRAMS		2988. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.16	2	31.88	3	756.19	4	26.09	5	23.63
6	26.14	7	63.96	8	50.40	9	54.83	10	54.04
11	115.47	12	46.88	13	36.52	14	62.75	15	58.54
16	58.96	17	79.42	18	325.33	19	244.57	20	0.26

***** TOTAL DELAY = 2116.0 VEH-HRS ***** AVERAGE DELAY = 65.94 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	164.	207.50	11.70	74.82	4.63	24.20	1.28	30.10
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	164.	207.50	11.70	74.82	4.63	24.20	1.28	30.10
ON-RAMP	4	RAMP	100.	100.00	7.99	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.99	36.06	2.23	11.66	0.62	14.51

SR-237_EB_PM_P1_2040_PL


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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222     PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222      PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	12000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	350.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	1	1650.	300.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	1	1650.	350.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	1	1650.	940.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	1	1650.	700.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	1	1650.	700.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	1	1650.	800.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	5000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

19

20

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8								

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	692.	0.	692.	692.	0.	692.	1650.	0.	0.	0.	.42	62.	11.2	B	21.6	12.8
4	1	350.	174.	0.	866.	174.	0.	866.	1650.	0.	0.	0.	.52	62.	14.0	B	21.6	12.8
5	1	300.	0.	0.	866.	0.	0.	866.	1650.	0.	0.	0.	.52	62.	14.0	B	21.6	12.8
6	1	350.	0.	162.	866.	0.	162.	866.	1650.	0.	0.	0.	.52	62.	14.0	B	21.6	12.8
7	1	940.	0.	0.	704.	0.	0.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
8	1	700.	145.	0.	849.	145.	0.	849.	1650.	0.	0.	0.	.51	62.	13.7	B	21.6	12.8
9	1	700.	0.	0.	849.	0.	0.	849.	1650.	0.	0.	0.	.51	62.	13.7	B	21.6	12.8
10	1	700.	0.	59.	849.	0.	59.	849.	1650.	0.	0.	0.	.51	62.	13.7	B	21.6	12.8
11	1	2300.	0.	0.	790.	0.	0.	790.	1650.	0.	0.	0.	.48	62.	12.7	B	21.6	12.8
12	1	700.	185.	0.	974.	185.	0.	974.	1650.	0.	0.	0.	.59	62.	15.7	B	21.6	12.8
13	1	800.	0.	0.	974.	0.	0.	974.	1650.	0.	0.	0.	.59	62.	15.7	B	21.6	12.8
14	1	1400.	0.	29.	974.	0.	29.	974.	1650.	0.	0.	0.	.59	62.	15.7	B	21.6	12.8
15	1	1400.	0.	0.	946.	0.	0.	946.	1650.	0.	0.	0.	.57	62.	15.3	B	21.6	12.8
16	1	1500.	0.	115.	946.	0.	115.	946.	1650.	0.	0.	0.	.57	62.	15.3	B	21.6	12.8
17	1	1500.	0.	0.	831.	0.	0.	831.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
18	1	5000.	0.	831.	831.	0.	831.	831.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
19																		
20																		
TOTAL		30640. = 5.8 MILES							MAX(V/C) = 0.59		LOWEST LOS = B		AVG = 62.		12.8		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	75. VEH-HRS	149. PASS-HRS	75. VEH-HRS	149. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	75. VEH-HRS	149. PASS-HRS	75. VEH-HRS	149. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4620. VEH-MI.	9240. PASS-MI.	4620. VEH-MI.	9240. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	13. VPMPL		13. VPMPL	
TOTAL FUEL =	214. GALLONS		214. GALLONS	
TOTAL EMISSIONS =	59. KILOGRAMS		59. KILOGRAMS	

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 12:50 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.04	5	0.04
6	0.04	7	0.09	8	0.08	9	0.08	10	0.08
11	0.26	12	0.10	13	0.11	14	0.19	15	0.19
16	0.20	17	0.18	18	0.59	19	0.00	20	0.00

***** TOTAL DELAY = 3.4 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 12:50 PAGE 6
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 12:50 PAGE 7
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	ADJUSTED VOLUMES SSEC	ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	783.	0.	783.	783.	0.	783.	1650.	0.	0.	0.	.47	62.	12.6	B	21.6	12.8
4	1	350.	209.	0.	991.	209.	0.	991.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
5	1	300.	0.	0.	991.	0.	0.	991.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
6	1	350.	0.	185.	991.	0.	185.	991.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
7	1	940.	0.	0.	806.	0.	0.	806.	1650.	0.	0.	0.	.49	62.	13.0	B	21.6	12.8
8	1	700.	237.	0.	1043.	237.	0.	1043.	1650.	0.	0.	0.	.63	62.	16.8	B	21.6	12.8
9	1	700.	0.	0.	1043.	0.	0.	1043.	1650.	0.	0.	0.	.63	62.	16.8	B	21.6	12.8
10	1	700.	0.	58.	1043.	0.	58.	1043.	1650.	0.	0.	0.	.63	62.	16.8	B	21.6	12.8
11	1	2300.	0.	0.	985.	0.	0.	985.	1650.	0.	0.	0.	.60	62.	15.9	B	21.6	12.8
12	1	700.	174.	0.	1159.	174.	0.	1159.	1650.	0.	0.	0.	.70	62.	18.7	C	21.6	12.8
13	1	800.	0.	0.	1159.	0.	0.	1159.	1650.	0.	0.	0.	.70	62.	18.7	C	21.6	12.8
14	1	1400.	0.	40.	1159.	0.	40.	1159.	1650.	0.	0.	0.	.70	62.	18.7	C	21.6	12.8
15	1	1400.	0.	0.	1119.	0.	0.	1119.	1650.	0.	0.	0.	.68	62.	18.0	C	21.6	12.8
16	1	1500.	0.	113.	1119.	0.	113.	1119.	1650.	0.	0.	0.	.68	62.	18.0	C	21.6	12.8
17	1	1500.	0.	105.	1006.	0.	105.	1006.	1650.	0.	0.	0.	.61	62.	16.2	B	21.6	12.8
18	1	5000.	0.	901.	901.	0.	901.	901.	1650.	0.	0.	0.	.55	62.	14.5	B	21.6	12.8
19																		
20																		
TOTAL		30640. = 5.8 MILES							MAX(V/C) = 0.70		LOWEST LOS = C		AVG = 62.		14.9		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	86. VEH-HRS	172. PASS-HRS	161. VEH-HRS	321. PASS-HRS

FREEWAY MERGE DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	86.	VEH-HRS	172.	PASS-HRS	161.	VEH-HRS	321. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	5344.	VEH-MI.	10688.	PASS-MI.	9964.	VEH-MI.	19928. PASS-MI.
AVERAGE SYSTEM SPEED =	62.	MPH.			62.	MPH.	
AVERAGE DENSITY =	15.	VPMPL			14.	VPMPL	
TOTAL FUEL =	248.	GALLONS			462.	GALLONS	
TOTAL EMISSIONS =	68.	KILOGRAMS			127.	KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.32	4	0.05	5	0.04
6	0.05	7	0.11	8	0.10	9	0.10	10	0.10
11	0.32	12	0.11	13	0.13	14	0.23	15	0.22
16	0.24	17	0.21	18	0.64	19	0.00	20	0.00

***** TOTAL DELAY = 4.0 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	588.	0.	588.	588.	0.	588.	1650.	0.	0.	0.	.36	62.	9.5	A	21.6	12.8
4	1	350.	156.	0.	744.	156.	0.	744.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
5	1	300.	0.	0.	744.	0.	0.	744.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
6	1	350.	0.	151.	744.	0.	151.	744.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
7	1	940.	0.	0.	593.	0.	0.	593.	1650.	0.	0.	0.	.36	62.	9.6	A	21.6	12.8
8	1	700.	235.	0.	828.	235.	0.	828.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
9	1	700.	0.	0.	828.	0.	0.	828.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
10	1	700.	0.	42.	828.	0.	42.	828.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
11	1	2300.	0.	0.	785.	0.	0.	785.	1650.	0.	0.	0.	.48	62.	12.7	B	21.6	12.8
12	1	700.	129.	0.	915.	129.	0.	915.	1650.	0.	0.	0.	.55	62.	14.8	B	21.6	12.8
13	1	800.	0.	0.	915.	0.	0.	915.	1650.	0.	0.	0.	.55	62.	14.8	B	21.6	12.8
14	1	1400.	0.	31.	915.	0.	31.	915.	1650.	0.	0.	0.	.55	62.	14.8	B	21.6	12.8
15	1	1400.	0.	0.	884.	0.	0.	884.	1650.	0.	0.	0.	.54	62.	14.3	B	21.6	12.8
16	1	1500.	0.	93.	884.	0.	93.	884.	1650.	0.	0.	0.	.54	62.	14.3	B	21.6	12.8
17	1	1500.	0.	106.	791.	0.	106.	791.	1650.	0.	0.	0.	.48	62.	12.8	B	21.6	12.8
18	1	5000.	0.	686.	686.	0.	686.	686.	1650.	0.	0.	0.	.42	62.	11.1	B	21.6	12.8
19																		
20																		

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*****************************************************************************************************************************************
*                                                                                                                                       *
*   TOTAL   30640. =    5.8 MILES                      MAX(V/C) = 0.55  LOWEST LOS = B   AVG = 62.   11.4          21.6    12.8  *
*                                                                                                                                       *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	66. VEH-HRS	133. PASS-HRS	227. VEH-HRS	454. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	66. VEH-HRS	133. PASS-HRS	227. VEH-HRS	454. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4116. VEH-MI.	8232. PASS-MI.	14080. VEH-MI.	28160. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	11. VPMPL		13. VPMPL	
TOTAL FUEL =	191. GALLONS		653. GALLONS	
TOTAL EMISSIONS =	53. KILOGRAMS		180. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.99	4	0.04	5	0.03
6	0.04	7	0.08	8	0.08	9	0.08	10	0.08
11	0.25	12	0.09	13	0.10	14	0.18	15	0.17
16	0.19	17	0.17	18	0.48	19	0.00	20	0.00

***** TOTAL DELAY = 3.1 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222     PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222      PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222        PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6000.	99999.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	3	5010.	350.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	3	5010.	300.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	3	5010.	350.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	2	4000.	940.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	3	5330.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	3	5330.	700.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	3	5330.	700.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	3	5320.	700.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	3	4400.	800.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	3	4400.	1400.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of DKS
18	2	4000.	5000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
19	2	4000.	5000.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Enter SSec Description
20	3	2500.	750.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	End of the network

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:16 PAGE 3
UNIVERSITY OF CALIFORNIA, BERKELEY

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 2 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 2 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:16 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	20.80	21.36	23.89	26.59	29.53	59.64
2	0.00	0.18	0.74	3.27	5.97	8.91	39.02
3	0.00	0.00	0.39	2.91	5.62	8.56	38.66
4	0.00	0.00	0.00	1.75	4.46	7.40	37.50
5	0.00	0.00	0.00	0.00	0.00	0.00	13.71
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:16 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2661.	0.	2661.	2661.	0.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
2	3	99999.	0.	692.	2661.	0.	692.	2661.	6000.	0.	0.	0.	.44	62.	14.3	B	20.3	13.0
3	2	12000.	0.	0.	1969.	0.	0.	1969.	4000.	0.	0.	0.	.49	62.	15.9	B	20.3	13.0
4	3	350.	876.	0.	2845.	776.	0.	2745.	4836.	0.	0.	0.	.57	62.	14.8	B	20.3	13.0
5	3	300.	0.	0.	2845.	0.	0.	2745.	5010.	0.	0.	0.	.55	62.	14.8	B	20.3	13.0
6	3	350.	0.	708.	2845.	0.	680.	2745.	4848.	0.	0.	0.	.57	62.	14.8	B	20.3	13.0
7	2	940.	0.	0.	2137.	0.	0.	2065.	4000.	0.	0.	0.	.52	62.	16.7	B	20.3	13.0
8	3	700.	678.	0.	2815.	678.	0.	2743.	5186.	0.	0.	0.	.53	62.	14.7	B	20.3	13.0
9	3	700.	0.	0.	2815.	0.	0.	2743.	5330.	0.	0.	0.	.51	62.	14.7	B	20.3	13.0
10	3	700.	0.	347.	2815.	0.	337.	1154.	5271.	0. *	84.	1589.	.22	62.	6.2	F	20.3	13.1
11	2	2300.	0.	0.	2468.	0.	0.	817.	4000.	0. **	2300.	1589.	.20	34.	12.1	F	19.7	13.4
12	3	700.	667.	0.	3135.	567.	0.	1384.	5156.	0. **	700.	1589.	.27	21.	21.5	F	18.4	14.2
13	3	800.	0.	0.	3135.	0.	0.	1384.	4400.	0. **	800.	1589.	.31	21.	22.5	F	17.8	14.6
14	3	1400.	0.	227.	3135.	0.	214.	1384.	4371.	0. **	1400.	1589.	.32	17.	27.3	F	17.1	15.1
15	2	1400.	0.	0.	2908.	0.	0.	1170.	4000.	0. **	1400.	1589.	.29	13.	44.0	F	16.5	15.6
16	2	1500.	0.	610.	2908.	0.	577.	1170.	3883.	0. **	1500.	1589.	.30	11.	51.7	F	15.6	16.3
17	2	1500.	0.	0.	2298.	0.	0.	593.	4000.	0. **	1500.	1589.	.15	6.	51.1	F	16.0	16.0
18	2	5000.	0.	0.	2298.	0.	0.	593.	4000.	0. **	5000.	1589.	.15	3.	85.5	F	13.8	18.2
19	2	5000.	807.	0.	3105.	807.	0.	1400.	4000.	0. **	5000.	1589.	.35	4.	167.2	F	9.5	25.6
20	3	750.	1100.	4205.	4205.	1100.	2500.	2500.	2500.	0.	0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. = 25.9 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 34.		23.9		19.5	13.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1878. VEH-HRS	2195. PASS-HRS	1878. VEH-HRS	2195. PASS-HRS

SR-237_EB_PM_P2_2040_PE

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	100. PASS-HRS	100. VEH-HRS	100. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1978. VEH-HRS	2295. PASS-HRS	1978. VEH-HRS	2295. PASS-HRS
TOTAL TRAV DISTANCE =	64127. VEH-MI.	78009. PASS-MI.	64127. VEH-MI.	78009. PASS-MI.
AVERAGE SYSTEM SPEED =	32. MPH.		34. MPH.	
AVERAGE DENSITY =	24. VPMPL		24. VPMPL	
TOTAL FUEL =	3332. GALLONS		3332. GALLONS	
TOTAL EMISSIONS =	883. KILOGRAMS		883. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.19	2	37.52	3	3.33	4	0.14	5	0.12
6	0.14	7	0.27	8	0.27	9	0.27	10	0.30
11	14.22	12	11.34	13	13.46	14	29.94	15	35.84
16	44.63	17	64.83	18	301.08	19	333.25	20	0.26

***** TOTAL DELAY = 891.4 VEH-HRS ***** AVERAGE DELAY = 59.85 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	3.42	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.42	18.03	1.11	5.83	0.31	7.25
ON-RAMP	4	RAMP	100.	50.00	4.50	18.03	1.11	5.83	0.31	7.25
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.50	18.03	1.11	5.83	0.31	7.25

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	18.42	27.09	32.90	40.48	43.96	46.84	67.44
2	0.00	1.41	7.22	14.80	18.28	21.16	41.76
3	0.00	0.00	3.82	11.40	14.88	17.76	38.36
4	0.00	0.00	0.00	3.70	7.18	10.06	30.66
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	3011.	0.	3011.	3011.	0.	3011.	6000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
2	3	99999.	0.	783.	3011.	0.	783.	3011.	6000.	0.	0.	0.	.50	62.	16.2	B	20.3	13.0
3	2	12000.	0.	0.	2228.	0.	0.	1408.	4000.	0. *	7309.	820.	.35	19.	37.5	F	17.1	15.1
4	3	350.	1051.	0.	3279.	900.	0.	2308.	4801.	0. **	350.	820.	.48	9.	89.3	F	11.3	22.1
5	3	300.	0.	0.	3279.	0.	0.	2308.	5010.	0. **	300.	820.	.46	8.	99.6	F	10.8	22.8
6	3	350.	0.	825.	3279.	0.	782.	2308.	4825.	0. **	350.	820.	.48	8.	98.6	F	10.7	23.1
7	2	940.	0.	0.	2454.	0.	0.	1526.	4000.	0. **	940.	820.	.38	5.	142.1	F	10.2	23.9

* 8	3	700.	1061.	0.	3515.	1061.	0.	2587.	5094.	0.	**	700.	820.	.51	7.	121.1	F	10.0	24.9 *
* 9	3	700.	0.	0.	3515.	0.	0.	2587.	5330.	0.	**	700.	820.	.49	6.	141.6	F	9.2	26.5 *
* 10	3	700.	0.	388.	3515.	0.	375.	2587.	5272.	0.	**	700.	820.	.49	6.	151.3	F	8.8	27.7 *
* 11	2	2300.	0.	0.	3127.	0.	0.	2211.	4000.	0.	**	2300.	820.	.55	7.	164.1	F	9.5	26.8 *
* 12	3	700.	725.	0.	3852.	725.	0.	2936.	5166.	0.	**	700.	820.	.57	7.	138.4	F	9.8	26.4 *
* 13	3	800.	0.	0.	3852.	0.	0.	2936.	4400.	0.	**	800.	820.	.67	10.	102.0	F	12.4	23.4 *
* 14	3	1400.	0.	333.	3852.	0.	322.	2936.	4360.	0.	**	1400.	820.	.67	10.	100.1	F	12.7	23.2 *
* 15	2	1400.	0.	0.	3519.	0.	0.	2614.	4000.	0.	**	1400.	820.	.65	9.	142.1	F	11.9	23.9 *
* 16	2	1500.	0.	631.	3519.	0.	622.	2614.	3886.	0.	**	1500.	820.	.67	10.	134.0	F	12.6	23.2 *
* 17	2	1500.	0.	393.	2888.	0.	368.	1992.	3893.	0.	**	1500.	820.	.51	6.	168.4	F	8.9	27.8 *
* 18	2	5000.	0.	0.	2495.	0.	0.	1624.	4000.	0.	**	5000.	820.	.41	4.	196.1	F	8.3	28.9 *
* 19	2	5000.	876.	0.	3371.	876.	0.	2500.	4000.	0.	**	5000.	820.	.63	8.	148.4	F	11.0	24.8 *
* 20	3	750.	0.	3371.	3371.	0.	2500.	2500.	2500.	0.		0.	0.	1.00	62.	13.4	E	20.3	13.0 *
*																			*
*																			*
* TOTAL	136889. =	25.9 MILES							MAX(V/C) = 1.00			LOWEST LOS = F		AVG = 27.		41.5		17.7	15.0 *
*																			*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2690. VEH-HRS	3037. PASS-HRS	4568. VEH-HRS	5232. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	275. VEH-HRS	275. PASS-HRS	375. VEH-HRS	375. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2966. VEH-HRS	3313. PASS-HRS	4944. VEH-HRS	5607. PASS-HRS
TOTAL TRAV DISTANCE =	72699. VEH-MI.	88554. PASS-MI.	136826. VEH-MI.	166563. PASS-MI.
AVERAGE SYSTEM SPEED =	25. MPH.		30. MPH.	
AVERAGE DENSITY =	41. VPMPL		33. VPMPL	
TOTAL FUEL =	4214. GALLONS		7546. GALLONS	
TOTAL EMISSIONS =	1127. KILOGRAMS		2010. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.21	2	42.45	3	177.83	4	17.29	5	16.64
6	19.00	7	52.13	8	45.04	9	52.55	10	55.34
11	128.15	12	49.04	13	39.54	14	67.68	15	64.71
16	64.72	17	86.98	18	347.70	19	244.57	20	0.26

***** TOTAL DELAY = 1571.8 VEH-HRS ***** AVERAGE DELAY = 46.39 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	251.	175.50	9.15	63.29	3.91	20.47	1.08	25.46
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	251.	175.50	9.15	63.29	3.91	20.47	1.08	25.46
ON-RAMP	4	RAMP	100.	100.00	7.27	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.27	36.06	2.23	11.66	0.62	14.51

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	18.42	44.13	50.06	56.45	59.46	61.84	80.17
2	0.00	1.98	7.92	14.31	17.31	19.70	38.03
3	0.00	0.00	3.65	10.04	13.04	15.43	33.76
4	0.00	0.00	0.00	3.33	6.33	8.72	27.05
5	0.00	0.00	0.00	0.00	0.00	0.00	6.88
6	0.00	0.00	0.00	0.00	0.00	0.00	0.14

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF		CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	2260.	0.	2260.	2260.	0.	2260.	6000.	0.		0.	0.	.38	62.	12.2	B	20.3	13.0
2	3	99999.	0.	588.	2260.	0.	588.	2260.	6000.	0.		0.	0.	.38	62.	12.2	B	20.3	13.0
3	2	12000.	0.	0.	1672.	0.	0.	1561.	4000.	0.	*	8879.	111.	.39	6.	135.8	F	10.4	23.5
4	3	350.	813.	0.	2485.	900.	0.	2461.	4854.	0.	**	350.	111.	.51	6.	140.8	F	8.9	27.9
5	3	300.	0.	0.	2485.	0.	0.	2461.	5010.	0.	**	300.	111.	.49	6.	148.2	F	8.7	28.2
6	3	350.	0.	679.	2485.	0.	701.	2461.	4859.	0.	**	350.	111.	.51	6.	141.0	F	8.9	27.9
7	2	940.	0.	0.	1806.	0.	0.	1761.	4000.	0.	**	940.	111.	.44	5.	188.6	F	8.3	28.9
8	3	700.	1085.	0.	2891.	1085.	0.	2846.	5096.	0.	**	700.	111.	.56	7.	138.3	F	9.6	26.7
9	3	700.	0.	0.	2891.	0.	0.	2846.	5330.	0.	**	700.	111.	.53	6.	149.4	F	9.2	27.3
10	3	700.	0.	319.	2891.	0.	327.	2846.	5288.	0.	**	700.	111.	.54	6.	147.4	F	9.3	27.2
11	2	2300.	0.	0.	2572.	0.	0.	2518.	4000.	0.	**	2300.	111.	.63	9.	147.4	F	11.2	24.7
12	3	700.	584.	0.	3156.	584.	0.	3102.	5205.	0.	**	700.	111.	.60	8.	134.2	F	10.3	25.6
13	3	800.	0.	0.	3156.	0.	0.	3102.	4400.	0.	**	800.	111.	.71	11.	96.0	F	13.4	22.3
14	3	1400.	0.	287.	3156.	0.	292.	3102.	4369.	0.	**	1400.	111.	.71	11.	94.5	F	13.5	22.2
15	2	1400.	0.	0.	2869.	0.	0.	2810.	4000.	0.	**	1400.	111.	.70	11.	131.5	F	13.3	22.4
16	2	1500.	0.	580.	2869.	0.	586.	2810.	3906.	0.	**	1500.	111.	.72	11.	124.8	F	13.6	21.9
17	2	1500.	0.	392.	2289.	0.	391.	2224.	3892.	0.	**	1500.	111.	.57	7.	155.7	F	9.9	26.3
18	2	5000.	0.	0.	1897.	0.	0.	1833.	4000.	0.	**	5000.	111.	.46	5.	184.7	F	8.3	28.9
19	2	5000.	667.	0.	2564.	667.	0.	2500.	4000.	0.	**	5000.	111.	.63	8.	148.4	F	11.0	24.8
20	3	750.	0.	2564.	2564.	0.	2500.	2500.	2500.	0.		0.	0.	1.00	62.	13.4	E	20.3	13.0
TOTAL		136889. = 25.9 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 21.		46.7		16.4	16.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2813. VEH-HRS	3100. PASS-HRS	7381. VEH-HRS	8332. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	307. VEH-HRS	307. PASS-HRS	683. VEH-HRS	683. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3121. VEH-HRS	3407. PASS-HRS	8064. VEH-HRS	9015. PASS-HRS
TOTAL TRAV DISTANCE =	57993. VEH-MI.	70148. PASS-MI.	194819. VEH-MI.	236711. PASS-MI.
AVERAGE SYSTEM SPEED =	19. MPH.		26. MPH.	
AVERAGE DENSITY =	47. VPMPL		37. VPMPL	
TOTAL FUEL =	3637. GALLONS		11183. GALLONS	
TOTAL EMISSIONS =	974. KILOGRAMS		2985. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.16	2	31.86	3	575.73	4	25.49	5	23.11
6	25.54	7	62.34	8	49.22	9	53.63	10	52.84
11	111.52	12	47.04	13	36.41	14	62.55	15	58.25
16	58.61	17	78.75	18	323.10	19	244.57	20	0.26

***** TOTAL DELAY = 1921.0 VEH-HRS ***** AVERAGE DELAY = 56.74 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	164.	207.50	11.70	74.82	4.63	24.20	1.28	30.10
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	164.	207.50	11.70	74.82	4.63	24.20	1.28	30.10
ON-RAMP	4	RAMP	100.	100.00	8.77	36.06	2.23	11.66	0.62	14.51
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.77	36.06	2.23	11.66	0.62	14.51

```
FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222     PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222      PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 18 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 62
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	12000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	350.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude On-ramp
5	1	1650.	300.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Maude to US-101
6	1	1650.	350.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
7	1	1650.	940.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	US101SB / US101SB
8	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US101 SB On-ramp
9	1	1650.	700.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / Mathilda
10	1	1650.	700.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda Off-ramp
11	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
12	1	1650.	700.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
13	1	1650.	800.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda / Persian HOV
14	1	1650.	1400.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Persian On-Ramp w/HOV
15	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	West of Lawrence E
16	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence Off-ramp
17	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	End of DKS
18	1	1650.	5000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy

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FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	692.	0.	692.	692.	0.	692.	1650.	0.	0.	0.	.42	62.	11.2	B	21.6	12.8
4	1	350.	174.	0.	866.	174.	0.	866.	1650.	0.	0.	0.	.52	62.	14.0	B	21.6	12.8
5	1	300.	0.	0.	866.	0.	0.	866.	1650.	0.	0.	0.	.52	62.	14.0	B	21.6	12.8
6	1	350.	0.	162.	866.	0.	162.	866.	1650.	0.	0.	0.	.52	62.	14.0	B	21.6	12.8
7	1	940.	0.	0.	704.	0.	0.	704.	1650.	0.	0.	0.	.43	62.	11.3	B	21.6	12.8
8	1	700.	144.	0.	848.	144.	0.	848.	1650.	0.	0.	0.	.51	62.	13.7	B	21.6	12.8
9	1	700.	0.	0.	848.	0.	0.	848.	1650.	0.	0.	0.	.51	62.	13.7	B	21.6	12.8
10	1	700.	0.	59.	848.	0.	59.	848.	1650.	0.	0.	0.	.51	62.	13.7	B	21.6	12.8
11	1	2300.	0.	0.	789.	0.	0.	789.	1650.	0.	0.	0.	.48	62.	12.7	B	21.6	12.8
12	1	700.	164.	0.	953.	164.	0.	953.	1650.	0.	0.	0.	.58	62.	15.4	B	21.6	12.8
13	1	800.	0.	0.	953.	0.	0.	953.	1650.	0.	0.	0.	.58	62.	15.4	B	21.6	12.8
14	1	1400.	0.	29.	953.	0.	29.	953.	1650.	0.	0.	0.	.58	62.	15.4	B	21.6	12.8
15	1	1400.	0.	0.	924.	0.	0.	924.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8
16	1	1500.	0.	117.	924.	0.	117.	924.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8
17	1	1500.	0.	0.	807.	0.	0.	807.	1650.	0.	0.	0.	.49	62.	13.0	B	21.6	12.8
18	1	5000.	0.	807.	807.	0.	807.	807.	1650.	0.	0.	0.	.49	62.	13.0	B	21.6	12.8
19																		
20																		
TOTAL		30640. = 5.8 MILES							MAX(V/C) = 0.58		LOWEST LOS = B			AVG = 62.	12.7		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	74. VEH-HRS	147. PASS-HRS	74. VEH-HRS	147. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	74. VEH-HRS	147. PASS-HRS	74. VEH-HRS	147. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4566. VEH-MI.	9133. PASS-MI.	4566. VEH-MI.	9133. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	13. VPMPL		13. VPMPL	
TOTAL FUEL =	212. GALLONS		212. GALLONS	
TOTAL EMISSIONS =	58. KILOGRAMS		58. KILOGRAMS	

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 16:16 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 3

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.04	5	0.04
6	0.04	7	0.09	8	0.08	9	0.08	10	0.08
11	0.26	12	0.09	13	0.11	14	0.19	15	0.18
16	0.20	17	0.17	18	0.57	19	0.00	20	0.00

***** TOTAL DELAY = 3.4 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 16:16 PAGE 6
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 16:16 PAGE 7
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 2 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	783.	0.	783.	783.	0.	783.	1650.	0.	0.	0.	.47	62.	12.6	B	21.6	12.8
4	1	350.	209.	0.	991.	209.	0.	991.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
5	1	300.	0.	0.	991.	0.	0.	991.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
6	1	350.	0.	185.	991.	0.	185.	991.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
7	1	940.	0.	0.	806.	0.	0.	806.	1650.	0.	0.	0.	.49	62.	13.0	B	21.6	12.8
8	1	700.	236.	0.	1042.	236.	0.	1042.	1650.	0.	0.	0.	.63	62.	16.8	B	21.6	12.8
9	1	700.	0.	0.	1042.	0.	0.	1042.	1650.	0.	0.	0.	.63	62.	16.8	B	21.6	12.8
10	1	700.	0.	58.	1042.	0.	58.	1042.	1650.	0.	0.	0.	.63	62.	16.8	B	21.6	12.8
11	1	2300.	0.	0.	984.	0.	0.	984.	1650.	0.	0.	0.	.60	62.	15.9	B	21.6	12.8
12	1	700.	154.	0.	1138.	154.	0.	1138.	1650.	0.	0.	0.	.69	62.	18.4	C	21.6	12.8
13	1	800.	0.	0.	1138.	0.	0.	1138.	1650.	0.	0.	0.	.69	62.	18.4	C	21.6	12.8
14	1	1400.	0.	40.	1138.	0.	40.	1138.	1650.	0.	0.	0.	.69	62.	18.4	C	21.6	12.8
15	1	1400.	0.	0.	1098.	0.	0.	1098.	1650.	0.	0.	0.	.67	62.	17.7	B	21.6	12.8
16	1	1500.	0.	114.	1098.	0.	114.	1098.	1650.	0.	0.	0.	.67	62.	17.7	B	21.6	12.8
17	1	1500.	0.	107.	983.	0.	107.	983.	1650.	0.	0.	0.	.60	62.	15.9	B	21.6	12.8
18	1	5000.	0.	876.	876.	0.	876.	876.	1650.	0.	0.	0.	.53	62.	14.1	B	21.6	12.8
19																		
20																		
TOTAL		30640. = 5.8 MILES								MAX(V/C) = 0.69		LOWEST LOS = C		AVG = 62.	14.7		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	85. VEH-HRS	171. PASS-HRS	159. VEH-HRS	318. PASS-HRS

SR-237_EB_PM_P2_2040_PL

FREEWAY MERGE DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	85.	VEH-HRS	171.	PASS-HRS	159.	VEH-HRS	318. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	5290.	VEH-MI.	10580.	PASS-MI.	9856.	VEH-MI.	19713. PASS-MI.
AVERAGE SYSTEM SPEED =	62.	MPH.			62.	MPH.	
AVERAGE DENSITY =	15.	VPMPL			14.	VPMPL	
TOTAL FUEL =	245.	GALLONS			457.	GALLONS	
TOTAL EMISSIONS =	68.	KILOGRAMS			126.	KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.32	4	0.05	5	0.04
6	0.05	7	0.11	8	0.10	9	0.10	10	0.10
11	0.32	12	0.11	13	0.13	14	0.22	15	0.22
16	0.23	17	0.21	18	0.62	19	0.00	20	0.00

***** TOTAL DELAY = 3.9 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	2.38	2.94	3.89	4.42	4.70	5.62	0.00
3	0.00	0.00	0.00	0.00	2.23	2.50	3.42	0.00
4	0.00	0.00	0.00	0.00	0.00	2.14	3.06	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	12000.	588.	0.	588.	588.	0.	588.	1650.	0.	0.	0.	.36	62.	9.5	A	21.6	12.8
4	1	350.	156.	0.	743.	156.	0.	743.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
5	1	300.	0.	0.	743.	0.	0.	743.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
6	1	350.	0.	151.	743.	0.	151.	743.	1650.	0.	0.	0.	.45	62.	12.0	B	21.6	12.8
7	1	940.	0.	0.	592.	0.	0.	592.	1650.	0.	0.	0.	.36	62.	9.6	A	21.6	12.8
8	1	700.	234.	0.	826.	234.	0.	826.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
9	1	700.	0.	0.	826.	0.	0.	826.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
10	1	700.	0.	42.	826.	0.	42.	826.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
11	1	2300.	0.	0.	784.	0.	0.	784.	1650.	0.	0.	0.	.48	62.	12.6	B	21.6	12.8
12	1	700.	115.	0.	899.	115.	0.	899.	1650.	0.	0.	0.	.54	62.	14.5	B	21.6	12.8
13	1	800.	0.	0.	899.	0.	0.	899.	1650.	0.	0.	0.	.54	62.	14.5	B	21.6	12.8
14	1	1400.	0.	31.	899.	0.	31.	899.	1650.	0.	0.	0.	.54	62.	14.5	B	21.6	12.8
15	1	1400.	0.	0.	868.	0.	0.	868.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
16	1	1500.	0.	94.	868.	0.	94.	868.	1650.	0.	0.	0.	.53	62.	14.0	B	21.6	12.8
17	1	1500.	0.	108.	774.	0.	108.	774.	1650.	0.	0.	0.	.47	62.	12.5	B	21.6	12.8
18	1	5000.	0.	667.	667.	0.	667.	667.	1650.	0.	0.	0.	.40	62.	10.8	A	21.6	12.8
19																		
20																		

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*****************************************************************************************************************************************
*                                                                                                                                       *
*   TOTAL   30640. =    5.8 MILES                      MAX(V/C) = 0.54  LOWEST LOS = B   AVG = 62.   11.3          21.6    12.8  *
*                                                                                                                                       *
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	CURRENT TIME SLICE				CUMULATIVE VALUES			
FREEWAY TRAVEL TIME =	66.	VEH-HRS	131.	PASS-HRS	225.	VEH-HRS	449.	PASS-HRS
FREEWAY MERGE DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0.	PASS-HRS
ON-RAMP MRG/CAP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0.	PASS-HRS
OFF-RAMP DELAY =	0.	VEH-HRS	0.	PASS-HRS	0.	VEH-HRS	0.	PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	66.	VEH-HRS	131.	PASS-HRS	225.	VEH-HRS	449.	PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4073.	VEH-MI.	8147.	PASS-MI.	13930.	VEH-MI.	27859.	PASS-MI.
AVERAGE SYSTEM SPEED =	62.	MPH.			62.	MPH.		
AVERAGE DENSITY =	11.	VPMPL			13.	VPMPL		
TOTAL FUEL =	189.	GALLONS			646.	GALLONS		
TOTAL EMISSIONS =	52.	KILOGRAMS			178.	KILOGRAMS		

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.99	4	0.04	5	0.03
6	0.04	7	0.08	8	0.08	9	0.08	10	0.08
11	0.25	12	0.09	13	0.10	14	0.18	15	0.17
16	0.18	17	0.16	18	0.47	19	0.00	20	0.00

***** TOTAL DELAY = 3.0 VEH-HRS ***** AVERAGE DELAY = 0.26 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seed
2	3	6000.	99999.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	11000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	2	4000.	1500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	2	4000.	1300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	3	5630.	500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	3	4390.	250.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
11	3	4390.	200.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	3	4390.	250.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	2	4000.	50.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	2	2400.	50.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
15	2	4000.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	2	4000.	10.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
19	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
20	3	6000.	500.	65	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End Of HOV

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***** INPUT HAS BEEN COMPLETED *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 10:25 PAGE 4
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TIME SLICE 1 OF 4

QUEUE COLLISION IN SECTION 4 T2 =0.116

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 10:25 PAGE 5
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TIME SLICE 1 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	19.27	25.53	26.08	26.09	26.28	26.83	29.12
2	0.00	2.39	2.94	2.95	3.14	3.70	5.98
3	0.00	0.70	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 10:25 PAGE 6
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5389.	0.	5389.	5389.	0.	5389.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
2	3	99999.	0.	1401.	5389.	0.	1401.	5389.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
3	2	11000.	0.	0.	3988.	0.	0.	3424.	4000.	0. *	9691.	564.	.86	32.	53.1	F	21.1	13.1
4	2	1500.	26.	0.	4014.	26.	0.	3450.	3996.	0. **	1500.	546.	.86	21.	84.1	F	18.2	16.1
5	2	1400.	0.	0.	4014.	0.	0.	3450.	4000.	0. **	1400.	546.	.86	19.	92.5	F	17.6	16.9
6	2	1500.	489.	0.	4503.	489.	0.	3939.	3939.	0.	0.	0.	1.00	52.	38.2	E	23.6	11.1
7	2	1300.	0.	0.	4503.	0.	0.	3939.	4000.	0.	0.	0.	.98	53.	37.3	E	23.4	11.2
8	3	500.	0.	918.	4503.	0.	805.	3939.	5348.	0.	0.	0.	.74	62.	21.2	C	20.3	13.0
9	2	2300.	0.	0.	3585.	0.	0.	3134.	4000.	0.	0.	0.	.78	61.	25.6	C	20.7	12.8
10	3	250.	172.	0.	3757.	172.	0.	3306.	4362.	0.	0.	0.	.76	62.	17.8	B	20.3	13.0
11	3	200.	0.	0.	3757.	0.	0.	3306.	4390.	0.	0.	0.	.75	62.	17.8	B	20.3	13.0
12	3	250.	0.	1245.	3757.	0.	1099.	3306.	4028.	0.	0.	0.	.82	62.	17.8	B	20.3	13.0
13	2	50.	0.	0.	2512.	0.	0.	2207.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
14	2	50.	0.	0.	2512.	0.	0.	2207.	2400.	0.	0.	0.	.92	62.	17.8	B	20.3	13.0
15	2	1000.	0.	0.	2512.	0.	0.	2207.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
16	2	10.	0.	0.	2512.	0.	0.	2207.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
17	2	1500.	537.	0.	3049.	537.	0.	2744.	3862.	0.	0.	0.	.71	62.	22.1	C	20.3	13.0
18	2	1500.	0.	698.	3049.	0.	633.	2744.	3838.	0.	0.	0.	.72	62.	22.1	C	20.3	13.0
19	2	12000.	0.	0.	2351.	0.	0.	2111.	4000.	0.	0.	0.	.53	62.	17.0	B	20.3	13.0
20	3	500.	826.	3177.	3177.	826.	2937.	2937.	6000.	0.	0.	0.	.49	65.	15.1	B	19.0	14.1
TOTAL		137309. = 26.0 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 55.		31.8		21.4	12.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1132. VEH-HRS	1359. PASS-HRS	1132. VEH-HRS	1359. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1132. VEH-HRS	1359. PASS-HRS	1132. VEH-HRS	1359. PASS-HRS
TOTAL TRAV DISTANCE =	61888. VEH-MI.	75352. PASS-MI.	61888. VEH-MI.	75352. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		55. MPH.	
AVERAGE DENSITY =	32. VPMPL		32. VPMPL	
TOTAL FUEL =	2891. GALLONS		2891. GALLONS	
TOTAL EMISSIONS =	767. KILOGRAMS		767. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	75.76	3	61.73	4	16.80	5	17.66
6	2.24	7	1.73	8	0.14	9	0.64	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.29	18	0.29	19	1.79	20	0.00

***** TOTAL DELAY = 179.8 VEH-HRS ***** AVERAGE DELAY = 2.67 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	20.58	30.25	30.80	30.81	31.00	31.55	33.84
2	0.00	2.55	3.10	3.11	3.30	3.85	6.14
3	0.00	0.70	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5389.	0.	5389.	5389.	0.	5389.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
2	3	99999.	0.	1401.	5389.	0.	1401.	4825.	6000.	0.	* 5623.	564.	.80	55.	29.0	F	21.4	12.4
3	2	11000.	0.	0.	3988.	0.	0.	3424.	4000.	0.	**11000.	564.	.86	18.	97.6	F	17.1	17.5
4	2	1500.	26.	0.	4014.	26.	0.	3450.	3996.	0.	** 1500.	546.	.86	18.	96.3	F	17.3	17.3
5	2	1400.	0.	0.	4014.	0.	0.	3450.	4000.	0.	** 1400.	546.	.86	18.	96.6	F	17.3	17.3
6	2	1500.	489.	0.	4503.	489.	0.	3939.	3939.	0.	0.	0.	1.00	52.	38.2	E	23.6	11.1
7	2	1300.	0.	0.	4503.	0.	0.	3939.	4000.	0.	0.	0.	.98	53.	37.3	E	23.4	11.2
8	3	500.	0.	918.	4503.	0.	805.	3939.	5348.	0.	0.	0.	.74	62.	21.2	C	20.3	13.0
9	2	2300.	0.	0.	3585.	0.	0.	3134.	4000.	0.	0.	0.	.78	61.	25.6	C	20.7	12.8
10	3	250.	172.	0.	3757.	172.	0.	3306.	4362.	0.	0.	0.	.76	62.	17.8	B	20.3	13.0
11	3	200.	0.	0.	3757.	0.	0.	3306.	4390.	0.	0.	0.	.75	62.	17.8	B	20.3	13.0
12	3	250.	0.	1245.	3757.	0.	1099.	3306.	4028.	0.	0.	0.	.82	62.	17.8	B	20.3	13.0
13	2	50.	0.	0.	2512.	0.	0.	2207.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
14	2	50.	0.	0.	2512.	0.	0.	2207.	2400.	0.	0.	0.	.92	62.	17.8	B	20.3	13.0
15	2	1000.	0.	0.	2512.	0.	0.	2207.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
16	2	10.	0.	0.	2512.	0.	0.	2207.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
17	2	1500.	537.	0.	3049.	537.	0.	2744.	3862.	0.	0.	0.	.71	62.	22.1	C	20.3	13.0

18	2	1500.	0.	698.	3049.	0.	633.	2744.	3838.	0.	0.	0.	.72	62.	22.1	C	20.3	13.0
19	2	12000.	0.	0.	2351.	0.	0.	2111.	4000.	0.	0.	0.	.53	62.	17.0	B	20.3	13.0
20	3	500.	826.	3177.	3177.	826.	2937.	2937.	6000.	0.	0.	0.	.49	65.	15.1	B	19.0	14.1
TOTAL	137309. =	26.0 MILES							MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 48.		34.6			21.0	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1273. VEH-HRS	1515. PASS-HRS	2405. VEH-HRS	2874. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1273. VEH-HRS	1515. PASS-HRS	2405. VEH-HRS	2874. PASS-HRS
TOTAL TRAV DISTANCE =	61353. VEH-MI.	74781. PASS-MI.	123241. VEH-MI.	150133. PASS-MI.
AVERAGE SYSTEM SPEED =	48. MPH.		51. MPH.	
AVERAGE DENSITY =	35. VPMPL		33. VPMPL	
TOTAL FUEL =	2927. GALLONS		5818. GALLONS	
TOTAL EMISSIONS =	785. KILOGRAMS		1552. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	134.34	3	148.55	4	19.83	5	18.58
6	2.24	7	1.73	8	0.14	9	0.64	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.29	18	0.29	19	1.79	20	0.00

***** TOTAL DELAY = 329.1 VEH-HRS ***** AVERAGE DELAY = 5.09 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	26.56	37.85	38.40	38.41	38.60	39.18	41.47
2	0.00	2.86	3.41	3.42	3.61	4.19	6.47
3	0.00	0.70	1.25	1.26	1.45	2.03	4.32
4	0.00	0.00	0.13	0.14	0.33	0.91	3.19
5	0.00	0.00	0.00	0.00	0.18	0.76	3.05
6	0.00	0.00	0.00	0.00	0.00	0.58	2.86
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5780.	0.	5780.	5780.	0.	5780.	6000.	0.	0.	0.	.96	55.	34.9	D	22.8	11.4
2	3	99999.	0.	1503.	5780.	0.	1503.	4730.	6000.	0.	* 17491.	1050.	.79	43.	36.7	F	21.8	12.2
3	2	11000.	0.	0.	4277.	0.	0.	3227.	4000.	0.	**11000.	773.	.81	15.	108.8	F	15.9	19.1
4	2	1500.	34.	0.	4311.	34.	0.	3261.	3995.	0.	** 1500.	734.	.82	15.	106.6	F	16.2	18.8
5	2	1400.	0.	0.	4311.	0.	0.	3261.	4000.	0.	** 1400.	734.	.82	15.	106.9	F	16.2	18.8

6	2	1500.	672.	0.	4983.	672.	0.	3933.	3933.	0.	0.	0.	1.00	52.	38.1	E	23.6	11.1
7	2	1300.	0.	0.	4983.	0.	0.	3933.	4000.	0.	0.	0.	.98	53.	37.2	E	23.3	11.2
8	3	500.	0.	1264.	4983.	0.	1001.	3933.	5254.	0.	0.	0.	.75	62.	21.1	C	20.3	13.0
9	2	2300.	0.	0.	3719.	0.	0.	2932.	4000.	0.	0.	0.	.73	62.	23.6	C	20.3	13.0
10	3	250.	237.	0.	3956.	237.	0.	3169.	4358.	0.	0.	0.	.73	62.	17.0	B	20.3	13.0
11	3	200.	0.	0.	3956.	0.	0.	3169.	4390.	0.	0.	0.	.72	62.	17.0	B	20.3	13.0
12	3	250.	0.	1099.	3956.	0.	886.	3169.	4085.	0.	0.	0.	.78	62.	17.0	B	20.3	13.0
13	2	50.	0.	273.	2857.	0.	220.	2283.	3924.	0.	0.	0.	.58	62.	18.4	C	20.3	13.0
14	2	50.	0.	0.	2584.	0.	0.	2063.	2400.	0.	0.	0.	.86	62.	16.6	B	20.3	13.0
15	2	1000.	287.	0.	2871.	287.	0.	2350.	3937.	0.	0.	0.	.60	62.	19.0	C	20.3	13.0
16	2	10.	0.	0.	2871.	0.	0.	2350.	4000.	0.	0.	0.	.59	62.	19.0	C	20.3	13.0
17	2	1500.	923.	0.	3794.	923.	0.	3273.	3796.	0.	0.	0.	.86	59.	27.6	D	21.6	12.2
18	2	1500.	0.	1259.	3794.	0.	1101.	3273.	3773.	0.	0.	0.	.87	59.	27.7	D	21.6	12.2
19	2	12000.	0.	0.	2535.	0.	0.	2172.	4000.	0.	0.	0.	.54	62.	17.5	B	20.3	13.0
20	3	500.	891.	3426.	3426.	891.	3063.	3063.	6000.	0.	0.	0.	.51	65.	15.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 39.	41.5		21.2	12.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1636. VEH-HRS	1964. PASS-HRS	4041. VEH-HRS	4838. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1636. VEH-HRS	1964. PASS-HRS	4041. VEH-HRS	4838. PASS-HRS
TOTAL TRAV DISTANCE =	63982. VEH-MI.	78121. PASS-MI.	187222. VEH-MI.	228254. PASS-MI.
AVERAGE SYSTEM SPEED =	39. MPH.		46. MPH.	
AVERAGE DENSITY =	42. VPMPL		36. VPMPL	
TOTAL FUEL =	3018. GALLONS		8836. GALLONS	
TOTAL EMISSIONS =	814. KILOGRAMS		2366. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.75	2	423.43	3	174.89	4	23.15	5	21.70
6	2.24	7	1.71	8	0.14	9	0.48	10	0.06
11	0.04	12	0.06	13	0.01	14	0.01	15	0.17
16	0.00	17	0.68	18	0.71	19	1.84	20	0.00

***** TOTAL DELAY = 652.0 VEH-HRS ***** AVERAGE DELAY = 9.61 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	32.85	44.14	44.69	44.70	44.89	45.47	47.75
2	0.00	2.86	3.41	3.42	3.61	4.19	6.47
3	0.00	0.70	1.25	1.26	1.45	2.03	4.32
4	0.00	0.00	0.13	0.14	0.33	0.91	3.19
5	0.00	0.00	0.00	0.00	0.18	0.76	3.05
6	0.00	0.00	0.00	0.00	0.00	0.58	2.86
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

SR-237_WB_AM_NP_2040_PE
TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5780.	0.	5780.	5780.	0.	5780.	6000.	0.	0.	0.	.96	55.	34.9	D	22.8	11.4
2	3	99999.	0.	1503.	5780.	0.	1503.	4730.	6000.	0.	* 29359.	1050.	.79	35.	45.4	F	20.8	13.1
3	2	11000.	0.	0.	4277.	0.	0.	3227.	4000.	0.	**11000.	773.	.81	15.	108.8	F	15.9	19.1
4	2	1500.	34.	0.	4311.	34.	0.	3261.	3995.	0.	** 1500.	734.	.82	15.	106.6	F	16.2	18.8
5	2	1400.	0.	0.	4311.	0.	0.	3261.	4000.	0.	** 1400.	734.	.82	15.	106.9	F	16.2	18.8
6	2	1500.	672.	0.	4983.	672.	0.	3933.	3933.	0.	0.	0.	1.00	52.	38.1	E	23.6	11.1
7	2	1300.	0.	0.	4983.	0.	0.	3933.	4000.	0.	0.	0.	.98	53.	37.2	E	23.3	11.2
8	3	500.	0.	1264.	4983.	0.	1001.	3933.	5254.	0.	0.	0.	.75	62.	21.1	C	20.3	13.0
9	2	2300.	0.	0.	3719.	0.	0.	2932.	4000.	0.	0.	0.	.73	62.	23.6	C	20.3	13.0
10	3	250.	237.	0.	3956.	237.	0.	3169.	4358.	0.	0.	0.	.73	62.	17.0	B	20.3	13.0
11	3	200.	0.	0.	3956.	0.	0.	3169.	4390.	0.	0.	0.	.72	62.	17.0	B	20.3	13.0
12	3	250.	0.	1099.	3956.	0.	886.	3169.	4085.	0.	0.	0.	.78	62.	17.0	B	20.3	13.0
13	2	50.	0.	273.	2857.	0.	220.	2283.	3924.	0.	0.	0.	.58	62.	18.4	C	20.3	13.0
14	2	50.	0.	0.	2584.	0.	0.	2063.	2400.	0.	0.	0.	.86	62.	16.6	B	20.3	13.0
15	2	1000.	287.	0.	2871.	287.	0.	2350.	3937.	0.	0.	0.	.60	62.	19.0	C	20.3	13.0
16	2	10.	0.	0.	2871.	0.	0.	2350.	4000.	0.	0.	0.	.59	62.	19.0	C	20.3	13.0
17	2	1500.	923.	0.	3794.	923.	0.	3273.	3796.	0.	0.	0.	.86	59.	27.6	D	21.6	12.2
18	2	1500.	0.	1259.	3794.	0.	1101.	3273.	3773.	0.	0.	0.	.87	59.	27.7	D	21.6	12.2
19	2	12000.	0.	0.	2535.	0.	0.	2172.	4000.	0.	0.	0.	.54	62.	17.5	B	20.3	13.0
20	3	500.	891.	3426.	3426.	891.	3063.	3063.	6000.	0.	0.	0.	.51	65.	15.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 33.		47.9	20.4	13.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1899. VEH-HRS	2295. PASS-HRS	5940. VEH-HRS	7133. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1899. VEH-HRS	2295. PASS-HRS	5940. VEH-HRS	7133. PASS-HRS
TOTAL TRAV DISTANCE =	62802. VEH-MI.	76634. PASS-MI.	250024. VEH-MI.	304888. PASS-MI.
AVERAGE SYSTEM SPEED =	33. MPH.		42. MPH.	
AVERAGE DENSITY =	48. VPMPL		39. VPMPL	
TOTAL FUEL =	3080. GALLONS		11916. GALLONS	
TOTAL EMISSIONS =	845. KILOGRAMS		3211. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.75	2	704.09	3	174.89	4	23.15	5	21.70
6	2.24	7	1.71	8	0.14	9	0.48	10	0.06
11	0.04	12	0.06	13	0.01	14	0.01	15	0.17
16	0.00	17	0.68	18	0.71	19	1.84	20	0.00

***** TOTAL DELAY = 932.7 VEH-HRS ***** AVERAGE DELAY = 13.17 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 19 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1650.	1300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	1	1650.	500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	1	1650.	250.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
11	1	1650.	200.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	1	1650.	250.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	1	1650.	50.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	1	1650.	50.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleeck
15	1	1650.	1000.	62	OD	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	1	1650.	10.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Maude Off-ramp

19	1	1650.	12000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy	
20																

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 10:25 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1401.	0.	1401.	1401.	0.	1401.	1650.	0.	0.	0.	.85	62.	22.6	C	21.6	12.8
4	1	1500.	4.	0.	1405.	4.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
5	1	1400.	0.	0.	1405.	0.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
6	1	1500.	61.	0.	1466.	61.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
7	1	1300.	0.	0.	1466.	0.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
8	1	500.	0.	282.	1466.	0.	282.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
9	1	2300.	0.	0.	1185.	0.	0.	1185.	1650.	0.	0.	0.	.72	62.	19.1	C	21.6	12.8
10	1	250.	28.	0.	1212.	28.	0.	1212.	1650.	0.	0.	0.	.73	62.	19.6	C	21.6	12.8
11	1	200.	0.	0.	1212.	0.	0.	1212.	1650.	0.	0.	0.	.73	62.	19.6	C	21.6	12.8
12	1	250.	0.	362.	1212.	0.	362.	1212.	1650.	0.	0.	0.	.73	62.	19.6	C	21.6	12.8
13	1	50.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
14	1	50.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
15	1	1000.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
16	1	10.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
17	1	1500.	138.	0.	988.	138.	0.	988.	1650.	0.	0.	0.	.60	62.	15.9	B	21.6	12.8
18	1	1500.	0.	162.	988.	0.	162.	988.	1650.	0.	0.	0.	.60	62.	15.9	B	21.6	12.8
19	1	12000.	0.	826.	826.	0.	826.	826.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
20																		

TOTAL 36310. = 6.9 MILES MAX(V/C) = 0.89 LOWEST LOS = C AVG = 62. 18.5 21.6 12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	64. VEH-HRS	127. PASS-HRS	64. VEH-HRS	127. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	64. VEH-HRS	127. PASS-HRS	64. VEH-HRS	127. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3951. VEH-MI.	7901. PASS-MI.	3951. VEH-MI.	7901. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	183. GALLONS		183. GALLONS	

TOTAL EMISSIONS = 50. KILOGRAMS 50. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.09	4	0.15	5	0.14
6	0.16	7	0.13	8	0.05	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.10	18	0.10	19	0.70	20	0.00

***** TOTAL DELAY = 2.9 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1401.	0.	1401.	1401.	0.	1401.	1650.	0.	0.	0.	.85	62.	22.6	C	21.6	12.8
4	1	1500.	4.	0.	1405.	4.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
5	1	1400.	0.	0.	1405.	0.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
6	1	1500.	61.	0.	1466.	61.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
7	1	1300.	0.	0.	1466.	0.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
8	1	500.	0.	282.	1466.	0.	282.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
9	1	2300.	0.	0.	1185.	0.	0.	1185.	1650.	0.	0.	0.	.72	62.	19.1	C	21.6	12.8
10	1	250.	28.	0.	1212.	28.	0.	1212.	1650.	0.	0.	0.	.73	62.	19.6	C	21.6	12.8
11	1	200.	0.	0.	1212.	0.	0.	1212.	1650.	0.	0.	0.	.73	62.	19.6	C	21.6	12.8
12	1	250.	0.	362.	1212.	0.	362.	1212.	1650.	0.	0.	0.	.73	62.	19.6	C	21.6	12.8
13	1	50.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
14	1	50.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
15	1	1000.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
16	1	10.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
17	1	1500.	138.	0.	988.	138.	0.	988.	1650.	0.	0.	0.	.60	62.	15.9	B	21.6	12.8
18	1	1500.	0.	162.	988.	0.	162.	988.	1650.	0.	0.	0.	.60	62.	15.9	B	21.6	12.8
19	1	12000.	0.	826.	826.	0.	826.	826.	1650.	0.	0.	0.	.50	62.	13.3	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.89		LOWEST LOS = C		AVG = 62.		18.5		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	64. VEH-HRS	127. PASS-HRS	127. VEH-HRS	255. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	64. VEH-HRS	127. PASS-HRS	127. VEH-HRS	255. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3951. VEH-MI.	7901. PASS-MI.	7901. VEH-MI.	15803. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	183. GALLONS		367. GALLONS	
TOTAL EMISSIONS =	50. KILOGRAMS		101. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.09	4	0.15	5	0.14
6	0.16	7	0.13	8	0.05	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.10	18	0.10	19	0.70	20	0.00

***** TOTAL DELAY = 2.9 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.23	3.78	3.79	3.98	4.53	6.73	0.00
3	0.00	0.00	0.00	0.00	0.00	2.52	4.72	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.19	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1503.	0.	1503.	1503.	0.	1503.	1650.	0.	0.	0.	.91	62.	24.2	C	21.6	12.8
4	1	1500.	5.	0.	1508.	5.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
5	1	1400.	0.	0.	1508.	0.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
6	1	1500.	67.	0.	1575.	67.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
7	1	1300.	0.	0.	1575.	0.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
8	1	500.	0.	376.	1575.	0.	376.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
9	1	2300.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
10	1	250.	32.	0.	1231.	32.	0.	1231.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
11	1	200.	0.	0.	1231.	0.	0.	1231.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
12	1	250.	0.	305.	1231.	0.	305.	1231.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
13	1	50.	0.	76.	926.	0.	76.	926.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8
14	1	50.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
15	1	1000.	63.	0.	914.	63.	0.	914.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8

16	1	10.	0.	0.	914.	0.	0.	914.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
17	1	1500.	204.	0.	1118.	204.	0.	1118.	1650.	0.	0.	0.	.68	62.	18.0	C	21.6	12.8
18	1	1500.	0.	227.	1118.	0.	227.	1118.	1650.	0.	0.	0.	.68	62.	18.0	C	21.6	12.8
19	1	12000.	0.	891.	890.	0.	891.	890.	1650.	0.	0.	0.	.54	62.	14.4	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.95 LOWEST LOS = D				AVG = 61.		20.2		21.8	12.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	69. VEH-HRS	139. PASS-HRS	197. VEH-HRS	394. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	69. VEH-HRS	139. PASS-HRS	197. VEH-HRS	394. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4240. VEH-MI.	8479. PASS-MI.	12141. VEH-MI.	24282. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	194. GALLONS		561. GALLONS	
TOTAL EMISSIONS =	53. KILOGRAMS		154. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.16	5	0.15
6	0.64	7	0.55	8	0.21	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.12	18	0.12	19	0.75	20	0.00

***** TOTAL DELAY = 4.2 VEH-HRS ***** AVERAGE DELAY = 0.19 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.23	3.78	3.79	3.98	4.53	6.73	0.00
3	0.00	0.00	0.00	0.00	0.00	2.52	4.72	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.19	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1503.	0.	1503.	1503.	0.	1503.	1650.	0.	0.	0.	.91	62.	24.2	C	21.6	12.8

4	1	1500.	5.	0.	1508.	5.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
5	1	1400.	0.	0.	1508.	0.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
6	1	1500.	67.	0.	1575.	67.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
7	1	1300.	0.	0.	1575.	0.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
8	1	500.	0.	376.	1575.	0.	376.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
9	1	2300.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
10	1	250.	32.	0.	1231.	32.	0.	1231.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
11	1	200.	0.	0.	1231.	0.	0.	1231.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
12	1	250.	0.	305.	1231.	0.	305.	1231.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
13	1	50.	0.	76.	926.	0.	76.	926.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8
14	1	50.	0.	0.	850.	0.	0.	850.	1650.	0.	0.	0.	.52	62.	13.7	B	21.6	12.8
15	1	1000.	63.	0.	914.	63.	0.	914.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
16	1	10.	0.	0.	914.	0.	0.	914.	1650.	0.	0.	0.	.55	62.	14.7	B	21.6	12.8
17	1	1500.	204.	0.	1118.	204.	0.	1118.	1650.	0.	0.	0.	.68	62.	18.0	C	21.6	12.8
18	1	1500.	0.	227.	1118.	0.	227.	1118.	1650.	0.	0.	0.	.68	62.	18.0	C	21.6	12.8
19	1	12000.	0.	891.	890.	0.	891.	890.	1650.	0.	0.	0.	.54	62.	14.4	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.95		LOWEST LOS = D		AVG = 61.		20.2		21.8	12.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	69. VEH-HRS	139. PASS-HRS	266. VEH-HRS	533. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	69. VEH-HRS	139. PASS-HRS	266. VEH-HRS	533. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4240. VEH-MI.	8479. PASS-MI.	16381. VEH-MI.	32762. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	194. GALLONS		755. GALLONS	
TOTAL EMISSIONS =	53. KILOGRAMS		208. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.16	5	0.15
6	0.64	7	0.55	8	0.21	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.12	18	0.12	19	0.75	20	0.00

***** TOTAL DELAY = 4.2 VEH-HRS ***** AVERAGE DELAY = 0.19 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seed
2	3	6000.	99999.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	11000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	2	4000.	1500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	2	4000.	1300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	3	5630.	500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	3	4390.	250.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
11	3	4390.	200.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	3	4390.	250.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	2	4000.	50.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	2	2400.	50.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
15	2	4000.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	2	4000.	10.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
19	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
20	3	6000.	500.	65	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End Of HOV

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***** INPUT HAS BEEN COMPLETED *****

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TIME SLICE 1 OF 4

QUEUE COLLISION IN SECTION 4 T2 =0.116

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TIME SLICE 1 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	19.26	25.52	26.07	26.08	26.28	26.83	29.11
2	0.00	2.39	2.94	2.95	3.14	3.70	5.98
3	0.00	0.70	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

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TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5388.	0.	5388.	5388.	0.	5388.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
2	3	99999.	0.	1401.	5388.	0.	1401.	5388.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
3	2	11000.	0.	0.	3987.	0.	0.	3424.	4000.	0. *	9665.	563.	.86	32.	53.0	F	21.1	13.1
4	2	1500.	26.	0.	4013.	26.	0.	3450.	3996.	0. **	1500.	546.	.86	21.	84.1	F	18.2	16.1
5	2	1400.	0.	0.	4013.	0.	0.	3450.	4000.	0. **	1400.	546.	.86	19.	92.5	F	17.6	16.9
6	2	1500.	489.	0.	4502.	489.	0.	3939.	3939.	0.	0.	0.	1.00	52.	38.2	E	23.6	11.1
7	2	1300.	0.	0.	4502.	0.	0.	3939.	4000.	0.	0.	0.	.98	53.	37.3	E	23.4	11.2
8	3	500.	0.	918.	4502.	0.	805.	3939.	5348.	0.	0.	0.	.74	62.	21.2	C	20.3	13.0
9	2	2300.	0.	0.	3584.	0.	0.	3134.	4000.	0.	0.	0.	.78	61.	25.6	C	20.7	12.8
10	3	250.	198.	0.	3782.	198.	0.	3332.	4358.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
11	3	200.	0.	0.	3782.	0.	0.	3332.	4390.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
12	3	250.	0.	1246.	3782.	0.	1101.	3332.	4030.	0.	0.	0.	.83	62.	17.9	B	20.3	13.0
13	2	50.	0.	0.	2536.	0.	0.	2231.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
14	2	50.	0.	0.	2536.	0.	0.	2231.	2400.	0.	0.	0.	.93	62.	18.0	B	20.3	13.0
15	2	1000.	0.	0.	2536.	0.	0.	2231.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
16	2	10.	0.	0.	2536.	0.	0.	2231.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
17	2	1500.	539.	0.	3075.	539.	0.	2770.	3861.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0
18	2	1500.	0.	707.	3075.	0.	642.	2770.	3836.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0
19	2	12000.	0.	0.	2368.	0.	0.	2128.	4000.	0.	0.	0.	.53	62.	17.2	B	20.3	13.0
20	3	500.	832.	3200.	3200.	832.	2960.	2960.	6000.	0.	0.	0.	.49	65.	15.2	B	19.0	14.1
TOTAL		137309. = 26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F	AVG = 55.	31.8		21.4	12.4

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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1132. VEH-HRS	1359. PASS-HRS	1132. VEH-HRS	1359. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1132. VEH-HRS	1359. PASS-HRS	1132. VEH-HRS	1359. PASS-HRS
TOTAL TRAV DISTANCE =	61910. VEH-MI.	75373. PASS-MI.	61910. VEH-MI.	75373. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		55. MPH.	
AVERAGE DENSITY =	32. VPMPL		32. VPMPL	
TOTAL FUEL =	2893. GALLONS		2893. GALLONS	
TOTAL EMISSIONS =	768. KILOGRAMS		768. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	75.62	3	61.56	4	16.80	5	17.66
6	2.24	7	1.73	8	0.14	9	0.64	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.29	18	0.29	19	1.80	20	0.00

***** TOTAL DELAY = 179.5 VEH-HRS ***** AVERAGE DELAY = 2.67 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	20.57	30.23	30.79	30.80	30.99	31.54	33.83
2	0.00	2.55	3.10	3.11	3.30	3.85	6.14
3	0.00	0.70	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5388.	0.	5388.	5388.	0.	5388.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
2	3	99999.	0.	1401.	5388.	0.	1401.	4825.	6000.	0.	* 5597.	563.	.80	56.	29.0	F	21.4	12.4
3	2	11000.	0.	0.	3987.	0.	0.	3424.	4000.	0.	**11000.	563.	.86	18.	97.5	F	17.1	17.5
4	2	1500.	26.	0.	4013.	26.	0.	3450.	3996.	0.	** 1500.	546.	.86	18.	96.3	F	17.3	17.3
5	2	1400.	0.	0.	4013.	0.	0.	3450.	4000.	0.	** 1400.	546.	.86	18.	96.6	F	17.3	17.3
6	2	1500.	489.	0.	4502.	489.	0.	3939.	3939.	0.	0.	0.	1.00	52.	38.2	E	23.6	11.1
7	2	1300.	0.	0.	4502.	0.	0.	3939.	4000.	0.	0.	0.	.98	53.	37.3	E	23.4	11.2
8	3	500.	0.	918.	4502.	0.	805.	3939.	5348.	0.	0.	0.	.74	62.	21.2	C	20.3	13.0
9	2	2300.	0.	0.	3584.	0.	0.	3134.	4000.	0.	0.	0.	.78	61.	25.6	C	20.7	12.8
10	3	250.	198.	0.	3782.	198.	0.	3332.	4358.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
11	3	200.	0.	0.	3782.	0.	0.	3332.	4390.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
12	3	250.	0.	1246.	3782.	0.	1101.	3332.	4030.	0.	0.	0.	.83	62.	17.9	B	20.3	13.0
13	2	50.	0.	0.	2536.	0.	0.	2231.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
14	2	50.	0.	0.	2536.	0.	0.	2231.	2400.	0.	0.	0.	.93	62.	18.0	B	20.3	13.0
15	2	1000.	0.	0.	2536.	0.	0.	2231.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
16	2	10.	0.	0.	2536.	0.	0.	2231.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
17	2	1500.	539.	0.	3075.	539.	0.	2770.	3861.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0

* 18	2	1500.	0.	707.	3075.	0.	642.	2770.	3836.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0	*
* 19	2	12000.	0.	0.	2368.	0.	0.	2128.	4000.	0.	0.	0.	.53	62.	17.2	B	20.3	13.0	*
* 20	3	500.	832.	3200.	3200.	832.	2960.	2960.	6000.	0.	0.	0.	.49	65.	15.2	B	19.0	14.1	*
* TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 48.		34.6	21.0	12.8 *

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1273. VEH-HRS	1514. PASS-HRS	2405. VEH-HRS	2874. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1273. VEH-HRS	1514. PASS-HRS	2405. VEH-HRS	2874. PASS-HRS
TOTAL TRAV DISTANCE =	61376. VEH-MI.	74805. PASS-MI.	123286. VEH-MI.	150178. PASS-MI.
AVERAGE SYSTEM SPEED =	48. MPH.		51. MPH.	
AVERAGE DENSITY =	35. VPMPL		33. VPMPL	
TOTAL FUEL =	2928. GALLONS		5821. GALLONS	
TOTAL EMISSIONS =	785. KILOGRAMS		1553. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	133.78	3	148.51	4	19.83	5	18.58
6	2.24	7	1.73	8	0.14	9	0.64	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.29	18	0.29	19	1.80	20	0.00

***** TOTAL DELAY = 328.6 VEH-HRS ***** AVERAGE DELAY = 5.08 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	26.55	37.84	38.39	38.40	38.59	39.17	41.46
2	0.00	2.86	3.41	3.42	3.61	4.19	6.48
3	0.00	0.70	1.25	1.26	1.45	2.03	4.32
4	0.00	0.00	0.13	0.14	0.33	0.91	3.20
5	0.00	0.00	0.00	0.00	0.18	0.76	3.05
6	0.00	0.00	0.00	0.00	0.00	0.58	2.87
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5780.	0.	5780.	5780.	0.	5780.	6000.	0.	0.	0.	.96	55.	34.9	D	22.8	11.4
2	3	99999.	0.	1503.	5780.	0.	1503.	4730.	6000.	0.	* 17465.	1050.	.79	43.	36.7	F	21.8	12.2
3	2	11000.	0.	0.	4277.	0.	0.	3227.	4000.	0.	**11000.	773.	.81	15.	108.8	F	15.9	19.1
4	2	1500.	34.	0.	4311.	34.	0.	3261.	3995.	0.	** 1500.	734.	.82	15.	106.6	F	16.2	18.8
5	2	1400.	0.	0.	4311.	0.	0.	3261.	4000.	0.	** 1400.	734.	.82	15.	106.9	F	16.2	18.8

6	2	1500.	672.	0.	4983.	672.	0.	3933.	3933.	0.	0.	0.	1.00	52.	38.1	E	23.6	11.1
7	2	1300.	0.	0.	4983.	0.	0.	3933.	4000.	0.	0.	0.	.98	53.	37.2	E	23.3	11.2
8	3	500.	0.	1264.	4983.	0.	1001.	3933.	5254.	0.	0.	0.	.75	62.	21.1	C	20.3	13.0
9	2	2300.	0.	0.	3719.	0.	0.	2932.	4000.	0.	0.	0.	.73	62.	23.6	C	20.3	13.0
10	3	250.	278.	0.	3997.	278.	0.	3210.	4352.	0.	0.	0.	.74	62.	17.3	B	20.3	13.0
11	3	200.	0.	0.	3997.	0.	0.	3210.	4390.	0.	0.	0.	.73	62.	17.3	B	20.3	13.0
12	3	250.	0.	1103.	3997.	0.	891.	3210.	4088.	0.	0.	0.	.79	62.	17.3	B	20.3	13.0
13	2	50.	0.	275.	2894.	0.	222.	2318.	3925.	0.	0.	0.	.59	62.	18.7	C	20.3	13.0
14	2	50.	0.	0.	2619.	0.	0.	2096.	2400.	0.	0.	0.	.87	62.	16.9	B	20.3	13.0
15	2	1000.	287.	0.	2906.	287.	0.	2383.	3937.	0.	0.	0.	.61	62.	19.2	C	20.3	13.0
16	2	10.	0.	0.	2906.	0.	0.	2383.	4000.	0.	0.	0.	.60	62.	19.2	C	20.3	13.0
17	2	1500.	927.	0.	3833.	927.	0.	3310.	3796.	0.	0.	0.	.87	59.	28.1	D	21.7	12.2
18	2	1500.	0.	1282.	3833.	0.	1123.	3310.	3770.	0.	0.	0.	.88	59.	28.2	D	21.7	12.1
19	2	12000.	0.	0.	2551.	0.	0.	2187.	4000.	0.	0.	0.	.55	62.	17.6	B	20.3	13.0
20	3	500.	896.	3447.	3447.	896.	3083.	3083.	6000.	0.	0.	0.	.51	65.	15.8	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 39.	41.5		21.2	12.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1637. VEH-HRS	1964. PASS-HRS	4041. VEH-HRS	4838. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1637. VEH-HRS	1964. PASS-HRS	4041. VEH-HRS	4838. PASS-HRS
TOTAL TRAV DISTANCE =	64020. VEH-MI.	78162. PASS-MI.	187306. VEH-MI.	228339. PASS-MI.
AVERAGE SYSTEM SPEED =	39. MPH.		46. MPH.	
AVERAGE DENSITY =	42. VPMPL		36. VPMPL	
TOTAL FUEL =	3020. GALLONS		8840. GALLONS	
TOTAL EMISSIONS =	814. KILOGRAMS		2367. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.75	2	422.83	3	174.89	4	23.15	5	21.70
6	2.24	7	1.71	8	0.14	9	0.48	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.17
16	0.00	17	0.74	18	0.77	19	1.85	20	0.00

***** TOTAL DELAY = 651.6 VEH-HRS ***** AVERAGE DELAY = 9.61 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	32.84	44.12	44.67	44.68	44.88	45.46	47.74
2	0.00	2.86	3.41	3.42	3.61	4.19	6.48
3	0.00	0.70	1.25	1.26	1.45	2.03	4.32
4	0.00	0.00	0.13	0.14	0.33	0.91	3.20
5	0.00	0.00	0.00	0.00	0.18	0.76	3.05
6	0.00	0.00	0.00	0.00	0.00	0.58	2.87
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5780.	0.	5780.	5780.	0.	5780.	6000.	0.	0.	0.	.96	55.	34.9	D	22.8	11.4
2	3	99999.	0.	1503.	5780.	0.	1503.	4730.	6000.	0.	* 29334.	1050.	.79	35.	45.4	F	20.8	13.1
3	2	11000.	0.	0.	4277.	0.	0.	3227.	4000.	0.	**11000.	773.	.81	15.	108.8	F	15.9	19.1
4	2	1500.	34.	0.	4311.	34.	0.	3261.	3995.	0.	** 1500.	734.	.82	15.	106.6	F	16.2	18.8
5	2	1400.	0.	0.	4311.	0.	0.	3261.	4000.	0.	** 1400.	734.	.82	15.	106.9	F	16.2	18.8
6	2	1500.	672.	0.	4983.	672.	0.	3933.	3933.	0.	0.	0.	1.00	52.	38.1	E	23.6	11.1
7	2	1300.	0.	0.	4983.	0.	0.	3933.	4000.	0.	0.	0.	.98	53.	37.2	E	23.3	11.2
8	3	500.	0.	1264.	4983.	0.	1001.	3933.	5254.	0.	0.	0.	.75	62.	21.1	C	20.3	13.0
9	2	2300.	0.	0.	3719.	0.	0.	2932.	4000.	0.	0.	0.	.73	62.	23.6	C	20.3	13.0
10	3	250.	278.	0.	3997.	278.	0.	3210.	4352.	0.	0.	0.	.74	62.	17.3	B	20.3	13.0
11	3	200.	0.	0.	3997.	0.	0.	3210.	4390.	0.	0.	0.	.73	62.	17.3	B	20.3	13.0
12	3	250.	0.	1103.	3997.	0.	891.	3210.	4088.	0.	0.	0.	.79	62.	17.3	B	20.3	13.0
13	2	50.	0.	275.	2894.	0.	222.	2318.	3925.	0.	0.	0.	.59	62.	18.7	C	20.3	13.0
14	2	50.	0.	0.	2619.	0.	0.	2096.	2400.	0.	0.	0.	.87	62.	16.9	B	20.3	13.0
15	2	1000.	287.	0.	2906.	287.	0.	2383.	3937.	0.	0.	0.	.61	62.	19.2	C	20.3	13.0
16	2	10.	0.	0.	2906.	0.	0.	2383.	4000.	0.	0.	0.	.60	62.	19.2	C	20.3	13.0
17	2	1500.	927.	0.	3833.	927.	0.	3310.	3796.	0.	0.	0.	.87	59.	28.1	D	21.7	12.2
18	2	1500.	0.	1282.	3833.	0.	1123.	3310.	3770.	0.	0.	0.	.88	59.	28.2	D	21.7	12.1
19	2	12000.	0.	0.	2551.	0.	0.	2187.	4000.	0.	0.	0.	.55	62.	17.6	B	20.3	13.0
20	3	500.	896.	3447.	3447.	896.	3083.	3083.	6000.	0.	0.	0.	.51	65.	15.8	B	19.0	14.1
TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 33.		47.9	20.4	13.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1899. VEH-HRS	2295. PASS-HRS	5940. VEH-HRS	7133. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1899. VEH-HRS	2295. PASS-HRS	5940. VEH-HRS	7133. PASS-HRS
TOTAL TRAV DISTANCE =	62840. VEH-MI.	76675. PASS-MI.	250146. VEH-MI.	305014. PASS-MI.
AVERAGE SYSTEM SPEED =	33. MPH.		42. MPH.	
AVERAGE DENSITY =	48. VPMPL		39. VPMPL	
TOTAL FUEL =	3082. GALLONS		11922. GALLONS	
TOTAL EMISSIONS =	845. KILOGRAMS		3212. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.75	2	703.49	3	174.89	4	23.15	5	21.70
6	2.24	7	1.71	8	0.14	9	0.48	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.17
16	0.00	17	0.74	18	0.77	19	1.85	20	0.00

***** TOTAL DELAY = 932.2 VEH-HRS ***** AVERAGE DELAY = 13.17 MIN/VEH *****

INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 12:52 PAGE 1
UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 19 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 12:52 PAGE 2
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1650.	1300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	1	1650.	500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	1	1650.	250.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
11	1	1650.	200.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	1	1650.	250.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	1	1650.	50.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	1	1650.	50.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleeck
15	1	1650.	1000.	62	OD	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	1	1650.	10.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Maude Off-ramp

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** 19   1   1650.  12000.  62      D  0.95  0.0  0   100      NO       0.0       0.   GOOD    0.0  HOV Dummy          **
** 20                                                                                                                 **
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1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 12:52 PAGE 3
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 12:52 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1401.	0.	1401.	1401.	0.	1401.	1650.	0.	0.	0.	.85	62.	22.6	C	21.6	12.8
4	1	1500.	4.	0.	1405.	4.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
5	1	1400.	0.	0.	1405.	0.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
6	1	1500.	61.	0.	1466.	61.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
7	1	1300.	0.	0.	1466.	0.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
8	1	500.	0.	282.	1466.	0.	282.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
9	1	2300.	0.	0.	1185.	0.	0.	1185.	1650.	0.	0.	0.	.72	62.	19.1	C	21.6	12.8
10	1	250.	32.	0.	1217.	32.	0.	1217.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
11	1	200.	0.	0.	1217.	0.	0.	1217.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
12	1	250.	0.	360.	1217.	0.	360.	1217.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
13	1	50.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
14	1	50.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
15	1	1000.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
16	1	10.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
17	1	1500.	139.	0.	996.	139.	0.	996.	1650.	0.	0.	0.	.60	62.	16.1	B	21.6	12.8
18	1	1500.	0.	164.	996.	0.	164.	996.	1650.	0.	0.	0.	.60	62.	16.1	B	21.6	12.8
19	1	12000.	0.	832.	832.	0.	832.	832.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
20																		

TOTAL 36310. = 6.9 MILES MAX(V/C) = 0.89 LOWEST LOS = C AVG = 62. 18.6 21.6 12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	64. VEH-HRS	128. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	64. VEH-HRS	128. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3961. VEH-MI.	7921. PASS-MI.	3961. VEH-MI.	7921. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	184. GALLONS		184. GALLONS	

TOTAL EMISSIONS = 51. KILOGRAMS 51. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.09	4	0.15	5	0.14
6	0.16	7	0.13	8	0.05	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.11	18	0.11	19	0.70	20	0.00

***** TOTAL DELAY = 2.9 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1401.	0.	1401.	1401.	0.	1401.	1650.	0.	0.	0.	.85	62.	22.6	C	21.6	12.8
4	1	1500.	4.	0.	1405.	4.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
5	1	1400.	0.	0.	1405.	0.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
6	1	1500.	61.	0.	1466.	61.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
7	1	1300.	0.	0.	1466.	0.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
8	1	500.	0.	282.	1466.	0.	282.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
9	1	2300.	0.	0.	1185.	0.	0.	1185.	1650.	0.	0.	0.	.72	62.	19.1	C	21.6	12.8
10	1	250.	32.	0.	1217.	32.	0.	1217.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
11	1	200.	0.	0.	1217.	0.	0.	1217.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
12	1	250.	0.	360.	1217.	0.	360.	1217.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
13	1	50.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
14	1	50.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
15	1	1000.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
16	1	10.	0.	0.	857.	0.	0.	857.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
17	1	1500.	139.	0.	996.	139.	0.	996.	1650.	0.	0.	0.	.60	62.	16.1	B	21.6	12.8
18	1	1500.	0.	164.	996.	0.	164.	996.	1650.	0.	0.	0.	.60	62.	16.1	B	21.6	12.8
19	1	12000.	0.	832.	832.	0.	832.	832.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.89		LOWEST LOS = C		AVG = 62.		18.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	128. VEH-HRS	256. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	128. VEH-HRS	256. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3961. VEH-MI.	7921. PASS-MI.	7921. VEH-MI.	15842. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	184. GALLONS		368. GALLONS	
TOTAL EMISSIONS =	51. KILOGRAMS		101. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.09	4	0.15	5	0.14
6	0.16	7	0.13	8	0.05	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.11	18	0.11	19	0.70	20	0.00

***** TOTAL DELAY = 2.9 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.23	3.78	3.79	3.98	4.53	6.73	0.00
3	0.00	0.00	0.00	0.00	0.00	2.52	4.72	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.19	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1503.	0.	1503.	1503.	0.	1503.	1650.	0.	0.	0.	.91	62.	24.2	C	21.6	12.8
4	1	1500.	5.	0.	1508.	5.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
5	1	1400.	0.	0.	1508.	0.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
6	1	1500.	67.	0.	1574.	67.	0.	1574.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
7	1	1300.	0.	0.	1574.	0.	0.	1574.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
8	1	500.	0.	376.	1574.	0.	376.	1574.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
9	1	2300.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
10	1	250.	38.	0.	1237.	38.	0.	1237.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
11	1	200.	0.	0.	1237.	0.	0.	1237.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
12	1	250.	0.	302.	1237.	0.	302.	1237.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
13	1	50.	0.	75.	934.	0.	75.	934.	1650.	0.	0.	0.	.57	62.	15.1	B	21.6	12.8
14	1	50.	0.	0.	859.	0.	0.	859.	1650.	0.	0.	0.	.52	62.	13.9	B	21.6	12.8
15	1	1000.	63.	0.	922.	63.	0.	922.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8

16	1	10.	0.	0.	922.	0.	0.	922.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8
17	1	1500.	204.	0.	1126.	204.	0.	1126.	1650.	0.	0.	0.	.68	62.	18.2	C	21.6	12.8
18	1	1500.	0.	230.	1126.	0.	228.	1126.	1650.	0.	0.	0.	.68	62.	18.2	C	21.6	12.8
19	1	12000.	0.	896.	896.	0.	896.	896.	1650.	0.	0.	0.	.54	62.	14.5	B	21.6	12.8
20																		

TOTAL	36310. =	6.9 MILES							MAX(V/C) = 0.95			LOWEST LOS = D		AVG = 61.			20.2	21.8	12.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	70. VEH-HRS	139. PASS-HRS	197. VEH-HRS	395. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	70. VEH-HRS	140. PASS-HRS	198. VEH-HRS	395. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4250. VEH-MI.	8499. PASS-MI.	12171. VEH-MI.	24342. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	195. GALLONS		562. GALLONS	
TOTAL EMISSIONS =	54. KILOGRAMS		155. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.16	5	0.15
6	0.64	7	0.55	8	0.21	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.12	18	0.12	19	0.76	20	0.00

***** TOTAL DELAY = 4.2 VEH-HRS ***** AVERAGE DELAY = 0.19 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	6	OUTPUT POINT	1.	0.23	0.08	0.00	0.03	0.00	0.03

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.23	3.78	3.79	3.98	4.53	6.73	0.00
3	0.00	0.00	0.00	0.00	0.00	2.52	4.72	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.19	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1503.	0.	1503.	1503.	0.	1503.	1650.	0.	0.	0.	.91	62.	24.2	C	21.6	12.8
4	1	1500.	5.	0.	1508.	5.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
5	1	1400.	0.	0.	1508.	0.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
6	1	1500.	67.	0.	1574.	67.	0.	1574.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
7	1	1300.	0.	0.	1574.	0.	0.	1574.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
8	1	500.	0.	376.	1574.	0.	376.	1574.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
9	1	2300.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
10	1	250.	38.	0.	1237.	38.	0.	1237.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
11	1	200.	0.	0.	1237.	0.	0.	1237.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
12	1	250.	0.	302.	1237.	0.	302.	1237.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
13	1	50.	0.	75.	934.	0.	75.	934.	1650.	0.	0.	0.	.57	62.	15.1	B	21.6	12.8
14	1	50.	0.	0.	859.	0.	0.	859.	1650.	0.	0.	0.	.52	62.	13.9	B	21.6	12.8
15	1	1000.	63.	0.	922.	63.	0.	922.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8
16	1	10.	0.	0.	922.	0.	0.	922.	1650.	0.	0.	0.	.56	62.	14.9	B	21.6	12.8
17	1	1500.	204.	0.	1126.	204.	0.	1126.	1650.	0.	0.	0.	.68	62.	18.2	C	21.6	12.8
18	1	1500.	0.	230.	1126.	0.	228.	1126.	1650.	0.	0.	0.	.68	62.	18.2	C	21.6	12.8
19	1	12000.	0.	896.	896.	0.	896.	896.	1650.	0.	0.	0.	.54	62.	14.5	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.95		LOWEST LOS = D		AVG = 61.	20.2			21.8	12.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	70. VEH-HRS	139. PASS-HRS	267. VEH-HRS	534. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	1. VEH-HRS	1. PASS-HRS	1. VEH-HRS	2. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	70. VEH-HRS	141. PASS-HRS	268. VEH-HRS	536. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4250. VEH-MI.	8499. PASS-MI.	16420. VEH-MI.	32841. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	195. GALLONS		757. GALLONS	
TOTAL EMISSIONS =	54. KILOGRAMS		208. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.16	5	0.15
6	0.64	7	0.55	8	0.21	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.12	18	0.12	19	0.76	20	0.00

***** TOTAL DELAY = 4.2 VEH-HRS ***** AVERAGE DELAY = 0.19 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	6	OUTPUT POINT	2.	0.68	0.23	0.01	0.08	0.00	0.10

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seed
2	3	6000.	99999.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	11000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	2	4000.	1500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	2	4000.	1300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	3	5630.	500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	3	4390.	250.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
11	3	4390.	200.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	3	4390.	250.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	2	4000.	50.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	2	2400.	50.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
15	2	4000.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	2	4000.	10.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
19	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
20	3	6000.	500.	65	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End Of HOV

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:18 PAGE 3
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***** INPUT HAS BEEN COMPLETED *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:18 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 4

QUEUE COLLISION IN SECTION 4 T2 =0.116

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:18 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 4

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	19.27	25.53	26.08	26.09	26.28	26.83	29.12
2	0.00	2.39	2.94	2.95	3.14	3.70	5.98
3	0.00	0.70	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:18 PAGE 6
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 4

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5389.	0.	5389.	5389.	0.	5389.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
2	3	99999.	0.	1401.	5389.	0.	1401.	5389.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
3	2	11000.	0.	0.	3988.	0.	0.	3424.	4000.	0.	* 9691.	564.	.86	32.	53.1	F	21.1	13.1
4	2	1500.	26.	0.	4014.	26.	0.	3450.	3996.	0.	** 1500.	546.	.86	21.	84.1	F	18.2	16.1
5	2	1400.	0.	0.	4014.	0.	0.	3450.	4000.	0.	** 1400.	546.	.86	19.	92.5	F	17.6	16.9
6	2	1500.	489.	0.	4503.	489.	0.	3939.	3939.	0.	0.	0.	1.00	52.	38.2	E	23.6	11.1
7	2	1300.	0.	0.	4503.	0.	0.	3939.	4000.	0.	0.	0.	.98	53.	37.3	E	23.4	11.2
8	3	500.	0.	918.	4503.	0.	805.	3939.	5348.	0.	0.	0.	.74	62.	21.2	C	20.3	13.0
9	2	2300.	0.	0.	3585.	0.	0.	3134.	4000.	0.	0.	0.	.78	61.	25.6	C	20.7	12.8
10	3	250.	190.	0.	3775.	190.	0.	3324.	4360.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
11	3	200.	0.	0.	3775.	0.	0.	3324.	4390.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
12	3	250.	0.	1245.	3775.	0.	1100.	3324.	4030.	0.	0.	0.	.82	62.	17.9	B	20.3	13.0
13	2	50.	0.	0.	2530.	0.	0.	2225.	4000.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0
14	2	50.	0.	0.	2530.	0.	0.	2225.	2400.	0.	0.	0.	.93	62.	17.9	B	20.3	13.0
15	2	1000.	0.	0.	2530.	0.	0.	2225.	4000.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0
16	2	10.	0.	0.	2530.	0.	0.	2225.	4000.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0
17	2	1500.	540.	0.	3070.	540.	0.	2765.	3862.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0
18	2	1500.	0.	708.	3070.	0.	643.	2765.	3836.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0
19	2	12000.	0.	0.	2362.	0.	0.	2122.	4000.	0.	0.	0.	.53	62.	17.1	B	20.3	13.0
20	3	500.	829.	3191.	3191.	829.	2951.	2951.	6000.	0.	0.	0.	.49	65.	15.1	B	19.0	14.1
TOTAL	137309. =	26.0 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 55.		31.8		21.4	12.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1132. VEH-HRS	1359. PASS-HRS	1132. VEH-HRS	1359. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1132. VEH-HRS	1359. PASS-HRS	1132. VEH-HRS	1359. PASS-HRS
TOTAL TRAV DISTANCE =	61910. VEH-MI.	75375. PASS-MI.	61910. VEH-MI.	75375. PASS-MI.
AVERAGE SYSTEM SPEED =	55. MPH.		55. MPH.	
AVERAGE DENSITY =	32. VPMPL		32. VPMPL	
TOTAL FUEL =	2892. GALLONS		2892. GALLONS	
TOTAL EMISSIONS =	768. KILOGRAMS		768. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	75.76	3	61.73	4	16.80	5	17.66
6	2.24	7	1.73	8	0.14	9	0.64	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.29	18	0.29	19	1.80	20	0.00

***** TOTAL DELAY = 179.8 VEH-HRS ***** AVERAGE DELAY = 2.67 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	20.58	30.25	30.80	30.81	31.00	31.55	33.84
2	0.00	2.55	3.10	3.11	3.30	3.85	6.14
3	0.00	0.70	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5389.	0.	5389.	5389.	0.	5389.	6000.	0.	0.	0.	.90	59.	30.3	D	21.6	12.2
2	3	99999.	0.	1401.	5389.	0.	1401.	4825.	6000.	0.	* 5623.	564.	.80	55.	29.0	F	21.4	12.4
3	2	11000.	0.	0.	3988.	0.	0.	3424.	4000.	0.	**11000.	564.	.86	18.	97.6	F	17.1	17.5
4	2	1500.	26.	0.	4014.	26.	0.	3450.	3996.	0.	** 1500.	546.	.86	18.	96.3	F	17.3	17.3
5	2	1400.	0.	0.	4014.	0.	0.	3450.	4000.	0.	** 1400.	546.	.86	18.	96.6	F	17.3	17.3
6	2	1500.	489.	0.	4503.	489.	0.	3939.	3939.	0.	0.	0.	1.00	52.	38.2	E	23.6	11.1
7	2	1300.	0.	0.	4503.	0.	0.	3939.	4000.	0.	0.	0.	.98	53.	37.3	E	23.4	11.2
8	3	500.	0.	918.	4503.	0.	805.	3939.	5348.	0.	0.	0.	.74	62.	21.2	C	20.3	13.0
9	2	2300.	0.	0.	3585.	0.	0.	3134.	4000.	0.	0.	0.	.78	61.	25.6	C	20.7	12.8
10	3	250.	190.	0.	3775.	190.	0.	3324.	4360.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
11	3	200.	0.	0.	3775.	0.	0.	3324.	4390.	0.	0.	0.	.76	62.	17.9	B	20.3	13.0
12	3	250.	0.	1245.	3775.	0.	1100.	3324.	4030.	0.	0.	0.	.82	62.	17.9	B	20.3	13.0
13	2	50.	0.	0.	2530.	0.	0.	2225.	4000.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0
14	2	50.	0.	0.	2530.	0.	0.	2225.	2400.	0.	0.	0.	.93	62.	17.9	B	20.3	13.0
15	2	1000.	0.	0.	2530.	0.	0.	2225.	4000.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0
16	2	10.	0.	0.	2530.	0.	0.	2225.	4000.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0
17	2	1500.	540.	0.	3070.	540.	0.	2765.	3862.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0

* 18	2	1500.	0.	708.	3070.	0.	643.	2765.	3836.	0.	0.	0.	.72	62.	22.3	C	20.3	13.0	*
* 19	2	12000.	0.	0.	2362.	0.	0.	2122.	4000.	0.	0.	0.	.53	62.	17.1	B	20.3	13.0	*
* 20	3	500.	829.	3191.	3191.	829.	2951.	2951.	6000.	0.	0.	0.	.49	65.	15.1	B	19.0	14.1	*
* TOTAL	137309. =	26.0 MILES						MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 48.		34.6				21.0	12.8	*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1273. VEH-HRS	1515. PASS-HRS	2406. VEH-HRS	2875. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1273. VEH-HRS	1515. PASS-HRS	2406. VEH-HRS	2875. PASS-HRS
TOTAL TRAV DISTANCE =	61374. VEH-MI.	74805. PASS-MI.	123284. VEH-MI.	150180. PASS-MI.
AVERAGE SYSTEM SPEED =	48. MPH.		51. MPH.	
AVERAGE DENSITY =	35. VPMPL		33. VPMPL	
TOTAL FUEL =	2928. GALLONS		5820. GALLONS	
TOTAL EMISSIONS =	785. KILOGRAMS		1553. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	134.34	3	148.55	4	19.83	5	18.58
6	2.24	7	1.73	8	0.14	9	0.64	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.29	18	0.29	19	1.80	20	0.00

***** TOTAL DELAY = 329.1 VEH-HRS ***** AVERAGE DELAY = 5.09 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	26.57	37.86	38.41	38.42	38.61	39.19	41.48
2	0.00	2.86	3.41	3.42	3.61	4.19	6.48
3	0.00	0.70	1.25	1.26	1.45	2.03	4.32
4	0.00	0.00	0.13	0.14	0.33	0.91	3.20
5	0.00	0.00	0.00	0.00	0.18	0.76	3.05
6	0.00	0.00	0.00	0.00	0.00	0.58	2.86
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5780.	0.	5780.	5780.	0.	5780.	6000.	0.	0.	0.	.96	55.	34.9	D	22.8	11.4
2	3	99999.	0.	1503.	5780.	0.	1503.	4729.	6000.	0.	* 17496.	1051.	.79	43.	36.7	F	21.8	12.2
3	2	11000.	0.	0.	4277.	0.	0.	3226.	4000.	0.	**11000.	774.	.81	15.	108.8	F	15.9	19.1
4	2	1500.	34.	0.	4311.	34.	0.	3260.	3995.	0.	** 1500.	735.	.82	15.	106.6	F	16.2	18.8
5	2	1400.	0.	0.	4311.	0.	0.	3260.	4000.	0.	** 1400.	735.	.81	15.	107.0	F	16.2	18.8

6	2	1500.	673.	0.	4984.	673.	0.	3933.	3933.	0.	0.	0.	1.00	52.	38.1	E	23.6	11.1
7	2	1300.	0.	0.	4984.	0.	0.	3933.	4000.	0.	0.	0.	.98	53.	37.2	E	23.3	11.2
8	3	500.	0.	1264.	4984.	0.	1001.	3933.	5254.	0.	0.	0.	.75	62.	21.1	C	20.3	13.0
9	2	2300.	0.	0.	3720.	0.	0.	2932.	4000.	0.	0.	0.	.73	62.	23.6	C	20.3	13.0
10	3	250.	260.	0.	3980.	260.	0.	3192.	4355.	0.	0.	0.	.73	62.	17.2	B	20.3	13.0
11	3	200.	0.	0.	3980.	0.	0.	3192.	4390.	0.	0.	0.	.73	62.	17.2	B	20.3	13.0
12	3	250.	0.	1100.	3980.	0.	887.	3192.	4087.	0.	0.	0.	.78	62.	17.2	B	20.3	13.0
13	2	50.	0.	274.	2880.	0.	221.	2304.	3924.	0.	0.	0.	.59	62.	18.6	C	20.3	13.0
14	2	50.	0.	0.	2606.	0.	0.	2083.	2400.	0.	0.	0.	.87	62.	16.8	B	20.3	13.0
15	2	1000.	287.	0.	2893.	287.	0.	2370.	3937.	0.	0.	0.	.60	62.	19.1	C	20.3	13.0
16	2	10.	0.	0.	2893.	0.	0.	2370.	4000.	0.	0.	0.	.59	62.	19.1	C	20.3	13.0
17	2	1500.	927.	0.	3820.	927.	0.	3297.	3796.	0.	0.	0.	.87	59.	27.9	D	21.6	12.2
18	2	1500.	0.	1280.	3820.	0.	1120.	3297.	3770.	0.	0.	0.	.87	59.	28.0	D	21.7	12.2
19	2	12000.	0.	0.	2540.	0.	0.	2177.	4000.	0.	0.	0.	.54	62.	17.6	B	20.3	13.0
20	3	500.	892.	3432.	3432.	892.	3069.	3069.	6000.	0.	0.	0.	.51	65.	15.7	B	19.0	14.1

TOTAL 137309. = 26.0 MILES MAX(V/C) = 1.00 LOWEST LOS = F AVG = 39. 41.5 21.2 12.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1637. VEH-HRS	1965. PASS-HRS	4043. VEH-HRS	4840. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1637. VEH-HRS	1965. PASS-HRS	4043. VEH-HRS	4840. PASS-HRS
TOTAL TRAV DISTANCE =	63996. VEH-MI.	78136. PASS-MI.	187280. VEH-MI.	228316. PASS-MI.
AVERAGE SYSTEM SPEED =	39. MPH.		46. MPH.	
AVERAGE DENSITY =	42. VPMPL		36. VPMPL	
TOTAL FUEL =	3019. GALLONS		8839. GALLONS	
TOTAL EMISSIONS =	814. KILOGRAMS		2367. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.75	2	423.64	3	175.02	4	23.16	5	21.71
6	2.24	7	1.71	8	0.14	9	0.48	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.17
16	0.00	17	0.72	18	0.75	19	1.84	20	0.00

***** TOTAL DELAY = 652.5 VEH-HRS ***** AVERAGE DELAY = 9.62 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	32.86	44.16	44.71	44.72	44.91	45.49	47.78
2	0.00	2.86	3.41	3.42	3.61	4.19	6.48
3	0.00	0.70	1.25	1.26	1.45	2.03	4.32
4	0.00	0.00	0.13	0.14	0.33	0.91	3.20
5	0.00	0.00	0.00	0.00	0.18	0.76	3.05
6	0.00	0.00	0.00	0.00	0.00	0.58	2.86
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

SR-237_WB_AM_P2_2040_PE
TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	5780.	0.	5780.	5780.	0.	5780.	6000.	0.	0.	0.	.96	55.	34.9	D	22.8	11.4
2	3	99999.	0.	1503.	5780.	0.	1503.	4729.	6000.	0.	* 29370.	1051.	.79	35.	45.4	F	20.8	13.1
3	2	11000.	0.	0.	4277.	0.	0.	3226.	4000.	0.	**11000.	774.	.81	15.	108.8	F	15.9	19.1
4	2	1500.	34.	0.	4311.	34.	0.	3260.	3995.	0.	** 1500.	735.	.82	15.	106.6	F	16.2	18.8
5	2	1400.	0.	0.	4311.	0.	0.	3260.	4000.	0.	** 1400.	735.	.81	15.	107.0	F	16.2	18.8
6	2	1500.	673.	0.	4984.	673.	0.	3933.	3933.	0.	0.	0.	1.00	52.	38.1	E	23.6	11.1
7	2	1300.	0.	0.	4984.	0.	0.	3933.	4000.	0.	0.	0.	.98	53.	37.2	E	23.3	11.2
8	3	500.	0.	1264.	4984.	0.	1001.	3933.	5254.	0.	0.	0.	.75	62.	21.1	C	20.3	13.0
9	2	2300.	0.	0.	3720.	0.	0.	2932.	4000.	0.	0.	0.	.73	62.	23.6	C	20.3	13.0
10	3	250.	260.	0.	3980.	260.	0.	3192.	4355.	0.	0.	0.	.73	62.	17.2	B	20.3	13.0
11	3	200.	0.	0.	3980.	0.	0.	3192.	4390.	0.	0.	0.	.73	62.	17.2	B	20.3	13.0
12	3	250.	0.	1100.	3980.	0.	887.	3192.	4087.	0.	0.	0.	.78	62.	17.2	B	20.3	13.0
13	2	50.	0.	274.	2880.	0.	221.	2304.	3924.	0.	0.	0.	.59	62.	18.6	C	20.3	13.0
14	2	50.	0.	0.	2606.	0.	0.	2083.	2400.	0.	0.	0.	.87	62.	16.8	B	20.3	13.0
15	2	1000.	287.	0.	2893.	287.	0.	2370.	3937.	0.	0.	0.	.60	62.	19.1	C	20.3	13.0
16	2	10.	0.	0.	2893.	0.	0.	2370.	4000.	0.	0.	0.	.59	62.	19.1	C	20.3	13.0
17	2	1500.	927.	0.	3820.	927.	0.	3297.	3796.	0.	0.	0.	.87	59.	27.9	D	21.6	12.2
18	2	1500.	0.	1280.	3820.	0.	1120.	3297.	3770.	0.	0.	0.	.87	59.	28.0	D	21.7	12.2
19	2	12000.	0.	0.	2540.	0.	0.	2177.	4000.	0.	0.	0.	.54	62.	17.6	B	20.3	13.0
20	3	500.	892.	3432.	3432.	892.	3069.	3069.	6000.	0.	0.	0.	.51	65.	15.7	B	19.0	14.1
TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 33.		47.9	20.4	13.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1900. VEH-HRS	2296. PASS-HRS	5942. VEH-HRS	7136. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1900. VEH-HRS	2296. PASS-HRS	5942. VEH-HRS	7136. PASS-HRS
TOTAL TRAV DISTANCE =	62814. VEH-MI.	76647. PASS-MI.	250094. VEH-MI.	304963. PASS-MI.
AVERAGE SYSTEM SPEED =	33. MPH.		42. MPH.	
AVERAGE DENSITY =	48. VPMPL		39. VPMPL	
TOTAL FUEL =	3081. GALLONS		11920. GALLONS	
TOTAL EMISSIONS =	845. KILOGRAMS		3212. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.75	2	704.57	3	175.02	4	23.16	5	21.71
6	2.24	7	1.71	8	0.14	9	0.48	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.17
16	0.00	17	0.72	18	0.75	19	1.84	20	0.00

***** TOTAL DELAY = 933.4 VEH-HRS ***** AVERAGE DELAY = 13.19 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 19 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1650.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1650.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1650.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1650.	1300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	1	1650.	500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	1	1650.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	1	1650.	250.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-Ramp
11	1	1650.	200.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	1	1650.	250.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	1	1650.	50.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	1	1650.	50.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleeck
15	1	1650.	1000.	62	OD	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	1	1650.	10.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	1	1650.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	1	1650.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Maude Off-ramp

19	1	1650.	12000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy	
20																

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1401.	0.	1401.	1401.	0.	1401.	1650.	0.	0.	0.	.85	62.	22.6	C	21.6	12.8
4	1	1500.	4.	0.	1405.	4.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
5	1	1400.	0.	0.	1405.	0.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
6	1	1500.	61.	0.	1466.	61.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
7	1	1300.	0.	0.	1466.	0.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
8	1	500.	0.	282.	1466.	0.	282.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
9	1	2300.	0.	0.	1185.	0.	0.	1185.	1650.	0.	0.	0.	.72	62.	19.1	C	21.6	12.8
10	1	250.	30.	0.	1215.	30.	0.	1215.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
11	1	200.	0.	0.	1215.	0.	0.	1215.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
12	1	250.	0.	360.	1215.	0.	360.	1215.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
13	1	50.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
14	1	50.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
15	1	1000.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
16	1	10.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
17	1	1500.	138.	0.	993.	138.	0.	993.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
18	1	1500.	0.	164.	993.	0.	164.	993.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
19	1	12000.	0.	829.	829.	0.	829.	829.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
20																		

TOTAL 36310. = 6.9 MILES MAX(V/C) = 0.89 LOWEST LOS = C AVG = 62. 18.6 21.6 12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	64. VEH-HRS	128. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	64. VEH-HRS	128. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3957. VEH-MI.	7913. PASS-MI.	3957. VEH-MI.	7913. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	184. GALLONS		184. GALLONS	

TOTAL EMISSIONS = 51. KILOGRAMS 51. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.09	4	0.15	5	0.14
6	0.16	7	0.13	8	0.05	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.11	18	0.11	19	0.70	20	0.00

***** TOTAL DELAY = 2.9 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1401.	0.	1401.	1401.	0.	1401.	1650.	0.	0.	0.	.85	62.	22.6	C	21.6	12.8
4	1	1500.	4.	0.	1405.	4.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
5	1	1400.	0.	0.	1405.	0.	0.	1405.	1650.	0.	0.	0.	.85	62.	22.7	C	21.6	12.8
6	1	1500.	61.	0.	1466.	61.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
7	1	1300.	0.	0.	1466.	0.	0.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
8	1	500.	0.	282.	1466.	0.	282.	1466.	1650.	0.	0.	0.	.89	62.	23.6	C	21.6	12.8
9	1	2300.	0.	0.	1185.	0.	0.	1185.	1650.	0.	0.	0.	.72	62.	19.1	C	21.6	12.8
10	1	250.	30.	0.	1215.	30.	0.	1215.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
11	1	200.	0.	0.	1215.	0.	0.	1215.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
12	1	250.	0.	360.	1215.	0.	360.	1215.	1650.	0.	0.	0.	.74	62.	19.6	C	21.6	12.8
13	1	50.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
14	1	50.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
15	1	1000.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
16	1	10.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
17	1	1500.	138.	0.	993.	138.	0.	993.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
18	1	1500.	0.	164.	993.	0.	164.	993.	1650.	0.	0.	0.	.60	62.	16.0	B	21.6	12.8
19	1	12000.	0.	829.	829.	0.	829.	829.	1650.	0.	0.	0.	.50	62.	13.4	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.89		LOWEST LOS = C		AVG = 62.		18.6		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	128. VEH-HRS	255. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	64. VEH-HRS	128. PASS-HRS	128. VEH-HRS	255. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	3957. VEH-MI.	7913. PASS-MI.	7913. VEH-MI.	15827. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	19. VPMPL		19. VPMPL	
TOTAL FUEL =	184. GALLONS		367. GALLONS	
TOTAL EMISSIONS =	51. KILOGRAMS		101. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.09	4	0.15	5	0.14
6	0.16	7	0.13	8	0.05	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.11	18	0.11	19	0.70	20	0.00

***** TOTAL DELAY = 2.9 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.23	3.78	3.79	3.98	4.53	6.73	0.00
3	0.00	0.00	0.00	0.00	0.00	2.52	4.72	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.19	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1503.	0.	1503.	1503.	0.	1503.	1650.	0.	0.	0.	.91	62.	24.2	C	21.6	12.8
4	1	1500.	5.	0.	1508.	5.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
5	1	1400.	0.	0.	1508.	0.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
6	1	1500.	67.	0.	1575.	67.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
7	1	1300.	0.	0.	1575.	0.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
8	1	500.	0.	376.	1575.	0.	376.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
9	1	2300.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
10	1	250.	35.	0.	1234.	35.	0.	1234.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
11	1	200.	0.	0.	1234.	0.	0.	1234.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
12	1	250.	0.	303.	1234.	0.	303.	1234.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
13	1	50.	0.	76.	931.	0.	76.	931.	1650.	0.	0.	0.	.56	62.	15.0	B	21.6	12.8
14	1	50.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
15	1	1000.	63.	0.	918.	63.	0.	918.	1650.	0.	0.	0.	.56	62.	14.8	B	21.6	12.8

16	1	10.	0.	0.	918.	0.	0.	918.	1650.	0.	0.	0.	.56	62.	14.8	B	21.6	12.8
17	1	1500.	204.	0.	1122.	204.	0.	1122.	1650.	0.	0.	0.	.68	62.	18.1	C	21.6	12.8
18	1	1500.	0.	230.	1122.	0.	228.	1122.	1650.	0.	0.	0.	.68	62.	18.1	C	21.6	12.8
19	1	12000.	0.	892.	892.	0.	892.	892.	1650.	0.	0.	0.	.54	62.	14.4	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.95			LOWEST LOS = D		AVG = 61.	20.2		21.8	12.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	69. VEH-HRS	139. PASS-HRS	197. VEH-HRS	394. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	70. VEH-HRS	139. PASS-HRS	197. VEH-HRS	395. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4244. VEH-MI.	8487. PASS-MI.	12157. VEH-MI.	24314. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	194. GALLONS		561. GALLONS	
TOTAL EMISSIONS =	53. KILOGRAMS		154. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.16	5	0.15
6	0.64	7	0.55	8	0.21	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.12	18	0.12	19	0.75	20	0.00

***** TOTAL DELAY = 4.2 VEH-HRS ***** AVERAGE DELAY = 0.19 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	6	OUTPUT POINT	1.	0.21	0.07	0.00	0.02	0.00	0.03

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.23	3.78	3.79	3.98	4.53	6.73	0.00
3	0.00	0.00	0.00	0.00	0.00	2.52	4.72	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.19	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	1503.	0.	1503.	1503.	0.	1503.	1650.	0.	0.	0.	.91	62.	24.2	C	21.6	12.8
4	1	1500.	5.	0.	1508.	5.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
5	1	1400.	0.	0.	1508.	0.	0.	1508.	1650.	0.	0.	0.	.91	62.	24.3	C	21.6	12.8
6	1	1500.	67.	0.	1575.	67.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
7	1	1300.	0.	0.	1575.	0.	0.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
8	1	500.	0.	376.	1575.	0.	376.	1575.	1650.	0.	0.	0.	.95	55.	28.7	D	24.4	11.2
9	1	2300.	0.	0.	1199.	0.	0.	1199.	1650.	0.	0.	0.	.73	62.	19.3	C	21.6	12.8
10	1	250.	35.	0.	1234.	35.	0.	1234.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
11	1	200.	0.	0.	1234.	0.	0.	1234.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
12	1	250.	0.	303.	1234.	0.	303.	1234.	1650.	0.	0.	0.	.75	62.	19.9	C	21.6	12.8
13	1	50.	0.	76.	931.	0.	76.	931.	1650.	0.	0.	0.	.56	62.	15.0	B	21.6	12.8
14	1	50.	0.	0.	855.	0.	0.	855.	1650.	0.	0.	0.	.52	62.	13.8	B	21.6	12.8
15	1	1000.	63.	0.	918.	63.	0.	918.	1650.	0.	0.	0.	.56	62.	14.8	B	21.6	12.8
16	1	10.	0.	0.	918.	0.	0.	918.	1650.	0.	0.	0.	.56	62.	14.8	B	21.6	12.8
17	1	1500.	204.	0.	1122.	204.	0.	1122.	1650.	0.	0.	0.	.68	62.	18.1	C	21.6	12.8
18	1	1500.	0.	230.	1122.	0.	228.	1122.	1650.	0.	0.	0.	.68	62.	18.1	C	21.6	12.8
19	1	12000.	0.	892.	892.	0.	892.	892.	1650.	0.	0.	0.	.54	62.	14.4	B	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.95		LOWEST LOS = D		AVG = 61.	20.2			21.8	12.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	69. VEH-HRS	139. PASS-HRS	267. VEH-HRS	533. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	1. VEH-HRS	1. PASS-HRS	1. VEH-HRS	2. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	70. VEH-HRS	140. PASS-HRS	267. VEH-HRS	535. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	4244. VEH-MI.	8487. PASS-MI.	16401. VEH-MI.	32801. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	20. VPMPL		19. VPMPL	
TOTAL FUEL =	194. GALLONS		756. GALLONS	
TOTAL EMISSIONS =	53. KILOGRAMS		208. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	1.17	4	0.16	5	0.15
6	0.64	7	0.55	8	0.21	9	0.19	10	0.02
11	0.02	12	0.02	13	0.00	14	0.00	15	0.06
16	0.00	17	0.12	18	0.12	19	0.75	20	0.00

***** TOTAL DELAY = 4.2 VEH-HRS ***** AVERAGE DELAY = 0.19 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	6	OUTPUT POINT	2.	0.63	0.22	0.01	0.07	0.00	0.09

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seed
2	3	6000.	99999.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	11000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	2	4000.	1500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	2	4000.	1300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	3	5270.	500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	3	4900.	250.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-ramp
11	3	4900.	200.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	3	4900.	250.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	2	4000.	50.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	2	2470.	50.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
15	2	4000.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	2	4000.	10.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
19	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
20	3	6000.	500.	65	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of Network

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***** INPUT HAS BEEN COMPLETED *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 10:31 PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	17.79	23.97	24.52	24.53	24.72	25.27	27.56
2	0.00	2.61	3.16	3.17	3.36	3.91	6.20
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 10:31 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4500.	0.	4500.	4500.	0.	4500.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
2	3	99999.	0.	720.	4500.	0.	720.	4500.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
3	2	11000.	0.	0.	3780.	0.	0.	3212.	4000.	0. *	7199.	568.	.80	35.	45.8	F	20.8	13.1
4	2	1500.	57.	0.	3837.	57.	0.	3269.	3996.	0. **	1500.	568.	.82	18.	88.6	F	17.4	17.0
5	2	1400.	0.	0.	3837.	0.	0.	3269.	4000.	0. **	1400.	568.	.82	16.	100.6	F	16.6	18.2
6	2	1500.	687.	0.	4524.	687.	0.	3956.	3956.	0.	0.	0.	1.00	52.	38.4	E	23.6	11.1
7	2	1300.	0.	0.	4524.	0.	0.	3956.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2
8	3	500.	0.	1038.	4524.	0.	909.	3956.	5107.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3486.	0.	0.	3047.	4000.	0.	0.	0.	.76	62.	24.6	C	20.3	13.0
10	3	250.	432.	0.	3918.	432.	0.	3479.	4863.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3918.	0.	0.	3479.	4900.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
12	3	250.	0.	1715.	3918.	0.	1527.	3479.	4661.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
13	2	50.	0.	44.	2203.	0.	39.	1952.	3994.	0.	0.	0.	.49	62.	15.7	B	20.3	13.0
14	2	50.	0.	0.	2159.	0.	0.	1913.	2470.	0.	0.	0.	.77	62.	15.4	B	20.3	13.0
15	2	1000.	43.	0.	2202.	43.	0.	1956.	3993.	0.	0.	0.	.49	62.	15.8	B	20.3	13.0
16	2	10.	0.	0.	2202.	0.	0.	1956.	4000.	0.	0.	0.	.49	62.	15.8	B	20.3	13.0
17	2	1500.	754.	0.	2956.	754.	0.	2710.	3877.	0.	0.	0.	.70	62.	21.9	C	20.3	13.0
18	2	1500.	0.	389.	2956.	0.	359.	2710.	3961.	0.	0.	0.	.68	62.	21.9	C	20.3	13.0
19	2	12000.	0.	0.	2567.	0.	0.	2351.	4000.	0.	0.	0.	.59	62.	19.0	C	20.3	13.0
20	3	500.	489.	3056.	3056.	489.	2840.	2840.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1
TOTAL	137309. =	26.0 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 58.		26.4		19.5	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	927. VEH-HRS	1035. PASS-HRS	927. VEH-HRS	1035. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	927. VEH-HRS	1035. PASS-HRS	927. VEH-HRS	1035. PASS-HRS
TOTAL TRAV DISTANCE =	53455. VEH-MI.	60379. PASS-MI.	53455. VEH-MI.	60379. PASS-MI.
AVERAGE SYSTEM SPEED =	58. MPH.		58. MPH.	

AVERAGE DENSITY =	26. VPMPL	26. VPMPL
TOTAL FUEL =	2736. GALLONS	2736. GALLONS
TOTAL EMISSIONS =	732. KILOGRAMS	732. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.04	2	8.34	3	49.92	4	18.66	5	20.23
6	2.25	7	1.80	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.14
16	0.00	17	0.29	18	0.29	19	1.99	20	0.00

***** TOTAL DELAY = 104.8 VEH-HRS ***** AVERAGE DELAY = 1.90 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	18.53	29.43	29.98	29.99	30.18	30.73	33.02
2	0.00	2.85	3.40	3.41	3.60	4.15	6.44
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4500.	0.	4500.	4500.	0.	4500.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
2	3	99999.	0.	720.	4500.	0.	720.	3932.	6000.	0.	* 2606.	568.	.66	62.	21.3	F	19.2	13.9
3	2	11000.	0.	0.	3780.	0.	0.	3212.	4000.	0.	**11000.	568.	.80	16.	103.4	F	16.2	18.6
4	2	1500.	57.	0.	3837.	57.	0.	3269.	3996.	0.	** 1500.	568.	.82	15.	106.2	F	16.2	18.7
5	2	1400.	0.	0.	3837.	0.	0.	3269.	4000.	0.	** 1400.	568.	.82	15.	106.5	F	16.2	18.7
6	2	1500.	687.	0.	4524.	687.	0.	3956.	3956.	0.	0.	0.	1.00	52.	38.4	E	23.6	11.1
7	2	1300.	0.	0.	4524.	0.	0.	3956.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2
8	3	500.	0.	1038.	4524.	0.	909.	3956.	5107.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3486.	0.	0.	3047.	4000.	0.	0.	0.	.76	62.	24.6	C	20.3	13.0
10	3	250.	432.	0.	3918.	432.	0.	3479.	4863.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3918.	0.	0.	3479.	4900.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
12	3	250.	0.	1715.	3918.	0.	1527.	3479.	4661.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
13	2	50.	0.	44.	2203.	0.	39.	1952.	3994.	0.	0.	0.	.49	62.	15.7	B	20.3	13.0
14	2	50.	0.	0.	2159.	0.	0.	1913.	2470.	0.	0.	0.	.77	62.	15.4	B	20.3	13.0
15	2	1000.	43.	0.	2202.	43.	0.	1956.	3993.	0.	0.	0.	.49	62.	15.8	B	20.3	13.0
16	2	10.	0.	0.	2202.	0.	0.	1956.	4000.	0.	0.	0.	.49	62.	15.8	B	20.3	13.0
17	2	1500.	754.	0.	2956.	754.	0.	2710.	3877.	0.	0.	0.	.70	62.	21.9	C	20.3	13.0
18	2	1500.	0.	389.	2956.	0.	359.	2710.	3961.	0.	0.	0.	.68	62.	21.9	C	20.3	13.0
19	2	12000.	0.	0.	2567.	0.	0.	2351.	4000.	0.	0.	0.	.59	62.	19.0	C	20.3	13.0
20	3	500.	489.	3056.	3056.	489.	2840.	2840.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1
TOTAL		137309. = 26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 50.		29.8	19.1	14.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1069. VEH-HRS	1182. PASS-HRS	1996. VEH-HRS	2217. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1069. VEH-HRS	1182. PASS-HRS	1996. VEH-HRS	2217. PASS-HRS
TOTAL TRAV DISTANCE =	52978. VEH-MI.	59896. PASS-MI.	106433. VEH-MI.	120275. PASS-MI.
AVERAGE SYSTEM SPEED =	50. MPH.		53. MPH.	
AVERAGE DENSITY =	30. VPMPL		28. VPMPL	
TOTAL FUEL =	2772. GALLONS		5508. GALLONS	
TOTAL EMISSIONS =	748. KILOGRAMS		1479. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.04	2	36.06	3	165.83	4	23.03	5	21.57
6	2.25	7	1.80	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.14
16	0.00	17	0.29	18	0.29	19	1.99	20	0.00

***** TOTAL DELAY = 254.1 VEH-HRS ***** AVERAGE DELAY = 4.61 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	22.88	35.01	35.56	35.57	35.76	36.31	38.60
2	0.00	2.99	3.54	3.55	3.74	4.29	6.58
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4628.	0.	4628.	4628.	0.	4628.	6000.	0.	0.	0.	.77	64.	24.2	C	19.5	13.7
2	3	99999.	0.	741.	4628.	0.	741.	3866.	6000.	0.	* 8195.	762.	.64	50.	25.8	F	18.9	14.1
3	2	11000.	0.	0.	3887.	0.	0.	3125.	4000.	0.	**11000.	762.	.78	14.	114.3	F	15.1	20.0
4	2	1500.	65.	0.	3952.	65.	0.	3190.	3995.	0.	** 1500.	762.	.80	14.	110.4	F	15.7	19.4
5	2	1400.	0.	0.	3952.	0.	0.	3190.	4000.	0.	** 1400.	762.	.80	14.	110.8	F	15.6	19.4
6	2	1500.	762.	0.	4714.	762.	0.	3952.	3952.	0.	0.	0.	1.00	52.	38.3	E	23.6	11.1
7	2	1300.	0.	0.	4714.	0.	0.	3952.	4000.	0.	0.	0.	.99	52.	37.6	E	23.4	11.2
8	3	500.	0.	1099.	4714.	0.	923.	3952.	5099.	0.	0.	0.	.78	62.	21.2	C	20.3	13.0
9	2	2300.	0.	0.	3615.	0.	0.	3029.	4000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
10	3	250.	461.	0.	4076.	461.	0.	3490.	4862.	0.	0.	0.	.72	62.	18.8	C	20.3	13.0
11	3	200.	0.	0.	4076.	0.	0.	3490.	4900.	0.	0.	0.	.71	62.	18.8	C	20.3	13.0
12	3	250.	0.	1532.	4076.	0.	1316.	3490.	4690.	0.	0.	0.	.74	62.	18.8	C	20.3	13.0
13	2	50.	0.	175.	2544.	0.	150.	2174.	3976.	0.	0.	0.	.55	62.	17.5	B	20.3	13.0

14	2	50.	0.	0.	2369.	0.	0.	2023.	2470.	0.	0.	0.	.82	62.	16.3	B	20.3	13.0
15	2	1000.	174.	0.	2543.	174.	0.	2197.	3974.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0
16	2	10.	0.	0.	2543.	0.	0.	2197.	4000.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0
17	2	1500.	828.	0.	3371.	828.	0.	3025.	3877.	0.	0.	0.	.78	62.	24.4	C	20.3	13.0
18	2	1500.	0.	695.	3371.	0.	628.	3025.	3934.	0.	0.	0.	.77	62.	24.4	C	20.3	13.0
19	2	12000.	0.	0.	2676.	0.	0.	2397.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0
20	3	500.	510.	3186.	3186.	510.	2907.	2907.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1

TOTAL	137309. =	26.0 MILES	MAX(V/C) = 1.00	LOWEST LOS = F	AVG = 42.	34.2	18.8	14.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1275. VEH-HRS	1416. PASS-HRS	3271. VEH-HRS	3632. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1275. VEH-HRS	1416. PASS-HRS	3271. VEH-HRS	3632. PASS-HRS
TOTAL TRAV DISTANCE =	53863. VEH-MI.	60922. PASS-MI.	160296. VEH-MI.	181197. PASS-MI.
AVERAGE SYSTEM SPEED =	42. MPH.		49. MPH.	
AVERAGE DENSITY =	34. VPMPL		30. VPMPL	
TOTAL FUEL =	2871. GALLONS		8379. GALLONS	
TOTAL EMISSIONS =	776. KILOGRAMS		2256. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	202.78	3	188.10	4	24.40	5	22.87
6	2.25	7	1.78	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.15
16	0.00	17	0.32	18	0.32	19	2.03	20	0.00

***** TOTAL DELAY = 445.9 VEH-HRS ***** AVERAGE DELAY = 7.79 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	28.12	40.26	40.81	40.81	41.01	41.56	43.85
2	0.00	2.99	3.54	3.55	3.74	4.29	6.58
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4628.	0.	4628.	4628.	0.	4628.	6000.	0.	0.	0.	.77	64.	24.2	C	19.5	13.7

SR-237_WB_PM_NP_2040_PE

2	3	99999.	0.	741.	4628.	0.	741.	3866.	6000.	0.	* 13785.	762.	.64	41.	31.8	F	18.3	14.6	
3	2	11000.	0.	0.	3887.	0.	0.	3125.	4000.	0.	**11000.	762.	.78	14.	114.3	F	15.1	20.0	
4	2	1500.	65.	0.	3952.	65.	0.	3190.	3995.	0.	** 1500.	762.	.80	14.	110.4	F	15.7	19.4	
5	2	1400.	0.	0.	3952.	0.	0.	3190.	4000.	0.	** 1400.	762.	.80	14.	110.8	F	15.6	19.4	
6	2	1500.	762.	0.	4714.	762.	0.	3952.	3952.	0.	0.	0.	1.00	52.	38.3	E	23.6	11.1	
7	2	1300.	0.	0.	4714.	0.	0.	3952.	4000.	0.	0.	0.	.99	52.	37.6	E	23.4	11.2	
8	3	500.	0.	1099.	4714.	0.	923.	3952.	5099.	0.	0.	0.	.78	62.	21.2	C	20.3	13.0	
9	2	2300.	0.	0.	3615.	0.	0.	3029.	4000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0	
10	3	250.	461.	0.	4076.	461.	0.	3490.	4862.	0.	0.	0.	.72	62.	18.8	C	20.3	13.0	
11	3	200.	0.	0.	4076.	0.	0.	3490.	4900.	0.	0.	0.	.71	62.	18.8	C	20.3	13.0	
12	3	250.	0.	1532.	4076.	0.	1316.	3490.	4690.	0.	0.	0.	.74	62.	18.8	C	20.3	13.0	
13	2	50.	0.	175.	2544.	0.	150.	2174.	3976.	0.	0.	0.	.55	62.	17.5	B	20.3	13.0	
14	2	50.	0.	0.	2369.	0.	0.	2023.	2470.	0.	0.	0.	.82	62.	16.3	B	20.3	13.0	
15	2	1000.	174.	0.	2543.	174.	0.	2197.	3974.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0	
16	2	10.	0.	0.	2543.	0.	0.	2197.	4000.	0.	0.	0.	.55	62.	17.7	B	20.3	13.0	
17	2	1500.	828.	0.	3371.	828.	0.	3025.	3877.	0.	0.	0.	.78	62.	24.4	C	20.3	13.0	
18	2	1500.	0.	695.	3371.	0.	628.	3025.	3934.	0.	0.	0.	.77	62.	24.4	C	20.3	13.0	
19	2	12000.	0.	0.	2676.	0.	0.	2397.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0	
20	3	500.	510.	3186.	3186.	510.	2907.	2907.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1	
TOTAL		137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 36.	38.5		18.3	14.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1465. VEH-HRS	1637. PASS-HRS	4736. VEH-HRS	5269. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1465. VEH-HRS	1637. PASS-HRS	4736. VEH-HRS	5269. PASS-HRS
TOTAL TRAV DISTANCE =	53460. VEH-MI.	60454. PASS-MI.	213756. VEH-MI.	241651. PASS-MI.
AVERAGE SYSTEM SPEED =	36. MPH.		45. MPH.	
AVERAGE DENSITY =	39. VPMPL		32. VPMPL	
TOTAL FUEL =	2922. GALLONS		11301. GALLONS	
TOTAL EMISSIONS =	792. KILOGRAMS		3048. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	399.49	3	188.10	4	24.40	5	22.87
6	2.25	7	1.78	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.15
16	0.00	17	0.32	18	0.32	19	2.03	20	0.00

***** TOTAL DELAY = 642.6 VEH-HRS ***** AVERAGE DELAY = 10.85 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	31.36	41.37	41.93	41.94	42.13	42.68	44.97
2	0.00	2.56	3.12	3.13	3.32	3.87	6.16
3	0.00	0.71	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4030.	0.	4030.	4030.	0.	4030.	6000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
2	3	99999.	0.	645.	4030.	0.	645.	4021.	6000.	0.	* 13852.	9.	.67	36.	36.9	F	17.7	15.3
3	2	11000.	0.	0.	3385.	0.	0.	3376.	4000.	0.	**11000.	9.	.84	17.	100.7	F	16.8	17.9
4	2	1500.	64.	0.	3449.	64.	0.	3440.	3995.	0.	** 1500.	9.	.86	18.	96.8	F	17.2	17.4
5	2	1400.	0.	0.	3449.	0.	0.	3440.	4000.	0.	** 1400.	9.	.86	18.	97.2	F	17.2	17.4
6	2	1500.	528.	0.	3977.	528.	0.	3968.	3968.	0.	0.	0.	1.00	52.	38.5	E	23.6	11.1
7	2	1300.	0.	0.	3977.	0.	0.	3968.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	0.	869.	3977.	0.	867.	3968.	5130.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3108.	0.	0.	3101.	4000.	0.	0.	0.	.78	61.	25.2	C	20.6	12.8
10	3	250.	371.	0.	3479.	371.	0.	3472.	4871.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3479.	0.	0.	3472.	4900.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
12	3	250.	0.	1243.	3479.	0.	1241.	3472.	4723.	0.	0.	0.	.74	62.	18.7	C	20.3	13.0
13	2	50.	0.	350.	2236.	0.	349.	2231.	3950.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
14	2	50.	0.	0.	1886.	0.	0.	1882.	2470.	0.	0.	0.	.76	62.	15.2	B	20.3	13.0
15	2	1000.	347.	0.	2233.	347.	0.	2229.	3947.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
16	2	10.	0.	0.	2233.	0.	0.	2229.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
17	2	1500.	771.	0.	3004.	771.	0.	3000.	3882.	0.	0.	0.	.77	62.	24.2	C	20.3	13.0
18	2	1500.	0.	561.	3004.	0.	560.	3000.	3951.	0.	0.	0.	.76	62.	24.2	C	20.3	13.0
19	2	12000.	0.	0.	2443.	0.	0.	2440.	4000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
20	3	500.	465.	2908.	2908.	465.	2905.	2905.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1
TOTAL	137309. =	26.0 MILES						MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 35.		40.9		18.0	15.2	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1418. VEH-HRS	1588. PASS-HRS	6154. VEH-HRS	6857. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1418. VEH-HRS	1588. PASS-HRS	6154. VEH-HRS	6857. PASS-HRS
TOTAL TRAV DISTANCE =	48943. VEH-MI.	55153. PASS-MI.	262700. VEH-MI.	296804. PASS-MI.
AVERAGE SYSTEM SPEED =	35. MPH.		43. MPH.	
AVERAGE DENSITY =	41. VPMPL		34. VPMPL	
TOTAL FUEL =	2722. GALLONS		14023. GALLONS	
TOTAL EMISSIONS =	745. KILOGRAMS		3794. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	462.85	3	155.59	4	19.99	5	18.75
6	2.26	7	1.84	8	0.14	9	0.61	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.32	18	0.32	19	2.06	20	0.00

***** TOTAL DELAY = 665.1 VEH-HRS ***** AVERAGE DELAY = 10.49 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	31.42	41.44	41.99	42.00	42.20	42.75	45.03
2	0.00	2.56	3.12	3.13	3.32	3.87	6.16
3	0.00	0.71	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84

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                              *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.09
+                                                                              *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4030.	0.	4030.	4030.	0.	4030.	6000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
2	3	99999.	0.	645.	4030.	0.	645.	4021.	6000.	0.	* 13919.	9.	.67	36.	37.0	F	17.7	15.3
3	2	11000.	0.	0.	3385.	0.	0.	3376.	4000.	0.	**11000.	9.	.84	17.	100.7	F	16.8	17.9
4	2	1500.	64.	0.	3449.	64.	0.	3440.	3995.	0.	** 1500.	9.	.86	18.	96.8	F	17.2	17.4
5	2	1400.	0.	0.	3449.	0.	0.	3440.	4000.	0.	** 1400.	9.	.86	18.	97.2	F	17.2	17.4
6	2	1500.	528.	0.	3977.	528.	0.	3968.	3968.	0.	0.	0.	1.00	52.	38.5	E	23.6	11.1
7	2	1300.	0.	0.	3977.	0.	0.	3968.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	0.	869.	3977.	0.	867.	3968.	5130.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3108.	0.	0.	3101.	4000.	0.	0.	0.	.78	61.	25.2	C	20.6	12.8
10	3	250.	371.	0.	3479.	371.	0.	3472.	4871.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3479.	0.	0.	3472.	4900.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
12	3	250.	0.	1243.	3479.	0.	1241.	3472.	4723.	0.	0.	0.	.74	62.	18.7	C	20.3	13.0
13	2	50.	0.	350.	2236.	0.	349.	2231.	3950.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
14	2	50.	0.	0.	1886.	0.	0.	1882.	2470.	0.	0.	0.	.76	62.	15.2	B	20.3	13.0
15	2	1000.	347.	0.	2233.	347.	0.	2229.	3947.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
16	2	10.	0.	0.	2233.	0.	0.	2229.	4000.	0.	0.	0.	.56	62.	18.0	B	20.3	13.0
17	2	1500.	771.	0.	3004.	771.	0.	3000.	3882.	0.	0.	0.	.77	62.	24.2	C	20.3	13.0
18	2	1500.	0.	561.	3004.	0.	560.	3000.	3951.	0.	0.	0.	.76	62.	24.2	C	20.3	13.0
19	2	12000.	0.	0.	2443.	0.	0.	2440.	4000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
20	3	500.	465.	2908.	2908.	465.	2905.	2905.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 34.		40.9		18.0	15.2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1420. VEH-HRS	1590. PASS-HRS	7574. VEH-HRS	8447. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1420. VEH-HRS	1590. PASS-HRS	7574. VEH-HRS	8447. PASS-HRS
TOTAL TRAV DISTANCE =	48943. VEH-MI.	55152. PASS-MI.	311643. VEH-MI.	351956. PASS-MI.
AVERAGE SYSTEM SPEED =	34. MPH.		41. MPH.	
AVERAGE DENSITY =	41. VPMPL		35. VPMPL	
TOTAL FUEL =	2723. GALLONS		16746. GALLONS	
TOTAL EMISSIONS =	746. KILOGRAMS		4539. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	465.11	3	155.59	4	19.99	5	18.75
6	2.26	7	1.84	8	0.14	9	0.61	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.32	18	0.32	19	2.06	20	0.00

***** TOTAL DELAY = 667.3 VEH-HRS ***** AVERAGE DELAY = 10.53 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 19 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1500.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1500.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1500.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1500.	1300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	1	1500.	500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	1	1500.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	1	1500.	250.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-ramp
11	1	1500.	200.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	1	1500.	250.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	1	1500.	50.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	1	1500.	50.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleeck
15	1	1500.	1000.	62	OD	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	1	1500.	10.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	1	1500.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Maude Off-ramp

```
**                                                                                                                                                                                **
**  19   1   1500.  12000.  62      D  0.95   0.0  0   100       NO       0.0       0.   GOOD    0.0  HOV Dummy                                                              **
**                                                                                                                                                                                **
**  20                                                                                                                                                                            **
**                                                                                                                                                                                **
************************************************************************************************************************************************************************************
************************************************************************************************************************************************************************************
```


FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	720.	0.	720.	720.	0.	720.	1500.	0.	0.	0.	.48	62.	11.6	B	21.6	12.8
4	1	1500.	4.	0.	724.	4.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
5	1	1400.	0.	0.	724.	0.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
6	1	1500.	44.	0.	769.	44.	0.	769.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
7	1	1300.	0.	0.	769.	0.	0.	769.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
8	1	500.	0.	163.	769.	0.	163.	769.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
9	1	2300.	0.	0.	605.	0.	0.	605.	1500.	0.	0.	0.	.40	62.	9.8	A	21.6	12.8
10	1	250.	37.	0.	642.	37.	0.	642.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
11	1	200.	0.	0.	642.	0.	0.	642.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
12	1	250.	0.	239.	642.	0.	239.	642.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
13	1	50.	0.	6.	404.	0.	6.	404.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
14	1	50.	0.	0.	398.	0.	0.	398.	1500.	0.	0.	0.	.27	62.	6.4	A	21.6	12.8
15	1	1000.	7.	0.	405.	7.	0.	405.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
16	1	10.	0.	0.	405.	0.	0.	405.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
17	1	1500.	123.	0.	528.	123.	0.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
18	1	1500.	0.	39.	528.	0.	39.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
19	1	12000.	0.	489.	489.	0.	489.	489.	1500.	0.	0.	0.	.33	62.	7.9	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES									MAX(V/C) = 0.51		LOWEST LOS = B	AVG = 62.	9.9		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	34. VEH-HRS	68. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	34. VEH-HRS	68. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2112. VEH-MI.	4223. PASS-MI.	2112. VEH-MI.	4223. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	98. GALLONS		98. GALLONS	

TOTAL EMISSIONS = 27. KILOGRAMS 27. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.56	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.41	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	720.	0.	720.	720.	0.	720.	1500.	0.	0.	0.	.48	62.	11.6	B	21.6	12.8
4	1	1500.	4.	0.	724.	4.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
5	1	1400.	0.	0.	724.	0.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
6	1	1500.	44.	0.	769.	44.	0.	769.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
7	1	1300.	0.	0.	769.	0.	0.	769.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
8	1	500.	0.	163.	769.	0.	163.	769.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
9	1	2300.	0.	0.	605.	0.	0.	605.	1500.	0.	0.	0.	.40	62.	9.8	A	21.6	12.8
10	1	250.	37.	0.	642.	37.	0.	642.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
11	1	200.	0.	0.	642.	0.	0.	642.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
12	1	250.	0.	239.	642.	0.	239.	642.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
13	1	50.	0.	6.	404.	0.	6.	404.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
14	1	50.	0.	0.	398.	0.	0.	398.	1500.	0.	0.	0.	.27	62.	6.4	A	21.6	12.8
15	1	1000.	7.	0.	405.	7.	0.	405.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
16	1	10.	0.	0.	405.	0.	0.	405.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
17	1	1500.	123.	0.	528.	123.	0.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
18	1	1500.	0.	39.	528.	0.	39.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
19	1	12000.	0.	489.	489.	0.	489.	489.	1500.	0.	0.	0.	.33	62.	7.9	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.51		LOWEST LOS = B		AVG = 62.		9.9		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	68. VEH-HRS	136. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	68. VEH-HRS	136. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2112. VEH-MI.	4223. PASS-MI.	4223. VEH-MI.	8446. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	98. GALLONS		196. GALLONS	
TOTAL EMISSIONS =	27. KILOGRAMS		54. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.56	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.41	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	741.	0.	741.	741.	0.	741.	1500.	0.	0.	0.	.49	62.	11.9	B	21.6	12.8
4	1	1500.	5.	0.	746.	5.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
5	1	1400.	0.	0.	746.	0.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
6	1	1500.	48.	0.	793.	48.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
7	1	1300.	0.	0.	793.	0.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
8	1	500.	0.	171.	793.	0.	171.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
9	1	2300.	0.	0.	623.	0.	0.	623.	1500.	0.	0.	0.	.42	62.	10.0	A	21.6	12.8
10	1	250.	38.	0.	661.	38.	0.	661.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
11	1	200.	0.	0.	661.	0.	0.	661.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
12	1	250.	0.	210.	661.	0.	210.	661.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
13	1	50.	0.	24.	451.	0.	24.	451.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8
14	1	50.	0.	0.	427.	0.	0.	427.	1500.	0.	0.	0.	.28	62.	6.9	A	21.6	12.8
15	1	1000.	26.	0.	453.	26.	0.	453.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8

16	1	10.	0.	0.	453.	0.	0.	453.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8
17	1	1500.	123.	0.	576.	123.	0.	576.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
18	1	1500.	0.	66.	576.	0.	66.	576.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
19	1	12000.	0.	510.	510.	0.	510.	510.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES						MAX(V/C) = 0.53 LOWEST LOS = B					AVG = 62.		10.3		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	35. VEH-HRS	71. PASS-HRS	104. VEH-HRS	207. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	35. VEH-HRS	71. PASS-HRS	104. VEH-HRS	207. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2194. VEH-MI.	4388. PASS-MI.	6417. VEH-MI.	12834. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	102. GALLONS		298. GALLONS	
TOTAL EMISSIONS =	28. KILOGRAMS		82. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.57	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.43	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	741.	0.	741.	741.	0.	741.	1500.	0.	0.	0.	.49	62.	11.9	B	21.6	12.8

4	1	1500.	5.	0.	746.	5.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
5	1	1400.	0.	0.	746.	0.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
6	1	1500.	48.	0.	793.	48.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
7	1	1300.	0.	0.	793.	0.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
8	1	500.	0.	171.	793.	0.	171.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
9	1	2300.	0.	0.	623.	0.	0.	623.	1500.	0.	0.	0.	.42	62.	10.0	A	21.6	12.8
10	1	250.	38.	0.	661.	38.	0.	661.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
11	1	200.	0.	0.	661.	0.	0.	661.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
12	1	250.	0.	210.	661.	0.	210.	661.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
13	1	50.	0.	24.	451.	0.	24.	451.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8
14	1	50.	0.	0.	427.	0.	0.	427.	1500.	0.	0.	0.	.28	62.	6.9	A	21.6	12.8
15	1	1000.	26.	0.	453.	26.	0.	453.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8
16	1	10.	0.	0.	453.	0.	0.	453.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8
17	1	1500.	123.	0.	576.	123.	0.	576.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
18	1	1500.	0.	66.	576.	0.	66.	576.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
19	1	12000.	0.	510.	510.	0.	510.	510.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
20																		
TOTAL		36310. =	6.9 MILES					MAX(V/C) = 0.53		LOWEST LOS = B		AVG = 62.		10.3		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	35. VEH-HRS	71. PASS-HRS	139. VEH-HRS	278. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	35. VEH-HRS	71. PASS-HRS	139. VEH-HRS	278. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2194. VEH-MI.	4388. PASS-MI.	8611. VEH-MI.	17222. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	102. GALLONS		400. GALLONS	
TOTAL EMISSIONS =	28. KILOGRAMS		110. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.57	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.43	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	645.	0.	645.	645.	0.	645.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
4	1	1500.	5.	0.	650.	5.	0.	650.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
5	1	1400.	0.	0.	650.	0.	0.	650.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
6	1	1500.	32.	0.	682.	32.	0.	682.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
7	1	1300.	0.	0.	682.	0.	0.	682.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
8	1	500.	0.	140.	682.	0.	140.	682.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
9	1	2300.	0.	0.	542.	0.	0.	542.	1500.	0.	0.	0.	.36	62.	8.7	A	21.6	12.8
10	1	250.	29.	0.	571.	29.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
11	1	200.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
12	1	250.	0.	177.	571.	0.	177.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
13	1	50.	0.	50.	394.	0.	50.	394.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
14	1	50.	0.	0.	344.	0.	0.	344.	1500.	0.	0.	0.	.23	62.	5.5	A	21.6	12.8
15	1	1000.	53.	0.	397.	53.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
16	1	10.	0.	0.	397.	0.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
17	1	1500.	118.	0.	515.	118.	0.	515.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
18	1	1500.	0.	49.	515.	0.	49.	515.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
19	1	12000.	0.	465.	465.	0.	465.	465.	1500.	0.	0.	0.	.31	62.	7.5	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES									MAX(V/C) = 0.45		LOWEST LOS = A		AVG = 62.		9.1	21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	170. VEH-HRS	340. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	170. VEH-HRS	340. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1935. VEH-MI.	3871. PASS-MI.	10547. VEH-MI.	21093. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		10. VPMPL	
TOTAL FUEL =	90. GALLONS		489. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		135. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.50	4	0.07	5	0.06
6	0.07	7	0.06	8	0.02	9	0.09	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.39	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	645.	0.	645.	645.	0.	645.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
4	1	1500.	5.	0.	650.	5.	0.	650.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
5	1	1400.	0.	0.	650.	0.	0.	650.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
6	1	1500.	32.	0.	682.	32.	0.	682.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
7	1	1300.	0.	0.	682.	0.	0.	682.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
8	1	500.	0.	140.	682.	0.	140.	682.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
9	1	2300.	0.	0.	542.	0.	0.	542.	1500.	0.	0.	0.	.36	62.	8.7	A	21.6	12.8
10	1	250.	29.	0.	571.	29.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
11	1	200.	0.	0.	571.	0.	0.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
12	1	250.	0.	177.	571.	0.	177.	571.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
13	1	50.	0.	50.	394.	0.	50.	394.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
14	1	50.	0.	0.	344.	0.	0.	344.	1500.	0.	0.	0.	.23	62.	5.5	A	21.6	12.8
15	1	1000.	53.	0.	397.	53.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
16	1	10.	0.	0.	397.	0.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
17	1	1500.	118.	0.	515.	118.	0.	515.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
18	1	1500.	0.	49.	515.	0.	49.	515.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
19	1	12000.	0.	465.	465.	0.	465.	465.	1500.	0.	0.	0.	.31	62.	7.5	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.45		LOWEST LOS = A		AVG = 62.		9.1		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	201. VEH-HRS	403. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	201. VEH-HRS	403. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1935. VEH-MI.	3871. PASS-MI.	12482. VEH-MI.	24964. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		10. VPMPL	
TOTAL FUEL =	90. GALLONS		579. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		159. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.50	4	0.07	5	0.06
6	0.07	7	0.06	8	0.02	9	0.09	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.39	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seed
2	3	6000.	99999.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	11000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	2	4000.	1500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	2	4000.	1300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	3	5270.	500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	3	4860.	250.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-ramp
11	3	4860.	200.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	3	4860.	250.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	2	4000.	50.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	2	2470.	50.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
15	2	4000.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	2	4000.	10.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
19	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
20	3	6000.	500.	65	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of Network

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***** INPUT HAS BEEN COMPLETED *****

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 12:57 PAGE 4
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TIME SLICE 1 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	17.79	23.96	24.51	24.51	24.71	25.26	27.55
2	0.00	2.60	3.15	3.16	3.36	3.91	6.19
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 12:57 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4500.	0.	4500.	4500.	0.	4500.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
2	3	99999.	0.	720.	4500.	0.	720.	4500.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
3	2	11000.	0.	0.	3780.	0.	0.	3214.	4000.	0. *	7176.	566.	.80	35.	45.7	F	20.8	13.1
4	2	1500.	56.	0.	3836.	56.	0.	3270.	3996.	0. **	1500.	566.	.82	18.	88.5	F	17.4	17.0
5	2	1400.	0.	0.	3836.	0.	0.	3270.	4000.	0. **	1400.	566.	.82	16.	100.5	F	16.6	18.1
6	2	1500.	687.	0.	4523.	687.	0.	3957.	3957.	0.	0.	0.	1.00	52.	38.4	E	23.6	11.1
7	2	1300.	0.	0.	4523.	0.	0.	3957.	4000.	0.	0.	0.	.99	52.	37.8	E	23.4	11.2
8	3	500.	0.	1038.	4523.	0.	909.	3957.	5107.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3485.	0.	0.	3048.	4000.	0.	0.	0.	.76	62.	24.6	C	20.3	13.0
10	3	250.	433.	0.	3918.	433.	0.	3481.	4824.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3918.	0.	0.	3481.	4860.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
12	3	250.	0.	1753.	3918.	0.	1561.	3481.	4616.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
13	2	50.	0.	44.	2165.	0.	39.	1919.	3994.	0.	0.	0.	.48	62.	15.5	B	20.3	13.0
14	2	50.	0.	0.	2121.	0.	0.	1880.	2470.	0.	0.	0.	.76	62.	15.2	B	20.3	13.0
15	2	1000.	43.	0.	2164.	43.	0.	1923.	3993.	0.	0.	0.	.48	62.	15.5	B	20.3	13.0
16	2	10.	0.	0.	2164.	0.	0.	1923.	4000.	0.	0.	0.	.48	62.	15.5	B	20.3	13.0
17	2	1500.	749.	0.	2913.	749.	0.	2672.	3879.	0.	0.	0.	.69	62.	21.6	C	20.3	13.0
18	2	1500.	0.	403.	2913.	0.	372.	2672.	3960.	0.	0.	0.	.67	62.	21.6	C	20.3	13.0
19	2	12000.	0.	0.	2510.	0.	0.	2300.	4000.	0.	0.	0.	.58	62.	18.6	C	20.3	13.0
20	3	500.	478.	2988.	2988.	478.	2778.	2778.	6000.	0.	0.	0.	.46	65.	14.2	B	19.0	14.1
TOTAL	137309. =	26.0 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 58.		26.4		19.5	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	926. VEH-HRS	1034. PASS-HRS	926. VEH-HRS	1034. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	926. VEH-HRS	1034. PASS-HRS	926. VEH-HRS	1034. PASS-HRS
TOTAL TRAV DISTANCE =	53382. VEH-MI.	60307. PASS-MI.	53382. VEH-MI.	60307. PASS-MI.
AVERAGE SYSTEM SPEED =	58. MPH.		58. MPH.	

AVERAGE DENSITY =	26. VPMPL	26. VPMPL
TOTAL FUEL =	2733. GALLONS	2733. GALLONS
TOTAL EMISSIONS =	731. KILOGRAMS	731. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.04	2	8.34	3	49.68	4	18.63	5	20.21
6	2.26	7	1.80	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.14
16	0.00	17	0.28	18	0.28	19	1.95	20	0.00

***** TOTAL DELAY = 104.4 VEH-HRS ***** AVERAGE DELAY = 1.90 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	18.52	29.40	29.95	29.96	30.15	30.70	32.99
2	0.00	2.85	3.40	3.41	3.60	4.15	6.44
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4500.	0.	4500.	4500.	0.	4500.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
2	3	99999.	0.	720.	4500.	0.	720.	3934.	6000.	0.	* 2585.	566.	.66	62.	21.3	F	19.2	13.9
3	2	11000.	0.	0.	3780.	0.	0.	3214.	4000.	0.	**11000.	566.	.80	16.	103.2	F	16.2	18.6
4	2	1500.	56.	0.	3836.	56.	0.	3270.	3996.	0.	** 1500.	566.	.82	15.	106.1	F	16.2	18.7
5	2	1400.	0.	0.	3836.	0.	0.	3270.	4000.	0.	** 1400.	566.	.82	15.	106.4	F	16.2	18.7
6	2	1500.	687.	0.	4523.	687.	0.	3957.	3957.	0.	0.	0.	1.00	52.	38.4	E	23.6	11.1
7	2	1300.	0.	0.	4523.	0.	0.	3957.	4000.	0.	0.	0.	.99	52.	37.8	E	23.4	11.2
8	3	500.	0.	1038.	4523.	0.	909.	3957.	5107.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3485.	0.	0.	3048.	4000.	0.	0.	0.	.76	62.	24.6	C	20.3	13.0
10	3	250.	433.	0.	3918.	433.	0.	3481.	4824.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3918.	0.	0.	3481.	4860.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
12	3	250.	0.	1753.	3918.	0.	1561.	3481.	4616.	0.	0.	0.	.75	62.	18.7	C	20.3	13.0
13	2	50.	0.	44.	2165.	0.	39.	1919.	3994.	0.	0.	0.	.48	62.	15.5	B	20.3	13.0
14	2	50.	0.	0.	2121.	0.	0.	1880.	2470.	0.	0.	0.	.76	62.	15.2	B	20.3	13.0
15	2	1000.	43.	0.	2164.	43.	0.	1923.	3993.	0.	0.	0.	.48	62.	15.5	B	20.3	13.0
16	2	10.	0.	0.	2164.	0.	0.	1923.	4000.	0.	0.	0.	.48	62.	15.5	B	20.3	13.0
17	2	1500.	749.	0.	2913.	749.	0.	2672.	3879.	0.	0.	0.	.69	62.	21.6	C	20.3	13.0
18	2	1500.	0.	403.	2913.	0.	372.	2672.	3960.	0.	0.	0.	.67	62.	21.6	C	20.3	13.0
19	2	12000.	0.	0.	2510.	0.	0.	2300.	4000.	0.	0.	0.	.58	62.	18.6	C	20.3	13.0
20	3	500.	478.	2988.	2988.	478.	2778.	2778.	6000.	0.	0.	0.	.46	65.	14.2	B	19.0	14.1
TOTAL		137309. = 26.0 MILES						MAX(V/C) = 1.00 LOWEST LOS = F					AVG = 50.		29.7		19.1	14.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1067. VEH-HRS	1180. PASS-HRS	1993. VEH-HRS	2213. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1067. VEH-HRS	1180. PASS-HRS	1993. VEH-HRS	2213. PASS-HRS
TOTAL TRAV DISTANCE =	52907. VEH-MI.	59825. PASS-MI.	106289. VEH-MI.	120131. PASS-MI.
AVERAGE SYSTEM SPEED =	50. MPH.		53. MPH.	
AVERAGE DENSITY =	30. VPMPL		28. VPMPL	
TOTAL FUEL =	2768. GALLONS		5500. GALLONS	
TOTAL EMISSIONS =	747. KILOGRAMS		1477. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.04	2	35.68	3	165.43	4	23.01	5	21.55
6	2.26	7	1.80	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.14
16	0.00	17	0.28	18	0.28	19	1.95	20	0.00

***** TOTAL DELAY = 253.2 VEH-HRS ***** AVERAGE DELAY = 4.60 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	22.85	34.98	35.53	35.54	35.73	36.28	38.57
2	0.00	2.99	3.54	3.55	3.74	4.29	6.58
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4628.	0.	4628.	4628.	0.	4628.	6000.	0.	0.	0.	.77	64.	24.2	C	19.5	13.7
2	3	99999.	0.	741.	4628.	0.	741.	3867.	6000.	0.	* 8169.	761.	.64	50.	25.8	F	18.9	14.1
3	2	11000.	0.	0.	3887.	0.	0.	3126.	4000.	0.	**11000.	761.	.78	14.	114.3	F	15.1	20.0
4	2	1500.	64.	0.	3951.	64.	0.	3190.	3995.	0.	** 1500.	761.	.80	14.	110.4	F	15.7	19.4
5	2	1400.	0.	0.	3951.	0.	0.	3190.	4000.	0.	** 1400.	761.	.80	14.	110.8	F	15.6	19.4
6	2	1500.	764.	0.	4715.	764.	0.	3954.	3954.	0.	0.	0.	1.00	52.	38.3	E	23.6	11.1
7	2	1300.	0.	0.	4715.	0.	0.	3954.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2
8	3	500.	0.	1099.	4715.	0.	923.	3954.	5099.	0.	0.	0.	.78	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3616.	0.	0.	3031.	4000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
10	3	250.	459.	0.	4075.	459.	0.	3490.	4823.	0.	0.	0.	.72	62.	18.8	C	20.3	13.0
11	3	200.	0.	0.	4075.	0.	0.	3490.	4860.	0.	0.	0.	.72	62.	18.8	C	20.3	13.0
12	3	250.	0.	1562.	4075.	0.	1342.	3490.	4646.	0.	0.	0.	.75	62.	18.8	C	20.3	13.0
13	2	50.	0.	175.	2513.	0.	150.	2148.	3976.	0.	0.	0.	.54	62.	17.3	B	20.3	13.0

14	2	50.	0.	0.	2338.	0.	0.	1997.	2470.	0.	0.	0.	.81	62.	16.1	B	20.3	13.0
15	2	1000.	175.	0.	2513.	175.	0.	2172.	3975.	0.	0.	0.	.55	62.	17.5	B	20.3	13.0
16	2	10.	0.	0.	2513.	0.	0.	2172.	4000.	0.	0.	0.	.54	62.	17.5	B	20.3	13.0
17	2	1500.	824.	0.	3337.	824.	0.	2996.	3880.	0.	0.	0.	.77	62.	24.2	C	20.3	13.0
18	2	1500.	0.	725.	3337.	0.	656.	2996.	3932.	0.	0.	0.	.76	62.	24.2	C	20.3	13.0
19	2	12000.	0.	0.	2612.	0.	0.	2340.	4000.	0.	0.	0.	.59	62.	18.9	C	20.3	13.0
20	3	500.	497.	3109.	3109.	497.	2837.	2837.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1
TOTAL		137309. =	26.0 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 42.		34.1	18.8	14.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1272. VEH-HRS	1413. PASS-HRS	3265. VEH-HRS	3627. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1272. VEH-HRS	1413. PASS-HRS	3265. VEH-HRS	3627. PASS-HRS
TOTAL TRAV DISTANCE =	53789. VEH-MI.	60848. PASS-MI.	160078. VEH-MI.	180980. PASS-MI.
AVERAGE SYSTEM SPEED =	42. MPH.		49. MPH.	
AVERAGE DENSITY =	34. VPMPL		30. VPMPL	
TOTAL FUEL =	2867. GALLONS		8367. GALLONS	
TOTAL EMISSIONS =	775. KILOGRAMS		2253. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	201.89	3	187.97	4	24.40	5	22.87
6	2.25	7	1.79	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.15
16	0.00	17	0.32	18	0.32	19	1.98	20	0.00

***** TOTAL DELAY = 444.8 VEH-HRS ***** AVERAGE DELAY = 7.77 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	28.09	40.22	40.77	40.78	40.97	41.52	43.81
2	0.00	2.99	3.54	3.55	3.74	4.29	6.58
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4628.	0.	4628.	4628.	0.	4628.	6000.	0.	0.	0.	.77	64.	24.2	C	19.5	13.7

SR-237_WB_PM_P1_2040_PE

*	2	3	99999.	0.	741.	4628.	0.	741.	3867.	6000.	0.	* 13753.	761.	.64	41.	31.8	F	18.3	14.6	*
*	3	2	11000.	0.	0.	3887.	0.	0.	3126.	4000.	0.	**11000.	761.	.78	14.	114.3	F	15.1	20.0	*
*	4	2	1500.	64.	0.	3951.	64.	0.	3190.	3995.	0.	** 1500.	761.	.80	14.	110.4	F	15.7	19.4	*
*	5	2	1400.	0.	0.	3951.	0.	0.	3190.	4000.	0.	** 1400.	761.	.80	14.	110.8	F	15.6	19.4	*
*	6	2	1500.	764.	0.	4715.	764.	0.	3954.	3954.	0.	0.	0.	1.00	52.	38.3	E	23.6	11.1	*
*	7	2	1300.	0.	0.	4715.	0.	0.	3954.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2	*
*	8	3	500.	0.	1099.	4715.	0.	923.	3954.	5099.	0.	0.	0.	.78	62.	21.3	C	20.3	13.0	*
*	9	2	2300.	0.	0.	3616.	0.	0.	3031.	4000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0	*
*	10	3	250.	459.	0.	4075.	459.	0.	3490.	4823.	0.	0.	0.	.72	62.	18.8	C	20.3	13.0	*
*	11	3	200.	0.	0.	4075.	0.	0.	3490.	4860.	0.	0.	0.	.72	62.	18.8	C	20.3	13.0	*
*	12	3	250.	0.	1562.	4075.	0.	1342.	3490.	4646.	0.	0.	0.	.75	62.	18.8	C	20.3	13.0	*
*	13	2	50.	0.	175.	2513.	0.	150.	2148.	3976.	0.	0.	0.	.54	62.	17.3	B	20.3	13.0	*
*	14	2	50.	0.	0.	2338.	0.	0.	1997.	2470.	0.	0.	0.	.81	62.	16.1	B	20.3	13.0	*
*	15	2	1000.	175.	0.	2513.	175.	0.	2172.	3975.	0.	0.	0.	.55	62.	17.5	B	20.3	13.0	*
*	16	2	10.	0.	0.	2513.	0.	0.	2172.	4000.	0.	0.	0.	.54	62.	17.5	B	20.3	13.0	*
*	17	2	1500.	824.	0.	3337.	824.	0.	2996.	3880.	0.	0.	0.	.77	62.	24.2	C	20.3	13.0	*
*	18	2	1500.	0.	725.	3337.	0.	656.	2996.	3932.	0.	0.	0.	.76	62.	24.2	C	20.3	13.0	*
*	19	2	12000.	0.	0.	2612.	0.	0.	2340.	4000.	0.	0.	0.	.59	62.	18.9	C	20.3	13.0	*
*	20	3	500.	497.	3109.	3109.	497.	2837.	2837.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1	*
*																				*
*																				*
*	TOTAL	137309. =	26.0 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 37.		38.4		18.3	14.8	*
*																				*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1463. VEH-HRS	1634. PASS-HRS	4728. VEH-HRS	5261. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1463. VEH-HRS	1634. PASS-HRS	4728. VEH-HRS	5261. PASS-HRS
TOTAL TRAV DISTANCE =	53386. VEH-MI.	60382. PASS-MI.	213464. VEH-MI.	241362. PASS-MI.
AVERAGE SYSTEM SPEED =	37. MPH.		45. MPH.	
AVERAGE DENSITY =	38. VPMPL		32. VPMPL	
TOTAL FUEL =	2918. GALLONS		11285. GALLONS	
TOTAL EMISSIONS =	791. KILOGRAMS		3044. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	398.33	3	187.97	4	24.40	5	22.87
6	2.25	7	1.79	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.15
16	0.00	17	0.32	18	0.32	19	1.98	20	0.00

***** TOTAL DELAY = 641.3 VEH-HRS ***** AVERAGE DELAY = 10.82 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	31.32	41.32	41.88	41.89	42.08	42.63	44.92
2	0.00	2.56	3.12	3.13	3.32	3.87	6.16
3	0.00	0.71	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4030.	0.	4030.	4030.	0.	4030.	6000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
2	3	99999.	0.	645.	4030.	0.	645.	4022.	6000.	0.	* 13812.	8.	.67	36.	36.8	F	17.7	15.3
3	2	11000.	0.	0.	3385.	0.	0.	3377.	4000.	0.	**11000.	8.	.84	17.	100.6	F	16.8	17.9
4	2	1500.	64.	0.	3449.	64.	0.	3441.	3995.	0.	** 1500.	8.	.86	18.	96.8	F	17.2	17.4
5	2	1400.	0.	0.	3449.	0.	0.	3441.	4000.	0.	** 1400.	8.	.86	18.	97.1	F	17.2	17.4
6	2	1500.	528.	0.	3977.	528.	0.	3969.	3969.	0.	0.	0.	1.00	52.	38.5	E	23.6	11.1
7	2	1300.	0.	0.	3977.	0.	0.	3969.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	0.	869.	3977.	0.	867.	3969.	5130.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3108.	0.	0.	3102.	4000.	0.	0.	0.	.78	61.	25.3	C	20.6	12.8
10	3	250.	373.	0.	3481.	373.	0.	3475.	4832.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3481.	0.	0.	3475.	4860.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
12	3	250.	0.	1268.	3481.	0.	1266.	3475.	4680.	0.	0.	0.	.74	62.	18.7	C	20.3	13.0
13	2	50.	0.	350.	2213.	0.	349.	2209.	3950.	0.	0.	0.	.56	62.	17.8	B	20.3	13.0
14	2	50.	0.	0.	1863.	0.	0.	1860.	2470.	0.	0.	0.	.75	62.	15.0	B	20.3	13.0
15	2	1000.	348.	0.	2211.	348.	0.	2208.	3948.	0.	0.	0.	.56	62.	17.8	B	20.3	13.0
16	2	10.	0.	0.	2211.	0.	0.	2208.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
17	2	1500.	769.	0.	2980.	769.	0.	2977.	3884.	0.	0.	0.	.77	62.	24.0	C	20.3	13.0
18	2	1500.	0.	584.	2980.	0.	583.	2977.	3949.	0.	0.	0.	.75	62.	24.0	C	20.3	13.0
19	2	12000.	0.	0.	2396.	0.	0.	2393.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0
20	3	500.	456.	2852.	2852.	456.	2849.	2849.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1
TOTAL	137309. =	26.0 MILES									MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 35.		40.8	18.0	15.2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1416. VEH-HRS	1585. PASS-HRS	6143. VEH-HRS	6846. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1416. VEH-HRS	1585. PASS-HRS	6143. VEH-HRS	6846. PASS-HRS
TOTAL TRAV DISTANCE =	48882. VEH-MI.	55092. PASS-MI.	262347. VEH-MI.	296454. PASS-MI.
AVERAGE SYSTEM SPEED =	35. MPH.		43. MPH.	
AVERAGE DENSITY =	41. VPMPL		34. VPMPL	
TOTAL FUEL =	2719. GALLONS		14004. GALLONS	
TOTAL EMISSIONS =	744. KILOGRAMS		3788. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	461.49	3	155.46	4	19.97	5	18.73
6	2.26	7	1.85	8	0.14	9	0.61	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.31	18	0.31	19	2.02	20	0.00

***** TOTAL DELAY = 663.5 VEH-HRS ***** AVERAGE DELAY = 10.47 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	31.37	41.38	41.94	41.95	42.14	42.69	44.98
2	0.00	2.56	3.12	3.13	3.32	3.87	6.16
3	0.00	0.71	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84

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                              *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.09
+                                                                              *
                              *    *                                            *
                              ********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4030.	0.	4030.	4030.	0.	4030.	6000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
2	3	99999.	0.	645.	4030.	0.	645.	4022.	6000.	0.	* 13872.	8.	.67	36.	36.9	F	17.7	15.3
3	2	11000.	0.	0.	3385.	0.	0.	3377.	4000.	0.	**11000.	8.	.84	17.	100.6	F	16.8	17.9
4	2	1500.	64.	0.	3449.	64.	0.	3441.	3995.	0.	** 1500.	8.	.86	18.	96.8	F	17.2	17.4
5	2	1400.	0.	0.	3449.	0.	0.	3441.	4000.	0.	** 1400.	8.	.86	18.	97.1	F	17.2	17.4
6	2	1500.	528.	0.	3977.	528.	0.	3969.	3969.	0.	0.	0.	1.00	52.	38.5	E	23.6	11.1
7	2	1300.	0.	0.	3977.	0.	0.	3969.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	0.	869.	3977.	0.	867.	3969.	5130.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3108.	0.	0.	3102.	4000.	0.	0.	0.	.78	61.	25.3	C	20.6	12.8
10	3	250.	373.	0.	3481.	373.	0.	3475.	4832.	0.	0.	0.	.72	62.	18.7	C	20.3	13.0
11	3	200.	0.	0.	3481.	0.	0.	3475.	4860.	0.	0.	0.	.71	62.	18.7	C	20.3	13.0
12	3	250.	0.	1268.	3481.	0.	1266.	3475.	4680.	0.	0.	0.	.74	62.	18.7	C	20.3	13.0
13	2	50.	0.	350.	2213.	0.	349.	2209.	3950.	0.	0.	0.	.56	62.	17.8	B	20.3	13.0
14	2	50.	0.	0.	1863.	0.	0.	1860.	2470.	0.	0.	0.	.75	62.	15.0	B	20.3	13.0
15	2	1000.	348.	0.	2211.	348.	0.	2208.	3948.	0.	0.	0.	.56	62.	17.8	B	20.3	13.0
16	2	10.	0.	0.	2211.	0.	0.	2208.	4000.	0.	0.	0.	.55	62.	17.8	B	20.3	13.0
17	2	1500.	769.	0.	2980.	769.	0.	2977.	3884.	0.	0.	0.	.77	62.	24.0	C	20.3	13.0
18	2	1500.	0.	584.	2980.	0.	583.	2977.	3949.	0.	0.	0.	.75	62.	24.0	C	20.3	13.0
19	2	12000.	0.	0.	2396.	0.	0.	2393.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0
20	3	500.	456.	2852.	2852.	456.	2849.	2849.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1
TOTAL	137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 34.		40.8		18.0	15.2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1418. VEH-HRS	1587. PASS-HRS	7561. VEH-HRS	8433. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1418. VEH-HRS	1587. PASS-HRS	7561. VEH-HRS	8433. PASS-HRS
TOTAL TRAV DISTANCE =	48882. VEH-MI.	55092. PASS-MI.	311229. VEH-MI.	351546. PASS-MI.
AVERAGE SYSTEM SPEED =	34. MPH.		41. MPH.	
AVERAGE DENSITY =	41. VPMPL		35. VPMPL	
TOTAL FUEL =	2719. GALLONS		16723. GALLONS	
TOTAL EMISSIONS =	745. KILOGRAMS		4533. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	463.49	3	155.46	4	19.97	5	18.73
6	2.26	7	1.85	8	0.14	9	0.61	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.31	18	0.31	19	2.02	20	0.00

***** TOTAL DELAY = 665.5 VEH-HRS ***** AVERAGE DELAY = 10.50 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 19 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1500.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1500.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1500.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1500.	1300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	1	1500.	500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	1	1500.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	1	1500.	250.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-ramp
11	1	1500.	200.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	1	1500.	250.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	1	1500.	50.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	1	1500.	50.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleeck
15	1	1500.	1000.	62	OD	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	1	1500.	10.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	1	1500.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Maude Off-ramp

19	1	1500.	12000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy	
20																

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	720.	0.	720.	720.	0.	720.	1500.	0.	0.	0.	.48	62.	11.6	B	21.6	12.8
4	1	1500.	4.	0.	724.	4.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
5	1	1400.	0.	0.	724.	0.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
6	1	1500.	43.	0.	767.	43.	0.	767.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
7	1	1300.	0.	0.	767.	0.	0.	767.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
8	1	500.	0.	163.	767.	0.	163.	767.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
9	1	2300.	0.	0.	604.	0.	0.	604.	1500.	0.	0.	0.	.40	62.	9.7	A	21.6	12.8
10	1	250.	36.	0.	640.	36.	0.	640.	1500.	0.	0.	0.	.43	62.	10.3	A	21.6	12.8
11	1	200.	0.	0.	640.	0.	0.	640.	1500.	0.	0.	0.	.43	62.	10.3	A	21.6	12.8
12	1	250.	0.	244.	640.	0.	244.	640.	1500.	0.	0.	0.	.43	62.	10.3	A	21.6	12.8
13	1	50.	0.	6.	396.	0.	6.	396.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
14	1	50.	0.	0.	390.	0.	0.	390.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
15	1	1000.	7.	0.	397.	7.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
16	1	10.	0.	0.	397.	0.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
17	1	1500.	121.	0.	518.	121.	0.	518.	1500.	0.	0.	0.	.35	62.	8.4	A	21.6	12.8
18	1	1500.	0.	40.	518.	0.	40.	518.	1500.	0.	0.	0.	.35	62.	8.4	A	21.6	12.8
19	1	12000.	0.	478.	478.	0.	478.	478.	1500.	0.	0.	0.	.32	62.	7.7	A	21.6	12.8
20																		

TOTAL 36310. = 6.9 MILES MAX(V/C) = 0.51 LOWEST LOS = B AVG = 62. 9.8 21.6 12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	34. VEH-HRS	68. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	34. VEH-HRS	68. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2095. VEH-MI.	4190. PASS-MI.	2095. VEH-MI.	4190. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	97. GALLONS		97. GALLONS	

TOTAL EMISSIONS = 27. KILOGRAMS 27. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.56	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.40	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	720.	0.	720.	720.	0.	720.	1500.	0.	0.	0.	.48	62.	11.6	B	21.6	12.8
4	1	1500.	4.	0.	724.	4.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
5	1	1400.	0.	0.	724.	0.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
6	1	1500.	43.	0.	767.	43.	0.	767.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
7	1	1300.	0.	0.	767.	0.	0.	767.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
8	1	500.	0.	163.	767.	0.	163.	767.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
9	1	2300.	0.	0.	604.	0.	0.	604.	1500.	0.	0.	0.	.40	62.	9.7	A	21.6	12.8
10	1	250.	36.	0.	640.	36.	0.	640.	1500.	0.	0.	0.	.43	62.	10.3	A	21.6	12.8
11	1	200.	0.	0.	640.	0.	0.	640.	1500.	0.	0.	0.	.43	62.	10.3	A	21.6	12.8
12	1	250.	0.	244.	640.	0.	244.	640.	1500.	0.	0.	0.	.43	62.	10.3	A	21.6	12.8
13	1	50.	0.	6.	396.	0.	6.	396.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
14	1	50.	0.	0.	390.	0.	0.	390.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
15	1	1000.	7.	0.	397.	7.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
16	1	10.	0.	0.	397.	0.	0.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
17	1	1500.	121.	0.	518.	121.	0.	518.	1500.	0.	0.	0.	.35	62.	8.4	A	21.6	12.8
18	1	1500.	0.	40.	518.	0.	40.	518.	1500.	0.	0.	0.	.35	62.	8.4	A	21.6	12.8
19	1	12000.	0.	478.	478.	0.	478.	478.	1500.	0.	0.	0.	.32	62.	7.7	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES							MAX(V/C) = 0.51		LOWEST LOS = B		AVG = 62.		9.8		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	68. VEH-HRS	135. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	68. VEH-HRS	135. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2095. VEH-MI.	4190. PASS-MI.	4190. VEH-MI.	8379. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	97. GALLONS		194. GALLONS	
TOTAL EMISSIONS =	27. KILOGRAMS		53. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.56	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.40	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	741.	0.	741.	741.	0.	741.	1500.	0.	0.	0.	.49	62.	11.9	B	21.6	12.8
4	1	1500.	5.	0.	746.	5.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
5	1	1400.	0.	0.	746.	0.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
6	1	1500.	46.	0.	792.	46.	0.	792.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
7	1	1300.	0.	0.	792.	0.	0.	792.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
8	1	500.	0.	171.	792.	0.	171.	792.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
9	1	2300.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
10	1	250.	37.	0.	658.	37.	0.	658.	1500.	0.	0.	0.	.44	62.	10.6	A	21.6	12.8
11	1	200.	0.	0.	658.	0.	0.	658.	1500.	0.	0.	0.	.44	62.	10.6	A	21.6	12.8
12	1	250.	0.	214.	658.	0.	214.	658.	1500.	0.	0.	0.	.44	62.	10.6	A	21.6	12.8
13	1	50.	0.	24.	444.	0.	24.	444.	1500.	0.	0.	0.	.30	62.	7.2	A	21.6	12.8
14	1	50.	0.	0.	420.	0.	0.	420.	1500.	0.	0.	0.	.28	62.	6.8	A	21.6	12.8
15	1	1000.	25.	0.	446.	25.	0.	446.	1500.	0.	0.	0.	.30	62.	7.2	A	21.6	12.8

16	1	10.	0.	0.	446.	0.	0.	446.	1500.	0.	0.	0.	.30	62.	7.2	A	21.6	12.8
17	1	1500.	120.	0.	566.	120.	0.	566.	1500.	0.	0.	0.	.38	62.	9.1	A	21.6	12.8
18	1	1500.	0.	68.	566.	0.	68.	566.	1500.	0.	0.	0.	.38	62.	9.1	A	21.6	12.8
19	1	12000.	0.	497.	497.	0.	497.	497.	1500.	0.	0.	0.	.33	62.	8.0	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES						MAX(V/C) = 0.53 LOWEST LOS = B				AVG = 62.		10.2		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	35. VEH-HRS	70. PASS-HRS	103. VEH-HRS	205. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	35. VEH-HRS	70. PASS-HRS	103. VEH-HRS	205. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2175. VEH-MI.	4351. PASS-MI.	6365. VEH-MI.	12730. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	101. GALLONS		295. GALLONS	
TOTAL EMISSIONS =	28. KILOGRAMS		81. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.57	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.42	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	741.	0.	741.	741.	0.	741.	1500.	0.	0.	0.	.49	62.	11.9	B	21.6	12.8

4	1	1500.	5.	0.	746.	5.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
5	1	1400.	0.	0.	746.	0.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
6	1	1500.	46.	0.	792.	46.	0.	792.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
7	1	1300.	0.	0.	792.	0.	0.	792.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
8	1	500.	0.	171.	792.	0.	171.	792.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
9	1	2300.	0.	0.	621.	0.	0.	621.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
10	1	250.	37.	0.	658.	37.	0.	658.	1500.	0.	0.	0.	.44	62.	10.6	A	21.6	12.8
11	1	200.	0.	0.	658.	0.	0.	658.	1500.	0.	0.	0.	.44	62.	10.6	A	21.6	12.8
12	1	250.	0.	214.	658.	0.	214.	658.	1500.	0.	0.	0.	.44	62.	10.6	A	21.6	12.8
13	1	50.	0.	24.	444.	0.	24.	444.	1500.	0.	0.	0.	.30	62.	7.2	A	21.6	12.8
14	1	50.	0.	0.	420.	0.	0.	420.	1500.	0.	0.	0.	.28	62.	6.8	A	21.6	12.8
15	1	1000.	25.	0.	446.	25.	0.	446.	1500.	0.	0.	0.	.30	62.	7.2	A	21.6	12.8
16	1	10.	0.	0.	446.	0.	0.	446.	1500.	0.	0.	0.	.30	62.	7.2	A	21.6	12.8
17	1	1500.	120.	0.	566.	120.	0.	566.	1500.	0.	0.	0.	.38	62.	9.1	A	21.6	12.8
18	1	1500.	0.	68.	566.	0.	68.	566.	1500.	0.	0.	0.	.38	62.	9.1	A	21.6	12.8
19	1	12000.	0.	497.	497.	0.	497.	497.	1500.	0.	0.	0.	.33	62.	8.0	A	21.6	12.8
20																		
TOTAL		36310. =	6.9 MILES					MAX(V/C) = 0.53		LOWEST LOS = B		AVG = 62.		10.2		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	35. VEH-HRS	70. PASS-HRS	138. VEH-HRS	275. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	35. VEH-HRS	70. PASS-HRS	138. VEH-HRS	275. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2175. VEH-MI.	4351. PASS-MI.	8540. VEH-MI.	17081. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	101. GALLONS		396. GALLONS	
TOTAL EMISSIONS =	28. KILOGRAMS		109. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.57	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.42	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	645.	0.	645.	645.	0.	645.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
4	1	1500.	5.	0.	649.	5.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
5	1	1400.	0.	0.	649.	0.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
6	1	1500.	31.	0.	681.	31.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
7	1	1300.	0.	0.	681.	0.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
8	1	500.	0.	140.	681.	0.	140.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
9	1	2300.	0.	0.	541.	0.	0.	541.	1500.	0.	0.	0.	.36	62.	8.7	A	21.6	12.8
10	1	250.	28.	0.	569.	28.	0.	569.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
11	1	200.	0.	0.	569.	0.	0.	569.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
12	1	250.	0.	180.	569.	0.	180.	569.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
13	1	50.	0.	50.	389.	0.	50.	389.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
14	1	50.	0.	0.	339.	0.	0.	339.	1500.	0.	0.	0.	.23	62.	5.5	A	21.6	12.8
15	1	1000.	52.	0.	391.	52.	0.	391.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
16	1	10.	0.	0.	391.	0.	0.	391.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
17	1	1500.	116.	0.	507.	116.	0.	507.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
18	1	1500.	0.	51.	507.	0.	51.	507.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
19	1	12000.	0.	456.	456.	0.	456.	456.	1500.	0.	0.	0.	.30	62.	7.4	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES									MAX(V/C) = 0.45		LOWEST LOS = A	AVG = 62.	9.0		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	169. VEH-HRS	337. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	169. VEH-HRS	337. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1922. VEH-MI.	3844. PASS-MI.	10462. VEH-MI.	20924. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		10. VPMPL	
TOTAL FUEL =	89. GALLONS		485. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		134. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.50	4	0.07	5	0.06
6	0.07	7	0.06	8	0.02	9	0.09	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.39	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 6 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	645.	0.	645.	645.	0.	645.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
4	1	1500.	5.	0.	649.	5.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
5	1	1400.	0.	0.	649.	0.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
6	1	1500.	31.	0.	681.	31.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
7	1	1300.	0.	0.	681.	0.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
8	1	500.	0.	140.	681.	0.	140.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
9	1	2300.	0.	0.	541.	0.	0.	541.	1500.	0.	0.	0.	.36	62.	8.7	A	21.6	12.8
10	1	250.	28.	0.	569.	28.	0.	569.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
11	1	200.	0.	0.	569.	0.	0.	569.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
12	1	250.	0.	180.	569.	0.	180.	569.	1500.	0.	0.	0.	.38	62.	9.2	A	21.6	12.8
13	1	50.	0.	50.	389.	0.	50.	389.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
14	1	50.	0.	0.	339.	0.	0.	339.	1500.	0.	0.	0.	.23	62.	5.5	A	21.6	12.8
15	1	1000.	52.	0.	391.	52.	0.	391.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
16	1	10.	0.	0.	391.	0.	0.	391.	1500.	0.	0.	0.	.26	62.	6.3	A	21.6	12.8
17	1	1500.	116.	0.	507.	116.	0.	507.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
18	1	1500.	0.	51.	507.	0.	51.	507.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
19	1	12000.	0.	456.	456.	0.	456.	456.	1500.	0.	0.	0.	.30	62.	7.4	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES									MAX(V/C) = 0.45		LOWEST LOS = A	AVG = 62.	9.0		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	200. VEH-HRS	399. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	200. VEH-HRS	399. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1922. VEH-MI.	3844. PASS-MI.	12384. VEH-MI.	24768. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		10. VPMPL	
TOTAL FUEL =	89. GALLONS		575. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		158. KILOGRAMS	

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TIME SLICE 6 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.50	4	0.07	5	0.06
6	0.07	7	0.06	8	0.02	9	0.09	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.39	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 2.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	3	6000.	500.	65	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Seed
2	3	6000.	99999.	65	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	4000.	11000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	2	4000.	1500.	62	O	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	2	4000.	1400.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	2	4000.	1300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	3	5270.	500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	2	4000.	2300.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	3	4860.	250.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda On-ramp
11	3	4860.	200.	62		0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	3	4860.	250.	62	D	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	2	4000.	50.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	2	2470.	50.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Bottleeck
15	2	4000.	1000.	62	OD	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	2	4000.	10.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	2	4000.	1500.	62	O	0.95	0.0	5	0	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	2	4000.	1500.	62	D	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	Maude Off-ramp
19	2	4000.	12000.	62		0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
20	3	6000.	500.	65	OD	0.95	0.0	5	0	NO	0.0	0.	GOOD	0.0	End of Network

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***** INPUT HAS BEEN COMPLETED *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	17.79	23.94	24.49	24.50	24.70	25.25	27.53
2	0.00	2.60	3.15	3.16	3.36	3.91	6.19
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PE REL 3.01 3/30/2016 16:20 PAGE 5
UNIVERSITY OF CALIFORNIA, BERKELEY SIMULATION AFTER CONTROL, NO DIVERSION
TIME SLICE 1 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4499.	0.	4499.	4499.	0.	4499.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
2	3	99999.	0.	720.	4499.	0.	720.	4499.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
3	2	11000.	0.	0.	3779.	0.	0.	3215.	4000.	0. *	7143.	564.	.80	35.	45.6	F	20.8	13.1
4	2	1500.	55.	0.	3834.	55.	0.	3270.	3996.	0. **	1500.	564.	.82	18.	88.4	F	17.4	17.0
5	2	1400.	0.	0.	3834.	0.	0.	3270.	4000.	0. **	1400.	564.	.82	16.	100.5	F	16.6	18.1
6	2	1500.	686.	0.	4520.	686.	0.	3956.	3956.	0.	0.	0.	1.00	52.	38.4	E	23.6	11.1
7	2	1300.	0.	0.	4520.	0.	0.	3956.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2
8	3	500.	0.	1038.	4520.	0.	910.	3956.	5107.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3482.	0.	0.	3046.	4000.	0.	0.	0.	.76	62.	24.6	C	20.3	13.0
10	3	250.	507.	0.	3989.	507.	0.	3553.	4817.	0.	0.	0.	.74	62.	19.1	C	20.3	13.0
11	3	200.	0.	0.	3989.	0.	0.	3553.	4860.	0.	0.	0.	.73	62.	19.1	C	20.3	13.0
12	3	250.	0.	1768.	3989.	0.	1579.	3553.	4619.	0.	0.	0.	.77	62.	19.1	C	20.3	13.0
13	2	50.	0.	43.	2221.	0.	38.	1974.	3994.	0.	0.	0.	.49	62.	15.9	B	20.3	13.0
14	2	50.	0.	0.	2178.	0.	0.	1936.	2470.	0.	0.	0.	.78	62.	15.6	B	20.3	13.0
15	2	1000.	43.	0.	2221.	43.	0.	1979.	3993.	0.	0.	0.	.50	62.	16.0	B	20.3	13.0
16	2	10.	0.	0.	2221.	0.	0.	1979.	4000.	0.	0.	0.	.49	62.	16.0	B	20.3	13.0
17	2	1500.	749.	0.	2970.	749.	0.	2728.	3879.	0.	0.	0.	.70	62.	22.0	C	20.3	13.0
18	2	1500.	0.	406.	2970.	0.	375.	2728.	3960.	0.	0.	0.	.69	62.	22.0	C	20.3	13.0
19	2	12000.	0.	0.	2564.	0.	0.	2353.	4000.	0.	0.	0.	.59	62.	19.0	C	20.3	13.0
20	3	500.	488.	3052.	3052.	488.	2841.	2841.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1
TOTAL	137309. =	26.0 MILES						MAX(V/C) = 1.00		LOWEST LOS = F			AVG = 58.		26.4		19.5	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	927. VEH-HRS	1035. PASS-HRS	927. VEH-HRS	1035. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	927. VEH-HRS	1035. PASS-HRS	927. VEH-HRS	1035. PASS-HRS
TOTAL TRAV DISTANCE =	53461. VEH-MI.	60385. PASS-MI.	53461. VEH-MI.	60385. PASS-MI.
AVERAGE SYSTEM SPEED =	58. MPH.		58. MPH.	

AVERAGE DENSITY =	26. VPMPL	26. VPMPL
TOTAL FUEL =	2736. GALLONS	2736. GALLONS
TOTAL EMISSIONS =	732. KILOGRAMS	732. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.04	2	8.31	3	49.39	4	18.61	5	20.20
6	2.25	7	1.80	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.14
16	0.00	17	0.29	18	0.29	19	1.99	20	0.00

***** TOTAL DELAY = 104.1 VEH-HRS ***** AVERAGE DELAY = 1.89 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	18.51	29.37	29.92	29.93	30.12	30.67	32.96
2	0.00	2.85	3.40	3.41	3.60	4.15	6.44
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4499.	0.	4499.	4499.	0.	4499.	6000.	0.	0.	0.	.75	64.	23.4	C	19.3	13.8
2	3	99999.	0.	720.	4499.	0.	720.	3935.	6000.	0.	* 2558.	564.	.66	62.	21.3	F	19.2	13.9
3	2	11000.	0.	0.	3779.	0.	0.	3215.	4000.	0.	**11000.	564.	.80	16.	103.0	F	16.2	18.6
4	2	1500.	55.	0.	3834.	55.	0.	3270.	3996.	0.	** 1500.	564.	.82	15.	106.1	F	16.2	18.7
5	2	1400.	0.	0.	3834.	0.	0.	3270.	4000.	0.	** 1400.	564.	.82	15.	106.4	F	16.2	18.7
6	2	1500.	686.	0.	4520.	686.	0.	3956.	3956.	0.	0.	0.	1.00	52.	38.4	E	23.6	11.1
7	2	1300.	0.	0.	4520.	0.	0.	3956.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2
8	3	500.	0.	1038.	4520.	0.	910.	3956.	5107.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3482.	0.	0.	3046.	4000.	0.	0.	0.	.76	62.	24.6	C	20.3	13.0
10	3	250.	507.	0.	3989.	507.	0.	3553.	4817.	0.	0.	0.	.74	62.	19.1	C	20.3	13.0
11	3	200.	0.	0.	3989.	0.	0.	3553.	4860.	0.	0.	0.	.73	62.	19.1	C	20.3	13.0
12	3	250.	0.	1768.	3989.	0.	1579.	3553.	4619.	0.	0.	0.	.77	62.	19.1	C	20.3	13.0
13	2	50.	0.	43.	2221.	0.	38.	1974.	3994.	0.	0.	0.	.49	62.	15.9	B	20.3	13.0
14	2	50.	0.	0.	2178.	0.	0.	1936.	2470.	0.	0.	0.	.78	62.	15.6	B	20.3	13.0
15	2	1000.	43.	0.	2221.	43.	0.	1979.	3993.	0.	0.	0.	.50	62.	16.0	B	20.3	13.0
16	2	10.	0.	0.	2221.	0.	0.	1979.	4000.	0.	0.	0.	.49	62.	16.0	B	20.3	13.0
17	2	1500.	749.	0.	2970.	749.	0.	2728.	3879.	0.	0.	0.	.70	62.	22.0	C	20.3	13.0
18	2	1500.	0.	406.	2970.	0.	375.	2728.	3960.	0.	0.	0.	.69	62.	22.0	C	20.3	13.0
19	2	12000.	0.	0.	2564.	0.	0.	2353.	4000.	0.	0.	0.	.59	62.	19.0	C	20.3	13.0
20	3	500.	488.	3052.	3052.	488.	2841.	2841.	6000.	0.	0.	0.	.47	65.	14.6	B	19.0	14.1
TOTAL	137309. =	26.0 MILES				MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 50.					29.8		19.1	14.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1068. VEH-HRS	1180. PASS-HRS	1994. VEH-HRS	2215. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1068. VEH-HRS	1180. PASS-HRS	1994. VEH-HRS	2215. PASS-HRS
TOTAL TRAV DISTANCE =	52989. VEH-MI.	59906. PASS-MI.	106450. VEH-MI.	120292. PASS-MI.
AVERAGE SYSTEM SPEED =	50. MPH.		53. MPH.	
AVERAGE DENSITY =	30. VPMPL		28. VPMPL	
TOTAL FUEL =	2771. GALLONS		5508. GALLONS	
TOTAL EMISSIONS =	748. KILOGRAMS		1479. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.04	2	35.15	3	165.08	4	23.01	5	21.55
6	2.25	7	1.80	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.14
16	0.00	17	0.29	18	0.29	19	1.99	20	0.00

***** TOTAL DELAY = 252.4 VEH-HRS ***** AVERAGE DELAY = 4.58 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	22.84	34.98	35.53	35.53	35.73	36.28	38.57
2	0.00	2.99	3.54	3.55	3.74	4.29	6.58
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4630.	0.	4630.	4630.	0.	4630.	6000.	0.	0.	0.	.77	64.	24.2	C	19.5	13.7
2	3	99999.	0.	741.	4630.	0.	741.	3866.	6000.	0.	* 8162.	764.	.64	50.	25.8	F	18.9	14.1
3	2	11000.	0.	0.	3889.	0.	0.	3125.	4000.	0.	**11000.	764.	.78	14.	114.3	F	15.1	20.0
4	2	1500.	64.	0.	3953.	64.	0.	3189.	3995.	0.	** 1500.	764.	.80	14.	110.5	F	15.6	19.4
5	2	1400.	0.	0.	3953.	0.	0.	3189.	4000.	0.	** 1400.	764.	.80	14.	110.8	F	15.6	19.4
6	2	1500.	764.	0.	4717.	764.	0.	3953.	3953.	0.	0.	0.	1.00	52.	38.3	E	23.6	11.1
7	2	1300.	0.	0.	4717.	0.	0.	3953.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2
8	3	500.	0.	1099.	4717.	0.	923.	3953.	5099.	0.	0.	0.	.78	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3618.	0.	0.	3030.	4000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0
10	3	250.	542.	0.	4160.	542.	0.	3572.	4816.	0.	0.	0.	.74	62.	19.2	C	20.3	13.0
11	3	200.	0.	0.	4160.	0.	0.	3572.	4860.	0.	0.	0.	.74	62.	19.2	C	20.3	13.0
12	3	250.	0.	1576.	4160.	0.	1358.	3572.	4649.	0.	0.	0.	.77	62.	19.2	C	20.3	13.0
13	2	50.	0.	176.	2584.	0.	152.	2214.	3976.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0

14	2	50.	0.	0.	2408.	0.	0.	2063.	2470.	0.	0.	0.	.84	62.	16.6	B	20.3	13.0
15	2	1000.	174.	0.	2582.	174.	0.	2237.	3974.	0.	0.	0.	.56	62.	18.0	C	20.3	13.0
16	2	10.	0.	0.	2582.	0.	0.	2237.	4000.	0.	0.	0.	.56	62.	18.0	C	20.3	13.0
17	2	1500.	823.	0.	3405.	823.	0.	3060.	3879.	0.	0.	0.	.79	62.	24.7	C	20.3	13.0
18	2	1500.	0.	732.	3405.	0.	663.	3060.	3932.	0.	0.	0.	.78	62.	24.7	C	20.3	13.0
19	2	12000.	0.	0.	2673.	0.	0.	2397.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0
20	3	500.	509.	3182.	3182.	509.	2906.	2906.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1

TOTAL	137309. =	26.0 MILES	MAX(V/C) = 1.00	LOWEST LOS = F	AVG = 42.	34.2	18.8	14.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1274. VEH-HRS	1415. PASS-HRS	3268. VEH-HRS	3629. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1274. VEH-HRS	1415. PASS-HRS	3268. VEH-HRS	3629. PASS-HRS
TOTAL TRAV DISTANCE =	53904. VEH-MI.	60968. PASS-MI.	160353. VEH-MI.	181259. PASS-MI.
AVERAGE SYSTEM SPEED =	42. MPH.		49. MPH.	
AVERAGE DENSITY =	34. VPMPL		30. VPMPL	
TOTAL FUEL =	2872. GALLONS		8380. GALLONS	
TOTAL EMISSIONS =	777. KILOGRAMS		2256. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	201.42	3	188.10	4	24.42	5	22.88
6	2.25	7	1.79	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.32	18	0.32	19	2.03	20	0.00

***** TOTAL DELAY = 444.6 VEH-HRS ***** AVERAGE DELAY = 7.77 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	28.09	40.23	40.78	40.79	40.98	41.53	43.82
2	0.00	2.99	3.54	3.55	3.74	4.29	6.58
3	0.00	0.70	1.25	1.26	1.46	2.01	4.29
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4630.	0.	4630.	4630.	0.	4630.	6000.	0.	0.	0.	.77	64.	24.2	C	19.5	13.7

2	3	99999.	0.	741.	4630.	0.	741.	3866.	6000.	0.	* 13767.	764.	.64	41.	31.8	F	18.3	14.6	
3	2	11000.	0.	0.	3889.	0.	0.	3125.	4000.	0.	**11000.	764.	.78	14.	114.3	F	15.1	20.0	
4	2	1500.	64.	0.	3953.	64.	0.	3189.	3995.	0.	** 1500.	764.	.80	14.	110.5	F	15.6	19.4	
5	2	1400.	0.	0.	3953.	0.	0.	3189.	4000.	0.	** 1400.	764.	.80	14.	110.8	F	15.6	19.4	
6	2	1500.	764.	0.	4717.	764.	0.	3953.	3953.	0.	0.	0.	1.00	52.	38.3	E	23.6	11.1	
7	2	1300.	0.	0.	4717.	0.	0.	3953.	4000.	0.	0.	0.	.99	52.	37.7	E	23.4	11.2	
8	3	500.	0.	1099.	4717.	0.	923.	3953.	5099.	0.	0.	0.	.78	62.	21.3	C	20.3	13.0	
9	2	2300.	0.	0.	3618.	0.	0.	3030.	4000.	0.	0.	0.	.76	62.	24.4	C	20.3	13.0	
10	3	250.	542.	0.	4160.	542.	0.	3572.	4816.	0.	0.	0.	.74	62.	19.2	C	20.3	13.0	
11	3	200.	0.	0.	4160.	0.	0.	3572.	4860.	0.	0.	0.	.74	62.	19.2	C	20.3	13.0	
12	3	250.	0.	1576.	4160.	0.	1358.	3572.	4649.	0.	0.	0.	.77	62.	19.2	C	20.3	13.0	
13	2	50.	0.	176.	2584.	0.	152.	2214.	3976.	0.	0.	0.	.56	62.	17.9	B	20.3	13.0	
14	2	50.	0.	0.	2408.	0.	0.	2063.	2470.	0.	0.	0.	.84	62.	16.6	B	20.3	13.0	
15	2	1000.	174.	0.	2582.	174.	0.	2237.	3974.	0.	0.	0.	.56	62.	18.0	C	20.3	13.0	
16	2	10.	0.	0.	2582.	0.	0.	2237.	4000.	0.	0.	0.	.56	62.	18.0	C	20.3	13.0	
17	2	1500.	823.	0.	3405.	823.	0.	3060.	3879.	0.	0.	0.	.79	62.	24.7	C	20.3	13.0	
18	2	1500.	0.	732.	3405.	0.	663.	3060.	3932.	0.	0.	0.	.78	62.	24.7	C	20.3	13.0	
19	2	12000.	0.	0.	2673.	0.	0.	2397.	4000.	0.	0.	0.	.60	62.	19.3	C	20.3	13.0	
20	3	500.	509.	3182.	3182.	509.	2906.	2906.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1	
TOTAL		137309. =	26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 37.	38.5		18.3	14.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1465. VEH-HRS	1637. PASS-HRS	4733. VEH-HRS	5266. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1465. VEH-HRS	1637. PASS-HRS	4733. VEH-HRS	5266. PASS-HRS
TOTAL TRAV DISTANCE =	53498. VEH-MI.	60497. PASS-MI.	213852. VEH-MI.	241756. PASS-MI.
AVERAGE SYSTEM SPEED =	37. MPH.		45. MPH.	
AVERAGE DENSITY =	39. VPMPL		32. VPMPL	
TOTAL FUEL =	2923. GALLONS		11303. GALLONS	
TOTAL EMISSIONS =	793. KILOGRAMS		3049. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.06	2	398.66	3	188.10	4	24.42	5	22.88
6	2.25	7	1.79	8	0.14	9	0.49	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.32	18	0.32	19	2.03	20	0.00

***** TOTAL DELAY = 641.8 VEH-HRS ***** AVERAGE DELAY = 10.83 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	31.34	41.35	41.91	41.92	42.11	42.66	44.95
2	0.00	2.56	3.12	3.13	3.32	3.87	6.16
3	0.00	0.71	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84
7	0.00	0.00	0.00	0.00	0.00	0.00	0.09

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4029.	0.	4029.	4029.	0.	4029.	6000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
2	3	99999.	0.	645.	4029.	0.	645.	4021.	6000.	0.	* 13827.	8.	.67	36.	36.9	F	17.7	15.3
3	2	11000.	0.	0.	3384.	0.	0.	3376.	4000.	0.	**11000.	8.	.84	17.	100.7	F	16.8	17.9
4	2	1500.	64.	0.	3448.	64.	0.	3440.	3995.	0.	** 1500.	8.	.86	18.	96.8	F	17.2	17.4
5	2	1400.	0.	0.	3448.	0.	0.	3440.	4000.	0.	** 1400.	8.	.86	18.	97.2	F	17.2	17.4
6	2	1500.	528.	0.	3976.	528.	0.	3968.	3968.	0.	0.	0.	1.00	52.	38.5	E	23.6	11.1
7	2	1300.	0.	0.	3976.	0.	0.	3968.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	0.	869.	3976.	0.	867.	3968.	5130.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3107.	0.	0.	3101.	4000.	0.	0.	0.	.78	61.	25.2	C	20.6	12.8
10	3	250.	437.	0.	3544.	437.	0.	3538.	4826.	0.	0.	0.	.73	62.	19.0	C	20.3	13.0
11	3	200.	0.	0.	3544.	0.	0.	3538.	4860.	0.	0.	0.	.73	62.	19.0	C	20.3	13.0
12	3	250.	0.	1277.	3544.	0.	1275.	3538.	4682.	0.	0.	0.	.76	62.	19.0	C	20.3	13.0
13	2	50.	0.	351.	2267.	0.	350.	2263.	3951.	0.	0.	0.	.57	62.	18.2	C	20.3	13.0
14	2	50.	0.	0.	1916.	0.	0.	1913.	2470.	0.	0.	0.	.77	62.	15.4	B	20.3	13.0
15	2	1000.	348.	0.	2264.	348.	0.	2261.	3948.	0.	0.	0.	.57	62.	18.2	C	20.3	13.0
16	2	10.	0.	0.	2264.	0.	0.	2261.	4000.	0.	0.	0.	.57	62.	18.2	C	20.3	13.0
17	2	1500.	769.	0.	3033.	769.	0.	3030.	3884.	0.	0.	0.	.78	62.	24.4	C	20.3	13.0
18	2	1500.	0.	587.	3033.	0.	586.	3030.	3949.	0.	0.	0.	.77	62.	24.4	C	20.3	13.0
19	2	12000.	0.	0.	2446.	0.	0.	2443.	4000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
20	3	500.	466.	2912.	2912.	466.	2909.	2909.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1
TOTAL		137309. = 26.0 MILES						MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 35.		40.9		18.0	15.2	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1418. VEH-HRS	1587. PASS-HRS	6151. VEH-HRS	6853. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1418. VEH-HRS	1587. PASS-HRS	6151. VEH-HRS	6853. PASS-HRS
TOTAL TRAV DISTANCE =	48955. VEH-MI.	55165. PASS-MI.	262807. VEH-MI.	296921. PASS-MI.
AVERAGE SYSTEM SPEED =	35. MPH.		43. MPH.	
AVERAGE DENSITY =	41. VPMPL		34. VPMPL	
TOTAL FUEL =	2723. GALLONS		14026. GALLONS	
TOTAL EMISSIONS =	745. KILOGRAMS		3794. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	462.13	3	155.59	4	19.99	5	18.75
6	2.26	7	1.84	8	0.14	9	0.61	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.32	18	0.32	19	2.07	20	0.00

***** TOTAL DELAY = 664.4 VEH-HRS ***** AVERAGE DELAY = 10.48 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	31.40	41.41	41.97	41.98	42.17	42.72	45.01
2	0.00	2.56	3.12	3.13	3.32	3.87	6.16
3	0.00	0.71	1.26	1.27	1.46	2.01	4.30
4	0.00	0.00	0.13	0.14	0.33	0.88	3.17
5	0.00	0.00	0.00	0.00	0.18	0.73	3.02
6	0.00	0.00	0.00	0.00	0.00	0.55	2.84

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                              *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.09
+                                                                              *
                              *    *                                            *
                              ********************************************************************
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	3	500.	4029.	0.	4029.	4029.	0.	4029.	6000.	0.	0.	0.	.67	65.	20.7	C	19.0	14.1
2	3	99999.	0.	645.	4029.	0.	645.	4021.	6000.	0.	* 13886.	8.	.67	36.	36.9	F	17.7	15.3
3	2	11000.	0.	0.	3384.	0.	0.	3376.	4000.	0.	**11000.	8.	.84	17.	100.7	F	16.8	17.9
4	2	1500.	64.	0.	3448.	64.	0.	3440.	3995.	0.	** 1500.	8.	.86	18.	96.8	F	17.2	17.4
5	2	1400.	0.	0.	3448.	0.	0.	3440.	4000.	0.	** 1400.	8.	.86	18.	97.2	F	17.2	17.4
6	2	1500.	528.	0.	3976.	528.	0.	3968.	3968.	0.	0.	0.	1.00	52.	38.5	E	23.6	11.1
7	2	1300.	0.	0.	3976.	0.	0.	3968.	4000.	0.	0.	0.	.99	52.	38.0	E	23.5	11.2
8	3	500.	0.	869.	3976.	0.	867.	3968.	5130.	0.	0.	0.	.77	62.	21.3	C	20.3	13.0
9	2	2300.	0.	0.	3107.	0.	0.	3101.	4000.	0.	0.	0.	.78	61.	25.2	C	20.6	12.8
10	3	250.	437.	0.	3544.	437.	0.	3538.	4826.	0.	0.	0.	.73	62.	19.0	C	20.3	13.0
11	3	200.	0.	0.	3544.	0.	0.	3538.	4860.	0.	0.	0.	.73	62.	19.0	C	20.3	13.0
12	3	250.	0.	1277.	3544.	0.	1275.	3538.	4682.	0.	0.	0.	.76	62.	19.0	C	20.3	13.0
13	2	50.	0.	351.	2267.	0.	350.	2263.	3951.	0.	0.	0.	.57	62.	18.2	C	20.3	13.0
14	2	50.	0.	0.	1916.	0.	0.	1913.	2470.	0.	0.	0.	.77	62.	15.4	B	20.3	13.0
15	2	1000.	348.	0.	2264.	348.	0.	2261.	3948.	0.	0.	0.	.57	62.	18.2	C	20.3	13.0
16	2	10.	0.	0.	2264.	0.	0.	2261.	4000.	0.	0.	0.	.57	62.	18.2	C	20.3	13.0
17	2	1500.	769.	0.	3033.	769.	0.	3030.	3884.	0.	0.	0.	.78	62.	24.4	C	20.3	13.0
18	2	1500.	0.	587.	3033.	0.	586.	3030.	3949.	0.	0.	0.	.77	62.	24.4	C	20.3	13.0
19	2	12000.	0.	0.	2446.	0.	0.	2443.	4000.	0.	0.	0.	.61	62.	19.7	C	20.3	13.0
20	3	500.	466.	2912.	2912.	466.	2909.	2909.	6000.	0.	0.	0.	.48	65.	14.9	B	19.0	14.1
TOTAL		137309. = 26.0 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 34.		40.9		18.0	15.2

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	1420. VEH-HRS	1589. PASS-HRS	7570. VEH-HRS	8443. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	1420. VEH-HRS	1589. PASS-HRS	7570. VEH-HRS	8443. PASS-HRS
TOTAL TRAV DISTANCE =	48955. VEH-MI.	55165. PASS-MI.	311762. VEH-MI.	352086. PASS-MI.
AVERAGE SYSTEM SPEED =	34. MPH.		41. MPH.	
AVERAGE DENSITY =	41. VPMPL		35. VPMPL	
TOTAL FUEL =	2723. GALLONS		16750. GALLONS	
TOTAL EMISSIONS =	746. KILOGRAMS		4540. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	464.13	3	155.59	4	19.99	5	18.75
6	2.26	7	1.84	8	0.14	9	0.61	10	0.06
11	0.05	12	0.06	13	0.01	14	0.01	15	0.16
16	0.00	17	0.32	18	0.32	19	2.07	20	0.00

***** TOTAL DELAY = 666.4 VEH-HRS ***** AVERAGE DELAY = 10.51 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222     PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 3 AND 19 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 2.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 30
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 1.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2															
3	1	1500.	11000.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
4	1	1500.	1500.	62	O	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence On-ramp
5	1	1500.	1400.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawrence to Crossman
6	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Crossman On-Ramp
7	1	1500.	1300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Crossman / Mathilda
8	1	1500.	500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
9	1	1500.	2300.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
10	1	1500.	250.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda On-ramp
11	1	1500.	200.	62		0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda to US-101
12	1	1500.	250.	62	D	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US-101 Off-Ramp
13	1	1500.	50.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleneck by-pass
14	1	1500.	50.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bottleeck
15	1	1500.	1000.	62	OD	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 / US 101
16	1	1500.	10.	62		0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Dummy end of travel time
17	1	1500.	1500.	62	O	0.95	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 101 NB On-Ramp
18	1	1500.	1500.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	Maude Off-ramp

19	1	1500.	12000.	62	D	0.95	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy	
20																

1 INSTITUTE OF TRANSPORTATION STUDIES   FREQ12PL REL 3.01   3/30/2016 16:20   PAGE 3
UNIVERSITY OF CALIFORNIA, BERKELEY   SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1 INSTITUTE OF TRANSPORTATION STUDIES   FREQ12PL REL 3.01   3/30/2016 16:20   PAGE 4
UNIVERSITY OF CALIFORNIA, BERKELEY   SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 1 OF 6

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	720.	0.	720.	720.	0.	720.	1500.	0.	0.	0.	.48	62.	11.6	B	21.6	12.8
4	1	1500.	4.	0.	724.	4.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
5	1	1400.	0.	0.	724.	0.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
6	1	1500.	44.	0.	768.	44.	0.	768.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
7	1	1300.	0.	0.	768.	0.	0.	768.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
8	1	500.	0.	163.	768.	0.	163.	768.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
9	1	2300.	0.	0.	604.	0.	0.	604.	1500.	0.	0.	0.	.40	62.	9.7	A	21.6	12.8
10	1	250.	43.	0.	647.	43.	0.	647.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
11	1	200.	0.	0.	647.	0.	0.	647.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
12	1	250.	0.	241.	647.	0.	240.	647.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
13	1	50.	0.	6.	406.	0.	6.	406.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
14	1	50.	0.	0.	400.	0.	0.	400.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
15	1	1000.	7.	0.	407.	7.	0.	407.	1500.	0.	0.	0.	.27	62.	6.6	A	21.6	12.8
16	1	10.	0.	0.	407.	0.	0.	407.	1500.	0.	0.	0.	.27	62.	6.6	A	21.6	12.8
17	1	1500.	121.	0.	528.	121.	0.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
18	1	1500.	0.	40.	528.	0.	40.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
19	1	12000.	0.	488.	488.	0.	488.	488.	1500.	0.	0.	0.	.33	62.	7.9	A	21.6	12.8
20																		

TOTAL 36310. = 6.9 MILES   MAX(V/C) = 0.51 LOWEST LOS = B AVG = 62. 9.9 21.6 12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	34. VEH-HRS	68. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	34. VEH-HRS	68. PASS-HRS	34. VEH-HRS	68. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2111. VEH-MI.	4222. PASS-MI.	2111. VEH-MI.	4222. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	98. GALLONS		98. GALLONS	

TOTAL EMISSIONS = 27. KILOGRAMS 27. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.56	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.41	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	3	OUTPUT POINT	1.	0.14	0.05	0.00	0.02	0.00	0.02

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	720.	0.	720.	720.	0.	720.	1500.	0.	0.	0.	.48	62.	11.6	B	21.6	12.8
4	1	1500.	4.	0.	724.	4.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
5	1	1400.	0.	0.	724.	0.	0.	724.	1500.	0.	0.	0.	.48	62.	11.7	B	21.6	12.8
6	1	1500.	44.	0.	768.	44.	0.	768.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
7	1	1300.	0.	0.	768.	0.	0.	768.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
8	1	500.	0.	163.	768.	0.	163.	768.	1500.	0.	0.	0.	.51	62.	12.4	B	21.6	12.8
9	1	2300.	0.	0.	604.	0.	0.	604.	1500.	0.	0.	0.	.40	62.	9.7	A	21.6	12.8
10	1	250.	43.	0.	647.	43.	0.	647.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
11	1	200.	0.	0.	647.	0.	0.	647.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
12	1	250.	0.	241.	647.	0.	240.	647.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
13	1	50.	0.	6.	406.	0.	6.	406.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
14	1	50.	0.	0.	400.	0.	0.	400.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
15	1	1000.	7.	0.	407.	7.	0.	407.	1500.	0.	0.	0.	.27	62.	6.6	A	21.6	12.8
16	1	10.	0.	0.	407.	0.	0.	407.	1500.	0.	0.	0.	.27	62.	6.6	A	21.6	12.8
17	1	1500.	121.	0.	528.	121.	0.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
18	1	1500.	0.	40.	528.	0.	40.	528.	1500.	0.	0.	0.	.35	62.	8.5	A	21.6	12.8
19	1	12000.	0.	488.	488.	0.	488.	488.	1500.	0.	0.	0.	.33	62.	7.9	A	21.6	12.8

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*  20                                                                                                                    *
*                                                                                                                        *
**************************************************************************************************************************
*                                                                                                                        *
*   TOTAL   36310. =    6.9 MILES                    MAX(V/C) = 0.51  LOWEST LOS = B   AVG = 62.    9.9         21.6   12.8  *
*                                                                                                                        *
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                              CURRENT TIME SLICE                       CUMULATIVE VALUES
      FREEWAY TRAVEL TIME =    34. VEH-HRS      68. PASS-HRS           68. VEH-HRS     136. PASS-HRS
      FREEWAY MERGE DELAY =     0. VEH-HRS       0. PASS-HRS            0. VEH-HRS       0. PASS-HRS
   ON-RAMP MRG/CAP DELAY =      0. VEH-HRS       0. PASS-HRS            0. VEH-HRS       0. PASS-HRS
          OFF-RAMP DELAY =      0. VEH-HRS       1. PASS-HRS            1. VEH-HRS       1. PASS-HRS
 TOTAL SYSTEM TRAVEL TIME =    34. VEH-HRS      69. PASS-HRS           69. VEH-HRS     137. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =  2111. VEH-MI.    4222. PASS-MI.         4222. VEH-MI.    8444. PASS-MI.
    AVERAGE SYSTEM SPEED =     61. MPH.                                62. MPH.
         AVERAGE DENSITY =     10. VPMPL                               10. VPMPL
              TOTAL FUEL =     98. GALLONS                            196. GALLONS
         TOTAL EMISSIONS =     27. KILOGRAMS                           54. KILOGRAMS
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***** MAINLINE DELAY (VEH-HRS) *****   DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.56	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.41	20	0.00

***** TOTAL DELAY =   1.6 VEH-HRS ***** AVERAGE DELAY =   0.15 MIN/VEH *****

***** RAMP DELAYS *****

	QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP 3 OUTPUT POINT	1.	0.41	0.14	0.01	0.05	0.00	0.06

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS

	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1																		
2																		
3	1	11000.	741.	0.	741.	741.	0.	741.	1500.	0.	0.	0.	.49	62.	11.9	B	21.6	12.8
4	1	1500.	5.	0.	746.	5.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
5	1	1400.	0.	0.	746.	0.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
6	1	1500.	47.	0.	793.	47.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
7	1	1300.	0.	0.	793.	0.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
8	1	500.	0.	171.	793.	0.	171.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
9	1	2300.	0.	0.	622.	0.	0.	622.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
10	1	250.	44.	0.	666.	44.	0.	666.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
11	1	200.	0.	0.	666.	0.	0.	666.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
12	1	250.	0.	211.	666.	0.	211.	666.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
13	1	50.	0.	24.	455.	0.	24.	455.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8
14	1	50.	0.	0.	431.	0.	0.	431.	1500.	0.	0.	0.	.29	62.	7.0	A	21.6	12.8
15	1	1000.	26.	0.	457.	26.	0.	457.	1500.	0.	0.	0.	.30	62.	7.4	A	21.6	12.8
16	1	10.	0.	0.	457.	0.	0.	457.	1500.	0.	0.	0.	.30	62.	7.4	A	21.6	12.8
17	1	1500.	121.	0.	578.	121.	0.	578.	1500.	0.	0.	0.	.39	62.	9.3	A	21.6	12.8
18	1	1500.	0.	68.	578.	0.	68.	578.	1500.	0.	0.	0.	.39	62.	9.3	A	21.6	12.8
19	1	12000.	0.	509.	509.	0.	509.	509.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
20																		
TOTAL		36310. =	6.9 MILES					MAX(V/C) = 0.53		LOWEST LOS = B		AVG = 62.		10.3		21.6	12.8	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	35. VEH-HRS	71. PASS-HRS	103. VEH-HRS	207. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	1. PASS-HRS	1. VEH-HRS	2. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	36. VEH-HRS	71. PASS-HRS	104. VEH-HRS	209. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2194. VEH-MI.	4389. PASS-MI.	6417. VEH-MI.	12833. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	102. GALLONS		298. GALLONS	
TOTAL EMISSIONS =	28. KILOGRAMS		82. KILOGRAMS	

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 3 OF 6

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.57	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.43	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	3	OUTPUT POINT	0.	0.27	0.09	0.01	0.03	0.00	0.04

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 16:20 PAGE 12
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 4 OF 6

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	741.	0.	741.	741.	0.	741.	1500.	0.	0.	0.	.49	62.	11.9	B	21.6	12.8
4	1	1500.	5.	0.	746.	5.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
5	1	1400.	0.	0.	746.	0.	0.	746.	1500.	0.	0.	0.	.50	62.	12.0	B	21.6	12.8
6	1	1500.	47.	0.	793.	47.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
7	1	1300.	0.	0.	793.	0.	0.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
8	1	500.	0.	171.	793.	0.	171.	793.	1500.	0.	0.	0.	.53	62.	12.8	B	21.6	12.8
9	1	2300.	0.	0.	622.	0.	0.	622.	1500.	0.	0.	0.	.41	62.	10.0	A	21.6	12.8
10	1	250.	44.	0.	666.	44.	0.	666.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
11	1	200.	0.	0.	666.	0.	0.	666.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
12	1	250.	0.	211.	666.	0.	211.	666.	1500.	0.	0.	0.	.44	62.	10.7	A	21.6	12.8
13	1	50.	0.	24.	455.	0.	24.	455.	1500.	0.	0.	0.	.30	62.	7.3	A	21.6	12.8
14	1	50.	0.	0.	431.	0.	0.	431.	1500.	0.	0.	0.	.29	62.	7.0	A	21.6	12.8
15	1	1000.	26.	0.	457.	26.	0.	457.	1500.	0.	0.	0.	.30	62.	7.4	A	21.6	12.8
16	1	10.	0.	0.	457.	0.	0.	457.	1500.	0.	0.	0.	.30	62.	7.4	A	21.6	12.8
17	1	1500.	121.	0.	578.	121.	0.	578.	1500.	0.	0.	0.	.39	62.	9.3	A	21.6	12.8
18	1	1500.	0.	68.	578.	0.	68.	578.	1500.	0.	0.	0.	.39	62.	9.3	A	21.6	12.8
19	1	12000.	0.	509.	509.	0.	509.	509.	1500.	0.	0.	0.	.34	62.	8.2	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES									MAX(V/C) = 0.53		LOWEST LOS = B	AVG = 62.	10.3		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	35. VEH-HRS	71. PASS-HRS	139. VEH-HRS	278. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	1. VEH-HRS	2. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	35. VEH-HRS	71. PASS-HRS	140. VEH-HRS	279. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	2194. VEH-MI.	4389. PASS-MI.	8611. VEH-MI.	17222. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	10. VPMPL		10. VPMPL	
TOTAL FUEL =	102. GALLONS		400. GALLONS	
TOTAL EMISSIONS =	28. KILOGRAMS		110. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.57	4	0.08	5	0.07
6	0.08	7	0.07	8	0.03	9	0.10	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.06	18	0.06	19	0.43	20	0.00

***** TOTAL DELAY = 1.6 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS

	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00

3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00	
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00	
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00	
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00	
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00	
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	ADJUSTED VOLUMES SSEC	ORG	DES	SSEC	WEAVE CAP.	EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	645.	0.	645.	645.	0.	645.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
4	1	1500.	5.	0.	649.	5.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
5	1	1400.	0.	0.	649.	0.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
6	1	1500.	32.	0.	681.	32.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
7	1	1300.	0.	0.	681.	0.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
8	1	500.	0.	140.	681.	0.	140.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
9	1	2300.	0.	0.	541.	0.	0.	541.	1500.	0.	0.	0.	.36	62.	8.7	A	21.6	12.8
10	1	250.	34.	0.	575.	34.	0.	575.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
11	1	200.	0.	0.	575.	0.	0.	575.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
12	1	250.	0.	178.	575.	0.	178.	575.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
13	1	50.	0.	49.	397.	0.	49.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
14	1	50.	0.	0.	348.	0.	0.	348.	1500.	0.	0.	0.	.23	62.	5.6	A	21.6	12.8
15	1	1000.	52.	0.	400.	52.	0.	400.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
16	1	10.	0.	0.	400.	0.	0.	400.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
17	1	1500.	116.	0.	517.	116.	0.	517.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
18	1	1500.	0.	51.	517.	0.	51.	517.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
19	1	12000.	0.	466.	466.	0.	466.	466.	1500.	0.	0.	0.	.31	62.	7.5	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES						MAX(V/C) = 0.45		LOWEST LOS = A			AVG = 62.		9.1		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	170. VEH-HRS	340. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	1. VEH-HRS	2. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	171. VEH-HRS	342. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1937. VEH-MI.	3874. PASS-MI.	10548. VEH-MI.	21096. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		10. VPMPL	
TOTAL FUEL =	90. GALLONS		490. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		135. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.50	4	0.07	5	0.06
6	0.07	7	0.06	8	0.02	9	0.09	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.39	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

SR-237_WB_PM_P2_2040_PL

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	3.15	3.70	3.71	3.90	4.46	6.66	0.00
3	0.00	0.00	0.00	0.00	0.00	2.44	4.64	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	4.11	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	3.08	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	2.93	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	2.75	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2																		
3	1	11000.	645.	0.	645.	645.	0.	645.	1500.	0.	0.	0.	.43	62.	10.4	A	21.6	12.8
4	1	1500.	5.	0.	649.	5.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
5	1	1400.	0.	0.	649.	0.	0.	649.	1500.	0.	0.	0.	.43	62.	10.5	A	21.6	12.8
6	1	1500.	32.	0.	681.	32.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
7	1	1300.	0.	0.	681.	0.	0.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
8	1	500.	0.	140.	681.	0.	140.	681.	1500.	0.	0.	0.	.45	62.	11.0	A	21.6	12.8
9	1	2300.	0.	0.	541.	0.	0.	541.	1500.	0.	0.	0.	.36	62.	8.7	A	21.6	12.8
10	1	250.	34.	0.	575.	34.	0.	575.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
11	1	200.	0.	0.	575.	0.	0.	575.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
12	1	250.	0.	178.	575.	0.	178.	575.	1500.	0.	0.	0.	.38	62.	9.3	A	21.6	12.8
13	1	50.	0.	49.	397.	0.	49.	397.	1500.	0.	0.	0.	.26	62.	6.4	A	21.6	12.8
14	1	50.	0.	0.	348.	0.	0.	348.	1500.	0.	0.	0.	.23	62.	5.6	A	21.6	12.8
15	1	1000.	52.	0.	400.	52.	0.	400.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
16	1	10.	0.	0.	400.	0.	0.	400.	1500.	0.	0.	0.	.27	62.	6.5	A	21.6	12.8
17	1	1500.	116.	0.	517.	116.	0.	517.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
18	1	1500.	0.	51.	517.	0.	51.	517.	1500.	0.	0.	0.	.34	62.	8.3	A	21.6	12.8
19	1	12000.	0.	466.	466.	0.	466.	466.	1500.	0.	0.	0.	.31	62.	7.5	A	21.6	12.8
20																		
TOTAL		36310. = 6.9 MILES								MAX(V/C) = 0.45	LOWEST LOS = A		AVG = 62.		9.1		21.6	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	201. VEH-HRS	403. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	1. VEH-HRS	2. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	31. VEH-HRS	62. PASS-HRS	202. VEH-HRS	404. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	1937. VEH-MI.	3874. PASS-MI.	12485. VEH-MI.	24969. PASS-MI.
AVERAGE SYSTEM SPEED =	62. MPH.		62. MPH.	
AVERAGE DENSITY =	9. VPMPL		10. VPMPL	
TOTAL FUEL =	90. GALLONS		580. GALLONS	
TOTAL EMISSIONS =	25. KILOGRAMS		160. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.50	4	0.07	5	0.06
6	0.07	7	0.06	8	0.02	9	0.09	10	0.01
11	0.01	12	0.01	13	0.00	14	0.00	15	0.03
16	0.00	17	0.05	18	0.05	19	0.39	20	0.00

***** TOTAL DELAY = 1.4 VEH-HRS ***** AVERAGE DELAY = 0.15 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	12500.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	8660.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	5	10000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	5	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	5	6000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 16 T2 =0.641
QUEUE COLLISION IN SECTION 15 T2 =0.432
QUEUE COLLISION IN SECTION 14 T2 =0.446
QUEUE COLLISION IN SECTION 3 T2 =0.848

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	31.80	33.97	34.59	35.90	38.37	47.36
2	0.00	0.00	1.29	1.90	3.21	5.68	14.67
3	0.00	0.00	0.00	0.15	1.47	3.93	12.92
4	0.00	0.00	0.00	0.00	0.00	1.71	10.70
5	0.00	0.00	0.00	0.00	0.00	0.00	0.80
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	9729.	1849.	9729.	9729.	1849.	9729.	12500.	0.	0.	0.	.78	64.	30.6	D	19.8	13.5
2	3	99999.	0.	0.	7880.	0.	0.	4291.	8660.	0.	* 13081.	3589.	.50	53.	26.9	F	21.7	12.3
3	3	2830.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 2830.	2709.	.61	34.	42.3	F	21.4	12.6
4	3	930.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 930.	2709.	.61	31.	46.1	F	20.9	13.0
5	3	1490.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 1490.	2709.	.61	29.	48.5	F	20.6	13.2
6	3	3020.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 3020.	2709.	.61	27.	53.3	F	20.0	13.7
7	3	1030.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 1030.	2709.	.61	25.	57.8	F	19.4	14.2
8	3	1440.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 1440.	2709.	.61	24.	60.6	F	19.1	14.4
9	3	1430.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 1430.	2709.	.61	22.	64.0	F	18.7	14.8
10	3	3480.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 3480.	2709.	.61	20.	70.0	F	18.1	15.4
11	3	1020.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 1020.	2709.	.61	19.	75.8	F	17.5	15.9
12	3	980.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 980.	2709.	.61	18.	78.4	F	17.3	16.2
13	3	1800.	0.	0.	7880.	0.	0.	4291.	7000.	0.	** 1800.	2709.	.61	17.	82.2	F	16.9	16.6
14	3	1500.	0.	802.	7880.	0.	693.	4291.	6812.	0.	** 1500.	2521.	.63	18.	80.3	F	17.4	16.5
15	3	1300.	0.	0.	7078.	0.	0.	3598.	6000.	0.	** 1300.	2402.	.60	17.	72.5	F	16.4	16.9
16	3	1000.	864.	0.	7942.	764.	0.	4362.	5874.	0.	** 1000.	1512.	.74	29.	50.8	F	20.5	13.7
17	3	1100.	0.	0.	7942.	0.	0.	4362.	6000.	0.	** 1100.	1512.	.73	27.	53.7	F	19.8	14.2
18	3	1000.	0.	572.	7942.	0.	424.	4362.	5882.	0.	** 1000.	1512.	.74	27.	54.6	F	20.0	14.1
19	3	900.	0.	0.	7370.	0.	0.	3938.	6000.	0.	** 900.	1512.	.66	22.	59.4	F	17.9	15.9
20	3	100.	164.	0.	7534.	164.	0.	4102.	5974.	0.	** 100.	1512.	.69	23.	59.9	F	18.3	15.5
21	3	100.	0.	0.	7534.	0.	0.	4102.	6000.	0.	** 100.	1512.	.68	23.	60.5	F	18.2	15.6
22	3	100.	0.	546.	7534.	0.	409.	4102.	5890.	0.	** 100.	1512.	.70	23.	59.3	F	18.5	15.3
23	3	700.	0.	0.	6988.	0.	0.	3693.	6000.	0.	** 700.	1512.	.62	19.	64.4	F	16.5	16.9
24	3	1500.	0.	1068.	6988.	0.	799.	3693.	5785.	0.	** 1500.	1512.	.64	19.	65.0	F	17.0	16.8
25	3	800.	0.	0.	5920.	0.	0.	2894.	6000.	0.	** 800.	1512.	.48	12.	80.3	F	12.8	20.1
26	3	1000.	1197.	0.	7117.	1197.	0.	4091.	5748.	0.	** 1000.	1512.	.71	20.	68.3	F	17.8	16.2
27	3	800.	0.	0.	7117.	0.	0.	4091.	6000.	0.	** 800.	1512.	.68	18.	75.7	F	16.8	17.2
28	3	1000.	0.	640.	7117.	0.	510.	4091.	5896.	0.	** 1000.	1512.	.69	18.	76.1	F	16.9	17.2
29	3	8000.	0.	0.	6477.	0.	0.	3581.	6000.	0.	** 8000.	1512.	.60	11.	107.5	F	13.1	21.5
30	5	100.	1519.	0.	7996.	1519.	0.	5100.	10000.	0.	** 100.	1512.	.51	7.	148.0	F	9.8	26.4
31	5	1000.	1000.	0.	8996.	900.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	8996.	8996.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES						MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 39.		39.4			20.6	13.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4909. VEH-HRS	4930. PASS-HRS	4909. VEH-HRS	4930. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	110. PASS-HRS	100. VEH-HRS	110. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5009. VEH-HRS	5040. PASS-HRS	5009. VEH-HRS	5040. PASS-HRS
TOTAL TRAV DISTANCE =	192397. VEH-MI.	193459. PASS-MI.	192397. VEH-MI.	193459. PASS-MI.
AVERAGE SYSTEM SPEED =	38. MPH.		39. MPH.	
AVERAGE DENSITY =	39. VPMPL		39. VPMPL	
TOTAL FUEL =	9384. GALLONS		9384. GALLONS	
TOTAL EMISSIONS =	2527. KILOGRAMS		2527. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.30	2	505.86	3	49.52	4	18.93	5	33.08
6	77.42	7	29.58	8	44.06	9	46.88	10	127.09
11	40.74	12	40.64	13	78.45	14	62.19	15	51.10
16	19.64	17	23.67	18	21.96	19	24.28	20	2.64
21	2.68	22	2.59	23	21.86	24	46.78	25	36.37
26	30.76	27	28.22	28	35.23	29	433.72	30	12.54
31	0.00	32	0.00						

***** TOTAL DELAY = 1948.8 VEH-HRS ***** AVERAGE DELAY = 29.04 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	3.47	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.47	17.85	1.11	5.79	0.31	7.21
ON-RAMP	6	RAMP	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	45.25	47.10	47.74	49.17	51.90	60.06
2	0.00	0.00	1.07	1.71	3.14	5.87	14.03
3	0.00	0.00	0.00	0.14	1.58	4.31	12.46
4	0.00	0.00	0.00	0.00	0.00	1.82	9.98
5	0.00	0.00	0.00	0.00	0.00	0.00	0.79
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	8239.	1565.	8239.	8239.	1565.	8239.	12500.	0.	0.	0.	.66	65.	25.4	C	19.2	14.0
2	3	99999.	0.	0.	6674.	0.	0.	5744.	8660.	0.	* 24905.	930.	.66	35.	54.1	F	18.4	15.0
3	3	2830.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 2830.	930.	.82	18.	105.7	F	17.6	17.1
4	3	930.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 930.	930.	.82	18.	105.7	F	17.6	17.1
5	3	1490.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 1490.	930.	.82	18.	105.7	F	17.6	17.1
6	3	3020.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 3020.	930.	.82	18.	105.7	F	17.6	17.1
7	3	1030.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 1030.	930.	.82	18.	105.7	F	17.6	17.1
8	3	1440.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 1440.	930.	.82	18.	105.7	F	17.6	17.1
9	3	1430.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 1430.	930.	.82	18.	105.7	F	17.6	17.1
10	3	3480.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 3480.	930.	.82	18.	105.7	F	17.6	17.1
11	3	1020.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 1020.	930.	.82	18.	105.7	F	17.6	17.1
12	3	980.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 980.	930.	.82	18.	105.7	F	17.6	17.1
13	3	1800.	0.	0.	6674.	0.	0.	5744.	7000.	0.	** 1800.	930.	.82	18.	105.7	F	17.6	17.1
14	3	1500.	0.	729.	6674.	0.	729.	5744.	6829.	0.	** 1500.	930.	.84	19.	98.8	F	18.2	16.4
15	3	1300.	0.	0.	5945.	0.	0.	5015.	6000.	0.	** 1300.	930.	.84	19.	87.8	F	18.0	16.6
16	3	1000.	814.	0.	6759.	814.	0.	5829.	5903.	0.	** 1000.	74.	.99	33.	58.5	F	22.2	12.1
17	3	1100.	0.	0.	6759.	0.	0.	5829.	6000.	0.	** 1100.	74.	.97	31.	62.4	F	21.8	12.5
18	3	1000.	0.	781.	6759.	0.	672.	5829.	5841.	0.	** 1000.	12.	.99	35.	56.0	F	22.6	11.8
19	3	900.	0.	0.	5978.	0.	0.	5157.	6000.	0.	** 900.	12.	.86	21.	83.4	F	18.7	15.8
20	3	100.	223.	0.	6201.	223.	0.	5380.	5970.	0.	** 100.	12.	.90	24.	75.2	F	19.7	14.6
21	3	100.	0.	0.	6201.	0.	0.	5380.	6000.	0.	** 100.	12.	.90	23.	76.4	F	19.6	14.7
22	3	100.	0.	744.	6201.	0.	645.	5380.	5855.	0.	** 100.	12.	.92	25.	70.5	F	20.2	14.0
23	3	700.	0.	0.	5457.	0.	0.	4736.	6000.	0.	** 700.	12.	.79	16.	96.5	F	16.8	18.1
24	3	1500.	0.	1083.	5457.	0.	942.	4736.	5789.	0.	** 1500.	12.	.82	18.	87.9	F	17.5	17.2
25	3	800.	0.	0.	4374.	0.	0.	3794.	6000.	0.	** 800.	12.	.63	10.	125.8	F	13.2	22.8
26	3	1000.	975.	0.	5349.	975.	0.	4769.	5802.	0.	** 1000.	12.	.82	18.	87.4	F	17.6	17.1
27	3	800.	0.	0.	5349.	0.	0.	4769.	6000.	0.	** 800.	12.	.79	17.	95.5	F	17.0	17.9
28	3	1000.	0.	640.	5349.	0.	574.	4769.	5901.	0.	** 1000.	12.	.81	17.	91.4	F	17.3	17.5
29	3	8000.	0.	0.	4709.	0.	0.	4195.	6000.	0.	** 8000.	12.	.70	12.	113.3	F	14.5	20.9
30	5	100.	1105.	0.	5814.	1105.	0.	5300.	10000.	0.	** 100.	12.	.53	7.	144.9	F	10.1	26.0
31	5	1000.	700.	0.	6514.	700.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	6514.	6514.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 29.		66.1		18.1	15.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	5871. VEH-HRS	5892. PASS-HRS	10780. VEH-HRS	10822. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	200. VEH-HRS	219. PASS-HRS	300. VEH-HRS	329. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	6071. VEH-HRS	6111. PASS-HRS	11080. VEH-HRS	11150. PASS-HRS
TOTAL TRAV DISTANCE =	168142. VEH-MI.	169185. PASS-MI.	360539. VEH-MI.	362644. PASS-MI.

AVERAGE SYSTEM SPEED =	28. MPH.	33. MPH.
AVERAGE DENSITY =	66. VPMPL	53. VPMPL
TOTAL FUEL =	9355. GALLONS	18739. GALLONS
TOTAL EMISSIONS =	2640. KILOGRAMS	5167. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.01	2	******	3	122.66	4	40.31	5	64.58
6	130.90	7	44.64	8	62.41	9	61.98	10	150.83
11	44.21	12	42.48	13	78.02	14	59.09	15	45.84
16	16.26	17	20.35	18	14.82	19	29.11	20	2.71
21	2.78	22	2.44	23	28.72	24	54.23	25	48.34
26	35.77	27	32.27	28	38.06	29	417.31	30	12.18
31	0.00	32	0.00						

***** TOTAL DELAY = 3284.0 VEH-HRS ***** AVERAGE DELAY = 36.69 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	6.56	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.56	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	2	3000.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	2	3000.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	2	3000.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	2	3000.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	2	3000.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	2	3000.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	2	3000.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	2	3000.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	2	3000.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	2	3000.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	3000.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	2	3000.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp

19	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	2	3000.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	2	3000.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	2	3000.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1849.	0.	1849.	1849.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
3	2	2830.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
4	2	930.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
5	2	1490.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
6	2	3020.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
7	2	1030.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
8	2	1440.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
9	2	1430.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
10	2	3480.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
11	2	1020.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
12	2	980.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
13	2	1800.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
14	2	1500.	0.	188.	1849.	0.	188.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
15	2	1300.	0.	0.	1661.	0.	0.	1661.	3000.	0.	0.	0.	.55	65.	12.8	B	20.0	13.7
16	2	1000.	126.	0.	1787.	126.	0.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
17	2	1100.	0.	0.	1787.	0.	0.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
18	2	1000.	0.	118.	1787.	0.	118.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
19	2	900.	0.	0.	1669.	0.	0.	1669.	3000.	0.	0.	0.	.56	65.	12.8	B	20.0	13.7
20	2	100.	26.	0.	1695.	26.	0.	1695.	3000.	0.	0.	0.	.57	65.	13.0	B	20.0	13.7
21	2	100.	0.	0.	1695.	0.	0.	1695.	3000.	0.	0.	0.	.57	65.	13.0	B	20.0	13.7
22	2	100.	0.	110.	1695.	0.	110.	1695.	3000.	0.	0.	0.	.57	65.	13.0	B	20.0	13.7
23	2	700.	0.	0.	1586.	0.	0.	1586.	3000.	0.	0.	0.	.53	65.	12.2	B	20.0	13.7
24	2	1500.	0.	215.	1586.	0.	215.	1586.	3000.	0.	0.	0.	.53	65.	12.2	B	20.0	13.7
25	2	800.	0.	0.	1371.	0.	0.	1371.	3000.	0.	0.	0.	.46	65.	10.5	A	20.0	13.7
26	2	1000.	252.	0.	1623.	252.	0.	1623.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
27	2	800.	0.	0.	1623.	0.	0.	1623.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
28	2	1000.	0.	104.	1623.	0.	104.	1623.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
29	2	8000.	0.	1519.	1519.	0.	1519.	1519.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.62		LOWEST LOS = B		AVG = 65.		14.0		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	742. VEH-HRS	1484. PASS-HRS	742. VEH-HRS	1484. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	742. VEH-HRS	1484. PASS-HRS	742. VEH-HRS	1484. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	48218. VEH-MI.	96436. PASS-MI.	48218. VEH-MI.	96436. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	2411. GALLONS		2411. GALLONS	
TOTAL EMISSIONS =	663. KILOGRAMS		663. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00

```
                    *  3 *   0.00  0.00  0.00  0.00  0.00  0.00  3.16  0.00
+                   *                                                     *
                    *  4 *   0.00  0.00  0.00  0.00  0.00  0.00  2.47  0.00
+                   *                                                     *
                    *  5 *   0.00  0.00  0.00  0.00  0.00  0.00  1.89  0.00
+                   *                                                     *
                    *  6 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                   *                                                     *
                    *  7 *   0.00  0.00  0.00  0.00  0.00  0.00  0.00  0.00
+                   *                                                     *
                    *    *                                                *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1565.	0.	1565.	1565.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
3	2	2830.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
4	2	930.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
5	2	1490.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
6	2	3020.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
7	2	1030.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
8	2	1440.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
9	2	1430.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
10	2	3480.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
11	2	1020.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
12	2	980.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
13	2	1800.	0.	0.	1565.	0.	0.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
14	2	1500.	0.	171.	1565.	0.	171.	1565.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
15	2	1300.	0.	0.	1394.	0.	0.	1394.	3000.	0.	0.	0.	.46	65.	10.7	A	20.0	13.7
16	2	1000.	97.	0.	1491.	97.	0.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
17	2	1100.	0.	0.	1491.	0.	0.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
18	2	1000.	0.	159.	1491.	0.	159.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
19	2	900.	0.	0.	1332.	0.	0.	1332.	3000.	0.	0.	0.	.44	65.	10.2	A	20.0	13.7
20	2	100.	30.	0.	1363.	30.	0.	1363.	3000.	0.	0.	0.	.45	65.	10.5	A	20.0	13.7
21	2	100.	0.	0.	1363.	0.	0.	1363.	3000.	0.	0.	0.	.45	65.	10.5	A	20.0	13.7
22	2	100.	0.	145.	1363.	0.	145.	1363.	3000.	0.	0.	0.	.45	65.	10.5	A	20.0	13.7
23	2	700.	0.	0.	1218.	0.	0.	1218.	3000.	0.	0.	0.	.41	65.	9.4	A	20.0	13.7
24	2	1500.	0.	211.	1218.	0.	211.	1218.	3000.	0.	0.	0.	.41	65.	9.4	A	20.0	13.7
25	2	800.	0.	0.	1006.	0.	0.	1006.	3000.	0.	0.	0.	.34	65.	7.7	A	20.0	13.7
26	2	1000.	198.	0.	1204.	198.	0.	1204.	3000.	0.	0.	0.	.40	65.	9.3	A	20.0	13.7
27	2	800.	0.	0.	1204.	0.	0.	1204.	3000.	0.	0.	0.	.40	65.	9.3	A	20.0	13.7
28	2	1000.	0.	99.	1204.	0.	99.	1204.	3000.	0.	0.	0.	.40	65.	9.3	A	20.0	13.7
29	2	8000.	0.	1105.	1105.	0.	1105.	1105.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES								MAX(V/C) = 0.52		LOWEST LOS = B		AVG = 65.	11.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	621. VEH-HRS	1242. PASS-HRS	1363. VEH-HRS	2725. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	621. VEH-HRS	1242. PASS-HRS	1363. VEH-HRS	2725. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	40354. VEH-MI.	80708. PASS-MI.	88572. VEH-MI.	177144. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	12. VPMPL		13. VPMPL	
TOTAL FUEL =	2018. GALLONS		4429. GALLONS	
TOTAL EMISSIONS =	554. KILOGRAMS		1217. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	12500.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	8660.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7860.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	5	10000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	5	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	5	6000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 16 T2 =0.659
QUEUE COLLISION IN SECTION 15 T2 =0.448
QUEUE COLLISION IN SECTION 14 T2 =0.461
QUEUE COLLISION IN SECTION 3 T2 =0.861

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	31.54	33.88	35.93	38.43	47.50
2	0.00	0.00	1.45	3.50	6.00	15.07
3	0.00	0.00	0.00	1.50	4.00	13.07
4	0.00	0.00	0.00	0.00	1.73	10.80
5	0.00	0.00	0.00	0.00	0.00	0.80
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	9730.	1849.	9730.	9730.	1849.	9730.	12500.	0.	0.	0.	.78	64.	30.6	D	19.8	13.5
2	3	99999.	0.	0.	7881.	0.	0.	4246.	8660.	0.	* 12700.	3635.	.49	53.	26.5	F	21.7	12.2
3	3	2830.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 2830.	2754.	.61	35.	41.0	F	21.5	12.5
4	3	930.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 930.	2754.	.61	32.	44.7	F	21.0	12.9
5	3	1490.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 1490.	2754.	.61	30.	47.1	F	20.6	13.1
6	3	3020.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 3020.	2754.	.61	27.	51.9	F	20.0	13.6
7	3	1030.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 1030.	2754.	.61	25.	56.3	F	19.5	14.1
8	3	1440.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 1440.	2754.	.61	24.	59.1	F	19.1	14.3
9	3	1430.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 1430.	2754.	.61	23.	62.5	F	18.7	14.7
10	3	3480.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 3480.	2754.	.61	21.	68.4	F	18.1	15.3
11	3	1020.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 1020.	2754.	.61	19.	74.1	F	17.5	15.8
12	3	980.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 980.	2754.	.61	18.	76.8	F	17.3	16.1
13	3	1800.	0.	0.	7881.	0.	0.	4246.	7000.	0.	** 1800.	2754.	.61	18.	80.6	F	16.9	16.5
14	3	1500.	0.	801.	7881.	0.	692.	4246.	6812.	0.	** 1500.	2566.	.62	18.	78.7	F	17.3	16.4
15	3	1300.	0.	0.	7080.	0.	0.	3554.	6000.	0.	** 1300.	2446.	.59	17.	70.9	F	16.4	16.8
16	3	1000.	864.	0.	7944.	764.	0.	4318.	5874.	0.	** 1000.	1556.	.74	29.	49.6	F	20.6	13.6
17	3	1100.	0.	0.	7944.	0.	0.	4318.	6000.	0.	** 1100.	1556.	.72	27.	52.4	F	19.9	14.1
18	4	1000.	0.	1127.	7944.	0.	836.	4318.	7628.	0.	** 1000.	1556.	.57	19.	57.0	F	15.4	17.6
19	3	900.	0.	0.	6817.	0.	0.	3482.	6000.	0.	** 900.	1556.	.58	19.	62.7	F	15.8	17.3
20	3	100.	256.	0.	7073.	240.	0.	3722.	5956.	0.	** 100.	1556.	.62	20.	62.9	F	17.0	16.6
21	3	100.	0.	0.	7073.	0.	0.	3722.	6000.	0.	** 100.	1556.	.62	19.	63.9	F	16.8	16.7
22	3	100.	0.	0.	7073.	0.	0.	3722.	6000.	0.	** 100.	1556.	.62	19.	64.3	F	16.8	16.8
23	3	700.	0.	0.	7073.	0.	0.	3722.	6000.	0.	** 700.	1556.	.62	19.	65.8	F	16.7	16.9
24	3	1500.	0.	1089.	7073.	0.	816.	3722.	5785.	0.	** 1500.	1556.	.64	19.	66.0	F	17.0	16.8
25	3	800.	0.	0.	5984.	0.	0.	2906.	6000.	0.	** 800.	1556.	.48	12.	81.7	F	12.8	20.2
26	3	1000.	1181.	0.	7165.	1181.	0.	4087.	5751.	0.	** 1000.	1556.	.71	20.	69.3	F	17.8	16.3
27	3	800.	0.	0.	7165.	0.	0.	4087.	6000.	0.	** 800.	1556.	.68	18.	76.7	F	16.8	17.3
28	3	1000.	0.	647.	7165.	0.	516.	4087.	5897.	0.	** 1000.	1556.	.69	18.	77.0	F	16.9	17.2
29	3	8000.	0.	0.	6518.	0.	0.	3571.	6000.	0.	** 8000.	1556.	.60	11.	108.3	F	13.0	21.6
30	5	100.	1529.	0.	8047.	1529.	0.	5100.	10000.	0.	** 100.	1556.	.51	7.	148.0	F	9.8	26.4
31	5	1000.	1000.	0.	9047.	900.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	9047.	9047.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES							MAX(V/C) = 1.00 LOWEST LOS = F				AVG = 39.		38.9		20.6	13.1

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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4911. VEH-HRS	4932. PASS-HRS	4911. VEH-HRS	4932. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	108. VEH-HRS	118. PASS-HRS	108. VEH-HRS	118. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5019. VEH-HRS	5050. PASS-HRS	5019. VEH-HRS	5050. PASS-HRS
TOTAL TRAV DISTANCE =	192479. VEH-MI.	193542. PASS-MI.	192479. VEH-MI.	193542. PASS-MI.
AVERAGE SYSTEM SPEED =	38. MPH.		39. MPH.	
AVERAGE DENSITY =	39. VPMPL		39. VPMPL	
TOTAL FUEL =	9404. GALLONS		9404. GALLONS	
TOTAL EMISSIONS =	2529. KILOGRAMS		2529. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.30	2	492.32	3	47.46	4	18.28	5	32.07
6	75.47	7	28.95	8	43.20	9	46.06	10	125.23
11	40.23	12	40.16	13	77.62	14	61.53	15	50.56
16	19.22	17	23.15	18	36.95	19	28.38	20	3.02
21	3.09	22	3.11	23	22.39	24	47.63	25	37.05
26	31.44	27	28.74	28	35.84	29	437.56	30	12.54
31	0.00	32	0.00						

***** TOTAL DELAY = 1949.5 VEH-HRS ***** AVERAGE DELAY = 29.34 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	3.47	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.47	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	16.	8.00	1.88	2.86	0.18	0.93	0.05	1.15
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	16.	8.00	1.88	2.86	0.18	0.93	0.05	1.15
ON-RAMP	6	RAMP	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	44.78	47.01	49.33	52.06	60.26
2	0.00	0.00	1.46	3.78	6.51	14.72
3	0.00	0.00	0.00	1.61	4.34	12.55
4	0.00	0.00	0.00	0.00	1.83	10.04
5	0.00	0.00	0.00	0.00	0.00	0.79
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	8240.	1566.	8240.	8240.	1566.	8240.	12500.	0.	0.	0.	.66	65.	25.4	C	19.2	14.0
2	3	99999.	0.	0.	6674.	0.	0.	5758.	8660.	0.	* 24393.	916.	.66	36.	53.5	F	18.4	15.0
3	3	2830.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 2830.	916.	.82	18.	105.3	F	17.7	17.1
4	3	930.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 930.	916.	.82	18.	105.3	F	17.7	17.1
5	3	1490.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 1490.	916.	.82	18.	105.3	F	17.7	17.1
6	3	3020.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 3020.	916.	.82	18.	105.3	F	17.7	17.1
7	3	1030.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 1030.	916.	.82	18.	105.3	F	17.7	17.1
8	3	1440.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 1440.	916.	.82	18.	105.3	F	17.7	17.1
9	3	1430.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 1430.	916.	.82	18.	105.3	F	17.7	17.1
10	3	3480.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 3480.	916.	.82	18.	105.3	F	17.7	17.1
11	3	1020.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 1020.	916.	.82	18.	105.3	F	17.7	17.1
12	3	980.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 980.	916.	.82	18.	105.3	F	17.7	17.1
13	3	1800.	0.	0.	6674.	0.	0.	5758.	7000.	0.	** 1800.	916.	.82	18.	105.3	F	17.7	17.1
14	3	1500.	0.	727.	6674.	0.	727.	5758.	6829.	0.	** 1500.	916.	.84	20.	98.4	F	18.3	16.3
15	3	1300.	0.	0.	5947.	0.	0.	5031.	6000.	0.	** 1300.	916.	.84	19.	87.3	F	18.1	16.5
16	3	1000.	814.	0.	6761.	814.	0.	5845.	5904.	0.	** 1000.	59.	.99	34.	58.1	F	22.3	12.1
17	3	1100.	0.	0.	6761.	0.	0.	5845.	6000.	0.	** 1100.	59.	.97	31.	62.0	F	21.8	12.5
18	4	1000.	0.	1543.	6761.	0.	1342.	5845.	7546.	0.	** 1000.	59.	.77	16.	93.6	F	16.5	18.5
19	3	900.	0.	0.	5218.	0.	0.	4503.	6000.	0.	** 900.	59.	.75	14.	103.7	F	15.9	19.3
20	3	100.	352.	0.	5570.	268.	0.	4771.	5945.	0.	** 100.	59.	.80	17.	93.2	F	17.1	17.7
21	3	100.	0.	0.	5570.	0.	0.	4771.	6000.	0.	** 100.	59.	.80	17.	95.4	F	17.0	17.9
22	3	100.	0.	0.	5570.	0.	0.	4771.	6000.	0.	** 100.	59.	.80	17.	95.4	F	17.0	17.9
23	3	700.	0.	0.	5570.	0.	0.	4771.	6000.	0.	** 700.	59.	.80	17.	95.4	F	17.0	17.9
24	3	1500.	0.	1119.	5570.	0.	968.	4771.	5789.	0.	** 1500.	59.	.82	18.	86.8	F	17.7	17.0
25	3	800.	0.	0.	4451.	0.	0.	3803.	6000.	0.	** 800.	59.	.63	10.	125.5	F	13.2	22.7
26	3	1000.	960.	0.	5411.	960.	0.	4763.	5805.	0.	** 1000.	59.	.82	18.	87.7	F	17.6	17.1
27	3	800.	0.	0.	5411.	0.	0.	4763.	6000.	0.	** 800.	59.	.79	17.	95.6	F	16.9	18.0
28	3	1000.	0.	650.	5411.	0.	580.	4763.	5902.	0.	** 1000.	59.	.81	17.	91.7	F	17.3	17.6
29	3	8000.	0.	0.	4761.	0.	0.	4183.	6000.	0.	** 8000.	59.	.70	12.	113.7	F	14.4	21.0
30	5	100.	1117.	0.	5878.	1117.	0.	5300.	10000.	0.	** 100.	59.	.53	7.	144.9	F	10.1	26.0
31	5	1000.	700.	0.	6578.	700.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	6578.	6578.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00 LOWEST LOS = F				AVG = 29.	66.1		18.1	15.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	5879. VEH-HRS	5901. PASS-HRS	10790. VEH-HRS	10834. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS

ON-RAMP MRG/CAP DELAY =	258. VEH-HRS	277. PASS-HRS	366. VEH-HRS	395. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	6137. VEH-HRS	6178. PASS-HRS	11156. VEH-HRS	11228. PASS-HRS
TOTAL TRAV DISTANCE =	168179. VEH-MI.	169223. PASS-MI.	360657. VEH-MI.	362765. PASS-MI.
AVERAGE SYSTEM SPEED =	27. MPH.		33. MPH.	
AVERAGE DENSITY =	66. VPMPL		53. VPMPL	
TOTAL FUEL =	9388. GALLONS		18792. GALLONS	
TOTAL EMISSIONS =	2654. KILOGRAMS		5183. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.01	2	******	3	121.90	4	40.06	5	64.18
6	130.09	7	44.37	8	62.03	9	61.60	10	149.90
11	43.94	12	42.21	13	77.54	14	58.69	15	45.44
16	15.97	17	20.01	18	53.89	19	41.25	20	3.90
21	4.03	22	4.03	23	28.22	24	53.15	25	48.19
26	35.96	27	32.37	28	38.20	29	419.29	30	12.18
31	0.00	32	0.00						

***** TOTAL DELAY = 3292.0 VEH-HRS ***** AVERAGE DELAY = 36.83 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	6.56	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.56	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	100.	58.00	9.46	20.71	1.28	6.72	0.36	8.36
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	58.00	9.46	20.71	1.28	6.72	0.36	8.36
ON-RAMP	6	RAMP	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111         222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111       222     PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111     2222      PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111    2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111   222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	2	3000.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	2	3000.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	2	3000.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	2	3000.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	2	3000.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	2	3000.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	2	3000.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	2	3000.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	2	3000.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	2	3000.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	3000.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	2	3000.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp

19	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	2	3000.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	2	3000.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1849.	0.	1849.	1849.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
3	2	2830.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
4	2	930.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
5	2	1490.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
6	2	3020.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
7	2	1030.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
8	2	1440.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
9	2	1430.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
10	2	3480.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
11	2	1020.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
12	2	980.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
13	2	1800.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
14	2	1500.	0.	188.	1849.	0.	188.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
15	2	1300.	0.	0.	1661.	0.	0.	1661.	3000.	0.	0.	0.	.55	65.	12.8	B	20.0	13.7
16	2	1000.	126.	0.	1787.	126.	0.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
17	2	1100.	0.	0.	1787.	0.	0.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
18	2	1000.	0.	232.	1787.	0.	232.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
19	2	900.	0.	0.	1555.	0.	0.	1555.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
20	2	100.	44.	0.	1599.	44.	0.	1599.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
21	2	100.	0.	0.	1599.	0.	0.	1599.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
22	2	100.	0.	0.	1599.	0.	0.	1599.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
23	2	700.	0.	0.	1599.	0.	0.	1599.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
24	2	1500.	0.	215.	1599.	0.	215.	1599.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
25	2	800.	0.	0.	1384.	0.	0.	1384.	3000.	0.	0.	0.	.46	65.	10.6	A	20.0	13.7
26	2	1000.	249.	0.	1632.	249.	0.	1632.	3000.	0.	0.	0.	.54	65.	12.6	B	20.0	13.7
27	2	800.	0.	0.	1632.	0.	0.	1632.	3000.	0.	0.	0.	.54	65.	12.6	B	20.0	13.7
28	2	1000.	0.	103.	1632.	0.	103.	1632.	3000.	0.	0.	0.	.54	65.	12.6	B	20.0	13.7
29	2	8000.	0.	1529.	1529.	0.	1529.	1529.	3000.	0.	0.	0.	.51	65.	11.8	B	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.62		LOWEST LOS = B		AVG = 65.		14.0		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	742. VEH-HRS	1484. PASS-HRS	742. VEH-HRS	1484. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	742. VEH-HRS	1484. PASS-HRS	742. VEH-HRS	1484. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	48220. VEH-MI.	96441. PASS-MI.	48220. VEH-MI.	96441. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	2411. GALLONS		2411. GALLONS	
TOTAL EMISSIONS =	663. KILOGRAMS		663. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00

* 3 *	0.00	0.00	0.00	0.00	0.00	3.16	0.00	
* 4 *	0.00	0.00	0.00	0.00	0.00	2.47	0.00	
* 5 *	0.00	0.00	0.00	0.00	0.00	1.89	0.00	
* 6 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
* 7 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1566.	0.	1566.	1566.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
3	2	2830.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
4	2	930.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
5	2	1490.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
6	2	3020.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
7	2	1030.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
8	2	1440.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
9	2	1430.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
10	2	3480.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
11	2	1020.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
12	2	980.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
13	2	1800.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
14	2	1500.	0.	171.	1566.	0.	171.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
15	2	1300.	0.	0.	1395.	0.	0.	1395.	3000.	0.	0.	0.	.46	65.	10.7	A	20.0	13.7
16	2	1000.	96.	0.	1491.	96.	0.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
17	2	1100.	0.	0.	1491.	0.	0.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
18	2	1000.	0.	314.	1491.	0.	314.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
19	2	900.	0.	0.	1177.	0.	0.	1177.	3000.	0.	0.	0.	.39	65.	9.1	A	20.0	13.7
20	2	100.	55.	0.	1232.	55.	0.	1232.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
21	2	100.	0.	0.	1232.	0.	0.	1232.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
22	2	100.	0.	0.	1232.	0.	0.	1232.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
23	2	700.	0.	0.	1232.	0.	0.	1232.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
24	2	1500.	0.	211.	1232.	0.	211.	1232.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
25	2	800.	0.	0.	1020.	0.	0.	1020.	3000.	0.	0.	0.	.34	65.	7.8	A	20.0	13.7
26	2	1000.	195.	0.	1215.	195.	0.	1215.	3000.	0.	0.	0.	.41	65.	9.3	A	20.0	13.7
27	2	800.	0.	0.	1215.	0.	0.	1215.	3000.	0.	0.	0.	.41	65.	9.3	A	20.0	13.7
28	2	1000.	0.	98.	1215.	0.	98.	1215.	3000.	0.	0.	0.	.41	65.	9.3	A	20.0	13.7
29	2	8000.	0.	1117.	1117.	0.	1117.	1117.	3000.	0.	0.	0.	.37	65.	8.6	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.52	LOWEST LOS = B			AVG = 65.		11.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	621. VEH-HRS	1242. PASS-HRS	1363. VEH-HRS	2725. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	621. VEH-HRS	1242. PASS-HRS	1363. VEH-HRS	2725. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	40357. VEH-MI.	80714. PASS-MI.	88577. VEH-MI.	177155. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	12. VPMPL		13. VPMPL	
TOTAL FUEL =	2018. GALLONS		4429. GALLONS	
TOTAL EMISSIONS =	555. KILOGRAMS		1217. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111        222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111      2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222      PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222        PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222        PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	12500.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	8660.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7860.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	5	10000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	5	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	5	6000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

QUEUE COLLISION IN SECTION 16 T2 =0.661
QUEUE COLLISION IN SECTION 15 T2 =0.449
QUEUE COLLISION IN SECTION 14 T2 =0.461
QUEUE COLLISION IN SECTION 3 T2 =0.862

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	31.51	33.83	35.89	38.38	47.43
2	0.00	0.00	1.44	3.49	5.98	15.04
3	0.00	0.00	0.00	1.50	4.00	13.05
4	0.00	0.00	0.00	0.00	1.73	10.78
5	0.00	0.00	0.00	0.00	0.00	0.80
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	9731.	1849.	9731.	9731.	1849.	9731.	12500.	0.	0.	0.	.78	64.	30.6	D	19.8	13.5
2	3	99999.	0.	0.	7882.	0.	0.	4253.	8660.	0.	* 12689.	3629.	.49	53.	26.5	F	21.7	12.2
3	3	2830.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 2830.	2747.	.61	35.	40.9	F	21.5	12.5
4	3	930.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 930.	2747.	.61	32.	44.6	F	21.0	12.9
5	3	1490.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 1490.	2747.	.61	30.	47.1	F	20.7	13.1
6	3	3020.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 3020.	2747.	.61	27.	51.8	F	20.0	13.6
7	3	1030.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 1030.	2747.	.61	25.	56.2	F	19.5	14.0
8	3	1440.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 1440.	2747.	.61	24.	59.0	F	19.2	14.3
9	3	1430.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 1430.	2747.	.61	23.	62.4	F	18.8	14.6
10	3	3480.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 3480.	2747.	.61	21.	68.3	F	18.1	15.2
11	3	1020.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 1020.	2747.	.61	19.	74.0	F	17.6	15.8
12	3	980.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 980.	2747.	.61	18.	76.7	F	17.3	16.1
13	3	1800.	0.	0.	7882.	0.	0.	4253.	7000.	0.	** 1800.	2747.	.61	18.	80.4	F	16.9	16.5
14	3	1500.	0.	802.	7882.	0.	693.	4253.	6812.	0.	** 1500.	2559.	.62	18.	78.6	F	17.3	16.3
15	3	1300.	0.	0.	7080.	0.	0.	3560.	6000.	0.	** 1300.	2440.	.59	17.	70.8	F	16.4	16.8
16	3	1000.	864.	0.	7944.	764.	0.	4324.	5874.	0.	** 1000.	1550.	.74	29.	49.4	F	20.6	13.6
17	3	1100.	0.	0.	7944.	0.	0.	4324.	6000.	0.	** 1100.	1550.	.72	28.	52.3	F	19.9	14.1
18	4	1000.	0.	1128.	7944.	0.	837.	4324.	7628.	0.	** 1000.	1550.	.57	19.	56.7	F	15.4	17.5
19	3	900.	0.	0.	6816.	0.	0.	3487.	6000.	0.	** 900.	1550.	.58	19.	62.4	F	15.8	17.3
20	3	100.	230.	0.	7046.	230.	0.	3717.	5960.	0.	** 100.	1550.	.62	20.	62.8	F	17.0	16.6
21	3	100.	0.	0.	7046.	0.	0.	3717.	6000.	0.	** 100.	1550.	.62	19.	63.7	F	16.8	16.7
22	3	100.	0.	0.	7046.	0.	0.	3717.	6000.	0.	** 100.	1550.	.62	19.	64.1	F	16.8	16.8
23	3	700.	0.	0.	7046.	0.	0.	3717.	6000.	0.	** 700.	1550.	.62	19.	65.6	F	16.6	16.9
24	3	1500.	0.	1077.	7046.	0.	809.	3717.	5787.	0.	** 1500.	1550.	.64	19.	66.0	F	17.0	16.8
25	3	800.	0.	0.	5969.	0.	0.	2908.	6000.	0.	** 800.	1550.	.48	12.	81.5	F	12.8	20.2
26	3	1000.	1181.	0.	7150.	1181.	0.	4089.	5751.	0.	** 1000.	1550.	.71	20.	69.2	F	17.8	16.3
27	3	800.	0.	0.	7150.	0.	0.	4089.	6000.	0.	** 800.	1550.	.68	18.	76.5	F	16.8	17.2
28	3	1000.	0.	645.	7150.	0.	515.	4089.	5896.	0.	** 1000.	1550.	.69	18.	76.9	F	16.9	17.2
29	3	8000.	0.	0.	6505.	0.	0.	3574.	6000.	0.	** 8000.	1550.	.60	11.	108.2	F	13.0	21.6
30	5	100.	1526.	0.	8031.	1526.	0.	5100.	10000.	0.	** 100.	1550.	.51	7.	148.0	F	9.8	26.4
31	5	1000.	1000.	0.	9031.	900.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	9031.	9031.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00 LOWEST LOS = F			AVG = 39.		38.9		20.6	13.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4907. VEH-HRS	4928. PASS-HRS	4907. VEH-HRS	4928. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	100. VEH-HRS	110. PASS-HRS	100. VEH-HRS	110. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5007. VEH-HRS	5038. PASS-HRS	5007. VEH-HRS	5038. PASS-HRS
TOTAL TRAV DISTANCE =	192530. VEH-MI.	193591. PASS-MI.	192530. VEH-MI.	193591. PASS-MI.
AVERAGE SYSTEM SPEED =	38. MPH.		39. MPH.	
AVERAGE DENSITY =	39. VPMPL		39. VPMPL	
TOTAL FUEL =	9400. GALLONS		9400. GALLONS	
TOTAL EMISSIONS =	2528. KILOGRAMS		2528. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.30	2	491.99	3	47.20	4	18.20	5	31.92
6	75.16	7	28.84	8	43.05	9	45.90	10	124.82
11	40.11	12	40.04	13	77.39	14	61.33	15	50.40
16	19.08	17	22.99	18	36.72	19	28.22	20	3.02
21	3.08	22	3.10	23	22.34	24	47.60	25	36.94
26	31.35	27	28.67	28	35.73	29	436.89	30	12.54
31	0.00	32	0.00						

***** TOTAL DELAY = 1944.9 VEH-HRS ***** AVERAGE DELAY = 29.24 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	3.47	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.47	17.85	1.11	5.79	0.31	7.21
ON-RAMP	6	RAMP	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.70	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	44.55	46.76	49.09	51.82	60.01
2	0.00	0.00	1.45	3.78	6.51	14.70
3	0.00	0.00	0.00	1.63	4.36	12.54
4	0.00	0.00	0.00	0.00	1.83	10.02
5	0.00	0.00	0.00	0.00	0.00	0.79
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	500.	8241.	1566.	8241.	8241.	1566.	8241.	12500.	0.	0.	0.	.66	65.	25.4	C	19.2	14.0
2	3	99999.	0.	0.	6675.	0.	0.	5774.	8660.	0.	* 24232.	901.	.67	36.	53.4	F	18.4	15.0
3	3	2830.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 2830.	901.	.82	18.	104.8	F	17.7	17.0
4	3	930.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 930.	901.	.82	18.	104.8	F	17.7	17.0
5	3	1490.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 1490.	901.	.82	18.	104.8	F	17.7	17.0
6	3	3020.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 3020.	901.	.82	18.	104.8	F	17.7	17.0
7	3	1030.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 1030.	901.	.82	18.	104.8	F	17.7	17.0
8	3	1440.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 1440.	901.	.82	18.	104.8	F	17.7	17.0
9	3	1430.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 1430.	901.	.82	18.	104.8	F	17.7	17.0
10	3	3480.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 3480.	901.	.82	18.	104.8	F	17.7	17.0
11	3	1020.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 1020.	901.	.82	18.	104.8	F	17.7	17.0
12	3	980.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 980.	901.	.82	18.	104.8	F	17.7	17.0
13	3	1800.	0.	0.	6675.	0.	0.	5774.	7000.	0.	** 1800.	901.	.82	18.	104.8	F	17.7	17.0
14	3	1500.	0.	729.	6675.	0.	729.	5774.	6829.	0.	** 1500.	901.	.85	20.	97.9	F	18.3	16.3
15	3	1300.	0.	0.	5946.	0.	0.	5045.	6000.	0.	** 1300.	901.	.84	19.	86.9	F	18.2	16.4
16	3	1000.	814.	0.	6760.	814.	0.	5859.	5904.	0.	** 1000.	45.	.99	34.	57.6	F	22.4	12.0
17	3	1100.	0.	0.	6760.	0.	0.	5859.	6000.	0.	** 1100.	45.	.98	32.	61.5	F	21.9	12.4
18	4	1000.	0.	1546.	6760.	0.	1345.	5859.	7546.	0.	** 1000.	45.	.78	16.	93.3	F	16.6	18.4
19	3	900.	0.	0.	5214.	0.	0.	4514.	6000.	0.	** 900.	45.	.75	15.	103.4	F	15.9	19.2
20	3	100.	314.	0.	5528.	240.	0.	4754.	5950.	0.	** 100.	45.	.80	17.	93.9	F	17.1	17.8
21	3	100.	0.	0.	5528.	0.	0.	4754.	6000.	0.	** 100.	45.	.79	17.	95.9	F	16.9	18.0
22	3	100.	0.	0.	5528.	0.	0.	4754.	6000.	0.	** 100.	45.	.79	17.	95.9	F	16.9	18.0
23	3	700.	0.	0.	5528.	0.	0.	4754.	6000.	0.	** 700.	45.	.79	17.	95.9	F	16.9	18.0
24	3	1500.	0.	1095.	5528.	0.	949.	4754.	5791.	0.	** 1500.	45.	.82	18.	87.4	F	17.6	17.1
25	3	800.	0.	0.	4433.	0.	0.	3805.	6000.	0.	** 800.	45.	.63	10.	125.5	F	13.2	22.7
26	3	1000.	960.	0.	5393.	960.	0.	4765.	5805.	0.	** 1000.	45.	.82	18.	87.6	F	17.6	17.1
27	3	800.	0.	0.	5393.	0.	0.	4765.	6000.	0.	** 800.	45.	.79	17.	95.6	F	16.9	17.9
28	3	1000.	0.	647.	5393.	0.	578.	4765.	5902.	0.	** 1000.	45.	.81	17.	91.6	F	17.3	17.5
29	3	8000.	0.	0.	4746.	0.	0.	4187.	6000.	0.	** 8000.	45.	.70	12.	113.6	F	14.4	21.0
30	5	100.	1113.	0.	5859.	1113.	0.	5300.	10000.	0.	** 100.	45.	.53	7.	144.9	F	10.1	26.0
31	5	1000.	700.	0.	6559.	700.	0.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	19.2	14.0
32	5	2640.	0.	6559.	6559.	0.	6000.	6000.	6000.	0.	0.	0.	1.00	65.	18.5	E	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00 LOWEST LOS = F			AVG = 29.	66.0			18.1	15.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	5861. VEH-HRS	5882. PASS-HRS	10767. VEH-HRS	10811. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	237. VEH-HRS	256. PASS-HRS	337. VEH-HRS	366. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	6098. VEH-HRS	6138. PASS-HRS	11104. VEH-HRS	11176. PASS-HRS
TOTAL TRAV DISTANCE =	168343. VEH-MI.	169384. PASS-MI.	360873. VEH-MI.	362976. PASS-MI.

AVERAGE SYSTEM SPEED =	28. MPH.	34. MPH.
AVERAGE DENSITY =	66. VPMPL	52. VPMPL
TOTAL FUEL =	9379. GALLONS	18779. GALLONS
TOTAL EMISSIONS =	2650. KILOGRAMS	5177. KILOGRAMS

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.01	2	******	3	120.96	4	39.75	5	63.69
6	129.08	7	44.03	8	61.55	9	61.12	10	148.75
11	43.60	12	41.89	13	76.94	14	58.19	15	45.06
16	15.68	17	19.69	18	53.60	19	41.04	20	3.95
21	4.07	22	4.07	23	28.46	24	53.74	25	48.15
26	35.92	27	32.34	28	38.16	29	418.63	30	12.18
31	0.00	32	0.00						

***** TOTAL DELAY = 3270.7 VEH-HRS ***** AVERAGE DELAY = 36.53 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	6.56	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.56	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	74.	37.00	7.07	13.21	0.82	4.29	0.23	5.33
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	74.	37.00	7.07	13.21	0.82	4.29	0.23	5.33
ON-RAMP	6	RAMP	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.00	35.71	2.22	11.58	0.61	14.41

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222     PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222      PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111    222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 35
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	2	3000.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	2	3000.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	2	3000.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	2	3000.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	2	3000.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	2	3000.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	2	3000.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	2	3000.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	2	3000.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	2	3000.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	3000.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	2	3000.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp

19	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	2	3000.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	2	3000.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1849.	0.	1849.	1849.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
3	2	2830.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
4	2	930.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
5	2	1490.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
6	2	3020.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
7	2	1030.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
8	2	1440.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
9	2	1430.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
10	2	3480.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
11	2	1020.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
12	2	980.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
13	2	1800.	0.	0.	1849.	0.	0.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
14	2	1500.	0.	188.	1849.	0.	188.	1849.	3000.	0.	0.	0.	.62	65.	14.2	B	20.0	13.7
15	2	1300.	0.	0.	1661.	0.	0.	1661.	3000.	0.	0.	0.	.55	65.	12.8	B	20.0	13.7
16	2	1000.	126.	0.	1787.	126.	0.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
17	2	1100.	0.	0.	1787.	0.	0.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
18	2	1000.	0.	232.	1787.	0.	232.	1787.	3000.	0.	0.	0.	.60	65.	13.7	B	20.0	13.7
19	2	900.	0.	0.	1555.	0.	0.	1555.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
20	2	100.	40.	0.	1594.	40.	0.	1594.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
21	2	100.	0.	0.	1594.	0.	0.	1594.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
22	2	100.	0.	0.	1594.	0.	0.	1594.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
23	2	700.	0.	0.	1594.	0.	0.	1594.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
24	2	1500.	0.	213.	1594.	0.	213.	1594.	3000.	0.	0.	0.	.53	65.	12.3	B	20.0	13.7
25	2	800.	0.	0.	1381.	0.	0.	1381.	3000.	0.	0.	0.	.46	65.	10.6	A	20.0	13.7
26	2	1000.	249.	0.	1630.	249.	0.	1630.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
27	2	800.	0.	0.	1630.	0.	0.	1630.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
28	2	1000.	0.	104.	1630.	0.	104.	1630.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
29	2	8000.	0.	1526.	1526.	0.	1526.	1526.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.62		LOWEST LOS = B		AVG =	65.	14.0		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	742. VEH-HRS	1484. PASS-HRS	742. VEH-HRS	1484. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	742. VEH-HRS	1484. PASS-HRS	742. VEH-HRS	1484. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	48216. VEH-MI.	96432. PASS-MI.	48216. VEH-MI.	96432. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	2411. GALLONS		2411. GALLONS	
TOTAL EMISSIONS =	662. KILOGRAMS		662. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00

* 3 *	0.00	0.00	0.00	0.00	0.00	3.16	0.00
* 4 *	0.00	0.00	0.00	0.00	0.00	2.47	0.00
* 5 *	0.00	0.00	0.00	0.00	0.00	1.89	0.00
* 6 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 7 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1566.	0.	1566.	1566.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
3	2	2830.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
4	2	930.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
5	2	1490.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
6	2	3020.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
7	2	1030.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
8	2	1440.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
9	2	1430.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
10	2	3480.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
11	2	1020.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
12	2	980.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
13	2	1800.	0.	0.	1566.	0.	0.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
14	2	1500.	0.	171.	1566.	0.	171.	1566.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
15	2	1300.	0.	0.	1395.	0.	0.	1395.	3000.	0.	0.	0.	.46	65.	10.7	A	20.0	13.7
16	2	1000.	96.	0.	1491.	96.	0.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
17	2	1100.	0.	0.	1491.	0.	0.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
18	2	1000.	0.	314.	1491.	0.	314.	1491.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
19	2	900.	0.	0.	1176.	0.	0.	1176.	3000.	0.	0.	0.	.39	65.	9.0	A	20.0	13.7
20	2	100.	50.	0.	1226.	50.	0.	1226.	3000.	0.	0.	0.	.41	65.	9.4	A	20.0	13.7
21	2	100.	0.	0.	1226.	0.	0.	1226.	3000.	0.	0.	0.	.41	65.	9.4	A	20.0	13.7
22	2	100.	0.	0.	1226.	0.	0.	1226.	3000.	0.	0.	0.	.41	65.	9.4	A	20.0	13.7
23	2	700.	0.	0.	1226.	0.	0.	1226.	3000.	0.	0.	0.	.41	65.	9.4	A	20.0	13.7
24	2	1500.	0.	209.	1226.	0.	209.	1226.	3000.	0.	0.	0.	.41	65.	9.4	A	20.0	13.7
25	2	800.	0.	0.	1017.	0.	0.	1017.	3000.	0.	0.	0.	.34	65.	7.8	A	20.0	13.7
26	2	1000.	195.	0.	1212.	195.	0.	1212.	3000.	0.	0.	0.	.40	65.	9.3	A	20.0	13.7
27	2	800.	0.	0.	1212.	0.	0.	1212.	3000.	0.	0.	0.	.40	65.	9.3	A	20.0	13.7
28	2	1000.	0.	98.	1212.	0.	98.	1212.	3000.	0.	0.	0.	.40	65.	9.3	A	20.0	13.7
29	2	8000.	0.	1113.	1113.	0.	1113.	1113.	3000.	0.	0.	0.	.37	65.	8.6	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. =	26.6 MILES						MAX(V/C) = 0.52		LOWEST LOS = B		AVG =	65.	11.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	621. VEH-HRS	1241. PASS-HRS	1362. VEH-HRS	2725. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	621. VEH-HRS	1241. PASS-HRS	1362. VEH-HRS	2725. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	40346. VEH-MI.	80692. PASS-MI.	88562. VEH-MI.	177125. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	12. VPMPL		13. VPMPL	
TOTAL FUEL =	2017. GALLONS		4428. GALLONS	
TOTAL EMISSIONS =	554. KILOGRAMS		1217. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	5500.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	22.00	22.85	23.07	23.47	24.34	32.05
2	0.00	0.00	0.61	0.84	1.23	2.10	9.81
3	0.00	0.00	0.00	0.06	0.45	1.33	9.03
4	0.00	0.00	0.00	0.00	0.00	0.74	8.44
5	0.00	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	6550.	852.	6550.	6550.	852.	6550.	10000.	0.	0.	0.	.65	65.	25.2	C	19.2	14.0
2	3	99999.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
3	3	2830.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
4	3	930.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
5	3	1490.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
6	3	3020.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
7	3	1030.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
8	3	1440.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
9	3	1430.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
10	3	3480.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
11	3	1020.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
12	3	980.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
13	3	1800.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
14	3	1500.	0.	557.	5698.	0.	557.	5698.	6917.	0.	0.	0.	.82	62.	30.4	D	20.4	13.1
15	3	1300.	0.	0.	5141.	0.	0.	5141.	6000.	0.	0.	0.	.86	61.	28.0	D	21.0	12.7
16	3	1000.	467.	0.	5608.	367.	0.	5508.	5957.	0.	0.	0.	.92	58.	31.8	D	22.3	11.9
17	3	1100.	0.	0.	5608.	0.	0.	5508.	6000.	0.	0.	0.	.92	58.	31.6	D	22.2	12.0
18	3	1000.	0.	273.	5608.	0.	268.	5508.	5963.	0.	0.	0.	.92	58.	31.7	D	22.3	11.9
19	3	900.	0.	0.	5335.	0.	0.	5240.	6000.	0.	0.	0.	.87	60.	28.9	D	21.4	12.5
20	3	100.	173.	0.	5508.	173.	0.	5413.	5983.	0.	0.	0.	.90	59.	30.6	D	21.9	12.1
21	3	100.	0.	0.	5508.	0.	0.	5413.	6000.	0.	0.	0.	.90	59.	30.6	D	21.9	12.1
22	3	100.	0.	837.	5508.	0.	821.	5413.	5890.	0.	0.	0.	.92	58.	31.1	D	22.2	12.0
23	3	700.	0.	0.	4671.	0.	0.	4592.	6000.	0.	0.	0.	.77	64.	23.9	C	19.7	13.6
24	3	1500.	0.	784.	4671.	0.	769.	4592.	5897.	0.	0.	0.	.78	64.	24.1	C	19.8	13.5
25	3	800.	0.	0.	3887.	0.	0.	3823.	6000.	0.	0.	0.	.64	65.	19.6	C	19.2	14.0
26	3	1000.	1731.	0.	5618.	1255.	0.	4254.	5755.	0.	* 578.	824.	.74	57.	24.9	F	21.4	12.5
27	3	800.	0.	0.	5618.	0.	0.	4254.	6000.	0.	** 800.	824.	.71	44.	32.1	F	19.8	13.6
28	3	1000.	0.	281.	5618.	0.	252.	4254.	5975.	0.	** 1000.	824.	.71	34.	41.2	F	18.9	14.3
29	3	8000.	0.	0.	5337.	0.	0.	4002.	6000.	0.	** 8000.	824.	.67	13.	101.2	F	13.6	19.8
30	4	100.	798.	0.	6135.	798.	0.	4800.	8000.	0.	** 100.	824.	.60	7.	183.1	F	9.5	26.8
31	4	1000.	800.	0.	6935.	700.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6935.	6935.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 53.	34.0		19.8	13.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2858. VEH-HRS	2869. PASS-HRS	2858. VEH-HRS	2869. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	338. VEH-HRS	345. PASS-HRS	338. VEH-HRS	345. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3196. VEH-HRS	3214. PASS-HRS	3196. VEH-HRS	3214. PASS-HRS
TOTAL TRAV DISTANCE =	152445. VEH-MI.	153067. PASS-MI.	152445. VEH-MI.	153067. PASS-MI.
AVERAGE SYSTEM SPEED =	48. MPH.		53. MPH.	
AVERAGE DENSITY =	34. VPMPL		34. VPMPL	
TOTAL FUEL =	7817. GALLONS		7817. GALLONS	
TOTAL EMISSIONS =	2109. KILOGRAMS		2109. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	60.03	3	1.70	4	0.56	5	0.89
6	1.81	7	0.62	8	0.86	9	0.86	10	2.09
11	0.61	12	0.59	13	1.08	14	1.03	15	1.20
16	2.01	17	2.07	18	1.99	19	1.02	20	0.16
21	0.16	22	0.19	23	0.16	24	0.43	25	0.00
26	2.09	27	5.53	28	12.81	29	397.47	30	12.49
31	0.00	32	0.00						

***** TOTAL DELAY = 512.5 VEH-HRS ***** AVERAGE DELAY = 7.27 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	6.42	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	6.42	17.85	1.11	5.79	0.31	7.21

ON-RAMP	4	RAMP	476.	238.00	7.23	84.99	5.27	27.57	1.46	34.31
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	476.	238.00	7.23	84.99	5.27	27.57	1.46	34.31
ON-RAMP	6	RAMP	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	0.09	22.30	24.32	25.13	27.69	33.69	48.07
2	0.00	0.00	1.49	2.30	4.87	10.87	25.25
3	0.00	0.00	0.00	0.20	2.76	8.76	23.14
4	0.00	0.00	0.00	0.00	0.00	3.98	18.35
5	0.00	0.00	0.00	0.00	0.00	0.00	0.84
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF		CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	6679.	868.	6679.	6679.	868.	6679.	10000.	0.		0.	0.	.67	65.	25.7	C	19.2	14.0
2	3	99999.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
3	3	2830.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
4	3	930.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
5	3	1490.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
6	3	3020.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
7	3	1030.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
8	3	1440.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
9	3	1430.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
10	3	3480.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
11	3	1020.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
12	3	980.	0.	0.	5811.	0.	0.	5811.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
13	3	1800.	0.	0.	5811.	0.	0.	5001.	7000.	0.	*	151.	810.	.71	62.	26.9	F	20.5	13.1
14	3	1500.	0.	835.	5811.	0.	835.	5001.	6875.	0.	**	1500.	810.	.73	43.	38.6	F	19.7	13.7
15	3	1300.	0.	0.	4976.	0.	0.	4166.	6000.	0.	**	1300.	810.	.69	28.	49.3	F	17.7	15.3
16	3	1000.	528.	0.	5504.	528.	0.	4694.	5957.	0.	**	1000.	810.	.79	27.	58.1	F	19.0	14.7
17	3	1100.	0.	0.	5504.	0.	0.	4694.	6000.	0.	**	1100.	810.	.78	23.	66.7	F	18.2	15.5
18	3	1000.	0.	291.	5504.	0.	291.	4694.	5961.	0.	**	1000.	810.	.79	21.	74.1	F	17.7	16.1
19	3	900.	0.	0.	5213.	0.	0.	4403.	6000.	0.	**	900.	810.	.73	17.	87.9	F	16.0	17.9
20	3	100.	186.	0.	5399.	186.	0.	4589.	5984.	0.	**	100.	810.	.77	17.	89.3	F	16.4	17.6
21	3	100.	0.	0.	5399.	0.	0.	4589.	6000.	0.	**	100.	810.	.76	17.	90.7	F	16.3	17.8
22	3	100.	0.	889.	5399.	0.	888.	4589.	5885.	0.	**	100.	810.	.78	17.	88.0	F	16.5	17.5
23	3	700.	0.	0.	4510.	0.	0.	3701.	6000.	0.	**	700.	810.	.62	11.	116.4	F	12.1	21.4
24	3	1500.	0.	1028.	4510.	0.	1024.	3701.	5867.	0.	**	1500.	810.	.63	9.	131.1	F	11.5	22.8
25	3	800.	0.	0.	3482.	0.	0.	2677.	6000.	0.	**	800.	810.	.45	4.	198.9	F	9.0	26.9
26	3	1000.	1705.	0.	5187.	1261.	0.	3938.	5761.	0.	**	1000.	810.	.68	8.	154.9	F	11.2	24.6
27	3	800.	0.	0.	5187.	0.	0.	3938.	6000.	0.	**	800.	810.	.66	8.	169.8	F	10.5	25.5
28	3	1000.	0.	306.	5187.	0.	275.	3938.	5975.	0.	**	1000.	810.	.66	8.	168.4	F	10.5	25.4
29	3	8000.	0.	0.	4881.	0.	0.	3663.	6000.	0.	**	8000.	810.	.61	7.	181.8	F	9.6	26.7
30	4	100.	729.	0.	5610.	729.	0.	4392.	8000.	0.	**	100.	810.	.55	6.	197.9	F	8.8	28.0
31	4	1000.	1600.	0.	7210.	1108.	0.	5500.	5500.	0.		0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	7210.	7210.	0.	5500.	5500.	8000.	0.		0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES							MAX(V/C) = 1.00 LOWEST LOS = F					AVG = 40.		45.7		19.1	14.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3817. VEH-HRS	3831. PASS-HRS	6675. VEH-HRS	6700. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	1144. VEH-HRS	1189. PASS-HRS	1482. VEH-HRS	1533. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4961. VEH-HRS	5020. PASS-HRS	8157. VEH-HRS	8233. PASS-HRS
TOTAL TRAV DISTANCE =	152603. VEH-MI.	153221. PASS-MI.	305048. VEH-MI.	306288. PASS-MI.
AVERAGE SYSTEM SPEED =	31. MPH.		46. MPH.	
AVERAGE DENSITY =	46. VPMPL		40. VPMPL	
TOTAL FUEL =	8407. GALLONS		16224. GALLONS	
TOTAL EMISSIONS =	2301. KILOGRAMS		4410. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.01	2	75.76	3	2.14	4	0.70	5	1.13
6	2.29	7	0.78	8	1.09	9	1.08	10	2.64
11	0.77	12	0.74	13	1.47	14	12.63	15	23.76
16	21.59	17	29.40	18	30.96	19	36.18	20	4.00
21	4.08	22	3.92	23	41.71	24	100.48	25	86.65
26	76.67	27	68.02	28	84.22	29	741.12	30	13.71
31	0.00	32	0.00						

***** TOTAL DELAY = 1469.7 VEH-HRS ***** AVERAGE DELAY = 23.19 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	9.55	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.55	35.71	2.22	11.58	0.61	14.41
ON-RAMP	4	RAMP	920.	698.00	17.31	249.24	15.46	80.86	4.29	100.61
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	920.	698.00	17.31	249.24	15.46	80.86	4.29	100.61
ON-RAMP	6	RAMP	592.	346.00	13.91	123.55	7.66	40.08	2.13	49.87
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	592.	346.00	13.91	123.55	7.66	40.08	2.13	49.87

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.09	25.88	31.29	32.81	36.51	42.46	55.56
2	0.00	0.00	3.53	5.05	8.75	14.70	27.80
3	0.00	0.00	0.00	0.35	4.05	10.00	23.11
4	0.00	0.00	0.00	0.00	0.00	3.76	16.87
5	0.00	0.00	0.00	0.00	0.00	0.00	0.83
6	0.00	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	V/C RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM

1	4	500.	5769.	750.	5769.	5769.	750.	5769.	10000.	0.	0.	0.	.58	65.	22.2	C	19.2	14.0
2	3	99999.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
3	3	2830.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
4	3	930.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
5	3	1490.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
6	3	3020.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
7	3	1030.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
8	3	1440.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
9	3	1430.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
10	3	3480.	0.	0.	5019.	0.	0.	4630.	7000.	0. *	366.	389.	.66	63.	24.6	F	19.3	13.9
11	3	1020.	0.	0.	5019.	0.	0.	4630.	7000.	0. **	1020.	389.	.66	26.	59.3	F	16.5	16.2
12	3	980.	0.	0.	5019.	0.	0.	4630.	7000.	0. **	980.	389.	.66	15.	101.1	F	14.1	19.0
13	3	1800.	0.	0.	5019.	0.	0.	4630.	7000.	0. **	1800.	389.	.66	10.	161.9	F	11.7	23.0
14	3	1500.	0.	661.	5019.	0.	661.	4630.	6901.	0. **	1500.	389.	.67	8.	191.0	F	10.8	25.1
15	3	1300.	0.	0.	4358.	0.	0.	3969.	6000.	0. **	1300.	389.	.66	8.	168.5	F	10.6	25.3
16	3	1000.	450.	0.	4808.	450.	0.	4419.	5961.	0. **	1000.	389.	.74	10.	146.7	F	13.2	22.8
17	3	1100.	0.	0.	4808.	0.	0.	4419.	6000.	0. **	1100.	389.	.74	10.	148.9	F	13.0	22.9
18	3	1000.	0.	229.	4808.	0.	229.	4419.	5969.	0. **	1000.	389.	.74	10.	147.1	F	13.2	22.8
19	3	900.	0.	0.	4579.	0.	0.	4189.	6000.	0. **	900.	389.	.70	9.	158.9	F	11.6	24.2
20	3	100.	148.	0.	4727.	148.	0.	4337.	5987.	0. **	100.	389.	.72	10.	151.7	F	12.5	23.4
21	3	100.	0.	0.	4727.	0.	0.	4337.	6000.	0. **	100.	389.	.72	9.	152.5	F	12.4	23.4
22	3	100.	0.	706.	4727.	0.	707.	4337.	5908.	0. **	100.	389.	.73	10.	147.2	F	12.9	23.0
23	3	700.	0.	0.	4021.	0.	0.	3630.	6000.	0. **	700.	389.	.61	7.	183.3	F	9.5	26.8
24	3	1500.	0.	872.	4021.	0.	872.	3630.	5887.	0. **	1500.	389.	.62	7.	176.8	F	9.7	26.5
25	3	800.	0.	0.	3149.	0.	0.	2758.	6000.	0. **	800.	389.	.46	4.	221.2	F	8.4	28.7
26	3	1000.	1390.	0.	4539.	1303.	0.	4061.	5803.	0. **	1000.	389.	.70	9.	153.3	F	11.6	24.2
27	3	800.	0.	0.	4539.	0.	0.	4061.	6000.	0. **	800.	389.	.68	8.	164.5	F	11.0	24.9
28	3	1000.	0.	204.	4539.	0.	207.	4061.	5982.	0. **	1000.	389.	.68	8.	163.4	F	11.0	24.8
29	3	8000.	0.	0.	4335.	0.	0.	3855.	6000.	0. **	8000.	389.	.64	7.	173.5	F	10.2	25.8
30	4	100.	648.	0.	4983.	648.	0.	4503.	8000.	0. **	100.	389.	.56	6.	194.3	F	8.9	27.7
31	4	1000.	750.	0.	5733.	998.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	0.	5733.	5733.	0.	5500.	5500.	8000.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. =	27.4 MILES						MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 33.		49.2		17.5	15.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4070. VEH-HRS	4084. PASS-HRS	10745. VEH-HRS	10783. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	1532. VEH-HRS	1593. PASS-HRS	3014. VEH-HRS	3126. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5602. VEH-HRS	5676. PASS-HRS	13759. VEH-HRS	13910. PASS-HRS
TOTAL TRAV DISTANCE =	133580. VEH-MI.	134184. PASS-MI.	438628. VEH-MI.	440471. PASS-MI.
AVERAGE SYSTEM SPEED =	24. MPH.		41. MPH.	
AVERAGE DENSITY =	49. VPMPL		43. VPMPL	
TOTAL FUEL =	8184. GALLONS		24407. GALLONS	
TOTAL EMISSIONS =	2273. KILOGRAMS		6683. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	8.80	3	0.25	4	0.08	5	0.13
6	0.27	7	0.09	8	0.13	9	0.13	10	1.95
11	21.94	12	45.03	13	143.59	14	142.54	15	109.44
16	70.47	17	78.91	18	70.73	19	70.27	20	7.36
21	7.40	22	7.10	23	65.48	24	134.84	25	94.14
26	75.25	27	65.29	28	81.03	29	698.72	30	13.41
31	0.00	32	0.00						

***** TOTAL DELAY = 2014.8 VEH-HRS ***** AVERAGE DELAY = 30.36 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	10.91	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	10.91	35.71	2.22	11.58	0.61	14.41
ON-RAMP	4	RAMP	1007.	963.50	23.06	344.05	21.34	111.62	5.92	138.88
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	1007.	963.50	23.06	344.05	21.34	111.62	5.92	138.88
ON-RAMP	6	RAMP	345.	468.25	22.58	167.20	10.37	54.25	2.88	67.50
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	345.	468.25	22.58	167.20	10.37	54.25	2.88	67.50

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	2	3000.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	2	3000.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	2	3000.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	2	3000.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	2	3000.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	2	3000.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	2	3000.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	2	3000.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	2	3000.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	2	3000.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	3000.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	2	3000.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp

19	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	2	3000.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	2	3000.	1500.	65	D	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	2	3000.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	2	3000.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	852.	0.	852.	852.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
3	2	2830.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
4	2	930.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
5	2	1490.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
6	2	3020.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
7	2	1030.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
8	2	1440.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
9	2	1430.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
10	2	3480.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
11	2	1020.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
12	2	980.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
13	2	1800.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
14	2	1500.	0.	83.	852.	0.	83.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
15	2	1300.	0.	0.	768.	0.	0.	768.	3000.	0.	0.	0.	.26	65.	5.9	A	20.0	13.7
16	2	1000.	43.	0.	811.	43.	0.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
17	2	1100.	0.	0.	811.	0.	0.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
18	2	1000.	0.	37.	811.	0.	37.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
19	2	900.	0.	0.	774.	0.	0.	774.	3000.	0.	0.	0.	.26	65.	6.0	A	20.0	13.7
20	2	100.	17.	0.	791.	17.	0.	791.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
21	2	100.	0.	0.	791.	0.	0.	791.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
22	2	100.	0.	110.	791.	0.	110.	791.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
23	2	700.	0.	0.	681.	0.	0.	681.	3000.	0.	0.	0.	.23	65.	5.2	A	20.0	13.7
24	2	1500.	0.	103.	681.	0.	103.	681.	3000.	0.	0.	0.	.23	65.	5.2	A	20.0	13.7
25	2	800.	0.	0.	578.	0.	0.	578.	3000.	0.	0.	0.	.19	65.	4.4	A	20.0	13.7
26	2	1000.	245.	0.	822.	245.	0.	822.	3000.	0.	0.	0.	.27	65.	6.3	A	20.0	13.7
27	2	800.	0.	0.	822.	0.	0.	822.	3000.	0.	0.	0.	.27	65.	6.3	A	20.0	13.7
28	2	1000.	0.	25.	822.	0.	25.	822.	3000.	0.	0.	0.	.27	65.	6.3	A	20.0	13.7
29	2	8000.	0.	798.	798.	0.	798.	798.	3000.	0.	0.	0.	.27	65.	6.1	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES						MAX(V/C) = 0.28		LOWEST LOS = A			AVG = 65.		6.5		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	344. VEH-HRS	688. PASS-HRS	344. VEH-HRS	688. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	344. VEH-HRS	688. PASS-HRS	344. VEH-HRS	688. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	22363. VEH-MI.	44727. PASS-MI.	22363. VEH-MI.	44727. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	6. VPMPL		6. VPMPL	
TOTAL FUEL =	1118. GALLONS		1118. GALLONS	
TOTAL EMISSIONS =	307. KILOGRAMS		307. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00

* 3 *	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
* 4 *	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
* 5 *	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00
* 6 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 7 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	868.	0.	868.	868.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
3	2	2830.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
4	2	930.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
5	2	1490.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
6	2	3020.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
7	2	1030.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
8	2	1440.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
9	2	1430.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
10	2	3480.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
11	2	1020.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
12	2	980.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
13	2	1800.	0.	0.	868.	0.	0.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
14	2	1500.	0.	125.	868.	0.	125.	868.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
15	2	1300.	0.	0.	744.	0.	0.	744.	3000.	0.	0.	0.	.25	65.	5.7	A	20.0	13.7
16	2	1000.	43.	0.	787.	43.	0.	787.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
17	2	1100.	0.	0.	787.	0.	0.	787.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
18	2	1000.	0.	39.	787.	0.	39.	787.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
19	2	900.	0.	0.	748.	0.	0.	748.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
20	2	100.	16.	0.	764.	16.	0.	764.	3000.	0.	0.	0.	.25	65.	5.9	A	20.0	13.7
21	2	100.	0.	0.	764.	0.	0.	764.	3000.	0.	0.	0.	.25	65.	5.9	A	20.0	13.7
22	2	100.	0.	115.	764.	0.	115.	764.	3000.	0.	0.	0.	.25	65.	5.9	A	20.0	13.7
23	2	700.	0.	0.	649.	0.	0.	649.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
24	2	1500.	0.	133.	649.	0.	133.	649.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
25	2	800.	0.	0.	516.	0.	0.	516.	3000.	0.	0.	0.	.17	65.	4.0	A	20.0	13.7
26	2	1000.	239.	0.	755.	239.	0.	755.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
27	2	800.	0.	0.	755.	0.	0.	755.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
28	2	1000.	0.	25.	755.	0.	25.	755.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
29	2	8000.	0.	729.	729.	0.	729.	729.	3000.	0.	0.	0.	.24	65.	5.6	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES							MAX(V/C) = 0.29	LOWEST LOS = A			AVG = 65.		6.5		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	347. VEH-HRS	694. PASS-HRS	691. VEH-HRS	1382. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	347. VEH-HRS	694. PASS-HRS	691. VEH-HRS	1382. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	22562. VEH-MI.	45125. PASS-MI.	44926. VEH-MI.	89851. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	7. VPMPL		7. VPMPL	
TOTAL FUEL =	1128. GALLONS		2246. GALLONS	
TOTAL EMISSIONS =	310. KILOGRAMS		617. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS / DOWN	1	2	3	4	5	6	7	8
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.12	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	750.	0.	750.	750.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
3	2	2830.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
4	2	930.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
5	2	1490.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
6	2	3020.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
7	2	1030.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
8	2	1440.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
9	2	1430.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
10	2	3480.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
11	2	1020.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
12	2	980.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
13	2	1800.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
14	2	1500.	0.	99.	750.	0.	99.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
15	2	1300.	0.	0.	651.	0.	0.	651.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
16	2	1000.	39.	0.	690.	39.	0.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
17	2	1100.	0.	0.	690.	0.	0.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
18	2	1000.	0.	31.	690.	0.	31.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
19	2	900.	0.	0.	659.	0.	0.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
20	2	100.	13.	0.	673.	13.	0.	673.	3000.	0.	0.	0.	.22	65.	5.2	A	20.0	13.7
21	2	100.	0.	0.	673.	0.	0.	673.	3000.	0.	0.	0.	.22	65.	5.2	A	20.0	13.7
22	2	100.	0.	92.	673.	0.	92.	673.	3000.	0.	0.	0.	.22	65.	5.2	A	20.0	13.7
23	2	700.	0.	0.	581.	0.	0.	581.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
24	2	1500.	0.	113.	581.	0.	113.	581.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
25	2	800.	0.	0.	468.	0.	0.	468.	3000.	0.	0.	0.	.16	65.	3.6	A	20.0	13.7
26	2	1000.	197.	0.	665.	197.	0.	665.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
27	2	800.	0.	0.	665.	0.	0.	665.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
28	2	1000.	0.	18.	665.	0.	18.	665.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
29	2	8000.	0.	648.	648.	0.	648.	648.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES							MAX(V/C) = 0.25		LOWEST LOS = A		AVG = 65.		5.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	301. VEH-HRS	601. PASS-HRS	992. VEH-HRS	1984. PASS-HRS

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
TOTAL SYSTEM TRAVEL TIME =	301. VEH-HRS	601. PASS-HRS	992. VEH-HRS	1984. PASS-HRS			
TOTAL FRWAY TRAV DISTANCE =	19546. VEH-MI.	39092. PASS-MI.	64472. VEH-MI.	128943. PASS-MI.			
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.				
AVERAGE DENSITY =	6. VPMPL		6. VPMPL				
TOTAL FUEL =	977. GALLONS		3224. GALLONS				
TOTAL EMISSIONS =	269. KILOGRAMS		886. KILOGRAMS				

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7350.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	5500.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	22.00	22.83	23.43	24.49	32.51
2	0.00	0.00	0.59	1.19	2.25	10.27
3	0.00	0.00	0.00	0.45	1.51	9.52
4	0.00	0.00	0.00	0.00	0.90	8.92
5	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	6550.	852.	6550.	6550.	852.	6550.	10000.	0.	0.	0.	.65	65.	25.2	C	19.2	14.0
2	3	99999.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
3	3	2830.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
4	3	930.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
5	3	1490.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
6	3	3020.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
7	3	1030.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
8	3	1440.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
9	3	1430.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
10	3	3480.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
11	3	1020.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
12	3	980.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
13	3	1800.	0.	0.	5698.	0.	0.	5698.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
14	3	1500.	0.	557.	5698.	0.	557.	5698.	6917.	0.	0.	0.	.82	62.	30.4	D	20.4	13.1
15	3	1300.	0.	0.	5141.	0.	0.	5141.	6000.	0.	0.	0.	.86	61.	28.0	D	21.0	12.7
16	3	1000.	468.	0.	5609.	368.	0.	5509.	5958.	0.	0.	0.	.92	58.	31.8	D	22.3	11.9
17	3	1100.	0.	0.	5609.	0.	0.	5509.	6000.	0.	0.	0.	.92	58.	31.6	D	22.2	12.0
18	4	1000.	0.	1118.	5609.	0.	1096.	5509.	7198.	0.	0.	0.	.77	65.	21.2	C	19.2	14.0
19	3	900.	0.	0.	4491.	0.	0.	4413.	6000.	0.	0.	0.	.74	64.	22.8	C	19.4	13.8
20	3	100.	278.	0.	4769.	240.	0.	4653.	5968.	0.	0.	0.	.78	64.	24.4	C	19.8	13.5
21	3	100.	0.	0.	4769.	0.	0.	4653.	6000.	0.	0.	0.	.78	64.	24.3	C	19.7	13.6
22	3	100.	0.	0.	4769.	0.	0.	4653.	6000.	0.	0.	0.	.78	64.	24.3	C	19.7	13.6
23	3	700.	0.	0.	4769.	0.	0.	4653.	6000.	0.	0.	0.	.78	64.	24.3	C	19.7	13.6
24	3	1500.	0.	793.	4769.	0.	772.	4653.	5899.	0.	0.	0.	.79	63.	24.5	C	19.9	13.5
25	3	800.	0.	0.	3976.	0.	0.	2990.	6000.	0. *	374.	891.	.50	59.	16.9	F	19.0	14.1
26	3	1000.	1698.	0.	5674.	1260.	0.	4250.	5760.	0. **	1000.	891.	.74	44.	31.9	F	20.8	13.0
27	3	800.	0.	0.	5674.	0.	0.	4250.	6000.	0. **	800.	891.	.71	35.	40.2	F	19.1	14.2
28	3	1000.	0.	284.	5674.	0.	255.	4250.	5975.	0. **	1000.	891.	.71	29.	48.6	F	18.4	14.8
29	3	8000.	0.	0.	5390.	0.	0.	3995.	6000.	0. **	8000.	891.	.67	13.	105.6	F	13.4	20.1
30	4	100.	805.	0.	6195.	805.	0.	4800.	8000.	0. **	100.	891.	.60	7.	183.2	F	9.5	26.8
31	4	1000.	800.	0.	6995.	700.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6995.	6995.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES									MAX(V/C) = 1.00		LOWEST LOS = F	AVG = 53.	34.2		19.7	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2889. VEH-HRS	2900. PASS-HRS	2889. VEH-HRS	2900. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	338. VEH-HRS	345. PASS-HRS	338. VEH-HRS	345. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3227. VEH-HRS	3244. PASS-HRS	3227. VEH-HRS	3244. PASS-HRS
TOTAL TRAV DISTANCE =	152282. VEH-MI.	152905. PASS-MI.	152282. VEH-MI.	152905. PASS-MI.
AVERAGE SYSTEM SPEED =	47. MPH.		53. MPH.	
AVERAGE DENSITY =	34. VPMPL		34. VPMPL	
TOTAL FUEL =	7833. GALLONS		7833. GALLONS	
TOTAL EMISSIONS =	2114. KILOGRAMS		2114. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	60.03	3	1.70	4	0.56	5	0.89
6	1.81	7	0.62	8	0.86	9	0.86	10	2.09
11	0.61	12	0.59	13	1.08	14	1.03	15	1.20
16	2.01	17	2.08	18	0.00	19	0.11	20	0.03
21	0.03	22	0.03	23	0.19	24	0.51	25	0.95
26	6.87	27	9.85	28	17.69	29	419.04	30	12.50
31	0.00	32	0.00						

***** TOTAL DELAY = 545.8 VEH-HRS ***** AVERAGE DELAY = 7.79 MIN/VEH *****

***** RAMP DELAYS *****

AVERAGE TOTAL

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	6.41	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	6.41	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	38.	19.00	4.10	6.78	0.42	2.20	0.12	2.74
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	38.	19.00	4.10	6.78	0.42	2.20	0.12	2.74
ON-RAMP	4	RAMP	438.	219.00	6.78	78.20	4.85	25.37	1.35	31.57
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	438.	219.00	6.78	78.20	4.85	25.37	1.35	31.57
ON-RAMP	6	RAMP	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	22.39	24.85	29.20	35.46	49.90
2	0.00	0.00	1.87	6.22	12.48	26.91
3	0.00	0.00	0.00	3.29	9.55	23.98
4	0.00	0.00	0.00	0.00	4.00	18.44
5	0.00	0.00	0.00	0.00	0.00	0.84
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	6681.	869.	6681.	6681.	869.	6681.	10000.	0.	0.	0.	.67	65.	25.7	C	19.2	14.0
2	3	99999.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
3	3	2830.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
4	3	930.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
5	3	1490.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
6	3	3020.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
7	3	1030.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
8	3	1440.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
9	3	1430.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
10	3	3480.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
11	3	1020.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
12	3	980.	0.	0.	5812.	0.	0.	5812.	7000.	0.	0.	0.	.83	62.	31.1	D	20.5	13.1
13	3	1800.	0.	0.	5812.	0.	0.	4947.	7000.	0. *	699.	865.	.71	58.	28.3	F	20.3	13.2
14	3	1500.	0.	835.	5812.	0.	835.	4947.	6875.	0. **	1500.	865.	.72	37.	45.0	F	19.1	14.2
15	3	1300.	0.	0.	4977.	0.	0.	4112.	6000.	0. **	1300.	865.	.69	25.	54.8	F	17.1	15.8
16	3	1000.	527.	0.	5504.	527.	0.	4639.	5957.	0. **	1000.	865.	.78	25.	62.4	F	18.6	15.1
17	3	1100.	0.	0.	5504.	0.	0.	4639.	6000.	0. **	1100.	865.	.77	22.	71.0	F	17.8	15.9
18	4	1000.	0.	1190.	5504.	0.	1189.	4639.	7190.	0. **	1000.	865.	.65	14.	85.3	F	13.4	19.8
19	3	900.	0.	0.	4314.	0.	0.	3450.	6000.	0. **	900.	865.	.58	10.	119.8	F	11.6	21.9
20	3	100.	300.	0.	4614.	240.	0.	3690.	5968.	0. **	100.	865.	.62	10.	123.1	F	11.8	22.0
21	3	100.	0.	0.	4614.	0.	0.	3690.	6000.	0. **	100.	865.	.62	10.	126.0	F	11.7	22.2
22	3	100.	0.	0.	4614.	0.	0.	3690.	6000.	0. **	100.	865.	.62	10.	127.8	F	11.6	22.3
23	3	700.	0.	0.	4614.	0.	0.	3690.	6000.	0. **	700.	865.	.62	9.	135.1	F	11.3	22.9
24	3	1500.	0.	1044.	4614.	0.	1024.	3690.	5870.	0. **	1500.	865.	.63	8.	149.0	F	10.8	24.2
25	3	800.	0.	0.	3570.	0.	0.	2667.	6000.	0. **	800.	865.	.44	4.	220.9	F	8.5	28.4
26	3	1000.	1673.	0.	5243.	1266.	0.	3933.	5766.	0. **	1000.	865.	.68	8.	156.8	F	11.1	24.7
27	3	800.	0.	0.	5243.	0.	0.	3933.	6000.	0. **	800.	865.	.66	8.	170.1	F	10.5	25.5
28	3	1000.	0.	309.	5243.	0.	278.	3933.	5975.	0. **	1000.	865.	.66	8.	168.7	F	10.5	25.4
29	3	8000.	0.	0.	4934.	0.	0.	3655.	6000.	0. **	8000.	865.	.61	7.	182.2	F	9.6	26.7
30	4	100.	737.	0.	5671.	737.	0.	4392.	8000.	0. **	100.	865.	.55	6.	197.9	F	8.8	28.0
31	4	1000.	1600.	0.	7271.	1108.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0

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*  32   4    2640.      0. 7271. 7271.     0. 5500. 5500.  8000.     0.       0.     0.   .69    65.   21.2    C     20.0    13.7  *
*                                                                                                                                  *
************************************************************************************************************************************
*                                                                                                                                  *
*   TOTAL  144589. =   27.4 MILES                        MAX(V/C) = 1.00  LOWEST LOS = F   AVG = 39.   46.7          18.9    14.1  *
*                                                                                                                                  *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3917. VEH-HRS	3931. PASS-HRS	6806. VEH-HRS	6831. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	1156. VEH-HRS	1200. PASS-HRS	1494. VEH-HRS	1545. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5072. VEH-HRS	5131. PASS-HRS	8299. VEH-HRS	8376. PASS-HRS
TOTAL TRAV DISTANCE =	152271. VEH-MI.	152890. PASS-MI.	304553. VEH-MI.	305795. PASS-MI.
AVERAGE SYSTEM SPEED =	30. MPH.		45. MPH.	
AVERAGE DENSITY =	47. VPMPL		40. VPMPL	
TOTAL FUEL =	8448. GALLONS		16281. GALLONS	
TOTAL EMISSIONS =	2309. KILOGRAMS		4423. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.01	2	75.91	3	2.15	4	0.71	5	1.13
6	2.29	7	0.78	8	1.09	9	1.09	10	2.64
11	0.77	12	0.74	13	3.53	14	19.20	15	28.73
16	24.53	17	32.61	18	55.51	19	56.92	20	6.34
21	6.50	22	6.60	23	48.83	24	114.27	25	94.68
26	77.61	27	68.14	28	84.37	29	742.89	30	13.71
31	0.00	32	0.00						

***** TOTAL DELAY = 1574.3 VEH-HRS ***** AVERAGE DELAY = 25.06 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	9.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.57	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	98.	68.00	12.07	24.28	1.51	7.88	0.42	9.80
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	98.	68.00	12.07	24.28	1.51	7.88	0.42	9.80
ON-RAMP	4	RAMP	845.	641.50	16.41	229.07	14.21	74.32	3.94	92.47
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	845.	641.50	16.41	229.07	14.21	74.32	3.94	92.47
ON-RAMP	6	RAMP	592.	346.00	13.91	123.55	7.66	40.08	2.13	49.87
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	592.	346.00	13.91	123.55	7.66	40.08	2.13	49.87

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6
1	0.09	27.12	33.27	39.21	45.16	58.29
2	0.00	0.00	4.21	10.14	16.10	29.23
3	0.00	0.00	0.00	4.19	10.14	23.28
4	0.00	0.00	0.00	0.00	3.76	16.90
5	0.00	0.00	0.00	0.00	0.00	0.83

US-101_NB_PM_P1_2040_PE

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* 6 *  0.00  0.00  0.00  0.00  0.00  0.64
+                                                        *
* *                                                      *
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TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5769.	750.	5769.	5769.	750.	5769.	10000.	0.	0.	0.	.58	65.	22.2	C	19.2	14.0
2	3	99999.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
3	3	2830.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
4	3	930.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
5	3	1490.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
6	3	3020.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
7	3	1030.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
8	3	1440.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
9	3	1430.	0.	0.	5019.	0.	0.	5019.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
10	3	3480.	0.	0.	5019.	0.	0.	4564.	7000.	0.	* 1515.	455.	.65	43.	35.1	F	18.3	14.6
11	3	1020.	0.	0.	5019.	0.	0.	4564.	7000.	0.	** 1020.	455.	.65	16.	96.6	F	14.2	18.7
12	3	980.	0.	0.	5019.	0.	0.	4564.	7000.	0.	** 980.	455.	.65	11.	135.0	F	12.5	21.3
13	3	1800.	0.	0.	5019.	0.	0.	4564.	7000.	0.	** 1800.	455.	.65	8.	185.5	F	10.8	24.7
14	3	1500.	0.	661.	5019.	0.	661.	4564.	6901.	0.	** 1500.	455.	.66	8.	193.9	F	10.6	25.3
15	3	1300.	0.	0.	4358.	0.	0.	3903.	6000.	0.	** 1300.	455.	.65	8.	171.4	F	10.4	25.6
16	3	1000.	451.	0.	4809.	451.	0.	4354.	5961.	0.	** 1000.	455.	.73	10.	149.5	F	12.7	23.1
17	3	1100.	0.	0.	4809.	0.	0.	4354.	6000.	0.	** 1100.	455.	.73	10.	151.7	F	12.5	23.3
18	4	1000.	0.	952.	4809.	0.	953.	4354.	7222.	0.	** 1000.	455.	.60	7.	166.0	F	9.5	26.8
19	3	900.	0.	0.	3857.	0.	0.	3400.	6000.	0.	** 900.	455.	.57	6.	193.3	F	9.0	27.7
20	3	100.	235.	0.	4092.	240.	0.	3640.	5975.	0.	** 100.	455.	.61	7.	181.4	F	9.6	26.7
21	3	100.	0.	0.	4092.	0.	0.	3640.	6000.	0.	** 100.	455.	.61	7.	182.8	F	9.5	26.8
22	3	100.	0.	0.	4092.	0.	0.	3640.	6000.	0.	** 100.	455.	.61	7.	182.8	F	9.5	26.8
23	3	700.	0.	0.	4092.	0.	0.	3640.	6000.	0.	** 700.	455.	.61	7.	182.8	F	9.5	26.8
24	3	1500.	0.	883.	4092.	0.	884.	3640.	5889.	0.	** 1500.	455.	.62	7.	176.5	F	9.7	26.5
25	3	800.	0.	0.	3209.	0.	0.	2756.	6000.	0.	** 800.	455.	.46	4.	221.3	F	8.4	28.7
26	3	1000.	1364.	0.	4573.	1306.	0.	4062.	5806.	0.	** 1000.	455.	.70	9.	153.4	F	11.6	24.2
27	3	800.	0.	0.	4573.	0.	0.	4062.	6000.	0.	** 800.	455.	.68	8.	164.4	F	11.0	24.9
28	3	1000.	0.	207.	4573.	0.	212.	4062.	5982.	0.	** 1000.	455.	.68	8.	163.4	F	11.0	24.8
29	3	8000.	0.	0.	4366.	0.	0.	3851.	6000.	0.	** 8000.	455.	.64	7.	173.7	F	10.2	25.9
30	4	100.	652.	0.	5018.	652.	0.	4503.	8000.	0.	** 100.	455.	.56	6.	194.3	F	8.9	27.7
31	4	1000.	750.	0.	5768.	998.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	5768.	5768.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7

TOTAL 144589. = 27.4 MILES MAX(V/C) = 1.00 LOWEST LOS = F AVG = 31. 50.7 17.3 15.5

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4231. VEH-HRS	4245. PASS-HRS	11036. VEH-HRS	11076. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	1538. VEH-HRS	1599. PASS-HRS	3031. VEH-HRS	3144. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5768. VEH-HRS	5844. PASS-HRS	14067. VEH-HRS	14219. PASS-HRS
TOTAL TRAV DISTANCE =	133231. VEH-MI.	133836. PASS-MI.	437784. VEH-MI.	439631. PASS-MI.
AVERAGE SYSTEM SPEED =	23. MPH.		40. MPH.	
AVERAGE DENSITY =	51. VPMPL		44. VPMPL	
TOTAL FUEL =	8248. GALLONS		24530. GALLONS	
TOTAL EMISSIONS =	2283. KILOGRAMS		6706. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	8.80	3	0.25	4	0.08	5	0.13
6	0.27	7	0.09	8	0.13	9	0.13	10	25.17
11	44.82	12	64.29	13	166.97	14	145.27	15	111.81
16	72.27	17	80.88	18	113.04	19	89.92	20	9.25
21	9.33	22	9.33	23	65.29	24	134.51	25	94.19
26	75.32	27	65.28	28	81.01	29	699.61	30	13.41
31	0.00	32	0.00						

***** TOTAL DELAY = 2180.8 VEH-HRS ***** AVERAGE DELAY = 33.12 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	10.89	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	10.89	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	93.	95.50	17.21	34.10	2.12	11.06	0.59	13.77
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	93.	95.50	17.21	34.10	2.12	11.06	0.59	13.77
ON-RAMP	4	RAMP	903.	874.00	21.82	312.09	19.36	101.25	5.37	125.98
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	903.	874.00	21.82	312.09	19.36	101.25	5.37	125.98
ON-RAMP	6	RAMP	345.	468.25	22.58	167.20	10.37	54.25	2.88	67.50
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	345.	468.25	22.58	167.20	10.37	54.25	2.88	67.50

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222     PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222      PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	2	3000.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	2	3000.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	2	3000.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	2	3000.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	2	3000.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	2	3000.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	2	3000.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	2	3000.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	2	3000.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	2	3000.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	3000.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	2	3000.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp

19	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	2	3000.	1500.	65	D	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	2	3000.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	2	3000.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	852.	0.	852.	852.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
3	2	2830.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
4	2	930.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
5	2	1490.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
6	2	3020.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
7	2	1030.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
8	2	1440.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
9	2	1430.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
10	2	3480.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
11	2	1020.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
12	2	980.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
13	2	1800.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
14	2	1500.	0.	83.	852.	0.	83.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
15	2	1300.	0.	0.	768.	0.	0.	768.	3000.	0.	0.	0.	.26	65.	5.9	A	20.0	13.7
16	2	1000.	42.	0.	811.	42.	0.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
17	2	1100.	0.	0.	811.	0.	0.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
18	2	1000.	0.	152.	811.	0.	152.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
19	2	900.	0.	0.	659.	0.	0.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
20	2	100.	32.	0.	691.	32.	0.	691.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
21	2	100.	0.	0.	691.	0.	0.	691.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
22	2	100.	0.	0.	691.	0.	0.	691.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
23	2	700.	0.	0.	691.	0.	0.	691.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
24	2	1500.	0.	101.	691.	0.	101.	691.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
25	2	800.	0.	0.	590.	0.	0.	590.	3000.	0.	0.	0.	.20	65.	4.5	A	20.0	13.7
26	2	1000.	240.	0.	830.	240.	0.	830.	3000.	0.	0.	0.	.28	65.	6.4	A	20.0	13.7
27	2	800.	0.	0.	830.	0.	0.	830.	3000.	0.	0.	0.	.28	65.	6.4	A	20.0	13.7
28	2	1000.	0.	25.	830.	0.	25.	830.	3000.	0.	0.	0.	.28	65.	6.4	A	20.0	13.7
29	2	8000.	0.	805.	805.	0.	805.	805.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES						MAX(V/C) = 0.28		LOWEST LOS = A		AVG = 65.		6.5		20.0	13.7	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	344. VEH-HRS	688. PASS-HRS	344. VEH-HRS	688. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	344. VEH-HRS	688. PASS-HRS	344. VEH-HRS	688. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	22360. VEH-MI.	44719. PASS-MI.	22360. VEH-MI.	44719. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	6. VPMPL		6. VPMPL	
TOTAL FUEL =	1118. GALLONS		1118. GALLONS	
TOTAL EMISSIONS =	307. KILOGRAMS		307. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00

* 3 *	0.00	0.00	0.00	0.00	0.00	3.16	0.00
* 4 *	0.00	0.00	0.00	0.00	0.00	2.47	0.00
* 5 *	0.00	0.00	0.00	0.00	0.00	1.89	0.00
* 6 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 7 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	869.	0.	869.	869.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
3	2	2830.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
4	2	930.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
5	2	1490.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
6	2	3020.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
7	2	1030.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
8	2	1440.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
9	2	1430.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
10	2	3480.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
11	2	1020.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
12	2	980.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
13	2	1800.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
14	2	1500.	0.	125.	869.	0.	125.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
15	2	1300.	0.	0.	744.	0.	0.	744.	3000.	0.	0.	0.	.25	65.	5.7	A	20.0	13.7
16	2	1000.	43.	0.	787.	43.	0.	787.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
17	2	1100.	0.	0.	787.	0.	0.	787.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
18	2	1000.	0.	160.	787.	0.	160.	787.	3000.	0.	0.	0.	.26	65.	6.1	A	20.0	13.7
19	2	900.	0.	0.	627.	0.	0.	627.	3000.	0.	0.	0.	.21	65.	4.8	A	20.0	13.7
20	2	100.	32.	0.	659.	32.	0.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
21	2	100.	0.	0.	659.	0.	0.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
22	2	100.	0.	0.	659.	0.	0.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
23	2	700.	0.	0.	659.	0.	0.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
24	2	1500.	0.	130.	659.	0.	130.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
25	2	800.	0.	0.	529.	0.	0.	529.	3000.	0.	0.	0.	.18	65.	4.1	A	20.0	13.7
26	2	1000.	234.	0.	763.	234.	0.	763.	3000.	0.	0.	0.	.25	65.	5.9	A	20.0	13.7
27	2	800.	0.	0.	763.	0.	0.	763.	3000.	0.	0.	0.	.25	65.	5.9	A	20.0	13.7
28	2	1000.	0.	25.	763.	0.	25.	763.	3000.	0.	0.	0.	.25	65.	5.9	A	20.0	13.7
29	2	8000.	0.	737.	737.	0.	737.	737.	3000.	0.	0.	0.	.25	65.	5.7	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES				MAX(V/C) = 0.29		LOWEST LOS = A		AVG = 65.					6.5		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	347. VEH-HRS	694. PASS-HRS	691. VEH-HRS	1382. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	347. VEH-HRS	694. PASS-HRS	691. VEH-HRS	1382. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	22561. VEH-MI.	45122. PASS-MI.	44920. VEH-MI.	89841. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	7. VPMPL		6. VPMPL	
TOTAL FUEL =	1128. GALLONS		2246. GALLONS	
TOTAL EMISSIONS =	310. KILOGRAMS		617. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	750.	0.	750.	750.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
3	2	2830.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
4	2	930.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
5	2	1490.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
6	2	3020.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
7	2	1030.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
8	2	1440.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
9	2	1430.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
10	2	3480.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
11	2	1020.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
12	2	980.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
13	2	1800.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
14	2	1500.	0.	99.	750.	0.	99.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
15	2	1300.	0.	0.	651.	0.	0.	651.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
16	2	1000.	39.	0.	690.	39.	0.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
17	2	1100.	0.	0.	690.	0.	0.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
18	2	1000.	0.	128.	690.	0.	128.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
19	2	900.	0.	0.	562.	0.	0.	562.	3000.	0.	0.	0.	.19	65.	4.3	A	20.0	13.7
20	2	100.	25.	0.	587.	25.	0.	587.	3000.	0.	0.	0.	.20	65.	4.5	A	20.0	13.7
21	2	100.	0.	0.	587.	0.	0.	587.	3000.	0.	0.	0.	.20	65.	4.5	A	20.0	13.7
22	2	100.	0.	0.	587.	0.	0.	587.	3000.	0.	0.	0.	.20	65.	4.5	A	20.0	13.7
23	2	700.	0.	0.	587.	0.	0.	587.	3000.	0.	0.	0.	.20	65.	4.5	A	20.0	13.7
24	2	1500.	0.	111.	587.	0.	111.	587.	3000.	0.	0.	0.	.20	65.	4.5	A	20.0	13.7
25	2	800.	0.	0.	476.	0.	0.	476.	3000.	0.	0.	0.	.16	65.	3.7	A	20.0	13.7
26	2	1000.	194.	0.	670.	194.	0.	670.	3000.	0.	0.	0.	.22	65.	5.2	A	20.0	13.7
27	2	800.	0.	0.	670.	0.	0.	670.	3000.	0.	0.	0.	.22	65.	5.2	A	20.0	13.7
28	2	1000.	0.	18.	670.	0.	18.	670.	3000.	0.	0.	0.	.22	65.	5.2	A	20.0	13.7
29	2	8000.	0.	652.	652.	0.	652.	652.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES									MAX(V/C) = 0.25		LOWEST LOS = A	AVG = 65.	5.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	301. VEH-HRS	601. PASS-HRS	992. VEH-HRS	1983. PASS-HRS

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
TOTAL SYSTEM TRAVEL TIME =	301. VEH-HRS	601. PASS-HRS	992. VEH-HRS	1983. PASS-HRS			
TOTAL FRWAY TRAV DISTANCE =	19538. VEH-MI.	39076. PASS-MI.	64458. VEH-MI.	128917. PASS-MI.			
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.				
AVERAGE DENSITY =	6. VPMPL		6. VPMPL				
TOTAL FUEL =	977. GALLONS		3223. GALLONS				
TOTAL EMISSIONS =	268. KILOGRAMS		886. KILOGRAMS				

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	4	10000.	500.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7000.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	7000.	2830.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	3	7000.	930.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	3	7000.	1490.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	3	7000.	3020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	3	7000.	1030.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	3	7000.	1440.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	3	7000.	1430.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	3	7000.	3480.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	3	7000.	1020.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	3	7000.	980.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	3	7000.	1800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	3	7000.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	3	6000.	1300.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	3	6000.	1100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	4	7350.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp
19	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	3	6000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC GRAD	PCT TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	3	6000.	100.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	3	6000.	1500.	65	D	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	3	6000.	800.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	3	6000.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	3	6000.	800.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	3	6000.	1000.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
30	4	8000.	100.	65	O	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
31	4	5500.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
32	4	8000.	2640.	65	D	1.00	0.0	0	0	NO	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 4 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 6 IN TIME SLICE 3
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.09	22.00	22.83	23.43	24.43	32.35
2	0.00	0.00	0.59	1.19	2.19	10.11
3	0.00	0.00	0.00	0.45	1.45	9.37
4	0.00	0.00	0.00	0.00	0.86	8.77
5	0.00	0.00	0.00	0.00	0.00	0.81
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	6552.	852.	6552.	6552.	852.	6552.	10000.	0.	0.	0.	.66	65.	25.2	C	19.2	14.0
2	3	99999.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
3	3	2830.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
4	3	930.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
5	3	1490.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
6	3	3020.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
7	3	1030.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
8	3	1440.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
9	3	1430.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
10	3	3480.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
11	3	1020.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
12	3	980.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
13	3	1800.	0.	0.	5700.	0.	0.	5700.	7000.	0.	0.	0.	.81	63.	30.3	D	20.2	13.2
14	3	1500.	0.	557.	5700.	0.	557.	5700.	6917.	0.	0.	0.	.82	62.	30.4	D	20.4	13.1
15	3	1300.	0.	0.	5143.	0.	0.	5143.	6000.	0.	0.	0.	.86	61.	28.0	D	21.0	12.7
16	3	1000.	468.	0.	5611.	368.	0.	5511.	5958.	0.	0.	0.	.92	58.	31.8	D	22.3	11.9
17	3	1100.	0.	0.	5611.	0.	0.	5511.	6000.	0.	0.	0.	.92	58.	31.6	D	22.2	12.0
18	4	1000.	0.	1118.	5611.	0.	1096.	5511.	7198.	0.	0.	0.	.77	65.	21.2	C	19.2	14.0
19	3	900.	0.	0.	4493.	0.	0.	4415.	6000.	0.	0.	0.	.74	64.	22.9	C	19.4	13.8
20	3	100.	224.	0.	4717.	224.	0.	4639.	5974.	0.	0.	0.	.78	64.	24.3	C	19.8	13.6
21	3	100.	0.	0.	4717.	0.	0.	4639.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
22	3	100.	0.	0.	4717.	0.	0.	4639.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
23	3	700.	0.	0.	4717.	0.	0.	4639.	6000.	0.	0.	0.	.77	64.	24.2	C	19.7	13.6
24	3	1500.	0.	787.	4717.	0.	773.	4639.	5899.	0.	0.	0.	.79	63.	24.4	C	19.9	13.5
25	3	800.	0.	0.	3930.	0.	0.	2996.	6000.	0. *	192.	870.	.50	63.	15.8	F	19.1	14.0
26	3	1000.	1698.	0.	5628.	1260.	0.	4256.	5760.	0. **	1000.	870.	.74	48.	29.8	F	21.0	12.8
27	3	800.	0.	0.	5628.	0.	0.	4256.	6000.	0. **	800.	870.	.71	37.	38.0	F	19.3	14.0
28	3	1000.	0.	282.	5628.	0.	255.	4256.	5975.	0. **	1000.	870.	.71	30.	46.5	F	18.5	14.7
29	3	8000.	0.	0.	5346.	0.	0.	4001.	6000.	0. **	8000.	870.	.67	13.	104.3	F	13.4	20.0
30	4	100.	799.	0.	6145.	799.	0.	4800.	8000.	0. **	100.	870.	.60	7.	183.2	F	9.5	26.8
31	4	1000.	800.	0.	6945.	700.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	6945.	6945.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES									MAX(V/C) = 1.00		LOWEST LOS = F	AVG = 53.	34.1		19.8	13.6

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2879. VEH-HRS	2890. PASS-HRS	2879. VEH-HRS	2890. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	319. VEH-HRS	326. PASS-HRS	319. VEH-HRS	326. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3198. VEH-HRS	3215. PASS-HRS	3198. VEH-HRS	3215. PASS-HRS
TOTAL TRAV DISTANCE =	152333. VEH-MI.	152954. PASS-MI.	152333. VEH-MI.	152954. PASS-MI.
AVERAGE SYSTEM SPEED =	48. MPH.		53. MPH.	
AVERAGE DENSITY =	34. VPMPL		34. VPMPL	
TOTAL FUEL =	7824. GALLONS		7824. GALLONS	
TOTAL EMISSIONS =	2111. KILOGRAMS		2111. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	60.29	3	1.71	4	0.56	5	0.90
6	1.82	7	0.62	8	0.87	9	0.86	10	2.10
11	0.61	12	0.59	13	1.09	14	1.03	15	1.21
16	2.02	17	2.08	18	0.00	19	0.11	20	0.03
21	0.03	22	0.03	23	0.18	24	0.49	25	0.26
26	5.43	27	8.66	28	16.32	29	412.54	30	12.50
31	0.00	32	0.00						

***** TOTAL DELAY = 534.9 VEH-HRS ***** AVERAGE DELAY = 7.62 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	50.00	6.41	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	6.41	17.85	1.11	5.79	0.31	7.21

ON-RAMP	4	RAMP	438.	219.00	6.78	78.20	4.85	25.37	1.35	31.57
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	438.	219.00	6.78	78.20	4.85	25.37	1.35	31.57
ON-RAMP	6	RAMP	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.31	17.85	1.11	5.79	0.31	7.21

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6
1	0.09	22.33	24.64	28.82	35.01	49.39
2	0.00	0.00	1.77	5.94	12.13	26.52
3	0.00	0.00	0.00	3.16	9.35	23.73
4	0.00	0.00	0.00	0.00	3.98	18.37
5	0.00	0.00	0.00	0.00	0.00	0.84
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF		CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	6682.	869.	6682.	6682.	869.	6682.	10000.	0.		0.	0.	.67	65.	25.7	C	19.2	14.0
2	3	99999.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
3	3	2830.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
4	3	930.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
5	3	1490.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
6	3	3020.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
7	3	1030.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
8	3	1440.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
9	3	1430.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
10	3	3480.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
11	3	1020.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
12	3	980.	0.	0.	5813.	0.	0.	5813.	7000.	0.		0.	0.	.83	62.	31.1	D	20.5	13.1
13	3	1800.	0.	0.	5813.	0.	0.	4960.	7000.	0.	*	347.	853.	.71	61.	27.0	F	20.4	13.1
14	3	1500.	0.	835.	5813.	0.	835.	4960.	6875.	0.	**	1500.	853.	.72	41.	40.5	F	19.5	13.9
15	3	1300.	0.	0.	4978.	0.	0.	4125.	6000.	0.	**	1300.	853.	.69	27.	50.7	F	17.5	15.4
16	3	1000.	526.	0.	5504.	526.	0.	4651.	5957.	0.	**	1000.	853.	.78	26.	59.0	F	18.9	14.8
17	3	1100.	0.	0.	5504.	0.	0.	4651.	6000.	0.	**	1100.	853.	.78	23.	67.5	F	18.1	15.6
18	4	1000.	0.	1190.	5504.	0.	1189.	4651.	7190.	0.	**	1000.	853.	.65	14.	81.0	F	13.7	19.4
19	3	900.	0.	0.	4314.	0.	0.	3462.	6000.	0.	**	900.	853.	.58	10.	114.5	F	11.9	21.5
20	3	100.	241.	0.	4555.	240.	0.	3702.	5975.	0.	**	100.	853.	.62	10.	118.3	F	12.1	21.6
21	3	100.	0.	0.	4555.	0.	0.	3702.	6000.	0.	**	100.	853.	.62	10.	121.0	F	11.9	21.8
22	3	100.	0.	0.	4555.	0.	0.	3702.	6000.	0.	**	100.	853.	.62	10.	122.8	F	11.8	21.9
23	3	700.	0.	0.	4555.	0.	0.	3702.	6000.	0.	**	700.	853.	.62	9.	130.0	F	11.5	22.5
24	3	1500.	0.	1032.	4555.	0.	1028.	3702.	5870.	0.	**	1500.	853.	.63	9.	143.9	F	11.0	23.8
25	3	800.	0.	0.	3523.	0.	0.	2675.	6000.	0.	**	800.	853.	.45	4.	216.1	F	8.6	28.1
26	3	1000.	1673.	0.	5196.	1266.	0.	3941.	5766.	0.	**	1000.	853.	.68	8.	156.4	F	11.1	24.7
27	3	800.	0.	0.	5196.	0.	0.	3941.	6000.	0.	**	800.	853.	.66	8.	169.7	F	10.5	25.5
28	3	1000.	0.	307.	5196.	0.	279.	3941.	5975.	0.	**	1000.	853.	.66	8.	168.3	F	10.6	25.4
29	3	8000.	0.	0.	4889.	0.	0.	3662.	6000.	0.	**	8000.	853.	.61	7.	181.9	F	9.6	26.7
30	4	100.	730.	0.	5619.	730.	0.	4392.	8000.	0.	**	100.	853.	.55	6.	197.9	F	8.8	28.0
31	4	1000.	1600.	0.	7219.	1108.	0.	5500.	5500.	0.		0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	7219.	7219.	0.	5500.	5500.	8000.	0.		0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. = 27.4 MILES							MAX(V/C) = 1.00		LOWEST LOS = F			AVG = 39.		46.3		19.0	14.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3888. VEH-HRS	3902. PASS-HRS	6767. VEH-HRS	6791. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	1088. VEH-HRS	1133. PASS-HRS	1407. VEH-HRS	1458. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	4976. VEH-HRS	5034. PASS-HRS	8174. VEH-HRS	8250. PASS-HRS
TOTAL TRAV DISTANCE =	152371. VEH-MI.	152988. PASS-MI.	304705. VEH-MI.	305942. PASS-MI.
AVERAGE SYSTEM SPEED =	31. MPH.		45. MPH.	
AVERAGE DENSITY =	46. VPMPL		40. VPMPL	
TOTAL FUEL =	8417. GALLONS		16240. GALLONS	
TOTAL EMISSIONS =	2297. KILOGRAMS		4408. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.01	2	76.06	3	2.15	4	0.71	5	1.13
6	2.30	7	0.78	8	1.10	9	1.09	10	2.65
11	0.78	12	0.75	13	1.90	14	14.84	15	25.24
16	22.44	17	30.27	18	52.21	19	54.17	20	6.07
21	6.22	22	6.32	23	46.89	24	110.37	25	92.94
26	77.39	27	67.97	28	84.15	29	741.34	30	13.71
31	0.00	32	0.00						

***** TOTAL DELAY = 1543.9 VEH-HRS ***** AVERAGE DELAY = 24.55 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	9.58	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.58	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	1.	0.50	0.12	0.18	0.01	0.06	0.00	0.07
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	1.	0.50	0.12	0.18	0.01	0.06	0.00	0.07
ON-RAMP	4	RAMP	845.	641.50	16.41	229.07	14.21	74.32	3.94	92.47
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	845.	641.50	16.41	229.07	14.21	74.32	3.94	92.47
ON-RAMP	6	RAMP	592.	346.00	13.91	123.55	7.66	40.08	2.13	49.87
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	592.	346.00	13.91	123.55	7.66	40.08	2.13	49.87

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6
1	0.09	26.32	32.34	38.25	44.20	57.30
2	0.00	0.00	4.12	10.03	15.98	29.08
3	0.00	0.00	0.00	4.21	10.15	23.25
4	0.00	0.00	0.00	0.00	3.76	16.86
5	0.00	0.00	0.00	0.00	0.00	0.83
6	0.00	0.00	0.00	0.00	0.00	0.64

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	4	500.	5770.	750.	5770.	5770.	750.	5770.	10000.	0.	0.	0.	.58	65.	22.2	C	19.2	14.0
2	3	99999.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
3	3	2830.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
4	3	930.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
5	3	1490.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
6	3	3020.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
7	3	1030.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
8	3	1440.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
9	3	1430.	0.	0.	5020.	0.	0.	5020.	7000.	0.	0.	0.	.72	65.	25.9	C	19.3	13.9
10	3	3480.	0.	0.	5020.	0.	0.	4607.	7000.	0. *	783.	413.	.66	57.	27.1	F	19.0	14.1
11	3	1020.	0.	0.	5020.	0.	0.	4607.	7000.	0. **	1020.	413.	.66	21.	73.7	F	15.6	17.2
12	3	980.	0.	0.	5020.	0.	0.	4607.	7000.	0. **	980.	413.	.66	13.	114.2	F	13.5	19.9
13	3	1800.	0.	0.	5020.	0.	0.	4607.	7000.	0. **	1800.	413.	.66	9.	171.7	F	11.3	23.7
14	3	1500.	0.	661.	5020.	0.	661.	4607.	6901.	0. **	1500.	413.	.67	8.	192.0	F	10.7	25.2
15	3	1300.	0.	0.	4359.	0.	0.	3946.	6000.	0. **	1300.	413.	.66	8.	169.5	F	10.5	25.4
16	3	1000.	451.	0.	4810.	451.	0.	4397.	5961.	0. **	1000.	413.	.74	10.	147.6	F	13.1	22.9
17	3	1100.	0.	0.	4810.	0.	0.	4397.	6000.	0. **	1100.	413.	.73	10.	149.9	F	12.8	23.1
18	4	1000.	0.	952.	4810.	0.	953.	4397.	7222.	0. **	1000.	413.	.61	7.	164.5	F	9.6	26.7
19	3	900.	0.	0.	3858.	0.	0.	3443.	6000.	0. **	900.	413.	.57	6.	191.4	F	9.1	27.5
20	3	100.	189.	0.	4047.	190.	0.	3633.	5979.	0. **	100.	413.	.61	7.	181.9	F	9.6	26.7
21	3	100.	0.	0.	4047.	0.	0.	3633.	6000.	0. **	100.	413.	.61	7.	183.1	F	9.5	26.8
22	3	100.	0.	0.	4047.	0.	0.	3633.	6000.	0. **	100.	413.	.61	7.	183.1	F	9.5	26.8
23	3	700.	0.	0.	4047.	0.	0.	3633.	6000.	0. **	700.	413.	.61	7.	183.1	F	9.5	26.8
24	3	1500.	0.	875.	4047.	0.	875.	3633.	5889.	0. **	1500.	413.	.62	7.	176.8	F	9.7	26.5
25	3	800.	0.	0.	3172.	0.	0.	2758.	6000.	0. **	800.	413.	.46	4.	221.2	F	8.4	28.7
26	3	1000.	1364.	0.	4536.	1306.	0.	4064.	5806.	0. **	1000.	413.	.70	9.	153.3	F	11.6	24.2
27	3	800.	0.	0.	4536.	0.	0.	4064.	6000.	0. **	800.	413.	.68	8.	164.3	F	11.0	24.9
28	3	1000.	0.	205.	4536.	0.	209.	4064.	5982.	0. **	1000.	413.	.68	8.	163.3	F	11.0	24.8
29	3	8000.	0.	0.	4331.	0.	0.	3856.	6000.	0. **	8000.	413.	.64	7.	173.4	F	10.2	25.8
30	4	100.	647.	0.	4978.	647.	0.	4503.	8000.	0. **	100.	413.	.56	6.	194.3	F	8.9	27.7
31	4	1000.	750.	0.	5728.	998.	0.	5500.	5500.	0.	0.	0.	1.00	65.	21.2	E	19.2	14.0
32	4	2640.	0.	0.	5728.	5728.	0.	5500.	5500.	8000.	0.	0.	0.	.69	65.	21.2	C	20.0	13.7
TOTAL		144589. =	27.4 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 32.		49.9	17.4	15.4

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	4167. VEH-HRS	4181. PASS-HRS	10933. VEH-HRS	10972. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	1443. VEH-HRS	1504. PASS-HRS	2850. VEH-HRS	2962. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5610. VEH-HRS	5685. PASS-HRS	13783. VEH-HRS	13934. PASS-HRS
TOTAL TRAV DISTANCE =	133381. VEH-MI.	133984. PASS-MI.	438086. VEH-MI.	439926. PASS-MI.
AVERAGE SYSTEM SPEED =	24. MPH.		40. MPH.	
AVERAGE DENSITY =	50. VPMPL		43. VPMPL	
TOTAL FUEL =	8193. GALLONS		24434. GALLONS	
TOTAL EMISSIONS =	2265. KILOGRAMS		6673. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	8.84	3	0.25	4	0.08	5	0.13
6	0.27	7	0.09	8	0.13	9	0.13	10	7.45
11	30.84	12	52.48	13	153.33	14	143.49	15	110.26
16	71.08	17	79.57	18	111.85	19	88.84	20	9.28
21	9.35	22	9.35	23	65.42	24	134.81	25	94.14
26	75.26	27	65.23	28	80.95	29	698.50	30	13.41
31	0.00	32	0.00						

***** TOTAL DELAY = 2114.8 VEH-HRS ***** AVERAGE DELAY = 32.11 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	100.	100.00	10.89	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	10.89	35.71	2.22	11.58	0.61	14.41
ON-RAMP	3	RAMP	0.	0.50	0.01	0.18	0.01	0.06	0.00	0.07
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		TOTAL	0.	0.50	0.01	0.18	0.01	0.06	0.00	0.07
ON-RAMP	4	RAMP	903.	874.00	21.82	312.09	19.36	101.25	5.37	125.98
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	903.	874.00	21.82	312.09	19.36	101.25	5.37	125.98
ON-RAMP	6	RAMP	345.	468.25	22.58	167.20	10.37	54.25	2.88	67.50
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	345.	468.25	22.58	167.20	10.37	54.25	2.88	67.50

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111         222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 29 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2830.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-87 to DLC loop-on
4	2	3000.	930.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC loop on to dia-on
5	2	3000.	1490.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	DLC dia-on to Tomas off
6	2	3000.	3020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas off to on
7	2	3000.	1030.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Tomas on to bowers off
8	2	3000.	1440.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers off to loop-on
9	2	3000.	1430.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers loop-on to dia
10	2	3000.	3480.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Bowers dia-on to law-off
11	2	3000.	1020.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Law off to loop-on
12	2	3000.	980.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Lawr Loop to diag
13	2	3000.	1800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Lawrence On-ramp
14	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks Off-Ramp
15	2	3000.	1300.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Fair Oaks
16	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks On-Ramp
17	2	3000.	1100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks / Mathilda
18	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda NB Off-Ramp

19	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
20	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
22	2	3000.	100.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda SB Off-ramp
23	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / SR-237
24	2	3000.	1500.	65	D	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB Off-Ramp
25	2	3000.	800.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
26	2	3000.	1000.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 WB On-Ramp
27	2	3000.	800.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 / Ellis
28	2	3000.	1000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off-ramp
29	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
30															
31															
32															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	852.	0.	852.	852.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
3	2	2830.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
4	2	930.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
5	2	1490.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
6	2	3020.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
7	2	1030.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
8	2	1440.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
9	2	1430.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
10	2	3480.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
11	2	1020.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
12	2	980.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
13	2	1800.	0.	0.	852.	0.	0.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
14	2	1500.	0.	83.	852.	0.	83.	852.	3000.	0.	0.	0.	.28	65.	6.6	A	20.0	13.7
15	2	1300.	0.	0.	768.	0.	0.	768.	3000.	0.	0.	0.	.26	65.	5.9	A	20.0	13.7
16	2	1000.	42.	0.	811.	42.	0.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
17	2	1100.	0.	0.	811.	0.	0.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
18	2	1000.	0.	152.	811.	0.	152.	811.	3000.	0.	0.	0.	.27	65.	6.2	A	20.0	13.7
19	2	900.	0.	0.	659.	0.	0.	659.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
20	2	100.	26.	0.	685.	26.	0.	685.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
21	2	100.	0.	0.	685.	0.	0.	685.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
22	2	100.	0.	0.	685.	0.	0.	685.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
23	2	700.	0.	0.	685.	0.	0.	685.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
24	2	1500.	0.	101.	685.	0.	101.	685.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
25	2	800.	0.	0.	583.	0.	0.	583.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
26	2	1000.	240.	0.	823.	240.	0.	823.	3000.	0.	0.	0.	.27	65.	6.3	A	20.0	13.7
27	2	800.	0.	0.	823.	0.	0.	823.	3000.	0.	0.	0.	.27	65.	6.3	A	20.0	13.7
28	2	1000.	0.	25.	823.	0.	25.	823.	3000.	0.	0.	0.	.27	65.	6.3	A	20.0	13.7
29	2	8000.	0.	799.	799.	0.	799.	799.	3000.	0.	0.	0.	.27	65.	6.1	A	20.0	13.7
30																		
31																		
32																		
TOTAL	140349. =	26.6 MILES						MAX(V/C) = 0.28		LOWEST LOS = A		AVG = 65.		6.5		20.0	13.7	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	344. VEH-HRS	688. PASS-HRS	344. VEH-HRS	688. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	344. VEH-HRS	688. PASS-HRS	344. VEH-HRS	688. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	22345. VEH-MI.	44690. PASS-MI.	22345. VEH-MI.	44690. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	6. VPMPL		6. VPMPL	
TOTAL FUEL =	1117. GALLONS		1117. GALLONS	
TOTAL EMISSIONS =	307. KILOGRAMS		307. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00

* 3 *	0.00	0.00	0.00	0.00	0.00	3.16	0.00
* 4 *	0.00	0.00	0.00	0.00	0.00	2.47	0.00
* 5 *	0.00	0.00	0.00	0.00	0.00	1.89	0.00
* 6 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 7 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	869.	0.	869.	869.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
3	2	2830.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
4	2	930.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
5	2	1490.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
6	2	3020.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
7	2	1030.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
8	2	1440.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
9	2	1430.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
10	2	3480.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
11	2	1020.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
12	2	980.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
13	2	1800.	0.	0.	869.	0.	0.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
14	2	1500.	0.	125.	869.	0.	125.	869.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
15	2	1300.	0.	0.	744.	0.	0.	744.	3000.	0.	0.	0.	.25	65.	5.7	A	20.0	13.7
16	2	1000.	43.	0.	786.	43.	0.	786.	3000.	0.	0.	0.	.26	65.	6.0	A	20.0	13.7
17	2	1100.	0.	0.	786.	0.	0.	786.	3000.	0.	0.	0.	.26	65.	6.0	A	20.0	13.7
18	2	1000.	0.	160.	786.	0.	160.	786.	3000.	0.	0.	0.	.26	65.	6.0	A	20.0	13.7
19	2	900.	0.	0.	627.	0.	0.	627.	3000.	0.	0.	0.	.21	65.	4.8	A	20.0	13.7
20	2	100.	25.	0.	652.	25.	0.	652.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
21	2	100.	0.	0.	652.	0.	0.	652.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
22	2	100.	0.	0.	652.	0.	0.	652.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
23	2	700.	0.	0.	652.	0.	0.	652.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
24	2	1500.	0.	130.	652.	0.	130.	652.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
25	2	800.	0.	0.	522.	0.	0.	522.	3000.	0.	0.	0.	.17	65.	4.0	A	20.0	13.7
26	2	1000.	234.	0.	756.	234.	0.	756.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
27	2	800.	0.	0.	756.	0.	0.	756.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
28	2	1000.	0.	25.	756.	0.	25.	756.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
29	2	8000.	0.	730.	730.	0.	730.	730.	3000.	0.	0.	0.	.24	65.	5.6	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES							MAX(V/C) = 0.29		LOWEST LOS = A		AVG =	65.	6.5		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	347. VEH-HRS	694. PASS-HRS	691. VEH-HRS	1381. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	347. VEH-HRS	694. PASS-HRS	691. VEH-HRS	1381. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	22542. VEH-MI.	45085. PASS-MI.	44888. VEH-MI.	89775. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	7. VPMPL		6. VPMPL	
TOTAL FUEL =	1127. GALLONS		2244. GALLONS	
TOTAL EMISSIONS =	310. KILOGRAMS		617. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 3 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	21.14	21.91	22.51	23.14	24.54	0.00
3	0.00	0.00	0.00	0.00	0.00	3.16	0.00
4	0.00	0.00	0.00	0.00	0.00	2.47	0.00
5	0.00	0.00	0.00	0.00	0.00	1.89	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 16:24 PAGE 11
UNIVERSITY OF CALIFORNIA, BERKELEY SHORT TERM SIMULATION OF PRIORITY LANE
TIME SLICE 3 OF 3

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	750.	0.	750.	750.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
3	2	2830.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
4	2	930.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
5	2	1490.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
6	2	3020.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
7	2	1030.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
8	2	1440.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
9	2	1430.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
10	2	3480.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
11	2	1020.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
12	2	980.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
13	2	1800.	0.	0.	750.	0.	0.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
14	2	1500.	0.	99.	750.	0.	99.	750.	3000.	0.	0.	0.	.25	65.	5.8	A	20.0	13.7
15	2	1300.	0.	0.	651.	0.	0.	651.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
16	2	1000.	39.	0.	690.	39.	0.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
17	2	1100.	0.	0.	690.	0.	0.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
18	2	1000.	0.	128.	690.	0.	128.	690.	3000.	0.	0.	0.	.23	65.	5.3	A	20.0	13.7
19	2	900.	0.	0.	562.	0.	0.	562.	3000.	0.	0.	0.	.19	65.	4.3	A	20.0	13.7
20	2	100.	21.	0.	583.	21.	0.	583.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
21	2	100.	0.	0.	583.	0.	0.	583.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
22	2	100.	0.	0.	583.	0.	0.	583.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
23	2	700.	0.	0.	583.	0.	0.	583.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
24	2	1500.	0.	111.	583.	0.	111.	583.	3000.	0.	0.	0.	.19	65.	4.5	A	20.0	13.7
25	2	800.	0.	0.	471.	0.	0.	471.	3000.	0.	0.	0.	.16	65.	3.6	A	20.0	13.7
26	2	1000.	194.	0.	665.	194.	0.	665.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
27	2	800.	0.	0.	665.	0.	0.	665.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
28	2	1000.	0.	18.	665.	0.	18.	665.	3000.	0.	0.	0.	.22	65.	5.1	A	20.0	13.7
29	2	8000.	0.	647.	647.	0.	647.	647.	3000.	0.	0.	0.	.22	65.	5.0	A	20.0	13.7
30																		
31																		
32																		
TOTAL		140349. = 26.6 MILES							MAX(V/C) = 0.25		LOWEST LOS = A			AVG = 65.	5.7		20.0	13.7

1 INSTITUTE OF TRANSPORTATION STUDIES FREQ12PL REL 3.01 3/30/2016 16:24 PAGE 12
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TIME SLICE 3 OF 3

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	300. VEH-HRS	601. PASS-HRS	991. VEH-HRS	1982. PASS-HRS

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS			
TOTAL SYSTEM TRAVEL TIME =	300. VEH-HRS	601. PASS-HRS	991. VEH-HRS	1982. PASS-HRS			
TOTAL FRWAY TRAV DISTANCE =	19524. VEH-MI.	39049. PASS-MI.	64412. VEH-MI.	128824. PASS-MI.			
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.				
AVERAGE DENSITY =	6. VPMPL		6. VPMPL				
TOTAL FUEL =	976. GALLONS		3221. GALLONS				
TOTAL EMISSIONS =	268. KILOGRAMS		885. KILOGRAMS				

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00	30	0.00
31	0.00	32	0.00						

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222     PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222      PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222        PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6226.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6430.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6430.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6430.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6610.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6610.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6610.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6150.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6150.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	9685.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 3 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 3 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	20.98	21.29	22.10	22.29	24.75
2	0.00	0.65	0.96	1.77	1.96	4.42
3	0.00	0.00	0.18	0.99	1.19	3.64
4	0.00	0.00	0.00	0.69	0.88	3.33
5	0.00	0.00	0.00	0.53	0.72	3.18
6	0.00	0.00	0.00	0.00	0.03	2.49
7	0.00	0.00	0.00	0.00	0.00	2.35
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6299.	1071.	6299.	6299.	1071.	6299.	10000.	0.	0.	0.	.63	65.	19.4	C	19.2	14.0
2	3	99999.	0.	0.	5228.	0.	0.	5228.	6226.	0.	0.	0.	.84	62.	28.2	D	20.6	13.0
3	3	2740.	0.	0.	5228.	0.	0.	5228.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
4	3	600.	0.	0.	5228.	0.	0.	5228.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
5	3	700.	0.	0.	5228.	0.	0.	5228.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
6	3	2630.	0.	0.	5228.	0.	0.	5228.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
7	3	2530.	0.	0.	5228.	0.	0.	5228.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
8	4	1500.	298.	0.	5526.	298.	0.	5526.	6398.	0.	0.	0.	.86	65.	21.3	C	19.2	14.0
9	4	700.	0.	0.	5526.	0.	0.	5526.	6430.	0.	0.	0.	.86	65.	21.3	C	19.2	14.0
10	4	1500.	0.	1903.	5526.	0.	1903.	5526.	6063.	0.	0.	0.	.91	65.	21.3	C	19.2	14.0
11	3	750.	0.	0.	3623.	0.	0.	3623.	6000.	0.	0.	0.	.60	65.	18.6	C	19.2	14.0
12	4	350.	957.	0.	4580.	900.	0.	4523.	6448.	0.	0.	0.	.70	65.	17.4	B	19.2	14.0
13	4	350.	0.	0.	4580.	0.	0.	4523.	6610.	0.	0.	0.	.68	65.	17.4	B	19.2	14.0
14	4	350.	0.	392.	4580.	0.	387.	4523.	6552.	0.	0.	0.	.69	65.	17.4	B	19.2	14.0
15	3	700.	0.	0.	4188.	0.	0.	4136.	6000.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
16	3	900.	93.	0.	4281.	93.	0.	4229.	5983.	0.	0.	0.	.71	65.	21.7	C	19.2	14.0
17	3	1400.	202.	0.	4483.	202.	0.	4431.	5962.	0.	0.	0.	.74	64.	23.0	C	19.5	13.8
18	3	200.	0.	0.	4483.	0.	0.	4431.	6000.	0.	0.	0.	.74	64.	23.0	C	19.5	13.8
19	3	1400.	0.	268.	4483.	0.	265.	4431.	5963.	0.	0.	0.	.74	64.	23.0	C	19.5	13.8
20	3	900.	0.	0.	4215.	0.	0.	4167.	6000.	0.	0.	0.	.69	65.	21.4	C	19.2	14.0
21	4	100.	208.	0.	4423.	208.	0.	4375.	6108.	0.	0.	0.	.72	65.	16.8	B	19.2	14.0
22	4	100.	0.	82.	4423.	0.	81.	4375.	6139.	0.	0.	0.	.71	65.	16.8	B	19.2	14.0
23	3	600.	0.	0.	4341.	0.	0.	4294.	6000.	0.	0.	0.	.72	65.	22.0	C	19.2	14.0
24	3	1500.	506.	0.	4847.	506.	0.	4800.	5896.	0.	0.	0.	.81	63.	25.5	C	20.2	13.2
25	3	1500.	0.	0.	4847.	0.	0.	4800.	6000.	0.	0.	0.	.80	63.	25.3	C	20.0	13.4
26	3	8000.	0.	0.	4847.	0.	0.	4800.	6000.	0.	0.	0.	.80	63.	25.3	C	20.0	13.4
27	5	100.	993.	0.	5840.	993.	0.	5793.	10000.	0.	0.	0.	.58	65.	17.8	B	19.2	14.0
28	5	1000.	0.	0.	5840.	0.	0.	5793.	7750.	0.	0.	0.	.75	65.	17.8	B	19.2	14.0
29	5	1000.	0.	5840.	5840.	0.	5793.	5793.	9685.	0.	0.	0.	.60	65.	17.8	B	19.2	14.0
TOTAL		135469. =	25.7 MILES								MAX(V/C) = 0.91		LOWEST LOS = D		AVG = 62.		27.1	20.5	13.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2131. VEH-HRS	2141. PASS-HRS	2131. VEH-HRS	2141. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	29. VEH-HRS	29. PASS-HRS	29. VEH-HRS	29. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2159. VEH-HRS	2170. PASS-HRS	2159. VEH-HRS	2170. PASS-HRS
TOTAL TRAV DISTANCE =	132500. VEH-MI.	133208. PASS-MI.	132500. VEH-MI.	133208. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	27. VPMPL		27. VPMPL	
TOTAL FUEL =	6483. GALLONS		6483. GALLONS	
TOTAL EMISSIONS =	1735. KILOGRAMS		1735. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	76.81	3	3.04	4	0.66	5	0.78
6	2.91	7	2.80	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.20	18	0.03	19	0.20	20	0.00
21	0.00	22	0.00	23	0.00	24	0.76	25	0.62
26	3.32	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 92.1 VEH-HRS ***** AVERAGE DELAY = 1.06 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	3	RAMP	57.	28.50	1.79	10.18	0.63	3.30	0.18	4.11
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	57.	28.50	1.79	10.18	0.63	3.30	0.18	4.11

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	27.75	28.06	28.89	29.08	31.65
2	0.00	1.52	1.83	2.66	2.85	5.42
3	0.00	0.00	0.18	1.01	1.20	3.77
4	0.00	0.00	0.00	0.70	0.89	3.47
5	0.00	0.00	0.00	0.54	0.74	3.31
6	0.00	0.00	0.00	0.00	0.03	2.61
7	0.00	0.00	0.00	0.00	0.00	2.46
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7501.	1275.	7501.	7501.	1275.	7501.	10000.	0.	0.	0.	.75	64.	23.4	C	19.5	13.7
2	3	99999.	0.	0.	6226.	0.	0.	6000.	6226.	0. *	7488.	226.	.96	50.	40.3	F	23.6	11.3
3	3	2740.	0.	0.	6226.	0.	0.	5653.	6000.	0. *	1833.	347.	.94	48.	39.3	F	23.4	11.4
4	3	600.	0.	0.	6226.	0.	0.	5653.	6000.	0. **	600.	347.	.94	40.	47.2	F	22.5	12.1
5	3	700.	0.	0.	6226.	0.	0.	5653.	6000.	0. **	700.	347.	.94	37.	50.7	F	22.2	12.4
6	3	2630.	0.	0.	6226.	0.	0.	5653.	6000.	0. **	2630.	347.	.94	32.	59.7	F	21.3	13.1
7	3	2530.	0.	0.	6226.	0.	0.	5653.	6000.	0. **	2530.	347.	.94	26.	73.9	F	20.0	14.4
8	4	1500.	388.	0.	6614.	338.	0.	5991.	6388.	0. **	1500.	347.	.94	22.	69.1	F	18.9	15.5
9	4	700.	0.	0.	6614.	0.	0.	5991.	6430.	0. **	700.	347.	.93	20.	76.6	F	18.2	16.4
10	4	1500.	0.	2291.	6614.	0.	2074.	5991.	5991.	0.	0.	0.	1.00	52.	28.7	E	23.8	11.1
11	3	750.	0.	0.	4323.	0.	0.	3917.	6000.	0.	0.	0.	.65	65.	20.1	C	19.2	14.0
12	4	350.	1340.	0.	5663.	900.	0.	4817.	6380.	0.	0.	0.	.76	65.	18.5	C	19.2	14.0
13	4	350.	0.	0.	5663.	0.	0.	4817.	6610.	0.	0.	0.	.73	65.	18.5	C	19.2	14.0
14	4	350.	0.	534.	5663.	0.	450.	4817.	6535.	0.	0.	0.	.74	65.	18.5	C	19.2	14.0
15	3	700.	0.	0.	5129.	0.	0.	4367.	6000.	0.	0.	0.	.73	64.	22.6	C	19.4	13.8
16	3	900.	130.	0.	5259.	130.	0.	4497.	5975.	0.	0.	0.	.75	64.	23.4	C	19.6	13.7
17	3	1400.	275.	0.	5534.	275.	0.	4772.	5947.	0.	0.	0.	.80	63.	25.2	C	20.1	13.3
18	3	200.	0.	0.	5534.	0.	0.	4772.	6000.	0.	0.	0.	.80	63.	25.1	C	20.0	13.4
19	3	1400.	0.	202.	5534.	0.	174.	4772.	5974.	0.	0.	0.	.80	63.	25.2	C	20.0	13.4
20	3	900.	0.	0.	5332.	0.	0.	4598.	6000.	0.	0.	0.	.77	64.	24.0	C	19.7	13.6
21	4	100.	283.	0.	5615.	283.	0.	4881.	6093.	0.	0.	0.	.80	65.	18.8	C	19.2	14.0
22	4	100.	0.	126.	5615.	0.	109.	4881.	6134.	0.	0.	0.	.80	65.	18.8	C	19.2	14.0
23	3	600.	0.	0.	5489.	0.	0.	4772.	6000.	0.	0.	0.	.80	63.	25.2	C	20.0	13.4
24	3	1500.	564.	0.	6053.	564.	0.	5336.	5884.	0.	0.	0.	.91	59.	30.2	D	22.0	12.1
25	3	1500.	0.	0.	6053.	0.	0.	5336.	6000.	0.	0.	0.	.89	60.	29.8	D	21.7	12.3
26	3	8000.	0.	0.	6053.	0.	0.	5336.	6000.	0.	0.	0.	.89	60.	29.8	D	21.7	12.3
27	5	100.	1240.	0.	7293.	1240.	0.	6576.	10000.	0.	0.	0.	.66	65.	20.2	C	19.2	14.0
28	5	1000.	0.	0.	7293.	0.	0.	6576.	7750.	0.	0.	0.	.85	65.	20.2	C	19.2	14.0
29	5	1000.	0.	7293.	7293.	0.	6576.	6576.	9685.	0.	0.	0.	.68	65.	20.2	C	19.2	14.0
TOTAL		135469. =	25.7 MILES							MAX(V/C) = 1.00	LOWEST LOS = F		AVG = 49.		39.4		22.9	11.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3195. VEH-HRS	3208. PASS-HRS	5326. VEH-HRS	5350. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	302. VEH-HRS	302. PASS-HRS	331. VEH-HRS	331. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3497. VEH-HRS	3510. PASS-HRS	5656. VEH-HRS	5680. PASS-HRS
TOTAL TRAV DISTANCE =	154975. VEH-MI.	155793. PASS-MI.	287475. VEH-MI.	289001. PASS-MI.
AVERAGE SYSTEM SPEED =	44. MPH.		54. MPH.	
AVERAGE DENSITY =	39. VPMPL		33. VPMPL	
TOTAL FUEL =	6890. GALLONS		13373. GALLONS	
TOTAL EMISSIONS =	1859. KILOGRAMS		3594. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	559.34	3	16.92	4	6.53	5	9.03
6	47.49	7	65.90	8	52.84	9	28.49	10	6.41
11	0.00	12	0.00	13	0.00	14	0.00	15	0.07
16	0.16	17	0.60	18	0.08	19	0.57	20	0.21
21	0.00	22	0.00	23	0.23	24	2.46	25	2.06
26	10.96	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 810.7 VEH-HRS ***** AVERAGE DELAY = 8.22 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	3.87	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	3.87	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	497.	277.00	11.90	98.91	6.14	32.09	1.70	39.93
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	497.	277.00	11.90	98.91	6.14	32.09	1.70	39.93

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111         222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2740.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	2	3000.	2630.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	2	3000.	2530.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	2	3000.	700.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	2	3000.	750.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	2	3000.	350.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	2	3000.	350.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	2	3000.	350.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	2	3000.	900.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	2	3000.	1400.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	2	3000.	200.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks

19	2	3000.	1400.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	2	3000.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	2	3000.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1071.	0.	1071.	1071.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
3	2	2740.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
4	2	600.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
5	2	700.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
6	2	2630.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
7	2	2530.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
8	2	1500.	32.	0.	1103.	32.	0.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
9	2	700.	0.	0.	1103.	0.	0.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
10	2	1500.	0.	367.	1103.	0.	367.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
11	2	750.	0.	0.	736.	0.	0.	736.	3000.	0.	0.	0.	.25	65.	5.7	A	20.0	13.7
12	2	350.	162.	0.	898.	162.	0.	898.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
13	2	350.	0.	0.	898.	0.	0.	898.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
14	2	350.	0.	58.	898.	0.	58.	898.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
15	2	700.	0.	0.	840.	0.	0.	840.	3000.	0.	0.	0.	.28	65.	6.5	A	20.0	13.7
16	2	900.	17.	0.	858.	17.	0.	858.	3000.	0.	0.	0.	.29	65.	6.6	A	20.0	13.7
17	2	1400.	38.	0.	895.	38.	0.	895.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
18	2	200.	0.	0.	895.	0.	0.	895.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
19	2	1400.	0.	37.	895.	0.	37.	895.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
20	2	900.	0.	0.	859.	0.	0.	859.	3000.	0.	0.	0.	.29	65.	6.6	A	20.0	13.7
21	2	100.	42.	0.	900.	42.	0.	900.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
22	2	100.	0.	11.	900.	0.	11.	900.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
23	2	600.	0.	0.	889.	0.	0.	889.	3000.	0.	0.	0.	.30	65.	6.8	A	20.0	13.7
24	2	1500.	104.	0.	993.	104.	0.	993.	3000.	0.	0.	0.	.33	65.	7.6	A	20.0	13.7
25	2	1500.	0.	0.	993.	0.	0.	993.	3000.	0.	0.	0.	.33	65.	7.6	A	20.0	13.7
26	2	8000.	0.	993.	993.	0.	993.	993.	3000.	0.	0.	0.	.33	65.	7.6	A	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES								MAX(V/C) = 0.37	LOWEST LOS = A		AVG = 65.		8.1		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	405. VEH-HRS	810. PASS-HRS	405. VEH-HRS	810. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	405. VEH-HRS	810. PASS-HRS	405. VEH-HRS	810. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	26322. VEH-MI.	52645. PASS-MI.	26322. VEH-MI.	52645. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	8. VPMPL		8. VPMPL	
TOTAL FUEL =	1316. GALLONS		1316. GALLONS	
TOTAL EMISSIONS =	362. KILOGRAMS		362. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN / DESTINATIONS ACROSS	1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00

* 4 *	0.00	0.00	0.00	0.00	0.00	3.21	0.00
* 5 *	0.00	0.00	0.00	0.00	0.00	2.90	0.00
* 6 *	0.00	0.00	0.00	0.00	0.00	2.74	0.00
* 7 *	0.00	0.00	0.00	0.00	0.00	2.06	0.00
* 8 *	0.00	0.00	0.00	0.00	0.00	1.92	0.00
* 9 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 10 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 11 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1275.	0.	1275.	1275.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
3	2	2740.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
4	2	600.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
5	2	700.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
6	2	2630.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
7	2	2530.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
8	2	1500.	42.	0.	1317.	42.	0.	1317.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
9	2	700.	0.	0.	1317.	0.	0.	1317.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
10	2	1500.	0.	439.	1317.	0.	439.	1317.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
11	2	750.	0.	0.	878.	0.	0.	878.	3000.	0.	0.	0.	.29	65.	6.8	A	20.0	13.7
12	2	350.	230.	0.	1108.	230.	0.	1108.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
13	2	350.	0.	0.	1108.	0.	0.	1108.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
14	2	350.	0.	75.	1108.	0.	75.	1108.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
15	2	700.	0.	0.	1033.	0.	0.	1033.	3000.	0.	0.	0.	.34	65.	7.9	A	20.0	13.7
16	2	900.	25.	0.	1058.	25.	0.	1058.	3000.	0.	0.	0.	.35	65.	8.1	A	20.0	13.7
17	2	1400.	53.	0.	1110.	53.	0.	1110.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
18	2	200.	0.	0.	1110.	0.	0.	1110.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
19	2	1400.	0.	26.	1110.	0.	26.	1110.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
20	2	900.	0.	0.	1084.	0.	0.	1084.	3000.	0.	0.	0.	.36	65.	8.3	A	20.0	13.7
21	2	100.	57.	0.	1141.	57.	0.	1141.	3000.	0.	0.	0.	.38	65.	8.8	A	20.0	13.7
22	2	100.	0.	16.	1141.	0.	16.	1141.	3000.	0.	0.	0.	.38	65.	8.8	A	20.0	13.7
23	2	600.	0.	0.	1124.	0.	0.	1124.	3000.	0.	0.	0.	.37	65.	8.6	A	20.0	13.7
24	2	1500.	116.	0.	1240.	116.	0.	1240.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
25	2	1500.	0.	0.	1240.	0.	0.	1240.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
26	2	8000.	0.	1240.	1240.	0.	1240.	1240.	3000.	0.	0.	0.	.41	65.	9.5	A	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES						MAX(V/C) = 0.44		LOWEST LOS = A		AVG = 65.		9.7		20.0	13.7	

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	485. VEH-HRS	970. PASS-HRS	890. VEH-HRS	1780. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	485. VEH-HRS	970. PASS-HRS	890. VEH-HRS	1780. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	31524. VEH-MI.	63048. PASS-MI.	57847. VEH-MI.	115693. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	10. VPMPL		9. VPMPL	
TOTAL FUEL =	1576. GALLONS		2892. GALLONS	
TOTAL EMISSIONS =	433. KILOGRAMS		795. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6226.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6430.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6430.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6430.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	7010.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	7010.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	7010.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6150.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6150.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	9685.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 3 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 3 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	20.98	21.29	22.10	22.30	24.76
2	0.00	0.65	0.96	1.77	1.97	4.43
3	0.00	0.00	0.18	1.00	1.19	3.66
4	0.00	0.00	0.00	0.69	0.88	3.35
5	0.00	0.00	0.00	0.53	0.72	3.19
6	0.00	0.00	0.00	0.00	0.03	2.50
7	0.00	0.00	0.00	0.00	0.00	2.36
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6300.	1071.	6300.	6300.	1071.	6300.	10000.	0.	0.	0.	.63	65.	19.4	C	19.2	14.0
2	3	99999.	0.	0.	5229.	0.	0.	5229.	6226.	0.	0.	0.	.84	62.	28.2	D	20.6	13.0
3	3	2740.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
4	3	600.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
5	3	700.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
6	3	2630.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
7	3	2530.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
8	4	1500.	297.	0.	5526.	297.	0.	5526.	6398.	0.	0.	0.	.86	65.	21.3	C	19.2	14.0
9	4	700.	0.	0.	5526.	0.	0.	5526.	6430.	0.	0.	0.	.86	65.	21.3	C	19.2	14.0
10	4	1500.	0.	1660.	5526.	0.	1660.	5526.	6110.	0.	0.	0.	.90	65.	21.3	C	19.2	14.0
11	3	750.	0.	0.	3866.	0.	0.	3866.	6000.	0.	0.	0.	.64	65.	19.8	C	19.2	14.0
12	4	350.	966.	0.	4832.	900.	0.	4766.	6856.	0.	0.	0.	.70	65.	18.3	C	19.2	14.0
13	4	350.	0.	0.	4832.	0.	0.	4766.	7010.	0.	0.	0.	.68	65.	18.3	C	19.2	14.0
14	4	350.	0.	645.	4832.	0.	635.	4766.	6914.	0.	0.	0.	.69	65.	18.3	C	19.2	14.0
15	3	700.	0.	0.	4187.	0.	0.	4131.	6000.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
16	3	900.	101.	0.	4288.	101.	0.	4232.	5981.	0.	0.	0.	.71	65.	21.7	C	19.2	14.0
17	3	1400.	295.	0.	4583.	295.	0.	4527.	5945.	0.	0.	0.	.76	64.	23.6	C	19.6	13.7
18	3	200.	0.	0.	4583.	0.	0.	4527.	6000.	0.	0.	0.	.75	64.	23.5	C	19.6	13.7
19	3	1400.	0.	274.	4583.	0.	270.	4527.	5963.	0.	0.	0.	.76	64.	23.6	C	19.6	13.7
20	3	900.	0.	0.	4309.	0.	0.	4257.	6000.	0.	0.	0.	.71	65.	21.8	C	19.2	14.0
21	4	100.	208.	0.	4517.	208.	0.	4465.	6108.	0.	0.	0.	.73	65.	17.2	B	19.2	14.0
22	4	100.	0.	84.	4517.	0.	83.	4465.	6138.	0.	0.	0.	.73	65.	17.2	B	19.2	14.0
23	3	600.	0.	0.	4433.	0.	0.	4382.	6000.	0.	0.	0.	.73	64.	22.7	C	19.4	13.8
24	3	1500.	506.	0.	4939.	506.	0.	4888.	5896.	0.	0.	0.	.83	62.	26.2	D	20.4	13.1
25	3	1500.	0.	0.	4939.	0.	0.	4888.	6000.	0.	0.	0.	.81	63.	26.0	C	20.2	13.2
26	3	8000.	0.	0.	4939.	0.	0.	4888.	6000.	0.	0.	0.	.81	63.	26.0	C	20.2	13.2
27	5	100.	1012.	0.	5951.	1012.	0.	5900.	10000.	0.	0.	0.	.59	65.	18.2	C	19.2	14.0
28	5	1000.	0.	0.	5951.	0.	0.	5900.	7750.	0.	0.	0.	.76	65.	18.2	C	19.2	14.0
29	5	1000.	0.	5951.	5951.	0.	5900.	5900.	9685.	0.	0.	0.	.61	65.	18.2	C	19.2	14.0
TOTAL		135469. =	25.7 MILES							MAX(V/C) = 0.90	LOWEST LOS = D		AVG = 62.		27.2		20.5	13.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2139. VEH-HRS	2150. PASS-HRS	2139. VEH-HRS	2150. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	33. VEH-HRS	33. PASS-HRS	33. VEH-HRS	33. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2172. VEH-HRS	2183. PASS-HRS	2172. VEH-HRS	2183. PASS-HRS
TOTAL TRAV DISTANCE =	132911. VEH-MI.	133633. PASS-MI.	132911. VEH-MI.	133633. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	27. VPMPL		27. VPMPL	
TOTAL FUEL =	6499. GALLONS		6499. GALLONS	
TOTAL EMISSIONS =	1739. KILOGRAMS		1739. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	76.98	3	3.04	4	0.67	5	0.78
6	2.92	7	2.81	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.29	18	0.04	19	0.28	20	0.00
21	0.00	22	0.00	23	0.06	24	0.94	25	0.78
26	4.15	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 93.7 VEH-HRS ***** AVERAGE DELAY = 1.08 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	3	RAMP	66.	33.00	2.05	11.78	0.73	3.82	0.20	4.76
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	66.	33.00	2.05	11.78	0.73	3.82	0.20	4.76

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	27.37	27.69	28.52	28.72	31.35
2	0.00	1.46	1.78	2.61	2.81	5.44
3	0.00	0.00	0.18	1.02	1.21	3.85
4	0.00	0.00	0.00	0.71	0.91	3.54
5	0.00	0.00	0.00	0.55	0.75	3.38
6	0.00	0.00	0.00	0.00	0.03	2.67
7	0.00	0.00	0.00	0.00	0.00	2.53
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7500.	1275.	7500.	7500.	1275.	7500.	10000.	0.	0.	0.	.75	64.	23.4	C	19.5	13.7
2	3	99999.	0.	0.	6225.	0.	0.	6000.	6226.	0. *	7452.	225.	.96	50.	40.3	F	23.6	11.3
3	3	2740.	0.	0.	6225.	0.	0.	5718.	6000.	0. *	264.	282.	.95	52.	36.6	F	23.8	11.1
4	3	600.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	600.	282.	.95	48.	39.8	F	23.4	11.4
5	3	700.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	700.	282.	.95	44.	43.6	F	23.0	11.7
6	3	2630.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	2630.	282.	.95	36.	53.4	F	22.0	12.6
7	3	2530.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	2530.	282.	.95	28.	69.0	F	20.5	13.9
8	4	1500.	387.	0.	6612.	337.	0.	6055.	6387.	0. **	1500.	282.	.95	23.	66.2	F	19.4	15.1
9	4	700.	0.	0.	6612.	0.	0.	6055.	6430.	0. **	700.	282.	.94	20.	74.3	F	18.6	16.0
10	4	1500.	0.	1955.	6612.	0.	1789.	6055.	6055.	0.	0.	0.	1.00	52.	29.0	E	23.8	11.1
11	3	750.	0.	0.	4657.	0.	0.	4266.	6000.	0.	0.	0.	.71	65.	21.9	C	19.2	14.0
12	4	350.	1352.	0.	6009.	900.	0.	5166.	6793.	0.	0.	0.	.76	65.	19.9	C	19.2	14.0
13	4	350.	0.	0.	6009.	0.	0.	5166.	7010.	0.	0.	0.	.74	65.	19.9	C	19.2	14.0
14	4	350.	0.	883.	6009.	0.	752.	5166.	6883.	0.	0.	0.	.75	65.	19.9	C	19.2	14.0
15	3	700.	0.	0.	5126.	0.	0.	4413.	6000.	0.	0.	0.	.74	64.	22.8	C	19.4	13.8
16	3	900.	142.	0.	5268.	142.	0.	4555.	5973.	0.	0.	0.	.76	64.	23.7	C	19.6	13.7
17	3	1400.	408.	0.	5676.	408.	0.	4963.	5922.	0.	0.	0.	.84	62.	26.7	D	20.6	13.0
18	3	200.	0.	0.	5676.	0.	0.	4963.	6000.	0.	0.	0.	.83	62.	26.5	D	20.4	13.1
19	3	1400.	0.	207.	5676.	0.	181.	4963.	5973.	0.	0.	0.	.83	62.	26.6	D	20.5	13.1
20	3	900.	0.	0.	5469.	0.	0.	4782.	6000.	0.	0.	0.	.80	63.	25.2	C	20.0	13.4
21	4	100.	283.	0.	5752.	283.	0.	5065.	6093.	0.	0.	0.	.83	65.	19.5	C	19.2	14.0
22	4	100.	0.	128.	5752.	0.	112.	5065.	6133.	0.	0.	0.	.83	65.	19.5	C	19.2	14.0
23	3	600.	0.	0.	5624.	0.	0.	4953.	6000.	0.	0.	0.	.83	62.	26.5	D	20.4	13.1
24	3	1500.	564.	0.	6188.	564.	0.	5517.	5884.	0.	0.	0.	.94	57.	32.3	D	22.5	11.7
25	3	1500.	0.	0.	6188.	0.	0.	5517.	6000.	0.	0.	0.	.92	58.	31.7	D	22.2	12.0
26	3	8000.	0.	0.	6188.	0.	0.	5517.	6000.	0.	0.	0.	.92	58.	31.7	D	22.2	12.0
27	5	100.	1268.	0.	7456.	1268.	0.	6785.	10000.	0.	0.	0.	.68	65.	20.9	C	19.2	14.0
28	5	1000.	0.	0.	7456.	0.	0.	6785.	7750.	0.	0.	0.	.88	65.	20.9	C	19.2	14.0
29	5	1000.	0.	7456.	7456.	0.	6785.	6785.	9685.	0.	0.	0.	.70	65.	20.9	C	19.2	14.0
TOTAL		135469. =	25.7 MILES			MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 49.		39.2		22.9	11.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3180. VEH-HRS	3194. PASS-HRS	5319. VEH-HRS	5343. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	317. VEH-HRS	317. PASS-HRS	350. VEH-HRS	350. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3497. VEH-HRS	3511. PASS-HRS	5669. VEH-HRS	5693. PASS-HRS
TOTAL TRAV DISTANCE =	155844. VEH-MI.	156683. PASS-MI.	288755. VEH-MI.	290316. PASS-MI.
AVERAGE SYSTEM SPEED =	45. MPH.		54. MPH.	
AVERAGE DENSITY =	39. VPMPL		33. VPMPL	
TOTAL FUEL =	6907. GALLONS		13405. GALLONS	
TOTAL EMISSIONS =	1862. KILOGRAMS		3601. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	558.14	3	11.84	4	3.73	5	5.91
6	37.19	7	58.14	8	49.15	9	27.12	10	6.48
11	0.00	12	0.00	13	0.00	14	0.00	15	0.08
16	0.19	17	1.00	18	0.12	19	0.92	20	0.36
21	0.00	22	0.00	23	0.37	24	3.41	25	2.87
26	15.33	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 782.7 VEH-HRS ***** AVERAGE DELAY = 7.90 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	3.88	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	3.88	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	518.	292.00	12.36	104.27	6.47	33.83	1.79	42.09
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	518.	292.00	12.36	104.27	6.47	33.83	1.79	42.09

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2740.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	2	3000.	2630.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	2	3000.	2530.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	2	3000.	700.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	2	3000.	750.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	2	3000.	350.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	2	3000.	350.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	2	3000.	350.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	2	3000.	900.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	2	3000.	1400.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	2	3000.	200.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks

19	2	3000.	1400.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	SPECIAL TRUCKS	RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	2	3000.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	2	3000.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1071.	0.	1071.	1071.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
3	2	2740.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
4	2	600.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
5	2	700.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
6	2	2630.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
7	2	2530.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
8	2	1500.	32.	0.	1103.	32.	0.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
9	2	700.	0.	0.	1103.	0.	0.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
10	2	1500.	0.	320.	1103.	0.	320.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
11	2	750.	0.	0.	784.	0.	0.	784.	3000.	0.	0.	0.	.26	65.	6.0	A	20.0	13.7
12	2	350.	154.	0.	937.	154.	0.	937.	3000.	0.	0.	0.	.31	65.	7.2	A	20.0	13.7
13	2	350.	0.	0.	937.	0.	0.	937.	3000.	0.	0.	0.	.31	65.	7.2	A	20.0	13.7
14	2	350.	0.	96.	937.	0.	96.	937.	3000.	0.	0.	0.	.31	65.	7.2	A	20.0	13.7
15	2	700.	0.	0.	841.	0.	0.	841.	3000.	0.	0.	0.	.28	65.	6.5	A	20.0	13.7
16	2	900.	19.	0.	860.	19.	0.	860.	3000.	0.	0.	0.	.29	65.	6.6	A	20.0	13.7
17	2	1400.	55.	0.	915.	55.	0.	915.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
18	2	200.	0.	0.	915.	0.	0.	915.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
19	2	1400.	0.	37.	915.	0.	37.	915.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
20	2	900.	0.	0.	878.	0.	0.	878.	3000.	0.	0.	0.	.29	65.	6.8	A	20.0	13.7
21	2	100.	42.	0.	920.	42.	0.	920.	3000.	0.	0.	0.	.31	65.	7.1	A	20.0	13.7
22	2	100.	0.	12.	920.	0.	12.	920.	3000.	0.	0.	0.	.31	65.	7.1	A	20.0	13.7
23	2	600.	0.	0.	908.	0.	0.	908.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
24	2	1500.	104.	0.	1012.	104.	0.	1012.	3000.	0.	0.	0.	.34	65.	7.8	A	20.0	13.7
25	2	1500.	0.	0.	1012.	0.	0.	1012.	3000.	0.	0.	0.	.34	65.	7.8	A	20.0	13.7
26	2	8000.	0.	1012.	1012.	0.	1012.	1012.	3000.	0.	0.	0.	.34	65.	7.8	A	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. =	25.0 MILES								MAX(V/C) = 0.37		LOWEST LOS = A		AVG = 65.		8.1	20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	406. VEH-HRS	812. PASS-HRS	406. VEH-HRS	812. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	406. VEH-HRS	812. PASS-HRS	406. VEH-HRS	812. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	26394. VEH-MI.	52789. PASS-MI.	26394. VEH-MI.	52789. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	8. VPMPL		8. VPMPL	
TOTAL FUEL =	1320. GALLONS		1320. GALLONS	
TOTAL EMISSIONS =	363. KILOGRAMS		363. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00

* 4 *	0.00	0.00	0.00	0.00	0.00	3.21	0.00
* 5 *	0.00	0.00	0.00	0.00	0.00	2.90	0.00
* 6 *	0.00	0.00	0.00	0.00	0.00	2.74	0.00
* 7 *	0.00	0.00	0.00	0.00	0.00	2.06	0.00
* 8 *	0.00	0.00	0.00	0.00	0.00	1.92	0.00
* 9 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 10 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 11 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1275.	0.	1275.	1275.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
3	2	2740.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
4	2	600.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
5	2	700.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
6	2	2630.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
7	2	2530.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
8	2	1500.	43.	0.	1318.	43.	0.	1318.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
9	2	700.	0.	0.	1318.	0.	0.	1318.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
10	2	1500.	0.	375.	1318.	0.	375.	1318.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
11	2	750.	0.	0.	943.	0.	0.	943.	3000.	0.	0.	0.	.31	65.	7.3	A	20.0	13.7
12	2	350.	217.	0.	1160.	217.	0.	1160.	3000.	0.	0.	0.	.39	65.	8.9	A	20.0	13.7
13	2	350.	0.	0.	1160.	0.	0.	1160.	3000.	0.	0.	0.	.39	65.	8.9	A	20.0	13.7
14	2	350.	0.	127.	1160.	0.	127.	1160.	3000.	0.	0.	0.	.39	65.	8.9	A	20.0	13.7
15	2	700.	0.	0.	1033.	0.	0.	1033.	3000.	0.	0.	0.	.34	65.	7.9	A	20.0	13.7
16	2	900.	27.	0.	1060.	27.	0.	1060.	3000.	0.	0.	0.	.35	65.	8.2	A	20.0	13.7
17	2	1400.	78.	0.	1138.	78.	0.	1138.	3000.	0.	0.	0.	.38	65.	8.8	A	20.0	13.7
18	2	200.	0.	0.	1138.	0.	0.	1138.	3000.	0.	0.	0.	.38	65.	8.8	A	20.0	13.7
19	2	1400.	0.	27.	1138.	0.	27.	1138.	3000.	0.	0.	0.	.38	65.	8.8	A	20.0	13.7
20	2	900.	0.	0.	1112.	0.	0.	1112.	3000.	0.	0.	0.	.37	65.	8.6	A	20.0	13.7
21	2	100.	57.	0.	1169.	57.	0.	1169.	3000.	0.	0.	0.	.39	65.	9.0	A	20.0	13.7
22	2	100.	0.	17.	1169.	0.	17.	1169.	3000.	0.	0.	0.	.39	65.	9.0	A	20.0	13.7
23	2	600.	0.	0.	1152.	0.	0.	1152.	3000.	0.	0.	0.	.38	65.	8.9	A	20.0	13.7
24	2	1500.	116.	0.	1268.	116.	0.	1268.	3000.	0.	0.	0.	.42	65.	9.8	A	20.0	13.7
25	2	1500.	0.	0.	1268.	0.	0.	1268.	3000.	0.	0.	0.	.42	65.	9.8	A	20.0	13.7
26	2	8000.	0.	1268.	1268.	0.	1268.	1268.	3000.	0.	0.	0.	.42	65.	9.8	A	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES							MAX(V/C) = 0.44		LOWEST LOS = A		AVG = 65.		9.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	487. VEH-HRS	973. PASS-HRS	893. VEH-HRS	1785. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	487. VEH-HRS	973. PASS-HRS	893. VEH-HRS	1785. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	31631. VEH-MI.	63262. PASS-MI.	58025. VEH-MI.	116051. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	10. VPMPL		9. VPMPL	
TOTAL FUEL =	1582. GALLONS		2901. GALLONS	
TOTAL EMISSIONS =	435. KILOGRAMS		797. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	6226.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6430.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6430.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6430.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	7010.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	7010.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	7010.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6150.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6150.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	9685.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 3 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 3 IN TIME SLICE 2
--- THE MAXIMUM METERING RATE WILL PREVAIL.

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	20.98	21.29	22.10	22.30	24.76
2	0.00	0.65	0.96	1.77	1.97	4.43
3	0.00	0.00	0.18	0.99	1.19	3.65
4	0.00	0.00	0.00	0.69	0.88	3.34
5	0.00	0.00	0.00	0.53	0.72	3.19
6	0.00	0.00	0.00	0.00	0.03	2.50
7	0.00	0.00	0.00	0.00	0.00	2.36
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	6300.	1071.	6300.	6300.	1071.	6300.	10000.	0.	0.	0.	.63	65.	19.4	C	19.2	14.0
2	3	99999.	0.	0.	5229.	0.	0.	5229.	6226.	0.	0.	0.	.84	62.	28.2	D	20.6	13.0
3	3	2740.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
4	3	600.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
5	3	700.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
6	3	2630.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
7	3	2530.	0.	0.	5229.	0.	0.	5229.	6000.	0.	0.	0.	.87	61.	28.8	D	21.3	12.5
8	4	1500.	297.	0.	5526.	297.	0.	5526.	6398.	0.	0.	0.	.86	65.	21.3	C	19.2	14.0
9	4	700.	0.	0.	5526.	0.	0.	5526.	6430.	0.	0.	0.	.86	65.	21.3	C	19.2	14.0
10	4	1500.	0.	1660.	5526.	0.	1660.	5526.	6110.	0.	0.	0.	.90	65.	21.3	C	19.2	14.0
11	3	750.	0.	0.	3866.	0.	0.	3866.	6000.	0.	0.	0.	.64	65.	19.8	C	19.2	14.0
12	4	350.	966.	0.	4832.	900.	0.	4766.	6856.	0.	0.	0.	.70	65.	18.3	C	19.2	14.0
13	4	350.	0.	0.	4832.	0.	0.	4766.	7010.	0.	0.	0.	.68	65.	18.3	C	19.2	14.0
14	4	350.	0.	645.	4832.	0.	635.	4766.	6914.	0.	0.	0.	.69	65.	18.3	C	19.2	14.0
15	3	700.	0.	0.	4187.	0.	0.	4131.	6000.	0.	0.	0.	.69	65.	21.2	C	19.2	14.0
16	3	900.	93.	0.	4280.	93.	0.	4224.	5983.	0.	0.	0.	.71	65.	21.7	C	19.2	14.0
17	3	1400.	261.	0.	4541.	261.	0.	4485.	5951.	0.	0.	0.	.75	64.	23.3	C	19.6	13.7
18	3	200.	0.	0.	4541.	0.	0.	4485.	6000.	0.	0.	0.	.75	64.	23.3	C	19.5	13.7
19	3	1400.	0.	271.	4541.	0.	267.	4485.	5963.	0.	0.	0.	.75	64.	23.3	C	19.5	13.7
20	3	900.	0.	0.	4270.	0.	0.	4218.	6000.	0.	0.	0.	.70	65.	21.6	C	19.2	14.0
21	4	100.	208.	0.	4478.	208.	0.	4426.	6108.	0.	0.	0.	.72	65.	17.0	B	19.2	14.0
22	4	100.	0.	83.	4478.	0.	82.	4426.	6138.	0.	0.	0.	.72	65.	17.0	B	19.2	14.0
23	3	600.	0.	0.	4395.	0.	0.	4344.	6000.	0.	0.	0.	.72	65.	22.3	C	19.2	14.0
24	3	1500.	506.	0.	4901.	506.	0.	4850.	5896.	0.	0.	0.	.82	62.	25.9	C	20.3	13.1
25	3	1500.	0.	0.	4901.	0.	0.	4850.	6000.	0.	0.	0.	.81	63.	25.7	C	20.1	13.3
26	3	8000.	0.	0.	4901.	0.	0.	4850.	6000.	0.	0.	0.	.81	63.	25.7	C	20.1	13.3
27	5	100.	1004.	0.	5905.	1004.	0.	5854.	10000.	0.	0.	0.	.59	65.	18.0	C	19.2	14.0
28	5	1000.	0.	0.	5905.	0.	0.	5854.	7750.	0.	0.	0.	.76	65.	18.0	C	19.2	14.0
29	5	1000.	0.	5905.	5905.	0.	5854.	5854.	9685.	0.	0.	0.	.60	65.	18.0	C	19.2	14.0
TOTAL		135469. = 25.7 MILES									MAX(V/C) = 0.90		LOWEST LOS = D	AVG = 62.	27.2		20.5	13.1

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	2136. VEH-HRS	2147. PASS-HRS	2136. VEH-HRS	2147. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	33. VEH-HRS	33. PASS-HRS	33. VEH-HRS	33. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	2169. VEH-HRS	2180. PASS-HRS	2169. VEH-HRS	2180. PASS-HRS
TOTAL TRAV DISTANCE =	132776. VEH-MI.	133492. PASS-MI.	132776. VEH-MI.	133492. PASS-MI.
AVERAGE SYSTEM SPEED =	61. MPH.		62. MPH.	
AVERAGE DENSITY =	27. VPMPL		27. VPMPL	
TOTAL FUEL =	6495. GALLONS		6495. GALLONS	
TOTAL EMISSIONS =	1738. KILOGRAMS		1738. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	76.98	3	3.04	4	0.67	5	0.78
6	2.92	7	2.81	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.25	18	0.03	19	0.24	20	0.00
21	0.00	22	0.00	23	0.00	24	0.86	25	0.71
26	3.78	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 93.1 VEH-HRS ***** AVERAGE DELAY = 1.07 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	3	RAMP	66.	33.00	2.05	11.78	0.73	3.82	0.20	4.76
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	66.	33.00	2.05	11.78	0.73	3.82	0.20	4.76

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	27.37	27.69	28.52	28.71	31.32
2	0.00	1.46	1.78	2.61	2.80	5.41
3	0.00	0.00	0.18	1.01	1.21	3.82
4	0.00	0.00	0.00	0.70	0.90	3.51
5	0.00	0.00	0.00	0.55	0.74	3.35
6	0.00	0.00	0.00	0.00	0.03	2.64
7	0.00	0.00	0.00	0.00	0.00	2.50
8	0.00	0.00	0.00	0.00	0.00	0.37
9	0.00	0.00	0.00	0.00	0.00	0.35
10	0.00	0.00	0.00	0.00	0.00	0.17

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7500.	1275.	7500.	7500.	1275.	7500.	10000.	0.	0.	0.	.75	64.	23.4	C	19.5	13.7
2	3	99999.	0.	0.	6225.	0.	0.	6000.	6226.	0. *	7452.	225.	.96	50.	40.3	F	23.6	11.3
3	3	2740.	0.	0.	6225.	0.	0.	5718.	6000.	0. *	264.	282.	.95	52.	36.6	F	23.8	11.1
4	3	600.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	600.	282.	.95	48.	39.8	F	23.4	11.4
5	3	700.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	700.	282.	.95	44.	43.6	F	23.0	11.7
6	3	2630.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	2630.	282.	.95	36.	53.4	F	22.0	12.6
7	3	2530.	0.	0.	6225.	0.	0.	5718.	6000.	0. **	2530.	282.	.95	28.	69.0	F	20.5	13.9
8	4	1500.	387.	0.	6612.	337.	0.	6055.	6387.	0. **	1500.	282.	.95	23.	66.2	F	19.4	15.1
9	4	700.	0.	0.	6612.	0.	0.	6055.	6430.	0. **	700.	282.	.94	20.	74.3	F	18.6	16.0
10	4	1500.	0.	1955.	6612.	0.	1789.	6055.	6055.	0.	0.	0.	1.00	52.	29.0	E	23.8	11.1
11	3	750.	0.	0.	4657.	0.	0.	4266.	6000.	0.	0.	0.	.71	65.	21.9	C	19.2	14.0
12	4	350.	1352.	0.	6009.	900.	0.	5166.	6793.	0.	0.	0.	.76	65.	19.9	C	19.2	14.0
13	4	350.	0.	0.	6009.	0.	0.	5166.	7010.	0.	0.	0.	.74	65.	19.9	C	19.2	14.0
14	4	350.	0.	883.	6009.	0.	752.	5166.	6883.	0.	0.	0.	.75	65.	19.9	C	19.2	14.0
15	3	700.	0.	0.	5126.	0.	0.	4413.	6000.	0.	0.	0.	.74	64.	22.8	C	19.4	13.8
16	3	900.	122.	0.	5248.	122.	0.	4535.	5977.	0.	0.	0.	.76	64.	23.6	C	19.6	13.7
17	3	1400.	353.	0.	5601.	353.	0.	4888.	5932.	0.	0.	0.	.82	62.	26.1	D	20.4	13.1
18	3	200.	0.	0.	5601.	0.	0.	4888.	6000.	0.	0.	0.	.81	63.	26.0	C	20.2	13.2
19	3	1400.	0.	203.	5601.	0.	177.	4888.	5973.	0.	0.	0.	.82	63.	26.0	D	20.3	13.2
20	3	900.	0.	0.	5398.	0.	0.	4711.	6000.	0.	0.	0.	.79	63.	24.7	C	19.8	13.5
21	4	100.	283.	0.	5681.	283.	0.	4994.	6093.	0.	0.	0.	.82	65.	19.2	C	19.2	14.0
22	4	100.	0.	127.	5681.	0.	111.	4994.	6133.	0.	0.	0.	.81	65.	19.2	C	19.2	14.0
23	3	600.	0.	0.	5554.	0.	0.	4883.	6000.	0.	0.	0.	.81	63.	25.9	C	20.2	13.2
24	3	1500.	564.	0.	6118.	564.	0.	5447.	5884.	0.	0.	0.	.93	58.	31.5	D	22.3	11.9
25	3	1500.	0.	0.	6118.	0.	0.	5447.	6000.	0.	0.	0.	.91	59.	30.9	D	22.0	12.1
26	3	8000.	0.	0.	6118.	0.	0.	5447.	6000.	0.	0.	0.	.91	59.	30.9	D	22.0	12.1
27	5	100.	1253.	0.	7371.	1253.	0.	6700.	10000.	0.	0.	0.	.67	65.	20.6	C	19.2	14.0
28	5	1000.	0.	0.	7371.	0.	0.	6700.	7750.	0.	0.	0.	.86	65.	20.6	C	19.2	14.0
29	5	1000.	0.	7371.	7371.	0.	6700.	6700.	9685.	0.	0.	0.	.69	65.	20.6	C	19.2	14.0
TOTAL	135469. =	25.7 MILES				MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 49.		39.1		22.9	11.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	3173. VEH-HRS	3187. PASS-HRS	5309. VEH-HRS	5333. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	317. VEH-HRS	317. PASS-HRS	350. VEH-HRS	350. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	3490. VEH-HRS	3504. PASS-HRS	5659. VEH-HRS	5683. PASS-HRS
TOTAL TRAV DISTANCE =	155596. VEH-MI.	156426. PASS-MI.	288372. VEH-MI.	289918. PASS-MI.
AVERAGE SYSTEM SPEED =	45. MPH.		54. MPH.	
AVERAGE DENSITY =	39. VPMPL		33. VPMPL	
TOTAL FUEL =	6902. GALLONS		13396. GALLONS	
TOTAL EMISSIONS =	1861. KILOGRAMS		3599. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.38	2	558.14	3	11.84	4	3.73	5	5.91
6	37.19	7	58.14	8	49.15	9	27.12	10	6.48
11	0.00	12	0.00	13	0.00	14	0.00	15	0.08
16	0.18	17	0.82	18	0.10	19	0.77	20	0.29
21	0.00	22	0.00	23	0.31	24	3.01	25	2.53
26	13.51	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 779.7 VEH-HRS ***** AVERAGE DELAY = 7.87 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	3.88	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	3.88	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	518.	292.00	12.36	104.27	6.47	33.83	1.79	42.09
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	518.	292.00	12.36	104.27	6.47	33.83	1.79	42.09

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111         222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2740.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	2	3000.	2630.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	2	3000.	2530.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	2	3000.	700.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	2	3000.	750.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	2	3000.	350.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	2	3000.	350.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	2	3000.	350.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	2	3000.	900.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	2	3000.	1400.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	2	3000.	200.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks

19	2	3000.	1400.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	2	3000.	100.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	2	3000.	600.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	2	3000.	1500.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	2	3000.	1500.	65		0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	2	3000.	8000.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27														
28														
29														

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1071.	0.	1071.	1071.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
3	2	2740.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
4	2	600.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
5	2	700.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
6	2	2630.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
7	2	2530.	0.	0.	1071.	0.	0.	1071.	3000.	0.	0.	0.	.36	65.	8.2	A	20.0	13.7
8	2	1500.	32.	0.	1103.	32.	0.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
9	2	700.	0.	0.	1103.	0.	0.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
10	2	1500.	0.	320.	1103.	0.	320.	1103.	3000.	0.	0.	0.	.37	65.	8.5	A	20.0	13.7
11	2	750.	0.	0.	784.	0.	0.	784.	3000.	0.	0.	0.	.26	65.	6.0	A	20.0	13.7
12	2	350.	154.	0.	937.	154.	0.	937.	3000.	0.	0.	0.	.31	65.	7.2	A	20.0	13.7
13	2	350.	0.	0.	937.	0.	0.	937.	3000.	0.	0.	0.	.31	65.	7.2	A	20.0	13.7
14	2	350.	0.	96.	937.	0.	96.	937.	3000.	0.	0.	0.	.31	65.	7.2	A	20.0	13.7
15	2	700.	0.	0.	841.	0.	0.	841.	3000.	0.	0.	0.	.28	65.	6.5	A	20.0	13.7
16	2	900.	17.	0.	858.	17.	0.	858.	3000.	0.	0.	0.	.29	65.	6.6	A	20.0	13.7
17	2	1400.	49.	0.	907.	49.	0.	907.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
18	2	200.	0.	0.	907.	0.	0.	907.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
19	2	1400.	0.	37.	907.	0.	37.	907.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
20	2	900.	0.	0.	870.	0.	0.	870.	3000.	0.	0.	0.	.29	65.	6.7	A	20.0	13.7
21	2	100.	42.	0.	912.	42.	0.	912.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
22	2	100.	0.	12.	912.	0.	12.	912.	3000.	0.	0.	0.	.30	65.	7.0	A	20.0	13.7
23	2	600.	0.	0.	900.	0.	0.	900.	3000.	0.	0.	0.	.30	65.	6.9	A	20.0	13.7
24	2	1500.	104.	0.	1004.	104.	0.	1004.	3000.	0.	0.	0.	.33	65.	7.7	A	20.0	13.7
25	2	1500.	0.	0.	1004.	0.	0.	1004.	3000.	0.	0.	0.	.33	65.	7.7	A	20.0	13.7
26	2	8000.	0.	1004.	1004.	0.	1004.	1004.	3000.	0.	0.	0.	.33	65.	7.7	A	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES									MAX(V/C) = 0.37		LOWEST LOS = A		AVG = 65.		8.1	20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	406. VEH-HRS	811. PASS-HRS	406. VEH-HRS	811. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	406. VEH-HRS	811. PASS-HRS	406. VEH-HRS	811. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	26371. VEH-MI.	52742. PASS-MI.	26371. VEH-MI.	52742. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	8. VPMPL		8. VPMPL	
TOTAL FUEL =	1319. GALLONS		1319. GALLONS	
TOTAL EMISSIONS =	362. KILOGRAMS		362. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00

* 4 *	0.00	0.00	0.00	0.00	0.00	3.21	0.00
* 5 *	0.00	0.00	0.00	0.00	0.00	2.90	0.00
* 6 *	0.00	0.00	0.00	0.00	0.00	2.74	0.00
* 7 *	0.00	0.00	0.00	0.00	0.00	2.06	0.00
* 8 *	0.00	0.00	0.00	0.00	0.00	1.92	0.00
* 9 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 10 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00
* 11 *	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1275.	0.	1275.	1275.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
3	2	2740.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
4	2	600.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
5	2	700.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
6	2	2630.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
7	2	2530.	0.	0.	1275.	0.	0.	1275.	3000.	0.	0.	0.	.43	65.	9.8	A	20.0	13.7
8	2	1500.	43.	0.	1318.	43.	0.	1318.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
9	2	700.	0.	0.	1318.	0.	0.	1318.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
10	2	1500.	0.	375.	1318.	0.	375.	1318.	3000.	0.	0.	0.	.44	65.	10.1	A	20.0	13.7
11	2	750.	0.	0.	943.	0.	0.	943.	3000.	0.	0.	0.	.31	65.	7.3	A	20.0	13.7
12	2	350.	217.	0.	1160.	217.	0.	1160.	3000.	0.	0.	0.	.39	65.	8.9	A	20.0	13.7
13	2	350.	0.	0.	1160.	0.	0.	1160.	3000.	0.	0.	0.	.39	65.	8.9	A	20.0	13.7
14	2	350.	0.	127.	1160.	0.	127.	1160.	3000.	0.	0.	0.	.39	65.	8.9	A	20.0	13.7
15	2	700.	0.	0.	1033.	0.	0.	1033.	3000.	0.	0.	0.	.34	65.	7.9	A	20.0	13.7
16	2	900.	23.	0.	1057.	23.	0.	1057.	3000.	0.	0.	0.	.35	65.	8.1	A	20.0	13.7
17	2	1400.	68.	0.	1124.	68.	0.	1124.	3000.	0.	0.	0.	.37	65.	8.6	A	20.0	13.7
18	2	200.	0.	0.	1124.	0.	0.	1124.	3000.	0.	0.	0.	.37	65.	8.6	A	20.0	13.7
19	2	1400.	0.	27.	1124.	0.	27.	1124.	3000.	0.	0.	0.	.37	65.	8.6	A	20.0	13.7
20	2	900.	0.	0.	1098.	0.	0.	1098.	3000.	0.	0.	0.	.37	65.	8.4	A	20.0	13.7
21	2	100.	57.	0.	1154.	57.	0.	1154.	3000.	0.	0.	0.	.38	65.	8.9	A	20.0	13.7
22	2	100.	0.	17.	1154.	0.	17.	1154.	3000.	0.	0.	0.	.38	65.	8.9	A	20.0	13.7
23	2	600.	0.	0.	1138.	0.	0.	1138.	3000.	0.	0.	0.	.38	65.	8.8	A	20.0	13.7
24	2	1500.	116.	0.	1253.	116.	0.	1253.	3000.	0.	0.	0.	.42	65.	9.6	A	20.0	13.7
25	2	1500.	0.	0.	1253.	0.	0.	1253.	3000.	0.	0.	0.	.42	65.	9.6	A	20.0	13.7
26	2	8000.	0.	1253.	1253.	0.	1253.	1253.	3000.	0.	0.	0.	.42	65.	9.6	A	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES							MAX(V/C) = 0.44		LOWEST LOS = A		AVG = 65.		9.7		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	486. VEH-HRS	972. PASS-HRS	892. VEH-HRS	1783. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	486. VEH-HRS	972. PASS-HRS	892. VEH-HRS	1783. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	31588. VEH-MI.	63175. PASS-MI.	57959. VEH-MI.	115917. PASS-MI.
AVERAGE SYSTEM SPEED =	65. MPH.		65. MPH.	
AVERAGE DENSITY =	10. VPMPL		9. VPMPL	
TOTAL FUEL =	1579. GALLONS		2898. GALLONS	
TOTAL EMISSIONS =	434. KILOGRAMS		796. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222     PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222      PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7360.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6770.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6770.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6770.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	6880.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	6880.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	6880.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

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FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6250.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6250.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 9 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 10 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

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TIME SLICE 1 OF 3

QUEUE COLLISION IN SECTION 28 T2 =0.044
QUEUE COLLISION IN SECTION 19 T2 =0.531
QUEUE COLLISION IN SECTION 17 T2 =0.582
QUEUE COLLISION IN SECTION 10 T2 =0.780

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TIME SLICE 1 OF 3

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.27	32.68	34.04	37.82	39.01	57.48
2	0.00	1.81	3.18	6.95	8.15	26.61
3	0.00	0.00	0.81	4.59	5.78	24.25
4	0.00	0.00	0.00	3.13	4.33	22.79
5	0.00	0.00	0.00	2.45	3.65	22.11
6	0.00	0.00	0.00	0.00	0.22	18.68
7	0.00	0.00	0.00	0.00	0.00	17.79
8	0.00	0.00	0.00	0.00	0.00	1.37
9	0.00	0.00	0.00	0.00	0.00	1.14
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	9199.	1840.	9199.	9199.	1840.	9199.	10000.	0.	0.	0.	.92	58.	31.7	D	22.2	12.0
2	3	99999.	0.	0.	7359.	0.	0.	6000.	7360.	0.	* 21659.	1359.	.82	41.	49.0	F	22.5	12.0
3	3	2740.	0.	0.	7359.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
4	3	600.	0.	0.	7359.	0.	0.	3055.	6000.	0.	* 413.	2945.	.51	51.	19.9	F	23.7	11.2
5	3	700.	0.	0.	7359.	0.	0.	3055.	6000.	0.	** 700.	2945.	.51	46.	21.9	F	23.2	11.4
6	3	2630.	0.	0.	7359.	0.	0.	3055.	6000.	0.	** 2630.	2945.	.51	37.	27.5	F	22.1	11.9
7	3	2530.	0.	0.	7359.	0.	0.	3055.	6000.	0.	** 2530.	2945.	.51	28.	36.7	F	20.4	12.7
8	4	1500.	643.	0.	8002.	593.	0.	3648.	6673.	0.	** 1500.	2945.	.55	24.	38.4	F	19.0	13.6
9	4	700.	0.	0.	8002.	0.	0.	3648.	6770.	0.	** 700.	2945.	.54	21.	42.8	F	18.1	14.2
10	4	1500.	0.	1825.	8002.	0.	1085.	3648.	6355.	0.	** 1500.	2707.	.57	24.	38.6	F	19.0	13.7
11	3	750.	0.	0.	6177.	0.	0.	2196.	6000.	0.	** 750.	2707.	.37	15.	47.6	F	16.7	15.6
12	4	350.	700.	0.	6877.	650.	0.	2846.	6740.	0.	** 350.	2707.	.42	16.	45.8	F	15.4	16.8
13	4	350.	0.	0.	6877.	0.	0.	2846.	6880.	0.	** 350.	2707.	.41	14.	49.3	F	15.2	17.0
14	4	350.	0.	690.	6877.	0.	560.	2846.	6742.	0.	** 350.	2707.	.42	14.	50.5	F	15.0	17.2
15	3	700.	0.	0.	6187.	0.	0.	2287.	6000.	0.	** 700.	2707.	.38	12.	61.4	F	15.7	16.4
16	3	900.	808.	0.	6995.	708.	0.	2995.	5818.	0.	** 900.	2707.	.51	15.	66.3	F	16.0	15.8
17	3	1400.	302.	0.	7297.	240.	0.	3235.	5932.	0.	** 1400.	2697.	.55	15.	73.6	F	15.7	16.2
18	3	200.	0.	0.	7297.	0.	0.	3235.	6000.	0.	** 200.	2697.	.54	14.	78.7	F	15.1	16.7
19	3	1400.	0.	488.	7297.	0.	398.	3235.	5919.	0.	** 1400.	2684.	.55	13.	81.3	F	14.9	17.0
20	3	900.	0.	0.	6809.	0.	0.	2837.	6000.	0.	** 900.	2684.	.47	10.	90.9	F	13.8	18.1
21	4	100.	257.	0.	7066.	240.	0.	3077.	6187.	0.	** 100.	2684.	.50	11.	72.2	F	12.7	19.8
22	4	100.	0.	136.	7066.	0.	112.	3077.	6226.	0.	** 100.	2684.	.49	10.	73.4	F	12.7	19.9
23	3	600.	0.	0.	6930.	0.	0.	2965.	6000.	0.	** 600.	2684.	.49	10.	97.4	F	13.4	18.7
24	3	1500.	224.	0.	7154.	224.	0.	3189.	5944.	0.	** 1500.	2684.	.54	10.	101.9	F	13.2	19.0
25	3	1500.	0.	0.	7154.	0.	0.	3189.	6000.	0.	** 1500.	2684.	.53	9.	113.4	F	12.4	20.1
26	3	8000.	0.	0.	7154.	0.	0.	3189.	6000.	0.	** 8000.	2684.	.53	7.	151.6	F	10.4	23.6
27	5	100.	1789.	0.	8943.	1789.	0.	4978.	10000.	0.	** 100.	2684.	.50	5.	202.7	F	8.6	28.0
28	5	1000.	1560.	0.	10503.	1212.	0.	6190.	7750.	0.	** 1000.	1560.	.80	12.	100.6	F	14.4	20.9
29	5	1000.	1560.	12063.	12063.	1560.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL	135469. =	25.7 MILES				MAX(V/C) = 1.00				LOWEST LOS = F		AVG = 31.		56.5			20.9	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	5515. VEH-HRS	5555. PASS-HRS	5515. VEH-HRS	5555. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	314. VEH-HRS	348. PASS-HRS	314. VEH-HRS	348. PASS-HRS
OFF-RAMP DELAY =	183. VEH-HRS	184. PASS-HRS	183. VEH-HRS	184. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	6011. VEH-HRS	6088. PASS-HRS	6011. VEH-HRS	6088. PASS-HRS
TOTAL TRAV DISTANCE =	170587. VEH-MI.	171677. PASS-MI.	170587. VEH-MI.	171677. PASS-MI.
AVERAGE SYSTEM SPEED =	28. MPH.		31. MPH.	
AVERAGE DENSITY =	56. VPMPL		56. VPMPL	
TOTAL FUEL =	8341. GALLONS		8341. GALLONS	
TOTAL EMISSIONS =	2249. KILOGRAMS		2249. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	4.39	2	******	3	11.72	4	2.86	5	4.84
6	33.28	7	54.54	8	44.81	9	24.23	10	43.59
11	29.08	12	15.29	13	16.65	14	16.98	15	34.40
16	40.12	17	66.47	18	10.19	19	73.20	20	56.25
21	6.36	22	6.47	23	38.94	24	96.97	25	106.45
26	704.43	27	18.02	28	77.66	29	5.53		

***** TOTAL DELAY = 2890.1 VEH-HRS ***** AVERAGE DELAY = 42.97 MIN/VEH *****

***** RAMP DELAYS *****

QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS

ON-RAMP	2	RAMP	50.	25.00	2.33	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	2.33	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	50.	25.00	2.14	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	2.14	8.93	0.55	2.90	0.15	3.60
ON-RAMP	4	RAMP	100.	50.00	3.71	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	3.71	17.85	1.11	5.79	0.31	7.21
ON-RAMP	5	RAMP	62.	31.00	6.16	11.07	0.69	3.59	0.19	4.47
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	62.	31.00	6.16	11.07	0.69	3.59	0.19	4.47
ON-RAMP	6	RAMP	17.	8.50	1.98	3.04	0.19	0.98	0.05	1.23
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	17.	8.50	1.98	3.04	0.19	0.98	0.05	1.23
ON-RAMP	9	RAMP	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08
OFF-RAMP	2	OUTPUT POINT	367.	183.30		65.45	4.06	21.23	1.13	26.42

QUEUE COLLISION IN SECTION 3 T2 =0.127

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.25	61.81	64.43	68.58	69.75	81.49
2	0.00	3.25	5.86	10.02	11.19	22.92
3	0.00	0.00	1.48	5.63	6.80	18.54
4	0.00	0.00	0.00	3.12	4.29	16.03
5	0.00	0.00	0.00	2.34	3.51	15.25
6	0.00	0.00	0.00	0.00	0.20	11.94
7	0.00	0.00	0.00	0.00	0.00	11.12
8	0.00	0.00	0.00	0.00	0.00	0.96
9	0.00	0.00	0.00	0.00	0.00	0.81
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	8550.	1710.	8550.	8550.	1710.	8550.	10000.	0.	0.	0.	.86	61.	27.9	D	20.9	12.8
2	3	99999.	0.	0.	6840.	0.	0.	4721.	7360.	0.	* 41518.	2119.	.64	23.	68.5	F	17.7	14.9
3	3	2740.	0.	0.	6840.	0.	0.	4721.	6000.	0.	** 2740.	1279.	.79	12.	126.9	F	14.5	20.7
4	3	600.	0.	0.	6840.	0.	0.	4721.	6000.	0.	** 600.	1279.	.79	12.	135.6	F	14.0	21.5
5	3	700.	0.	0.	6840.	0.	0.	4720.	6000.	0.	** 700.	1279.	.79	12.	135.8	F	14.0	21.5
6	3	2630.	0.	0.	6840.	0.	0.	4720.	6000.	0.	** 2630.	1279.	.79	12.	135.8	F	14.0	21.5
7	3	2530.	0.	0.	6840.	0.	0.	4720.	6000.	0.	** 2530.	1279.	.79	12.	135.8	F	14.0	21.5
8	4	1500.	672.	0.	7512.	672.	0.	5393.	6674.	0.	** 1500.	1279.	.81	12.	108.6	F	14.5	20.9

*	9	4	700.	0.	0.	7512.	0.	0.	5393.	6770.	0.	**	700.	1279.	.80	12.	112.7	F	14.2	21.2	*
*	10	4	1500.	0.	1788.	7512.	0.	1098.	5393.	6368.	0.	**	1500.	975.	.85	14.	95.6	F	15.6	19.5	*
*	11	3	750.	0.	0.	5724.	0.	0.	3875.	6000.	0.	**	750.	975.	.65	7.	172.6	F	10.3	25.8	*
*	12	4	350.	681.	0.	6405.	681.	0.	4556.	6751.	0.	**	350.	975.	.67	8.	139.3	F	10.9	24.9	*
*	13	4	350.	0.	0.	6405.	0.	0.	4556.	6880.	0.	**	350.	975.	.66	8.	144.8	F	10.6	25.3	*
*	14	4	350.	0.	722.	6405.	0.	625.	4556.	6738.	0.	**	350.	975.	.68	8.	138.7	F	11.0	24.9	*
*	15	3	700.	0.	0.	5683.	0.	0.	3930.	6000.	0.	**	700.	975.	.66	8.	170.2	F	10.5	25.5	*
*	16	3	900.	859.	0.	6542.	859.	0.	4789.	5814.	0.	**	900.	975.	.82	13.	122.2	F	14.9	20.4	*
*	17	3	1400.	321.	0.	6863.	283.	0.	5072.	5930.	0.	**	1400.	858.	.86	15.	116.4	F	15.9	19.2	*
*	18	3	200.	0.	0.	6863.	0.	0.	5072.	6000.	0.	**	200.	858.	.85	14.	120.4	F	15.6	19.6	*
*	19	3	1400.	0.	606.	6863.	0.	520.	5072.	5904.	0.	**	1400.	832.	.86	15.	115.0	F	16.1	19.1	*
*	20	3	900.	0.	0.	6257.	0.	0.	4552.	6000.	0.	**	900.	832.	.76	11.	143.1	F	13.5	22.3	*
*	21	4	100.	274.	0.	6531.	240.	0.	4792.	6184.	0.	**	100.	832.	.77	11.	107.3	F	13.8	21.9	*
*	22	4	100.	0.	193.	6531.	0.	165.	4792.	6218.	0.	**	100.	832.	.77	11.	108.8	F	13.7	22.0	*
*	23	3	600.	0.	0.	6338.	0.	0.	4627.	6000.	0.	**	600.	832.	.77	11.	139.8	F	13.7	22.0	*
*	24	3	1500.	200.	0.	6538.	200.	0.	4827.	5950.	0.	**	1500.	832.	.81	13.	128.3	F	14.6	20.8	*
*	25	3	1500.	0.	0.	6538.	0.	0.	4827.	6000.	0.	**	1500.	832.	.80	12.	131.1	F	14.4	21.0	*
*	26	3	8000.	0.	0.	6538.	0.	0.	4827.	6000.	0.	**	8000.	832.	.80	12.	131.1	F	14.4	21.0	*
*	27	5	100.	1635.	0.	8173.	1635.	0.	6462.	10000.	0.	**	100.	832.	.65	7.	172.5	F	10.3	25.7	*
*	28	5	1000.	520.	0.	8693.	768.	0.	7230.	7750.	0.	**	1000.	520.	.93	19.	75.6	F	18.1	16.6	*
*	29	5	1000.	520.	9213.	9213.	520.	7750.	7750.	7750.	0.		0.	0.	1.00	52.	29.7	E	23.8	11.1	*
*																					*
*																					*
*	TOTAL	135469. =	25.7 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 20.		82.3			16.9	16.1	*
*																					*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	7740. VEH-HRS	7776. PASS-HRS	13255. VEH-HRS	13332. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	539. VEH-HRS	584. PASS-HRS	853. VEH-HRS	932. PASS-HRS
OFF-RAMP DELAY =	577. VEH-HRS	579. PASS-HRS	760. VEH-HRS	763. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	8856. VEH-HRS	8939. PASS-HRS	14867. VEH-HRS	15027. PASS-HRS
TOTAL TRAV DISTANCE =	152275. VEH-MI.	153374. PASS-MI.	322861. VEH-MI.	325051. PASS-MI.
AVERAGE SYSTEM SPEED =	17. MPH.		24. MPH.	
AVERAGE DENSITY =	82. VPMPL		69. VPMPL	
TOTAL FUEL =	9387. GALLONS		17728. GALLONS	
TOTAL EMISSIONS =	2612. KILOGRAMS		4860. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	2.07	2	******	3	162.74	4	37.98	5	44.38
6	166.75	7	160.41	8	99.86	9	48.77	10	85.02
11	65.09	12	32.28	13	33.74	14	32.13	15	59.67
16	49.91	17	71.93	18	10.73	19	70.75	20	61.24
21	6.73	22	6.84	23	39.58	24	88.22	25	90.65
26	483.44	27	14.45	28	50.52	29	5.53		

***** TOTAL DELAY = 5397.8 VEH-HRS ***** AVERAGE DELAY = 68.01 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	4.16	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.16	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	4.10	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.10	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	6.26	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.26	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	81.00	12.69	28.92	1.79	9.38	0.50	11.68
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	81.00	12.69	28.92	1.79	9.38	0.50	11.68
ON-RAMP	6	RAMP	51.	34.00	7.01	12.14	0.75	3.94	0.21	4.90
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	51.	34.00	7.01	12.14	0.75	3.94	0.21	4.90
ON-RAMP	9	RAMP	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29
OFF-RAMP	2	OUTPUT POINT	786.	576.53		205.87	12.77	66.79	3.54	83.10

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	85.93	88.58	92.95	94.20	106.49
2	0.00	3.40	6.05	10.43	11.67	23.96
3	0.00	0.00	1.47	5.85	7.09	19.39
4	0.00	0.00	0.00	3.38	4.62	16.92
5	0.00	0.00	0.00	2.54	3.78	16.08
6	0.00	0.00	0.00	0.00	0.22	12.51
7	0.00	0.00	0.00	0.00	0.00	11.64
8	0.00	0.00	0.00	0.00	0.00	1.04
9	0.00	0.00	0.00	0.00	0.00	0.88
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7770.	1554.	7770.	7770.	1554.	7770.	10000.	0.	0.	0.	.78	64.	24.4	C	19.8	13.6
2	3	99999.	0.	0.	6216.	0.	0.	4795.	7360.	0.	* 55705.	1421.	.65	15.	103.5	F	14.6	18.3
3	3	2740.	0.	0.	6216.	0.	0.	4795.	6000.	0.	** 2740.	1205.	.80	12.	132.5	F	14.3	21.2
4	3	600.	0.	0.	6216.	0.	0.	4794.	6000.	0.	** 600.	1205.	.80	12.	132.6	F	14.3	21.2
5	3	700.	0.	0.	6216.	0.	0.	4794.	6000.	0.	** 700.	1205.	.80	12.	132.6	F	14.3	21.2
6	3	2630.	0.	0.	6216.	0.	0.	4794.	6000.	0.	** 2630.	1205.	.80	12.	132.6	F	14.3	21.2
7	3	2530.	0.	0.	6216.	0.	0.	4794.	6000.	0.	** 2530.	1205.	.80	12.	132.6	F	14.3	21.2
8	4	1500.	523.	0.	6739.	523.	0.	5318.	6693.	0.	** 1500.	1205.	.79	12.	111.9	F	14.2	21.3
9	4	700.	0.	0.	6739.	0.	0.	5318.	6770.	0.	** 700.	1205.	.79	12.	115.2	F	14.0	21.6
10	4	1500.	0.	1580.	6739.	0.	1140.	5318.	6410.	0.	** 1500.	1092.	.83	13.	99.8	F	15.1	20.2
11	3	750.	0.	0.	5159.	0.	0.	3814.	6000.	0.	** 750.	1092.	.64	7.	175.3	F	10.1	26.0
12	4	350.	755.	0.	5914.	755.	0.	4569.	6734.	0.	** 350.	1092.	.68	8.	138.1	F	11.0	24.8
13	4	350.	0.	0.	5914.	0.	0.	4569.	6880.	0.	** 350.	1092.	.66	8.	144.3	F	10.7	25.3
14	4	350.	0.	590.	5914.	0.	567.	4569.	6765.	0.	** 350.	1092.	.68	8.	139.4	F	10.9	24.9
15	3	700.	0.	0.	5324.	0.	0.	4002.	6000.	0.	** 700.	1092.	.67	8.	167.0	F	10.7	25.2
16	3	900.	681.	0.	6005.	681.	0.	4683.	5851.	0.	** 900.	1092.	.80	12.	128.9	F	14.3	21.1
17	3	1400.	255.	0.	6260.	255.	0.	4938.	5945.	0.	** 1400.	1007.	.83	13.	123.1	F	15.1	20.1
18	3	200.	0.	0.	6260.	0.	0.	4938.	6000.	0.	** 200.	1007.	.82	13.	126.3	F	14.9	20.4
19	3	1400.	0.	530.	6260.	0.	502.	4938.	5915.	0.	** 1400.	977.	.83	14.	121.4	F	15.2	20.0
20	3	900.	0.	0.	5730.	0.	0.	4436.	6000.	0.	** 900.	977.	.74	10.	148.1	F	13.1	22.8
21	4	100.	218.	0.	5948.	240.	0.	4676.	6198.	0.	** 100.	977.	.75	10.	111.7	F	13.4	22.4
22	4	100.	0.	178.	5948.	0.	169.	4676.	6220.	0.	** 100.	977.	.75	10.	112.7	F	13.4	22.5
23	3	600.	0.	0.	5770.	0.	0.	4507.	6000.	0.	** 600.	977.	.75	10.	145.1	F	13.3	22.5
24	3	1500.	240.	0.	6010.	240.	0.	4747.	5940.	0.	** 1500.	977.	.80	12.	131.2	F	14.3	21.2
25	3	1500.	0.	0.	6010.	0.	0.	4747.	6000.	0.	** 1500.	977.	.79	12.	134.6	F	14.1	21.4
26	3	8000.	0.	0.	6010.	0.	0.	4747.	6000.	0.	** 8000.	977.	.79	12.	134.6	F	14.1	21.4
27	5	100.	1503.	0.	7513.	1503.	0.	6250.	10000.	0.	** 100.	977.	.63	7.	178.0	F	9.9	26.3
28	5	1000.	750.	0.	8263.	750.	0.	7000.	7750.	0.	** 1000.	750.	.90	17.	81.6	F	17.2	17.6
29	5	1000.	750.	9013.	9013.	750.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. =	25.7 MILES						MAX(V/C) = 1.00		LOWEST LOS = F			AVG = 15.	108.7		14.6	18.8

US-101_SB_PM_NP_2040_PE

FREEWAY TRAVEL TIME =	9435. VEH-HRS	9471. PASS-HRS	22690. VEH-HRS	22803. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	440. VEH-HRS	460. PASS-HRS	1293. VEH-HRS	1392. PASS-HRS
OFF-RAMP DELAY =	968. VEH-HRS	972. PASS-HRS	1728. VEH-HRS	1735. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	10843. VEH-HRS	10903. PASS-HRS	25711. VEH-HRS	25930. PASS-HRS
TOTAL TRAV DISTANCE =	138567. VEH-MI.	139616. PASS-MI.	461428. VEH-MI.	464667. PASS-MI.
AVERAGE SYSTEM SPEED =	13. MPH.		20. MPH.	
AVERAGE DENSITY =	109. VPMPL		83. VPMPL	
TOTAL FUEL =	10008. GALLONS		27736. GALLONS	
TOTAL EMISSIONS =	2806. KILOGRAMS		7666. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.64	2	******	3	168.04	4	36.81	5	42.95
6	161.37	7	155.23	8	103.89	9	50.23	10	90.17
11	66.35	12	31.96	13	33.61	14	32.31	15	58.28
16	53.63	17	77.80	18	11.47	19	76.44	20	64.12
21	7.10	22	7.17	23	41.57	24	91.06	25	93.97
26	501.15	27	15.04	28	56.88	29	5.53		

***** TOTAL DELAY = 7303.4 VEH-HRS ***** AVERAGE DELAY = 91.36 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	5.24	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	5.24	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	3.73	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	3.73	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	7.68	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.68	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	16.90	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	16.90	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	29.	40.00	8.92	14.28	0.89	4.63	0.25	5.77
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	29.	40.00	8.92	14.28	0.89	4.63	0.25	5.77
ON-RAMP	9	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	1150.	968.24		345.74	21.45	112.17	5.95	139.57

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111     222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2740.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	2	3000.	2630.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	2	3000.	2530.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	2	3000.	700.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	2	3000.	750.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	2	3000.	350.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	2	3000.	350.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	2	3000.	350.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	2	3000.	900.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	2	3000.	1400.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	2	3000.	200.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks

19	2	3000.	1400.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	2	3000.	100.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	2	3000.	600.	65		0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	2	3000.	1500.	65	O	0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	2	3000.	1500.	65		0.96	0.0	0 100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	2	3000.	8000.	65	D	0.96	0.0	0 100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27														
28														
29														

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1840.	0.	1840.	1840.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
3	2	2740.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
4	2	600.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
5	2	700.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
6	2	2630.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
7	2	2530.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
8	2	1500.	97.	0.	1937.	97.	0.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
9	2	700.	0.	0.	1937.	0.	0.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
10	2	1500.	0.	415.	1937.	0.	278.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
11	2	750.	0.	0.	1522.	0.	0.	1522.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
12	2	350.	140.	0.	1662.	140.	0.	1662.	3000.	0.	0.	0.	.55	65.	12.8	B	20.0	13.7
13	2	350.	0.	0.	1662.	0.	0.	1662.	3000.	0.	0.	0.	.55	65.	12.8	B	20.0	13.7
14	2	350.	0.	138.	1662.	0.	138.	1662.	3000.	0.	0.	0.	.55	65.	12.8	B	20.0	13.7
15	2	700.	0.	0.	1524.	0.	0.	1524.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
16	2	900.	182.	0.	1706.	182.	0.	1706.	3000.	0.	0.	0.	.57	65.	13.1	B	20.0	13.7
17	2	1400.	68.	0.	1774.	68.	0.	1774.	3000.	0.	0.	0.	.59	65.	13.6	B	20.0	13.7
18	2	200.	0.	0.	1774.	0.	0.	1774.	3000.	0.	0.	0.	.59	65.	13.6	B	20.0	13.7
19	2	1400.	0.	81.	1774.	0.	81.	1774.	3000.	0.	0.	0.	.59	65.	13.6	B	20.0	13.7
20	2	900.	0.	0.	1693.	0.	0.	1693.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
21	2	100.	63.	0.	1756.	63.	0.	1756.	3000.	0.	0.	0.	.59	65.	13.5	B	20.0	13.7
22	2	100.	0.	24.	1756.	0.	24.	1756.	3000.	0.	0.	0.	.59	65.	13.5	B	20.0	13.7
23	2	600.	0.	0.	1733.	0.	0.	1733.	3000.	0.	0.	0.	.58	65.	13.3	B	20.0	13.7
24	2	1500.	56.	0.	1789.	56.	0.	1789.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
25	2	1500.	0.	0.	1789.	0.	0.	1789.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
26	2	8000.	0.	1789.	1789.	0.	1789.	1789.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES								MAX(V/C) = 0.65	LOWEST LOS = B		AVG = 65.		14.1		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	704. VEH-HRS	1407. PASS-HRS	704. VEH-HRS	1407. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	68. VEH-HRS	137. PASS-HRS	68. VEH-HRS	137. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	772. VEH-HRS	1544. PASS-HRS	772. VEH-HRS	1544. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	45738. VEH-MI.	91475. PASS-MI.	45738. VEH-MI.	91475. PASS-MI.
AVERAGE SYSTEM SPEED =	59. MPH.		65. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	2310. GALLONS		2310. GALLONS	
TOTAL EMISSIONS =	638. KILOGRAMS		638. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	137.	68.48	23.49	1.48	7.72	0.41	9.62

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7

1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1710.	0.	1710.	1710.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
3	2	2740.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
4	2	600.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
5	2	700.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
6	2	2630.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
7	2	2530.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
8	2	1500.	96.	0.	1806.	96.	0.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
9	2	700.	0.	0.	1806.	0.	0.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
10	2	1500.	0.	402.	1806.	0.	275.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
11	2	750.	0.	0.	1404.	0.	0.	1404.	3000.	0.	0.	0.	.47	65.	10.8	A	20.0	13.7
12	2	350.	129.	0.	1533.	129.	0.	1533.	3000.	0.	0.	0.	.51	65.	11.8	B	20.0	13.7
13	2	350.	0.	0.	1533.	0.	0.	1533.	3000.	0.	0.	0.	.51	65.	11.8	B	20.0	13.7
14	2	350.	0.	142.	1533.	0.	142.	1533.	3000.	0.	0.	0.	.51	65.	11.8	B	20.0	13.7
15	2	700.	0.	0.	1391.	0.	0.	1391.	3000.	0.	0.	0.	.46	65.	10.7	A	20.0	13.7
16	2	900.	186.	0.	1577.	186.	0.	1577.	3000.	0.	0.	0.	.53	65.	12.1	B	20.0	13.7
17	2	1400.	70.	0.	1647.	70.	0.	1647.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
18	2	200.	0.	0.	1647.	0.	0.	1647.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
19	2	1400.	0.	96.	1647.	0.	96.	1647.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
20	2	900.	0.	0.	1551.	0.	0.	1551.	3000.	0.	0.	0.	.52	65.	11.9	B	20.0	13.7
21	2	100.	66.	0.	1617.	66.	0.	1617.	3000.	0.	0.	0.	.54	65.	12.4	B	20.0	13.7
22	2	100.	0.	32.	1617.	0.	32.	1617.	3000.	0.	0.	0.	.54	65.	12.4	B	20.0	13.7
23	2	600.	0.	0.	1585.	0.	0.	1585.	3000.	0.	0.	0.	.53	65.	12.2	B	20.0	13.7
24	2	1500.	50.	0.	1635.	50.	0.	1635.	3000.	0.	0.	0.	.54	65.	12.6	B	20.0	13.7
25	2	1500.	0.	0.	1635.	0.	0.	1635.	3000.	0.	0.	0.	.54	65.	12.6	B	20.0	13.7
26	2	8000.	0.	1635.	1635.	0.	1635.	1635.	3000.	0.	0.	0.	.54	65.	12.6	B	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. =	25.0 MILES					MAX(V/C) = 0.60	LOWEST LOS = B				AVG = 65.	13.1			20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	653. VEH-HRS	1306. PASS-HRS	1357. VEH-HRS	2713. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	200. VEH-HRS	401. PASS-HRS	269. VEH-HRS	537. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	853. VEH-HRS	1706. PASS-HRS	1625. VEH-HRS	3251. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42436. VEH-MI.	84872. PASS-MI.	88173. VEH-MI.	176347. PASS-MI.
AVERAGE SYSTEM SPEED =	50. MPH.		65. MPH.	
AVERAGE DENSITY =	13. VPMPL		14. VPMPL	
TOTAL FUEL =	2190. GALLONS		4501. GALLONS	
TOTAL EMISSIONS =	611. KILOGRAMS		1249. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY

1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	264.	200.26	68.69	4.33	22.59	1.20	28.12

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DEMANDS ORG	DES	ADJUSTED VOLUMES SSEC	ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST STORAGE LENGTH	RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1554.	0.	1554.	1554.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
3	2	2740.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
4	2	600.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
5	2	700.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
6	2	2630.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
7	2	2530.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
8	2	1500.	77.	0.	1631.	77.	0.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
9	2	700.	0.	0.	1631.	0.	0.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
10	2	1500.	0.	360.	1631.	0.	279.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
11	2	750.	0.	0.	1271.	0.	0.	1271.	3000.	0.	0.	0.	.42	65.	9.8	A	20.0	13.7
12	2	350.	146.	0.	1416.	146.	0.	1416.	3000.	0.	0.	0.	.47	65.	10.9	A	20.0	13.7
13	2	350.	0.	0.	1416.	0.	0.	1416.	3000.	0.	0.	0.	.47	65.	10.9	A	20.0	13.7
14	2	350.	0.	115.	1416.	0.	115.	1416.	3000.	0.	0.	0.	.47	65.	10.9	A	20.0	13.7
15	2	700.	0.	0.	1302.	0.	0.	1302.	3000.	0.	0.	0.	.43	65.	10.0	A	20.0	13.7
16	2	900.	149.	0.	1450.	149.	0.	1450.	3000.	0.	0.	0.	.48	65.	11.2	B	20.0	13.7
17	2	1400.	55.	0.	1506.	55.	0.	1506.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7
18	2	200.	0.	0.	1506.	0.	0.	1506.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7
19	2	1400.	0.	85.	1506.	0.	85.	1506.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7
20	2	900.	0.	0.	1420.	0.	0.	1420.	3000.	0.	0.	0.	.47	65.	10.9	A	20.0	13.7
21	2	100.	52.	0.	1473.	52.	0.	1473.	3000.	0.	0.	0.	.49	65.	11.3	B	20.0	13.7
22	2	100.	0.	30.	1473.	0.	30.	1473.	3000.	0.	0.	0.	.49	65.	11.3	B	20.0	13.7
23	2	600.	0.	0.	1443.	0.	0.	1443.	3000.	0.	0.	0.	.48	65.	11.1	B	20.0	13.7
24	2	1500.	60.	0.	1503.	60.	0.	1503.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7

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*  25   2    1500.      0.    0. 1503.     0.    0. 1503.  3000.     0.       0.     0.   .50    65.   11.6    B     20.0    13.7  *
*  26   2    8000.      0. 1503. 1503.     0. 1503. 1503.  3000.     0.       0.     0.   .50    65.   11.6    B     20.0    13.7  *
*  27                                                                                                                              *
*  28                                                                                                                              *
*  29                                                                                                                              *
*                                                                                                                                  *
************************************************************************************************************************************
*                                                                                                                                  *
*   TOTAL  131999. =   25.0 MILES                        MAX(V/C) = 0.54  LOWEST LOS = B   AVG = 65.   11.9          20.0    13.7  *
*                                                                                                                                  *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	594. VEH-HRS	1188. PASS-HRS	1951. VEH-HRS	3901. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	304. VEH-HRS	609. PASS-HRS	573. VEH-HRS	1146. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	898. VEH-HRS	1797. PASS-HRS	2524. VEH-HRS	5047. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	38612. VEH-MI.	77223. PASS-MI.	126785. VEH-MI.	253570. PASS-MI.
AVERAGE SYSTEM SPEED =	43. MPH.		65. MPH.	
AVERAGE DENSITY =	12. VPMPL		13. VPMPL	
TOTAL FUEL =	2035. GALLONS		6536. GALLONS	
TOTAL EMISSIONS =	573. KILOGRAMS		1822. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	345.	304.41	104.41	6.58	34.34	1.83	42.74

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222     PPPPPPPPP     EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222      PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222        PPP           EEE
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222   PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7360.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6770.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6770.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6770.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	7010.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	7010.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	7010.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6250.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6250.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 9 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 10 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

QUEUE COLLISION IN SECTION 28 T2 =0.044
QUEUE COLLISION IN SECTION 17 T2 =0.591
QUEUE COLLISION IN SECTION 10 T2 =0.762

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.27	32.84	34.26	38.11	39.31	57.87
2	0.00	1.89	3.32	7.17	8.36	26.92
3	0.00	0.00	0.85	4.70	5.90	24.46
4	0.00	0.00	0.00	3.17	4.37	22.92
5	0.00	0.00	0.00	2.43	3.62	22.18
6	0.00	0.00	0.00	0.00	0.22	18.77
7	0.00	0.00	0.00	0.00	0.00	17.89
8	0.00	0.00	0.00	0.00	0.00	1.37
9	0.00	0.00	0.00	0.00	0.00	1.14
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	9198.	1840.	9198.	9198.	1840.	9198.	10000.	0.	0.	0.	.92	58.	31.7	D	22.2	12.0
2	3	99999.	0.	0.	7358.	0.	0.	6000.	7360.	0.	* 21640.	1358.	.82	41.	49.0	F	22.5	12.0
3	3	2740.	0.	0.	7358.	0.	0.	2989.	6000.	0.	* 121.	3011.	.50	52.	19.1	F	23.8	11.1
4	3	600.	0.	0.	7358.	0.	0.	2989.	6000.	0.	** 600.	3011.	.50	49.	20.4	F	23.5	11.3
5	3	700.	0.	0.	7358.	0.	0.	2989.	6000.	0.	** 700.	3011.	.50	44.	22.5	F	23.0	11.4
6	3	2630.	0.	0.	7358.	0.	0.	2989.	6000.	0.	** 2630.	3011.	.50	36.	28.0	F	21.9	12.0
7	3	2530.	0.	0.	7358.	0.	0.	2989.	6000.	0.	** 2530.	3011.	.50	27.	37.3	F	20.3	12.8
8	4	1500.	643.	0.	8001.	593.	0.	3582.	6673.	0.	** 1500.	3011.	.54	23.	39.0	F	18.8	13.7
9	4	700.	0.	0.	8001.	0.	0.	3582.	6770.	0.	** 700.	3011.	.53	21.	43.4	F	17.9	14.3
10	4	1500.	0.	1711.	8001.	0.	1111.	3582.	6381.	0.	** 1500.	2799.	.56	22.	40.2	F	18.6	13.9
11	3	750.	0.	0.	6290.	0.	0.	2215.	6000.	0.	** 750.	2799.	.37	15.	49.7	F	16.7	15.5
12	4	350.	702.	0.	6992.	652.	0.	2867.	6873.	0.	** 350.	2799.	.42	15.	48.6	F	15.3	16.9
13	4	350.	0.	0.	6992.	0.	0.	2867.	7010.	0.	** 350.	2799.	.41	14.	52.2	F	15.1	17.1
14	4	350.	0.	804.	6992.	0.	654.	2867.	6848.	0.	** 350.	2799.	.42	13.	53.1	F	14.9	17.3
15	3	700.	0.	0.	6188.	0.	0.	2213.	6000.	0.	** 700.	2799.	.37	12.	62.9	F	15.6	16.4
16	3	900.	711.	0.	6899.	611.	0.	2824.	5840.	0.	** 900.	2799.	.48	14.	68.2	F	15.8	16.0
17	3	1400.	490.	0.	7389.	390.	0.	3214.	5890.	0.	** 1400.	2676.	.55	15.	71.9	F	15.8	16.1
18	3	200.	0.	0.	7389.	0.	0.	3214.	6000.	0.	** 200.	2676.	.54	14.	77.5	F	15.2	16.7
19	3	1400.	0.	496.	7389.	0.	397.	3214.	5919.	0.	** 1400.	2676.	.54	13.	80.6	F	14.9	17.0
20	3	900.	0.	0.	6893.	0.	0.	2816.	6000.	0.	** 900.	2676.	.47	10.	90.1	F	13.9	18.1
21	4	100.	257.	0.	7150.	240.	0.	3056.	6187.	0.	** 100.	2676.	.49	11.	71.7	F	12.8	19.8
22	4	100.	0.	138.	7150.	0.	111.	3056.	6226.	0.	** 100.	2676.	.49	10.	72.9	F	12.7	19.8
23	3	600.	0.	0.	7012.	0.	0.	2945.	6000.	0.	** 600.	2676.	.49	10.	96.7	F	13.4	18.6
24	3	1500.	224.	0.	7236.	224.	0.	3169.	5944.	0.	** 1500.	2676.	.53	10.	101.3	F	13.2	19.0
25	3	1500.	0.	0.	7236.	0.	0.	3169.	6000.	0.	** 1500.	2676.	.53	9.	113.0	F	12.4	20.0
26	3	8000.	0.	0.	7236.	0.	0.	3169.	6000.	0.	** 8000.	2676.	.53	7.	151.7	F	10.4	23.6
27	5	100.	1809.	0.	9045.	1809.	0.	4978.	10000.	0.	** 100.	2676.	.50	5.	202.6	F	8.6	28.0
28	5	1000.	1560.	0.	10605.	1212.	0.	6190.	7750.	0.	** 1000.	1560.	.80	12.	100.6	F	14.4	20.9
29	5	1000.	1560.	12165.	12165.	1560.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL	135469. =	25.7 MILES				MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 31.	56.1			20.9	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	5535. VEH-HRS	5576. PASS-HRS	5535. VEH-HRS	5576. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	333. VEH-HRS	367. PASS-HRS	333. VEH-HRS	367. PASS-HRS
OFF-RAMP DELAY =	128. VEH-HRS	128. PASS-HRS	128. VEH-HRS	128. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5995. VEH-HRS	6072. PASS-HRS	5995. VEH-HRS	6072. PASS-HRS
TOTAL TRAV DISTANCE =	170433. VEH-MI.	171523. PASS-MI.	170433. VEH-MI.	171523. PASS-MI.
AVERAGE SYSTEM SPEED =	28. MPH.		31. MPH.	
AVERAGE DENSITY =	56. VPMPL		56. VPMPL	
TOTAL FUEL =	8325. GALLONS		8325. GALLONS	
TOTAL EMISSIONS =	2242. KILOGRAMS		2242. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	4.39	2	******	3	11.75	4	3.45	5	5.61
6	36.38	7	57.79	8	46.92	9	25.27	10	47.31
11	30.70	12	16.50	13	17.89	14	18.10	15	36.35
16	43.30	17	64.85	18	10.05	19	72.74	20	55.99
21	6.33	22	6.45	23	38.81	24	96.76	25	106.39
26	706.54	27	18.02	28	77.66	29	5.53		

***** TOTAL DELAY = 2913.0 VEH-HRS ***** AVERAGE DELAY = 43.85 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	2.33	8.93	0.55	2.90	0.15	3.60

		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	2.33	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	50.	25.00	2.14	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	2.14	8.93	0.55	2.90	0.15	3.60
ON-RAMP	4	RAMP	100.	50.00	4.22	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.22	17.85	1.11	5.79	0.31	7.21
ON-RAMP	5	RAMP	100.	50.00	6.12	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	6.12	17.85	1.11	5.79	0.31	7.21
ON-RAMP	6	RAMP	17.	8.50	1.98	3.04	0.19	0.98	0.05	1.23
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	17.	8.50	1.98	3.04	0.19	0.98	0.05	1.23
ON-RAMP	9	RAMP	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08
OFF-RAMP	2	OUTPUT POINT	256.	127.79		45.63	2.83	14.80	0.79	18.42

QUEUE COLLISION IN SECTION 3 T2 =0.108

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.25	64.84	67.58	71.96	73.14	85.00
2	0.00	3.50	6.24	10.62	11.80	23.65
3	0.00	0.00	1.57	5.95	7.13	18.99
4	0.00	0.00	0.00	3.26	4.44	16.30
5	0.00	0.00	0.00	2.34	3.53	15.38
6	0.00	0.00	0.00	0.00	0.21	12.06
7	0.00	0.00	0.00	0.00	0.00	11.23
8	0.00	0.00	0.00	0.00	0.00	0.96
9	0.00	0.00	0.00	0.00	0.00	0.81
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	8549.	1710.	8549.	8549.	1710.	8549.	10000.	0.	0.	0.	.85	61.	27.9	D	20.9	12.8
2	3	99999.	0.	0.	6839.	0.	0.	4578.	7360.	0.	* 42274.	2261.	.62	22.	69.2	F	17.4	15.1
3	3	2740.	0.	0.	6839.	0.	0.	4578.	6000.	0.	** 2740.	1422.	.76	11.	134.4	F	13.9	21.5
4	3	600.	0.	0.	6839.	0.	0.	4577.	6000.	0.	** 600.	1422.	.76	11.	142.0	F	13.5	22.2
5	3	700.	0.	0.	6839.	0.	0.	4577.	6000.	0.	** 700.	1422.	.76	11.	142.0	F	13.5	22.2
6	3	2630.	0.	0.	6839.	0.	0.	4577.	6000.	0.	** 2630.	1422.	.76	11.	142.0	F	13.5	22.2
7	3	2530.	0.	0.	6839.	0.	0.	4577.	6000.	0.	** 2530.	1422.	.76	11.	142.0	F	13.5	22.2
8	4	1500.	672.	0.	7511.	672.	0.	5250.	6674.	0.	** 1500.	1422.	.79	12.	113.3	F	14.0	21.5
9	4	700.	0.	0.	7511.	0.	0.	5250.	6770.	0.	** 700.	1422.	.78	11.	117.4	F	13.8	21.9

*	10	4	1500.	0.	1666.	7511.	0.	1126.	5250.	6396.	0.	**	1500.	1146.	.82	13.	101.4	F	14.8	20.5	*
*	11	3	750.	0.	0.	5845.	0.	0.	3829.	6000.	0.	**	750.	1146.	.64	7.	174.6	F	10.1	26.0	*
*	12	4	350.	670.	0.	6515.	670.	0.	4499.	6886.	0.	**	350.	1146.	.65	8.	146.9	F	10.4	25.6	*
*	13	4	350.	0.	0.	6515.	0.	0.	4499.	7010.	0.	**	350.	1146.	.64	7.	152.2	F	10.2	25.9	*
*	14	4	350.	0.	842.	6515.	0.	732.	4499.	6843.	0.	**	350.	1146.	.66	8.	145.0	F	10.5	25.4	*
*	15	3	700.	0.	0.	5673.	0.	0.	3768.	6000.	0.	**	700.	1146.	.63	7.	177.3	F	9.9	26.2	*
*	16	3	900.	757.	0.	6430.	757.	0.	4525.	5836.	0.	**	900.	1146.	.78	11.	135.0	F	13.8	21.9	*
*	17	3	1400.	526.	0.	6956.	526.	0.	5051.	5886.	0.	**	1400.	835.	.86	15.	114.9	F	16.0	19.1	*
*	18	3	200.	0.	0.	6956.	0.	0.	5051.	6000.	0.	**	200.	835.	.84	14.	121.4	F	15.5	19.7	*
*	19	3	1400.	0.	614.	6956.	0.	519.	5051.	5904.	0.	**	1400.	835.	.86	15.	115.9	F	15.9	19.2	*
*	20	3	900.	0.	0.	6342.	0.	0.	4532.	6000.	0.	**	900.	835.	.76	10.	144.0	F	13.4	22.4	*
*	21	4	100.	274.	0.	6616.	240.	0.	4772.	6184.	0.	**	100.	835.	.77	11.	108.0	F	13.7	22.0	*
*	22	4	100.	0.	196.	6616.	0.	165.	4772.	6218.	0.	**	100.	835.	.77	11.	109.4	F	13.6	22.1	*
*	23	3	600.	0.	0.	6420.	0.	0.	4607.	6000.	0.	**	600.	835.	.77	11.	140.7	F	13.6	22.1	*
*	24	3	1500.	200.	0.	6620.	200.	0.	4807.	5950.	0.	**	1500.	835.	.81	12.	129.1	F	14.5	20.9	*
*	25	3	1500.	0.	0.	6620.	0.	0.	4807.	6000.	0.	**	1500.	835.	.80	12.	132.0	F	14.3	21.1	*
*	26	3	8000.	0.	0.	6620.	0.	0.	4807.	6000.	0.	**	8000.	835.	.80	12.	132.0	F	14.3	21.1	*
*	27	5	100.	1655.	0.	8275.	1655.	0.	6462.	10000.	0.	**	100.	835.	.65	7.	172.5	F	10.3	25.7	*
*	28	5	1000.	520.	0.	8795.	768.	0.	7230.	7750.	0.	**	1000.	520.	.93	19.	75.6	F	18.1	16.6	*
*	29	5	1000.	520.	9315.	9315.	520.	7750.	7750.	7750.	0.		0.	0.	1.00	52.	29.7	E	23.8	11.1	*
*																					*
*																					*
*	TOTAL	135469. =	25.7 MILES							MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 19.		83.6			16.7	16.2	*
*																					*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	7975. VEH-HRS	8011. PASS-HRS	13510. VEH-HRS	13587. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	558. VEH-HRS	603. PASS-HRS	891. VEH-HRS	970. PASS-HRS
OFF-RAMP DELAY =	403. VEH-HRS	405. PASS-HRS	531. VEH-HRS	533. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	8936. VEH-HRS	9019. PASS-HRS	14932. VEH-HRS	15090. PASS-HRS
TOTAL TRAV DISTANCE =	150714. VEH-MI.	151813. PASS-MI.	321148. VEH-MI.	323336. PASS-MI.
AVERAGE SYSTEM SPEED =	17. MPH.		24. MPH.	
AVERAGE DENSITY =	84. VPMPL		70. VPMPL	
TOTAL FUEL =	9376. GALLONS		17701. GALLONS	
TOTAL EMISSIONS =	2587. KILOGRAMS		4829. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	2.06	2	******	3	175.51	4	40.41	5	47.15
6	177.13	7	170.40	8	105.78	9	51.54	10	92.30
11	66.03	12	34.35	13	35.76	14	33.87	15	62.82
16	57.15	17	70.78	18	10.85	19	71.60	20	61.74
21	6.79	22	6.90	23	39.91	24	89.05	25	91.48
26	487.87	27	14.45	28	50.52	29	5.53		

***** TOTAL DELAY = 5656.6 VEH-HRS ***** AVERAGE DELAY = 73.15 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	4.16	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.16	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	4.17	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.17	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	7.00	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	7.00	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	9.58	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	9.58	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	51.	34.00	7.01	12.14	0.75	3.94	0.21	4.90
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	51.	34.00	7.01	12.14	0.75	3.94	0.21	4.90
ON-RAMP	9	RAMP	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29
OFF-RAMP	2	OUTPUT POINT	550.	402.95		143.88	8.93	46.68	2.48	58.08

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	89.47	92.17	96.70	97.95	110.35
2	0.00	3.56	6.25	10.79	12.04	24.43
3	0.00	0.00	1.53	6.06	7.31	19.70
4	0.00	0.00	0.00	3.48	4.74	17.13
5	0.00	0.00	0.00	2.54	3.80	16.19
6	0.00	0.00	0.00	0.00	0.22	12.61
7	0.00	0.00	0.00	0.00	0.00	11.73
8	0.00	0.00	0.00	0.00	0.00	1.04
9	0.00	0.00	0.00	0.00	0.00	0.88
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7770.	1554.	7770.	7770.	1554.	7770.	10000.	0.	0.	0.	.78	64.	24.4	C	19.8	13.6
2	3	99999.	0.	0.	6216.	0.	0.	4711.	7360.	0.	* 56989.	1505.	.64	15.	105.9	F	14.3	18.5
3	3	2740.	0.	0.	6216.	0.	0.	4711.	6000.	0.	** 2740.	1289.	.79	12.	136.1	F	14.0	21.6
4	3	600.	0.	0.	6216.	0.	0.	4710.	6000.	0.	** 600.	1289.	.79	12.	136.2	F	14.0	21.6
5	3	700.	0.	0.	6216.	0.	0.	4710.	6000.	0.	** 700.	1289.	.79	12.	136.2	F	14.0	21.6
6	3	2630.	0.	0.	6216.	0.	0.	4710.	6000.	0.	** 2630.	1289.	.79	12.	136.2	F	14.0	21.6
7	3	2530.	0.	0.	6216.	0.	0.	4710.	6000.	0.	** 2530.	1289.	.79	12.	136.2	F	14.0	21.6
8	4	1500.	523.	0.	6739.	523.	0.	5234.	6693.	0.	** 1500.	1289.	.78	11.	114.6	F	13.9	21.7
9	4	700.	0.	0.	6739.	0.	0.	5234.	6770.	0.	** 700.	1289.	.77	11.	117.9	F	13.7	21.9
10	4	1500.	0.	1482.	6739.	0.	1162.	5234.	6432.	0.	** 1500.	1198.	.81	13.	103.5	F	14.6	20.7
11	3	750.	0.	0.	5257.	0.	0.	3819.	6000.	0.	** 750.	1198.	.64	7.	175.0	F	10.1	26.0
12	4	350.	747.	0.	6004.	747.	0.	4566.	6868.	0.	** 350.	1198.	.66	8.	143.9	F	10.7	25.2
13	4	350.	0.	0.	6004.	0.	0.	4566.	7010.	0.	** 350.	1198.	.65	8.	150.0	F	10.4	25.6
14	4	350.	0.	690.	6004.	0.	664.	4566.	6875.	0.	** 350.	1198.	.66	8.	144.2	F	10.7	25.2
15	3	700.	0.	0.	5314.	0.	0.	3902.	6000.	0.	** 700.	1198.	.65	8.	171.4	F	10.4	25.6
16	3	900.	600.	0.	5914.	600.	0.	4502.	5869.	0.	** 900.	1198.	.77	11.	137.8	F	13.6	22.1
17	3	1400.	419.	0.	6333.	419.	0.	4921.	5909.	0.	** 1400.	988.	.83	13.	121.8	F	15.2	20.1
18	3	200.	0.	0.	6333.	0.	0.	4921.	6000.	0.	** 200.	988.	.82	13.	127.0	F	14.8	20.5
19	3	1400.	0.	535.	6333.	0.	501.	4921.	5915.	0.	** 1400.	988.	.83	13.	122.2	F	15.2	20.1
20	3	900.	0.	0.	5798.	0.	0.	4420.	6000.	0.	** 900.	988.	.74	10.	148.8	F	13.0	22.9
21	4	100.	218.	0.	6016.	240.	0.	4660.	6198.	0.	** 100.	988.	.75	10.	112.2	F	13.4	22.5
22	4	100.	0.	180.	6016.	0.	169.	4660.	6220.	0.	** 100.	988.	.75	10.	113.2	F	13.3	22.6
23	3	600.	0.	0.	5836.	0.	0.	4491.	6000.	0.	** 600.	988.	.75	10.	145.8	F	13.3	22.6
24	3	1500.	240.	0.	6076.	240.	0.	4731.	5940.	0.	** 1500.	988.	.80	12.	131.9	F	14.2	21.2
25	3	1500.	0.	0.	6076.	0.	0.	4731.	6000.	0.	** 1500.	988.	.79	12.	135.3	F	14.1	21.5
26	3	8000.	0.	0.	6076.	0.	0.	4731.	6000.	0.	** 8000.	988.	.79	12.	135.3	F	14.1	21.5
27	5	100.	1519.	0.	7595.	1519.	0.	6250.	10000.	0.	** 100.	988.	.62	7.	178.0	F	9.9	26.3
28	5	1000.	750.	0.	8345.	750.	0.	7000.	7750.	0.	** 1000.	750.	.90	17.	81.6	F	17.2	17.6
29	5	1000.	750.	9095.	9095.	750.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. = 25.7 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 14.	111.0		14.3	19.0

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	9682. VEH-HRS	9719. PASS-HRS	23193. VEH-HRS	23306. PASS-HRS

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	440. VEH-HRS	460. PASS-HRS	1331. VEH-HRS	1430. PASS-HRS
OFF-RAMP DELAY =	677. VEH-HRS	680. PASS-HRS	1208. VEH-HRS	1212. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	10799. VEH-HRS	10858. PASS-HRS	25731. VEH-HRS	25948. PASS-HRS
TOTAL TRAV DISTANCE =	137215. VEH-MI.	138264. PASS-MI.	458363. VEH-MI.	461600. PASS-MI.
AVERAGE SYSTEM SPEED =	13. MPH.		20. MPH.	
AVERAGE DENSITY =	111. VPMPL		84. VPMPL	
TOTAL FUEL =	9966. GALLONS		27667. GALLONS	
TOTAL EMISSIONS =	2766. KILOGRAMS		7595. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.64	2	******	3	174.34	4	38.19	5	44.56
6	167.41	7	161.05	8	107.34	9	51.84	10	94.69
11	66.24	12	33.50	13	35.10	14	33.58	15	60.22
16	58.67	17	76.85	18	11.57	19	77.12	20	64.52
21	7.15	22	7.22	23	41.84	24	91.72	25	94.63
26	504.69	27	15.04	28	56.88	29	5.53		

***** TOTAL DELAY = 7571.3 VEH-HRS ***** AVERAGE DELAY = 96.17 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	5.24	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	5.24	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	3.76	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	3.76	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	11.56	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	11.56	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	29.	40.00	8.92	14.28	0.89	4.63	0.25	5.77
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	29.	40.00	8.92	14.28	0.89	4.63	0.25	5.77
ON-RAMP	9	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	803.	676.87		241.70	14.99	78.41	4.16	97.57

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ         1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111         222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111        222    PPPPPPPPP     LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111      2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222      PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222        PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222  PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2740.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	2	3000.	2630.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	2	3000.	2530.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	2	3000.	700.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	2	3000.	750.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	2	3000.	350.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	2	3000.	350.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	2	3000.	350.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	2	3000.	900.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	2	3000.	1400.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	2	3000.	200.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks

19	2	3000.	1400.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	2	3000.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	2	3000.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1840.	0.	1840.	1840.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
3	2	2740.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
4	2	600.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
5	2	700.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
6	2	2630.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
7	2	2530.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
8	2	1500.	97.	0.	1937.	97.	0.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
9	2	700.	0.	0.	1937.	0.	0.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
10	2	1500.	0.	389.	1937.	0.	278.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
11	2	750.	0.	0.	1548.	0.	0.	1548.	3000.	0.	0.	0.	.52	65.	11.9	B	20.0	13.7
12	2	350.	137.	0.	1685.	137.	0.	1685.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
13	2	350.	0.	0.	1685.	0.	0.	1685.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
14	2	350.	0.	162.	1685.	0.	162.	1685.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
15	2	700.	0.	0.	1524.	0.	0.	1524.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
16	2	900.	160.	0.	1684.	160.	0.	1684.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
17	2	1400.	110.	0.	1794.	110.	0.	1794.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
18	2	200.	0.	0.	1794.	0.	0.	1794.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
19	2	1400.	0.	81.	1794.	0.	81.	1794.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
20	2	900.	0.	0.	1714.	0.	0.	1714.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
21	2	100.	63.	0.	1776.	63.	0.	1776.	3000.	0.	0.	0.	.59	65.	13.7	B	20.0	13.7
22	2	100.	0.	24.	1776.	0.	24.	1776.	3000.	0.	0.	0.	.59	65.	13.7	B	20.0	13.7
23	2	600.	0.	0.	1753.	0.	0.	1753.	3000.	0.	0.	0.	.58	65.	13.5	B	20.0	13.7
24	2	1500.	56.	0.	1809.	56.	0.	1809.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
25	2	1500.	0.	0.	1809.	0.	0.	1809.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
26	2	8000.	0.	1809.	1809.	0.	1809.	1809.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. =	25.0 MILES					MAX(V/C) = 0.65		LOWEST LOS = B			AVG = 65.		14.1		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	705. VEH-HRS	1409. PASS-HRS	705. VEH-HRS	1409. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	56. VEH-HRS	111. PASS-HRS	56. VEH-HRS	111. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	760. VEH-HRS	1520. PASS-HRS	760. VEH-HRS	1520. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	45798. VEH-MI.	91596. PASS-MI.	45798. VEH-MI.	91596. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		65. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	2309. GALLONS		2309. GALLONS	
TOTAL EMISSIONS =	637. KILOGRAMS		637. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	111.	55.54	19.05	1.20	6.27	0.33	7.80

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7

1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1710.	0.	1710.	1710.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
3	2	2740.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
4	2	600.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
5	2	700.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
6	2	2630.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
7	2	2530.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
8	2	1500.	96.	0.	1806.	96.	0.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
9	2	700.	0.	0.	1806.	0.	0.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
10	2	1500.	0.	374.	1806.	0.	275.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
11	2	750.	0.	0.	1432.	0.	0.	1432.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
12	2	350.	124.	0.	1556.	124.	0.	1556.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
13	2	350.	0.	0.	1556.	0.	0.	1556.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
14	2	350.	0.	167.	1556.	0.	167.	1556.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
15	2	700.	0.	0.	1389.	0.	0.	1389.	3000.	0.	0.	0.	.46	65.	10.7	A	20.0	13.7
16	2	900.	164.	0.	1553.	164.	0.	1553.	3000.	0.	0.	0.	.52	65.	11.9	B	20.0	13.7
17	2	1400.	114.	0.	1667.	114.	0.	1667.	3000.	0.	0.	0.	.56	65.	12.8	B	20.0	13.7
18	2	200.	0.	0.	1667.	0.	0.	1667.	3000.	0.	0.	0.	.56	65.	12.8	B	20.0	13.7
19	2	1400.	0.	96.	1667.	0.	96.	1667.	3000.	0.	0.	0.	.56	65.	12.8	B	20.0	13.7
20	2	900.	0.	0.	1571.	0.	0.	1571.	3000.	0.	0.	0.	.52	65.	12.1	B	20.0	13.7
21	2	100.	66.	0.	1637.	66.	0.	1637.	3000.	0.	0.	0.	.55	65.	12.6	B	20.0	13.7
22	2	100.	0.	32.	1637.	0.	32.	1637.	3000.	0.	0.	0.	.55	65.	12.6	B	20.0	13.7
23	2	600.	0.	0.	1605.	0.	0.	1605.	3000.	0.	0.	0.	.54	65.	12.3	B	20.0	13.7
24	2	1500.	50.	0.	1655.	50.	0.	1655.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
25	2	1500.	0.	0.	1655.	0.	0.	1655.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
26	2	8000.	0.	1655.	1655.	0.	1655.	1655.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
27																		
28																		
29																		
TOTAL		131999. = 25.0 MILES									MAX(V/C) = 0.60		LOWEST LOS = B	AVG = 65.	13.1		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	654. VEH-HRS	1308. PASS-HRS	1358. VEH-HRS	2717. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	161. VEH-HRS	321. PASS-HRS	216. VEH-HRS	432. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	814. VEH-HRS	1629. PASS-HRS	1575. VEH-HRS	3149. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42496. VEH-MI.	84993. PASS-MI.	88294. VEH-MI.	176589. PASS-MI.
AVERAGE SYSTEM SPEED =	52. MPH.		65. MPH.	
AVERAGE DENSITY =	13. VPMPL		14. VPMPL	
TOTAL FUEL =	2180. GALLONS		4489. GALLONS	
TOTAL EMISSIONS =	606. KILOGRAMS		1244. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY

1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	210.	160.61	55.09	3.47	18.12	0.96	22.55

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DEMANDS ORG	DES	DATA SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1554.	0.	1554.	1554.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
3	2	2740.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
4	2	600.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
5	2	700.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
6	2	2630.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
7	2	2530.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
8	2	1500.	77.	0.	1631.	77.	0.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
9	2	700.	0.	0.	1631.	0.	0.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
10	2	1500.	0.	338.	1631.	0.	279.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
11	2	750.	0.	0.	1293.	0.	0.	1293.	3000.	0.	0.	0.	.43	65.	9.9	A	20.0	13.7
12	2	350.	142.	0.	1435.	142.	0.	1435.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
13	2	350.	0.	0.	1435.	0.	0.	1435.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
14	2	350.	0.	135.	1435.	0.	135.	1435.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
15	2	700.	0.	0.	1300.	0.	0.	1300.	3000.	0.	0.	0.	.43	65.	10.0	A	20.0	13.7
16	2	900.	131.	0.	1431.	131.	0.	1431.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
17	2	1400.	91.	0.	1522.	91.	0.	1522.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
18	2	200.	0.	0.	1522.	0.	0.	1522.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
19	2	1400.	0.	85.	1522.	0.	85.	1522.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
20	2	900.	0.	0.	1437.	0.	0.	1437.	3000.	0.	0.	0.	.48	65.	11.1	B	20.0	13.7
21	2	100.	52.	0.	1489.	52.	0.	1489.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
22	2	100.	0.	30.	1489.	0.	30.	1489.	3000.	0.	0.	0.	.50	65.	11.5	B	20.0	13.7
23	2	600.	0.	0.	1459.	0.	0.	1459.	3000.	0.	0.	0.	.49	65.	11.2	B	20.0	13.7
24	2	1500.	60.	0.	1519.	60.	0.	1519.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7

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*  25   2    1500.      0.    0. 1519.     0.    0. 1519.  3000.     0.       0.     0.   .51    65.   11.7    B     20.0    13.7  *
*  26   2    8000.      0. 1519. 1519.     0. 1519. 1519.  3000.     0.       0.     0.   .51    65.   11.7    B     20.0    13.7  *
*  27                                                                                                                              *
*  28                                                                                                                              *
*  29                                                                                                                              *
*                                                                                                                                  *
************************************************************************************************************************************
*                                                                                                                                  *
*   TOTAL  131999. =   25.0 MILES                        MAX(V/C) = 0.54  LOWEST LOS = B   AVG = 65.   11.9          20.0    13.7  *
*                                                                                                                                  *
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	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	595. VEH-HRS	1190. PASS-HRS	1953. VEH-HRS	3906. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	240. VEH-HRS	480. PASS-HRS	456. VEH-HRS	912. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	835. VEH-HRS	1669. PASS-HRS	2409. VEH-HRS	4818. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	38664. VEH-MI.	77327. PASS-MI.	126958. VEH-MI.	253916. PASS-MI.
AVERAGE SYSTEM SPEED =	46. MPH.		65. MPH.	
AVERAGE DENSITY =	12. VPMPL		13. VPMPL	
TOTAL FUEL =	2015. GALLONS		6504. GALLONS	
TOTAL EMISSIONS =	565. KILOGRAMS		1808. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	270.	239.85	82.27	5.18	27.06	1.44	33.68

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111     222222     PPPPPPPPP     EEEEEEEEEE
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111    222  222    PPPPPPPPPP    EEEEEEEEEE
FFF        RRR    RRR EEE        QQQQQ    QQQQQ     1111    222    222   PPP    PPP    EEE
FFF        RRR    RRR EEE       QQQQ        QQQQ    1111           222   PPP    PPP    EEE
FFFFFFF    RRRRRRRRRR EEEEEEE   QQQQ        QQQQ    1111         222    PPPPPPPPPP    EEEEEEE
FFFFFFF    RRRRRRRRR  EEEEEEE   QQQQ        QQQQ    1111       2222     PPPPPPPPP     EEEEEEE
FFF        RRR RRR    EEE       QQQQ    QQQ QQQQ    1111     2222       PPP           EEE
FFF        RRR  RRR   EEE        Q*UC*    QQQQQ     1111    222         PPP           EEE
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222         PPP           EEEEEEEEEE
FFF        RRR    RRR EEEEEEEEEE     Q*1999*Q QQQ  11111111  2222222222  PPP           EEEEEEEEEE
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FREQ12PEB

1. THE OBJECTIVE FUNCTION WILL MAXIMIZE PASSENGER INPUT RATE.
2. THERE ARE 1.0 TIME SLICES PER HOUR.
3. WEAVING ANALYSIS IS NOT ENGAGED.
4. NO ALTERNATE ROUTE IS PROVIDED.
5. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
6. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
7. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
8. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
9. REDUCED CAPACITIES ARE SUPPLIED BY THE USER.
10. THE CAPACITY BUFFER IS 0.00 (V/C).

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1	5	10000.	1370.	65	OD	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Seeding
2	3	7360.	99999.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Queue Capture
3	3	6000.	2740.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	3	6000.	2630.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	3	6000.	2530.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	4	6770.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	4	6770.	700.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	4	6770.	1500.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	3	6000.	750.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	4	7010.	350.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	4	7010.	350.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	4	7010.	350.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	3	6000.	700.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	3	6000.	900.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	3	6000.	1400.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	3	6000.	200.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks
19	3	6000.	1400.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	3	6000.	900.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	4	6250.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	4	6250.	100.	65	D	0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	3	6000.	600.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	3	6000.	1500.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	3	6000.	1500.	65		0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	3	6000.	8000.	65		0.96	0.0	4	0	NO	0.0	0.	GOOD	0.0	HOV Dummy
27	5	10000.	100.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	HOV Dummy
28	5	7750.	1000.	65	O	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	Dummy Bottleneck
29	5	7750.	1000.	65	OD	0.96	0.0	4	0	YES	0.0	0.	GOOD	0.0	End of Network

***** INPUT HAS BEEN COMPLETED *****

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 9 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

MAXIMUM METERING RATE AND MAXIMUM QUEUE LENGTH CONFLICT AT ON-RAMP 10 IN TIME SLICE 1
--- THE MAXIMUM METERING RATE WILL PREVAIL.

QUEUE COLLISION IN SECTION 28 T2 =0.044
QUEUE COLLISION IN SECTION 17 T2 =0.587
QUEUE COLLISION IN SECTION 10 T2 =0.777

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.27	32.64	34.00	37.78	38.98	57.48
2	0.00	1.81	3.16	6.95	8.15	26.65
3	0.00	0.00	0.81	4.60	5.80	24.30
4	0.00	0.00	0.00	3.14	4.34	22.84
5	0.00	0.00	0.00	2.44	3.64	22.14
6	0.00	0.00	0.00	0.00	0.22	18.72
7	0.00	0.00	0.00	0.00	0.00	17.83
8	0.00	0.00	0.00	0.00	0.00	1.37
9	0.00	0.00	0.00	0.00	0.00	1.14
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	9199.	1840.	9199.	9199.	1840.	9199.	10000.	0.	0.	0.	.92	58.	31.7	D	22.2	12.0
2	3	99999.	0.	0.	7359.	0.	0.	6000.	7360.	0. *	21659.	1359.	.82	41.	49.0	F	22.5	12.0
3	3	2740.	0.	0.	7359.	0.	0.	6000.	6000.	0.	0.	0.	1.00	52.	38.3	E	23.8	11.1
4	3	600.	0.	0.	7359.	0.	0.	3062.	6000.	0. *	294.	2938.	.51	52.	19.8	F	23.7	11.2
5	3	700.	0.	0.	7359.	0.	0.	3062.	6000.	0. **	700.	2938.	.51	47.	21.6	F	23.3	11.3
6	3	2630.	0.	0.	7359.	0.	0.	3062.	6000.	0. **	2630.	2938.	.51	38.	27.1	F	22.2	11.8
7	3	2530.	0.	0.	7359.	0.	0.	3062.	6000.	0. **	2530.	2938.	.51	28.	36.3	F	20.5	12.7
8	4	1500.	642.	0.	8001.	592.	0.	3654.	6673.	0. **	1500.	2938.	.55	24.	38.0	F	19.0	13.6
9	4	700.	0.	0.	8001.	0.	0.	3654.	6770.	0. **	700.	2938.	.54	22.	42.4	F	18.2	14.2
10	4	1500.	0.	1711.	8001.	0.	1111.	3654.	6381.	0. **	1500.	2727.	.57	23.	39.1	F	18.9	13.7
11	3	750.	0.	0.	6290.	0.	0.	2287.	6000.	0. **	750.	2727.	.38	16.	48.5	F	16.8	15.5
12	4	350.	702.	0.	6992.	652.	0.	2939.	6873.	0. **	350.	2727.	.43	16.	47.3	F	15.4	16.8
13	4	350.	0.	0.	6992.	0.	0.	2939.	7010.	0. **	350.	2727.	.42	14.	50.9	F	15.2	17.0
14	4	350.	0.	804.	6992.	0.	654.	2939.	6848.	0. **	350.	2727.	.43	14.	51.8	F	15.0	17.2
15	3	700.	0.	0.	6188.	0.	0.	2285.	6000.	0. **	700.	2727.	.38	12.	61.6	F	15.7	16.4
16	3	900.	733.	0.	6921.	633.	0.	2918.	5834.	0. **	900.	2727.	.50	15.	66.7	F	15.9	15.9
17	3	1400.	407.	0.	7328.	307.	0.	3225.	5908.	0. **	1400.	2683.	.55	15.	72.7	F	15.7	16.2
18	3	200.	0.	0.	7328.	0.	0.	3225.	6000.	0. **	200.	2683.	.54	14.	78.1	F	15.1	16.7
19	3	1400.	0.	489.	7328.	0.	396.	3225.	5919.	0. **	1400.	2683.	.54	13.	81.1	F	14.9	17.0
20	3	900.	0.	0.	6839.	0.	0.	2829.	6000.	0. **	900.	2683.	.47	10.	90.6	F	13.8	18.1
21	4	100.	257.	0.	7096.	240.	0.	3069.	6187.	0. **	100.	2683.	.50	11.	72.0	F	12.7	19.8
22	4	100.	0.	136.	7096.	0.	111.	3069.	6226.	0. **	100.	2683.	.49	10.	73.3	F	12.7	19.9
23	3	600.	0.	0.	6960.	0.	0.	2958.	6000.	0. **	600.	2683.	.49	10.	97.2	F	13.4	18.7
24	3	1500.	224.	0.	7184.	224.	0.	3182.	5944.	0. **	1500.	2683.	.54	10.	101.7	F	13.2	19.0
25	3	1500.	0.	0.	7184.	0.	0.	3182.	6000.	0. **	1500.	2683.	.53	9.	113.3	F	12.4	20.0
26	3	8000.	0.	0.	7184.	0.	0.	3182.	6000.	0. **	8000.	2683.	.53	7.	151.7	F	10.4	23.6
27	5	100.	1796.	0.	8980.	1796.	0.	4978.	10000.	0. **	100.	2683.	.50	5.	202.7	F	8.6	28.0
28	5	1000.	1560.	0.	10540.	1212.	0.	6190.	7750.	0. **	1000.	1560.	.80	12.	100.6	F	14.4	20.9
29	5	1000.	1560.	12100.	12100.	1560.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL	135469. =	25.7 MILES				MAX(V/C) = 1.00				LOWEST LOS = F			AVG = 31.		56.5		20.9	12.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	5514. VEH-HRS	5555. PASS-HRS	5514. VEH-HRS	5555. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	333. VEH-HRS	367. PASS-HRS	333. VEH-HRS	367. PASS-HRS
OFF-RAMP DELAY =	128. VEH-HRS	128. PASS-HRS	128. VEH-HRS	128. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	5974. VEH-HRS	6050. PASS-HRS	5974. VEH-HRS	6050. PASS-HRS
TOTAL TRAV DISTANCE =	170614. VEH-MI.	171705. PASS-MI.	170614. VEH-MI.	171705. PASS-MI.
AVERAGE SYSTEM SPEED =	29. MPH.		31. MPH.	
AVERAGE DENSITY =	56. VPMPL		56. VPMPL	
TOTAL FUEL =	8328. GALLONS		8328. GALLONS	
TOTAL EMISSIONS =	2243. KILOGRAMS		2243. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	4.39	2	******	3	11.72	4	2.72	5	4.55
6	32.18	7	53.45	8	44.12	9	23.90	10	44.40
11	28.91	12	15.60	13	16.98	14	17.21	15	34.65
16	41.13	17	65.57	18	10.11	19	73.13	20	56.21
21	6.35	22	6.47	23	38.92	24	96.94	25	106.47
26	705.28	27	18.02	28	77.66	29	5.53		

***** TOTAL DELAY = 2889.0 VEH-HRS ***** AVERAGE DELAY = 42.96 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	25.00	2.34	8.93	0.55	2.90	0.15	3.60

		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	2.34	8.93	0.55	2.90	0.15	3.60
ON-RAMP	3	RAMP	50.	25.00	2.14	8.93	0.55	2.90	0.15	3.60
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	25.00	2.14	8.93	0.55	2.90	0.15	3.60
ON-RAMP	4	RAMP	100.	50.00	4.09	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	4.09	17.85	1.11	5.79	0.31	7.21
ON-RAMP	5	RAMP	100.	50.00	7.37	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	50.00	7.37	17.85	1.11	5.79	0.31	7.21
ON-RAMP	6	RAMP	17.	8.50	1.98	3.04	0.19	0.98	0.05	1.23
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	17.	8.50	1.98	3.04	0.19	0.98	0.05	1.23
ON-RAMP	9	RAMP	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	348.	174.00	8.37	62.13	3.85	20.16	1.07	25.08
OFF-RAMP	2	OUTPUT POINT	256.	127.80		45.64	2.83	14.81	0.79	18.42

QUEUE COLLISION IN SECTION 3 T2 =0.129

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.25	62.73	65.36	69.63	70.80	82.57
2	0.00	3.36	5.99	10.26	11.43	23.20
3	0.00	0.00	1.51	5.78	6.96	18.72
4	0.00	0.00	0.00	3.20	4.37	16.13
5	0.00	0.00	0.00	2.33	3.51	15.27
6	0.00	0.00	0.00	0.00	0.21	11.97
7	0.00	0.00	0.00	0.00	0.00	11.15
8	0.00	0.00	0.00	0.00	0.00	0.96
9	0.00	0.00	0.00	0.00	0.00	0.81
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	8550.	1710.	8550.	8550.	1710.	8550.	10000.	0.	0.	0.	.86	61.	27.9	D	20.9	12.8
2	3	99999.	0.	0.	6840.	0.	0.	4662.	7360.	0.	* 41706.	2178.	.63	23.	68.4	F	17.6	15.0
3	3	2740.	0.	0.	6840.	0.	0.	4662.	6000.	0.	** 2740.	1338.	.78	12.	128.6	F	14.4	20.9
4	3	600.	0.	0.	6840.	0.	0.	4662.	6000.	0.	** 600.	1338.	.78	11.	137.8	F	13.8	21.8
5	3	700.	0.	0.	6840.	0.	0.	4661.	6000.	0.	** 700.	1338.	.78	11.	138.4	F	13.8	21.8
6	3	2630.	0.	0.	6840.	0.	0.	4661.	6000.	0.	** 2630.	1338.	.78	11.	138.4	F	13.8	21.8
7	3	2530.	0.	0.	6840.	0.	0.	4661.	6000.	0.	** 2530.	1338.	.78	11.	138.4	F	13.8	21.8
8	4	1500.	672.	0.	7512.	672.	0.	5334.	6674.	0.	** 1500.	1338.	.80	12.	110.5	F	14.3	21.2
9	4	700.	0.	0.	7512.	0.	0.	5334.	6770.	0.	** 700.	1338.	.79	12.	114.6	F	14.0	21.5

* 10	4	1500.	0.	1666.	7512.	0.	1126.	5334.	6396.	0.	**	1500.	1062.	.83	14.	98.7	F	15.2	20.0 *
* 11	3	750.	0.	0.	5846.	0.	0.	3913.	6000.	0.	**	750.	1062.	.65	8.	170.9	F	10.4	25.6 *
* 12	4	350.	670.	0.	6516.	670.	0.	4583.	6886.	0.	**	350.	1062.	.67	8.	144.1	F	10.7	25.2 *
* 13	4	350.	0.	0.	6516.	0.	0.	4583.	7010.	0.	**	350.	1062.	.65	8.	149.4	F	10.4	25.5 *
* 14	4	350.	0.	842.	6516.	0.	731.	4583.	6843.	0.	**	350.	1062.	.67	8.	142.3	F	10.8	25.1 *
* 15	3	700.	0.	0.	5674.	0.	0.	3852.	6000.	0.	**	700.	1062.	.64	7.	173.6	F	10.2	25.9 *
* 16	3	900.	779.	0.	6453.	779.	0.	4631.	5831.	0.	**	900.	1062.	.79	12.	130.0	F	14.2	21.3 *
* 17	3	1400.	436.	0.	6889.	436.	0.	5067.	5906.	0.	**	1400.	839.	.86	15.	115.3	F	16.0	19.1 *
* 18	3	200.	0.	0.	6889.	0.	0.	5067.	6000.	0.	**	200.	839.	.84	14.	120.7	F	15.5	19.6 *
* 19	3	1400.	0.	608.	6889.	0.	520.	5067.	5904.	0.	**	1400.	837.	.86	15.	115.2	F	16.0	19.1 *
* 20	3	900.	0.	0.	6281.	0.	0.	4547.	6000.	0.	**	900.	837.	.76	11.	143.3	F	13.5	22.3 *
* 21	4	100.	274.	0.	6555.	240.	0.	4787.	6184.	0.	**	100.	837.	.77	11.	107.5	F	13.8	21.9 *
* 22	4	100.	0.	194.	6555.	0.	165.	4787.	6218.	0.	**	100.	837.	.77	11.	108.9	F	13.7	22.0 *
* 23	3	600.	0.	0.	6361.	0.	0.	4622.	6000.	0.	**	600.	837.	.77	11.	140.0	F	13.7	22.0 *
* 24	3	1500.	200.	0.	6561.	200.	0.	4822.	5950.	0.	**	1500.	837.	.81	13.	128.5	F	14.6	20.8 *
* 25	3	1500.	0.	0.	6561.	0.	0.	4822.	6000.	0.	**	1500.	837.	.80	12.	131.3	F	14.4	21.0 *
* 26	3	8000.	0.	0.	6561.	0.	0.	4822.	6000.	0.	**	8000.	837.	.80	12.	131.3	F	14.4	21.0 *
* 27	5	100.	1640.	0.	8201.	1640.	0.	6462.	10000.	0.	**	100.	837.	.65	7.	172.5	F	10.3	25.7 *
* 28	5	1000.	520.	0.	8721.	768.	0.	7230.	7750.	0.	**	1000.	520.	.93	19.	75.6	F	18.1	16.6 *
* 29	5	1000.	520.	9241.	9241.	520.	7750.	7750.	7750.	0.		0.	0.	1.00	52.	29.7	E	23.8	11.1 *
*																			*
*																			*
* TOTAL	135469. =	25.7 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 19.		82.5		16.9	16.1 *
*																			*

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	7810. VEH-HRS	7846. PASS-HRS	13324. VEH-HRS	13401. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	558. VEH-HRS	603. PASS-HRS	891. VEH-HRS	970. PASS-HRS
OFF-RAMP DELAY =	403. VEH-HRS	404. PASS-HRS	531. VEH-HRS	533. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	8771. VEH-HRS	8854. PASS-HRS	14745. VEH-HRS	14904. PASS-HRS
TOTAL TRAV DISTANCE =	151773. VEH-MI.	152873. PASS-MI.	322387. VEH-MI.	324578. PASS-MI.
AVERAGE SYSTEM SPEED =	17. MPH.		24. MPH.	
AVERAGE DENSITY =	83. VPMPL		69. VPMPL	
TOTAL FUEL =	9345. GALLONS		17673. GALLONS	
TOTAL EMISSIONS =	2587. KILOGRAMS		4830. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	2.07	2	******	3	166.26	4	38.88	5	45.52
6	171.03	7	164.53	8	102.30	9	49.91	10	88.82
11	64.29	12	33.54	13	34.94	14	33.05	15	61.19
16	54.36	17	71.06	18	10.76	19	70.97	20	61.36
21	6.75	22	6.86	23	39.66	24	88.43	25	90.85
26	484.55	27	14.45	28	50.52	29	5.53		

***** TOTAL DELAY = 5475.4 VEH-HRS ***** AVERAGE DELAY = 69.69 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	4.16	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.16	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	4.17	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	4.17	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	6.83	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	6.83	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	11.19	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	11.19	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	51.	34.00	7.01	12.14	0.75	3.94	0.21	4.90
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	51.	34.00	7.01	12.14	0.75	3.94	0.21	4.90
ON-RAMP	9	RAMP	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	224.00	17.59	79.99	4.96	25.95	1.38	32.29
OFF-RAMP	2	OUTPUT POINT	550.	402.89		143.86	8.92	46.67	2.48	58.07

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6
1	0.24	86.55	89.16	93.60	94.84	107.16
2	0.00	3.44	6.04	10.48	11.73	24.04
3	0.00	0.00	1.48	5.92	7.16	19.48
4	0.00	0.00	0.00	3.43	4.67	16.99
5	0.00	0.00	0.00	2.53	3.78	16.09
6	0.00	0.00	0.00	0.00	0.22	12.53
7	0.00	0.00	0.00	0.00	0.00	11.65
8	0.00	0.00	0.00	0.00	0.00	1.04
9	0.00	0.00	0.00	0.00	0.00	0.88
10	0.00	0.00	0.00	0.00	0.00	0.22

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1	5	1370.	7770.	1554.	7770.	7770.	1554.	7770.	10000.	0.	0.	0.	.78	64.	24.4	C	19.8	13.6
2	3	99999.	0.	0.	6216.	0.	0.	4782.	7360.	0.	* 55972.	1434.	.65	15.	104.0	F	14.5	18.3
3	3	2740.	0.	0.	6216.	0.	0.	4782.	6000.	0.	** 2740.	1218.	.80	12.	133.1	F	14.2	21.2
4	3	600.	0.	0.	6216.	0.	0.	4781.	6000.	0.	** 600.	1218.	.80	12.	133.1	F	14.2	21.2
5	3	700.	0.	0.	6216.	0.	0.	4781.	6000.	0.	** 700.	1218.	.80	12.	133.1	F	14.2	21.2
6	3	2630.	0.	0.	6216.	0.	0.	4781.	6000.	0.	** 2630.	1218.	.80	12.	133.1	F	14.2	21.2
7	3	2530.	0.	0.	6216.	0.	0.	4781.	6000.	0.	** 2530.	1218.	.80	12.	133.1	F	14.2	21.2
8	4	1500.	523.	0.	6739.	523.	0.	5305.	6693.	0.	** 1500.	1218.	.79	12.	112.3	F	14.1	21.4
9	4	700.	0.	0.	6739.	0.	0.	5305.	6770.	0.	** 700.	1218.	.78	11.	115.6	F	13.9	21.6
10	4	1500.	0.	1482.	6739.	0.	1162.	5305.	6432.	0.	** 1500.	1127.	.82	13.	101.1	F	14.9	20.3
11	3	750.	0.	0.	5257.	0.	0.	3890.	6000.	0.	** 750.	1127.	.65	8.	171.9	F	10.3	25.7
12	4	350.	748.	0.	6005.	748.	0.	4638.	6868.	0.	** 350.	1127.	.68	8.	141.5	F	10.9	24.9
13	4	350.	0.	0.	6005.	0.	0.	4638.	7010.	0.	** 350.	1127.	.66	8.	147.6	F	10.6	25.3
14	4	350.	0.	690.	6005.	0.	664.	4638.	6875.	0.	** 350.	1127.	.67	8.	141.8	F	10.9	24.9
15	3	700.	0.	0.	5315.	0.	0.	3974.	6000.	0.	** 700.	1127.	.66	8.	168.3	F	10.6	25.3
16	3	900.	615.	0.	5930.	615.	0.	4589.	5866.	0.	** 900.	1127.	.78	11.	133.9	F	13.9	21.7
17	3	1400.	345.	0.	6275.	345.	0.	4934.	5925.	0.	** 1400.	991.	.83	13.	122.2	F	15.2	20.1
18	3	200.	0.	0.	6275.	0.	0.	4934.	6000.	0.	** 200.	991.	.82	13.	126.5	F	14.9	20.4
19	3	1400.	0.	530.	6275.	0.	501.	4934.	5915.	0.	** 1400.	981.	.83	14.	121.6	F	15.2	20.0
20	3	900.	0.	0.	5745.	0.	0.	4433.	6000.	0.	** 900.	981.	.74	10.	148.3	F	13.1	22.8
21	4	100.	218.	0.	5963.	240.	0.	4673.	6198.	0.	** 100.	981.	.75	10.	111.8	F	13.4	22.4
22	4	100.	0.	178.	5963.	0.	169.	4673.	6220.	0.	** 100.	981.	.75	10.	112.8	F	13.3	22.5
23	3	600.	0.	0.	5785.	0.	0.	4504.	6000.	0.	** 600.	981.	.75	10.	145.2	F	13.3	22.5
24	3	1500.	240.	0.	6025.	240.	0.	4744.	5940.	0.	** 1500.	981.	.80	12.	131.3	F	14.3	21.2
25	3	1500.	0.	0.	6025.	0.	0.	4744.	6000.	0.	** 1500.	981.	.79	12.	134.7	F	14.1	21.4
26	3	8000.	0.	0.	6025.	0.	0.	4744.	6000.	0.	** 8000.	981.	.79	12.	134.7	F	14.1	21.4
27	5	100.	1506.	0.	7531.	1506.	0.	6250.	10000.	0.	** 100.	981.	.63	7.	178.0	F	9.9	26.3
28	5	1000.	750.	0.	8281.	750.	0.	7000.	7750.	0.	** 1000.	750.	.90	17.	81.6	F	17.2	17.6
29	5	1000.	750.	9031.	9031.	750.	7750.	7750.	7750.	0.	0.	0.	1.00	52.	29.7	E	23.8	11.1
TOTAL		135469. = 25.7 MILES								MAX(V/C) = 1.00		LOWEST LOS = F		AVG = 15.	109.2		14.5	18.8

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	9482. VEH-HRS	9518. PASS-HRS	22806. VEH-HRS	22919. PASS-HRS

FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	440. VEH-HRS	460. PASS-HRS	1331. VEH-HRS	1430. PASS-HRS
OFF-RAMP DELAY =	677. VEH-HRS	679. PASS-HRS	1207. VEH-HRS	1212. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	10599. VEH-HRS	10658. PASS-HRS	25344. VEH-HRS	25562. PASS-HRS
TOTAL TRAV DISTANCE =	138358. VEH-MI.	139408. PASS-MI.	460745. VEH-MI.	463987. PASS-MI.
AVERAGE SYSTEM SPEED =	13. MPH.		20. MPH.	
AVERAGE DENSITY =	109. VPMPL		83. VPMPL	
TOTAL FUEL =	9918. GALLONS		27591. GALLONS	
TOTAL EMISSIONS =	2765. KILOGRAMS		7596. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.64	2	******	3	168.96	4	37.01	5	43.18
6	162.25	7	156.08	8	104.40	9	50.46	10	91.74
11	64.76	12	32.80	13	34.41	14	32.88	15	58.83
16	56.42	17	77.07	18	11.49	19	76.62	20	64.20
21	7.11	22	7.18	23	41.62	24	91.18	25	94.09
26	501.82	27	15.04	28	56.88	29	5.53		

***** TOTAL DELAY = 7353.4 VEH-HRS ***** AVERAGE DELAY = 92.16 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	AVERAGE METERING DELAY MINUTES	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
ON-RAMP	2	RAMP	50.	50.00	5.24	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	5.24	17.85	1.11	5.79	0.31	7.21
ON-RAMP	3	RAMP	50.	50.00	3.76	17.85	1.11	5.79	0.31	7.21
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	50.	50.00	3.76	17.85	1.11	5.79	0.31	7.21
ON-RAMP	4	RAMP	100.	100.00	8.39	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.39	35.71	2.22	11.58	0.61	14.41
ON-RAMP	5	RAMP	100.	100.00	13.48	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	13.48	35.71	2.22	11.58	0.61	14.41
ON-RAMP	6	RAMP	29.	40.00	8.92	14.28	0.89	4.63	0.25	5.77
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	29.	40.00	8.92	14.28	0.89	4.63	0.25	5.77
ON-RAMP	9	RAMP	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
		FREEWAY	0.	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		TOTAL	100.	100.00	8.57	35.71	2.22	11.58	0.61	14.41
OFF-RAMP	2	OUTPUT POINT	803.	676.72		241.64	14.99	78.40	4.16	97.55

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UNIVERSITY OF CALIFORNIA, BERKELEY

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FFFFFFFFFF RRRRRRRRR  EEEEEEEEEE     QQQQQQQ        1111      222222     PPPPPPPPP     LLL
FFFFFFFFFF RRRRRRRRRR EEEEEEEEEE   Q*A.D.MAY*Q     111111     222  222    PPPPPPPPPP    LLL
FFF        RRR    RRR EEE         QQQQQ    QQQQQ     1111    222   222   PPP    PPP    LLL
FFF        RRR    RRR EEE        QQQQ        QQQQ    1111          222   PPP    PPP    LLL
FFFFFFF    RRRRRRRRRR EEEEEEE    QQQQ        QQQQ    1111         222    PPPPPPPPPP    LLL
FFFFFFF    RRRRRRRRR  EEEEEEE    QQQQ        QQQQ    1111       2222     PPPPPPPPP     LLL
FFF        RRR RRR    EEE        QQQQ    QQQ QQQQ    1111     2222       PPP           LLL
FFF        RRR  RRR   EEE         Q*UC*    QQQQQ     1111    222         PPP           LLL
FFF        RRR   RRR  EEEEEEEEEE   Q*REGENTS*QQ      1111   222          PPP           LLLLLLLLLL
FFF        RRR    RRR EEEEEEEEEE     Q*1988*Q QQQ  11111111  2222222222   PPP           LLLLLLLLLL
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FREQ12PLB

1. A TYPE 1 PRIORITY LANE BETWEEN SUBSECTIONS 2 AND 26 WILL BE SIMULATED.
2. SHORT TERM CONSEQUENCES ARE REQUESTED.
3. THERE ARE 1.0 TIME SLICES PER HOUR.
4. WEAVING ANALYSIS IS NOT ENGAGED.
5. NO ALTERNATE ROUTE IS PROVIDED.
6. SPEED FLOW DATA IS SUPPLIED BY THE PROGRAM. DEFAULT FREE-FLOW SPEED = 65
   LOWER LIMB (AT V/C=1) = 25
7. THE MAINLINE DELAY CALCULATION IS ENGAGED AT 65. MPH.
8. FUEL DATA ARE SUPPLIED BY THE PROGRAM.
9. EMISSION RATES SELECTED FROM PROGRAM TABLES: EMFAC2002 2005 - 75 DEGREES F.
10. NUMBER OF PRIORITY LANES = 2.
11. PRIORITY CUTOFF LIMIT = 2.

INPUT HAS BEEN COMPLETED

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	TRK	PCT DES TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
1															
2	2	3000.	99999.	65	O	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Queue Capture
3	2	3000.	2740.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-85 Off to Shore On
4	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Shore. On to Moffet Off
5	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett Off to On
6	2	3000.	2630.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Moffett On to Ellis Off
7	2	3000.	2530.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Ellis Off to On-ramp
8	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis On-ramp
9	2	3000.	700.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Ellis / US 237
10	2	3000.	1500.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 EB Off-Ramp
11	2	3000.	750.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	SR-237 / SR-237
12	2	3000.	350.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	SR-237 EB On-Ramp
13	2	3000.	350.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	US 237 / Mathilda
14	2	3000.	350.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda Off-Ramp
15	2	3000.	700.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Mathilda
16	2	3000.	900.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda SB On-Ramp
17	2	3000.	1400.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mathilda NB On-Ramp
18	2	3000.	200.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Mathilda / Fair Oaks

19	2	3000.	1400.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB Off-Ramp
20	2	3000.	900.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks SB/ Fair Oaks

FREEWAY AND ARTERIAL DESIGN FEATURES

SUB SEC	NO. LNS	SSEC CAP	SSEC LENGTH	DESIGN SPEED	ORG DES	TRK FAC	SSEC PCT GRAD	PCT DES TRK	TRUCKS	SPECIAL RAMP	FF.SPD. ALT.RTE	CAP. ALT.RTE	ART TYPE	GRADE ALT.RTE	SUBSECTION LOCATION
21	2	3000.	100.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Fair Oaks SB On-Ramp
22	2	3000.	100.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB Off-Ramp
23	2	3000.	600.	65		0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	Fair Oaks NB/ Fair Oaks
24	2	3000.	1500.	65	O	0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Oaks On-Ramp to Mid
25	2	3000.	1500.	65		0.96	0.0	0	100	YES	0.0	0.	GOOD	0.0	Mid to Lawrence Off-ramp
26	2	3000.	8000.	65	D	0.96	0.0	0	100	NO	0.0	0.	GOOD	0.0	HOV Dummy
27															
28															
29															

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA DEMANDS ORG	DES	SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1840.	0.	1840.	1840.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
3	2	2740.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
4	2	600.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
5	2	700.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
6	2	2630.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
7	2	2530.	0.	0.	1840.	0.	0.	1840.	3000.	0.	0.	0.	.61	65.	14.2	B	20.0	13.7
8	2	1500.	97.	0.	1937.	97.	0.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
9	2	700.	0.	0.	1937.	0.	0.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
10	2	1500.	0.	389.	1937.	0.	278.	1937.	3000.	0.	0.	0.	.65	65.	14.9	B	20.0	13.7
11	2	750.	0.	0.	1548.	0.	0.	1548.	3000.	0.	0.	0.	.52	65.	11.9	B	20.0	13.7
12	2	350.	137.	0.	1686.	137.	0.	1686.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
13	2	350.	0.	0.	1686.	0.	0.	1686.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
14	2	350.	0.	162.	1686.	0.	162.	1686.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
15	2	700.	0.	0.	1524.	0.	0.	1524.	3000.	0.	0.	0.	.51	65.	11.7	B	20.0	13.7
16	2	900.	166.	0.	1690.	166.	0.	1690.	3000.	0.	0.	0.	.56	65.	13.0	B	20.0	13.7
17	2	1400.	92.	0.	1782.	92.	0.	1782.	3000.	0.	0.	0.	.59	65.	13.7	B	20.0	13.7
18	2	200.	0.	0.	1782.	0.	0.	1782.	3000.	0.	0.	0.	.59	65.	13.7	B	20.0	13.7
19	2	1400.	0.	81.	1782.	0.	81.	1782.	3000.	0.	0.	0.	.59	65.	13.7	B	20.0	13.7
20	2	900.	0.	0.	1701.	0.	0.	1701.	3000.	0.	0.	0.	.57	65.	13.1	B	20.0	13.7
21	2	100.	63.	0.	1764.	63.	0.	1764.	3000.	0.	0.	0.	.59	65.	13.6	B	20.0	13.7
22	2	100.	0.	24.	1764.	0.	24.	1764.	3000.	0.	0.	0.	.59	65.	13.6	B	20.0	13.7
23	2	600.	0.	0.	1740.	0.	0.	1740.	3000.	0.	0.	0.	.58	65.	13.4	B	20.0	13.7
24	2	1500.	56.	0.	1796.	56.	0.	1796.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
25	2	1500.	0.	0.	1796.	0.	0.	1796.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
26	2	8000.	0.	1796.	1796.	0.	1796.	1796.	3000.	0.	0.	0.	.60	65.	13.8	B	20.0	13.7
27																		
28																		
29																		
TOTAL	131999. =	25.0 MILES							MAX(V/C) = 0.65		LOWEST LOS = B		AVG = 65.		14.1		20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	704. VEH-HRS	1408. PASS-HRS	704. VEH-HRS	1408. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	56. VEH-HRS	111. PASS-HRS	56. VEH-HRS	111. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	760. VEH-HRS	1519. PASS-HRS	760. VEH-HRS	1519. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	45765. VEH-MI.	91531. PASS-MI.	45765. VEH-MI.	91531. PASS-MI.
AVERAGE SYSTEM SPEED =	60. MPH.		65. MPH.	
AVERAGE DENSITY =	14. VPMPL		14. VPMPL	
TOTAL FUEL =	2307. GALLONS		2307. GALLONS	
TOTAL EMISSIONS =	637. KILOGRAMS		637. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	111.	55.54	19.05	1.20	6.27	0.33	7.80

FREEWAY TRAVEL TIME (MINUTES)

ORIGINS DOWN \ DESTINATIONS ACROSS	1	2	3	4	5	6	7

1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DATA ORG	DEMANDS DES	DEMANDS SSEC	ADJUSTED VOLUMES ORG	VOLUMES DES	VOLUMES SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1710.	0.	1710.	1710.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
3	2	2740.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
4	2	600.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
5	2	700.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
6	2	2630.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
7	2	2530.	0.	0.	1710.	0.	0.	1710.	3000.	0.	0.	0.	.57	65.	13.2	B	20.0	13.7
8	2	1500.	96.	0.	1806.	96.	0.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
9	2	700.	0.	0.	1806.	0.	0.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
10	2	1500.	0.	374.	1806.	0.	275.	1806.	3000.	0.	0.	0.	.60	65.	13.9	B	20.0	13.7
11	2	750.	0.	0.	1432.	0.	0.	1432.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
12	2	350.	124.	0.	1556.	124.	0.	1556.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
13	2	350.	0.	0.	1556.	0.	0.	1556.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
14	2	350.	0.	167.	1556.	0.	167.	1556.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
15	2	700.	0.	0.	1389.	0.	0.	1389.	3000.	0.	0.	0.	.46	65.	10.7	A	20.0	13.7
16	2	900.	169.	0.	1558.	169.	0.	1558.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
17	2	1400.	94.	0.	1653.	94.	0.	1653.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
18	2	200.	0.	0.	1653.	0.	0.	1653.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
19	2	1400.	0.	96.	1653.	0.	96.	1653.	3000.	0.	0.	0.	.55	65.	12.7	B	20.0	13.7
20	2	900.	0.	0.	1556.	0.	0.	1556.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
21	2	100.	66.	0.	1622.	66.	0.	1622.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
22	2	100.	0.	32.	1622.	0.	32.	1622.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
23	2	600.	0.	0.	1590.	0.	0.	1590.	3000.	0.	0.	0.	.53	65.	12.2	B	20.0	13.7
24	2	1500.	50.	0.	1640.	50.	0.	1640.	3000.	0.	0.	0.	.55	65.	12.6	B	20.0	13.7
25	2	1500.	0.	0.	1640.	0.	0.	1640.	3000.	0.	0.	0.	.55	65.	12.6	B	20.0	13.7
26	2	8000.	0.	1640.	1640.	0.	1640.	1640.	3000.	0.	0.	0.	.55	65.	12.6	B	20.0	13.7
27																		
28																		
29																		
TOTAL	131999.	= 25.0 MILES						MAX(V/C) = 0.60		LOWEST LOS = B			AVG = 65.	13.1			20.0	13.7

	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	653. VEH-HRS	1306. PASS-HRS	1357. VEH-HRS	2714. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	161. VEH-HRS	321. PASS-HRS	216. VEH-HRS	432. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	814. VEH-HRS	1627. PASS-HRS	1573. VEH-HRS	3147. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	42453. VEH-MI.	84906. PASS-MI.	88218. VEH-MI.	176436. PASS-MI.
AVERAGE SYSTEM SPEED =	52. MPH.		65. MPH.	
AVERAGE DENSITY =	13. VPMPL		14. VPMPL	
TOTAL FUEL =	2178. GALLONS		4485. GALLONS	
TOTAL EMISSIONS =	606. KILOGRAMS		1242. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY

1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	210.	160.61	55.09	3.47	18.12	0.96	22.55

****
** **
** FREEWAY TRAVEL TIME (MINUTES) **
** **
****

ORIGINS DOWN	DESTINATIONS ACROSS 1	2	3	4	5	6	7
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	19.74	20.05	20.86	21.05	23.08	0.00
3	0.00	0.00	0.00	0.00	1.96	3.99	0.00
4	0.00	0.00	0.00	0.00	0.00	3.21	0.00
5	0.00	0.00	0.00	0.00	0.00	2.90	0.00
6	0.00	0.00	0.00	0.00	0.00	2.74	0.00
7	0.00	0.00	0.00	0.00	0.00	2.06	0.00
8	0.00	0.00	0.00	0.00	0.00	1.92	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00

TIME SLICE FREEWAY PERFORMANCE TABLE

SUB SEC	NO. LNS	SSEC LENGTH	O-D DEMANDS ORG	DES	DATA SSEC	ADJUSTED VOLUMES ORG	DES	SSEC	SSEC CAP.	WEAVE EFF	CONGEST LENGTH	STORAGE RATE	V/C RATIO	SPEED MPH	DENSITY VPMPL	LOS LEVEL	FUEL MPG	EMISS GS/VM
1																		
2	2	99999.	1554.	0.	1554.	1554.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
3	2	2740.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
4	2	600.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
5	2	700.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
6	2	2630.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
7	2	2530.	0.	0.	1554.	0.	0.	1554.	3000.	0.	0.	0.	.52	65.	12.0	B	20.0	13.7
8	2	1500.	77.	0.	1631.	77.	0.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
9	2	700.	0.	0.	1631.	0.	0.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
10	2	1500.	0.	338.	1631.	0.	279.	1631.	3000.	0.	0.	0.	.54	65.	12.5	B	20.0	13.7
11	2	750.	0.	0.	1293.	0.	0.	1293.	3000.	0.	0.	0.	.43	65.	9.9	A	20.0	13.7
12	2	350.	142.	0.	1435.	142.	0.	1435.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
13	2	350.	0.	0.	1435.	0.	0.	1435.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
14	2	350.	0.	135.	1435.	0.	135.	1435.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
15	2	700.	0.	0.	1300.	0.	0.	1300.	3000.	0.	0.	0.	.43	65.	10.0	A	20.0	13.7
16	2	900.	134.	0.	1434.	134.	0.	1434.	3000.	0.	0.	0.	.48	65.	11.0	B	20.0	13.7
17	2	1400.	75.	0.	1509.	75.	0.	1509.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7
18	2	200.	0.	0.	1509.	0.	0.	1509.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7
19	2	1400.	0.	85.	1509.	0.	85.	1509.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7
20	2	900.	0.	0.	1424.	0.	0.	1424.	3000.	0.	0.	0.	.47	65.	11.0	A	20.0	13.7
21	2	100.	52.	0.	1476.	52.	0.	1476.	3000.	0.	0.	0.	.49	65.	11.4	B	20.0	13.7
22	2	100.	0.	30.	1476.	0.	30.	1476.	3000.	0.	0.	0.	.49	65.	11.4	B	20.0	13.7
23	2	600.	0.	0.	1446.	0.	0.	1446.	3000.	0.	0.	0.	.48	65.	11.1	B	20.0	13.7
24	2	1500.	60.	0.	1506.	60.	0.	1506.	3000.	0.	0.	0.	.50	65.	11.6	B	20.0	13.7

```
*  25   2    1500.      0.    0. 1506.     0.    0. 1506.  3000.     0.       0.     0.   .50    65.   11.6    B     20.0    13.7  *
*  26   2    8000.      0. 1506. 1506.     0. 1506. 1506.  3000.     0.       0.     0.   .50    65.   11.6    B     20.0    13.7  *
*  27                                                                                                                              *
*  28                                                                                                                              *
*  29                                                                                                                              *
*                                                                                                                                  *
************************************************************************************************************************************
*                                                                                                                                  *
*   TOTAL  131999. =   25.0 MILES                        MAX(V/C) = 0.54  LOWEST LOS = B   AVG = 65.   11.9          20.0    13.7  *
*                                                                                                                                  *
************************************************************************************************************************************
```


	CURRENT TIME SLICE		CUMULATIVE VALUES	
FREEWAY TRAVEL TIME =	594. VEH-HRS	1189. PASS-HRS	1951. VEH-HRS	3903. PASS-HRS
FREEWAY MERGE DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
ON-RAMP MRG/CAP DELAY =	0. VEH-HRS	0. PASS-HRS	0. VEH-HRS	0. PASS-HRS
OFF-RAMP DELAY =	240. VEH-HRS	480. PASS-HRS	456. VEH-HRS	912. PASS-HRS
TOTAL SYSTEM TRAVEL TIME =	834. VEH-HRS	1668. PASS-HRS	2407. VEH-HRS	4815. PASS-HRS
TOTAL FRWAY TRAV DISTANCE =	38626. VEH-MI.	77253. PASS-MI.	126844. VEH-MI.	253689. PASS-MI.
AVERAGE SYSTEM SPEED =	46. MPH.		65. MPH.	
AVERAGE DENSITY =	12. VPMPL		13. VPMPL	
TOTAL FUEL =	2014. GALLONS		6499. GALLONS	
TOTAL EMISSIONS =	564. KILOGRAMS		1807. KILOGRAMS	

***** MAINLINE DELAY (VEH-HRS) ***** DESIRED SPEED = 65.0 *****

SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY	SUBSECTION	DELAY
1	0.00	2	0.00	3	0.00	4	0.00	5	0.00
6	0.00	7	0.00	8	0.00	9	0.00	10	0.00
11	0.00	12	0.00	13	0.00	14	0.00	15	0.00
16	0.00	17	0.00	18	0.00	19	0.00	20	0.00
21	0.00	22	0.00	23	0.00	24	0.00	25	0.00
26	0.00	27	0.00	28	0.00	29	0.00		

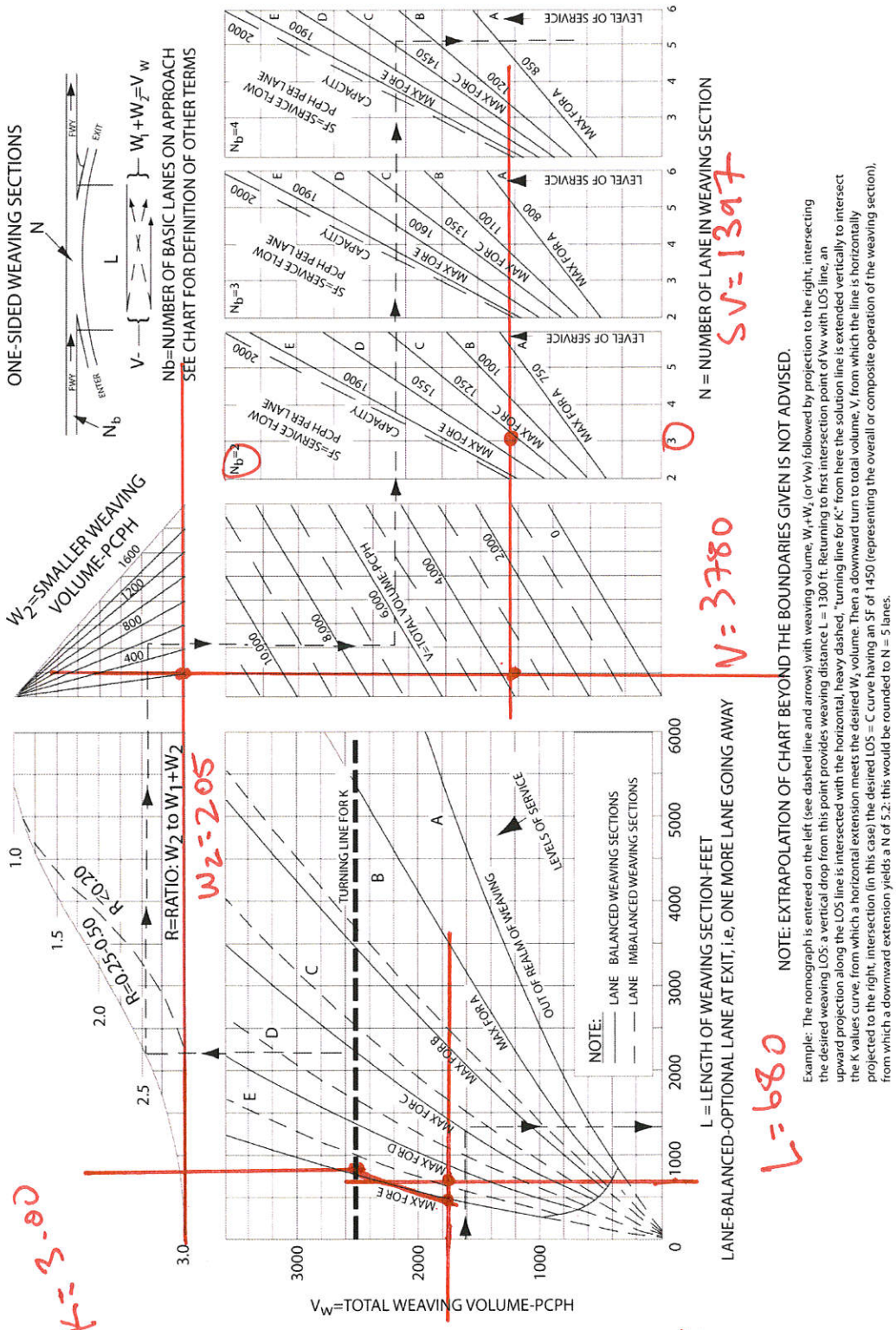
***** TOTAL DELAY = 0.0 VEH-HRS ***** AVERAGE DELAY = 0.00 MIN/VEH *****

***** RAMP DELAYS *****

			QUEUE LENGTH VEHICLES	DELAY VEH-HRS	GAS GALS	HC KGMS	CO KGMS	NOX KGMS	TOTAL EMISSIONS KGMS
OFF-RAMP	2	OUTPUT POINT	270.	239.85	82.27	5.18	27.06	1.44	33.68

APPENDIX Q – YEAR 2040 LEISCH WEAVING ANALYSIS SHEETS

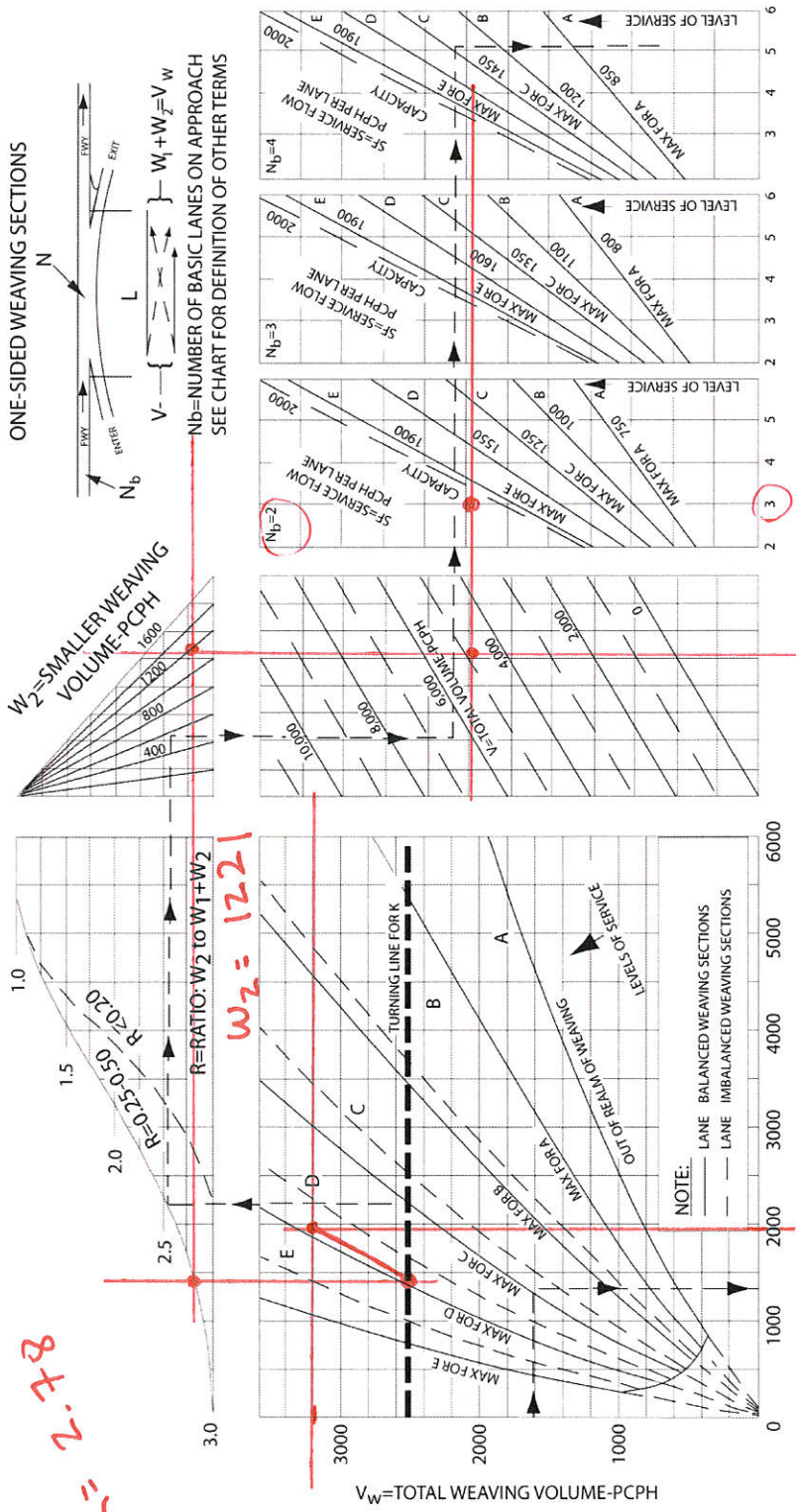
Figure 504.7A
Design Curve for Freeway and Collector Weaving



NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

Figure 504.7A
Design Curve for Freeway and Collector Weaving

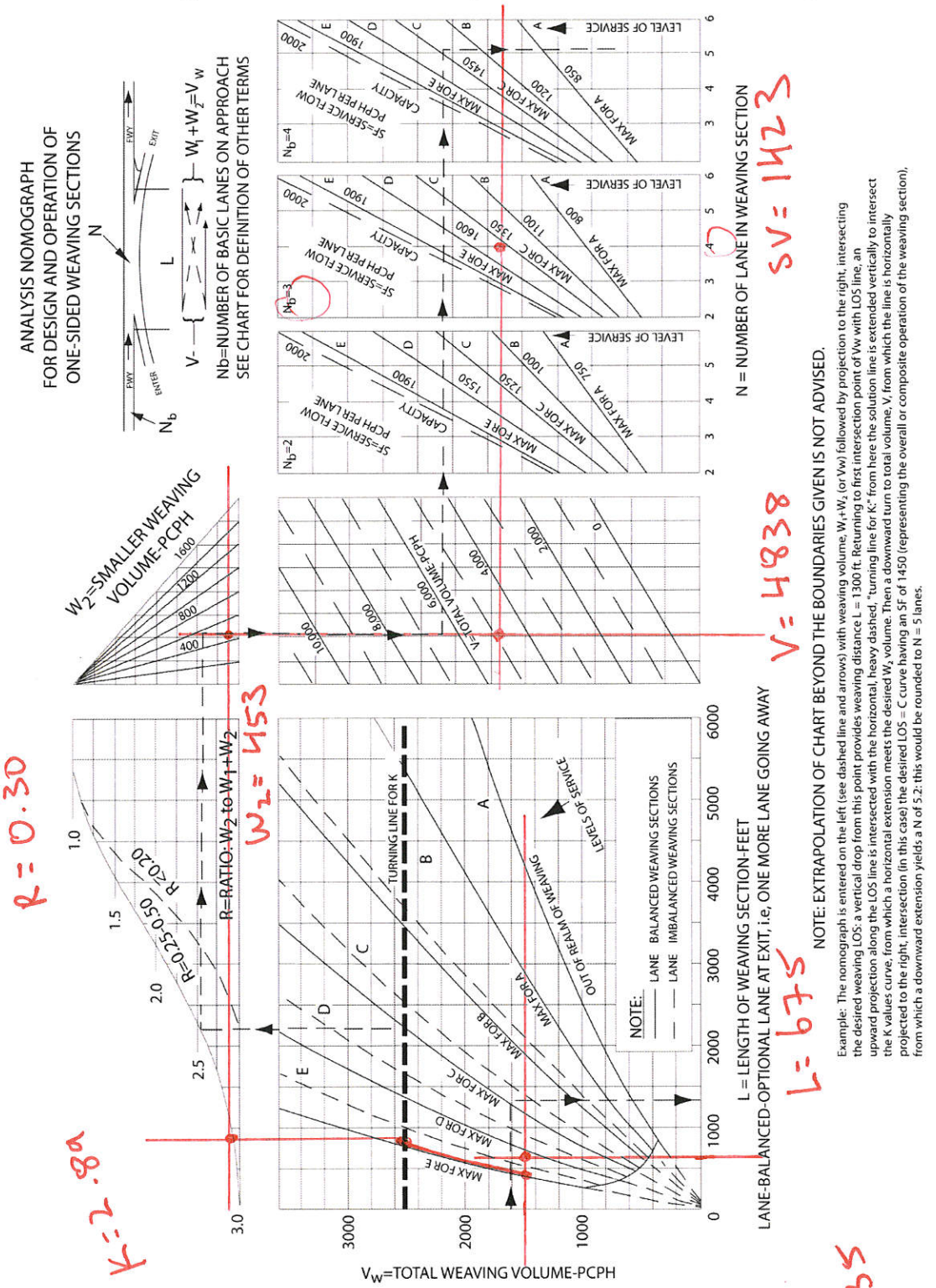


NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K" from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

2040 No Build AM - US-101 SB: SR-237 to Mathilda

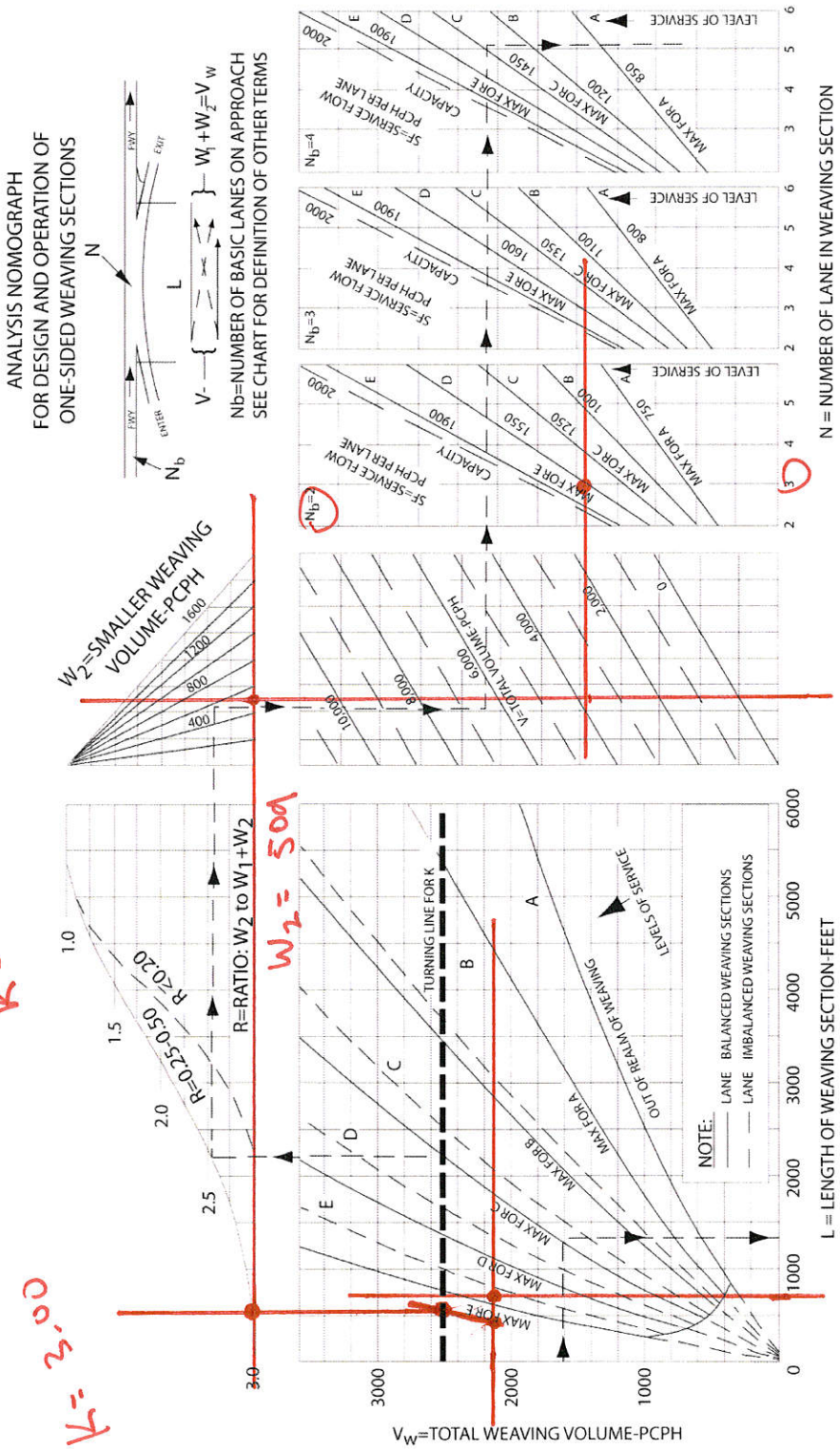
Figure 504.7A
Design Curve for Freeway and Collector Weaving



NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K." from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

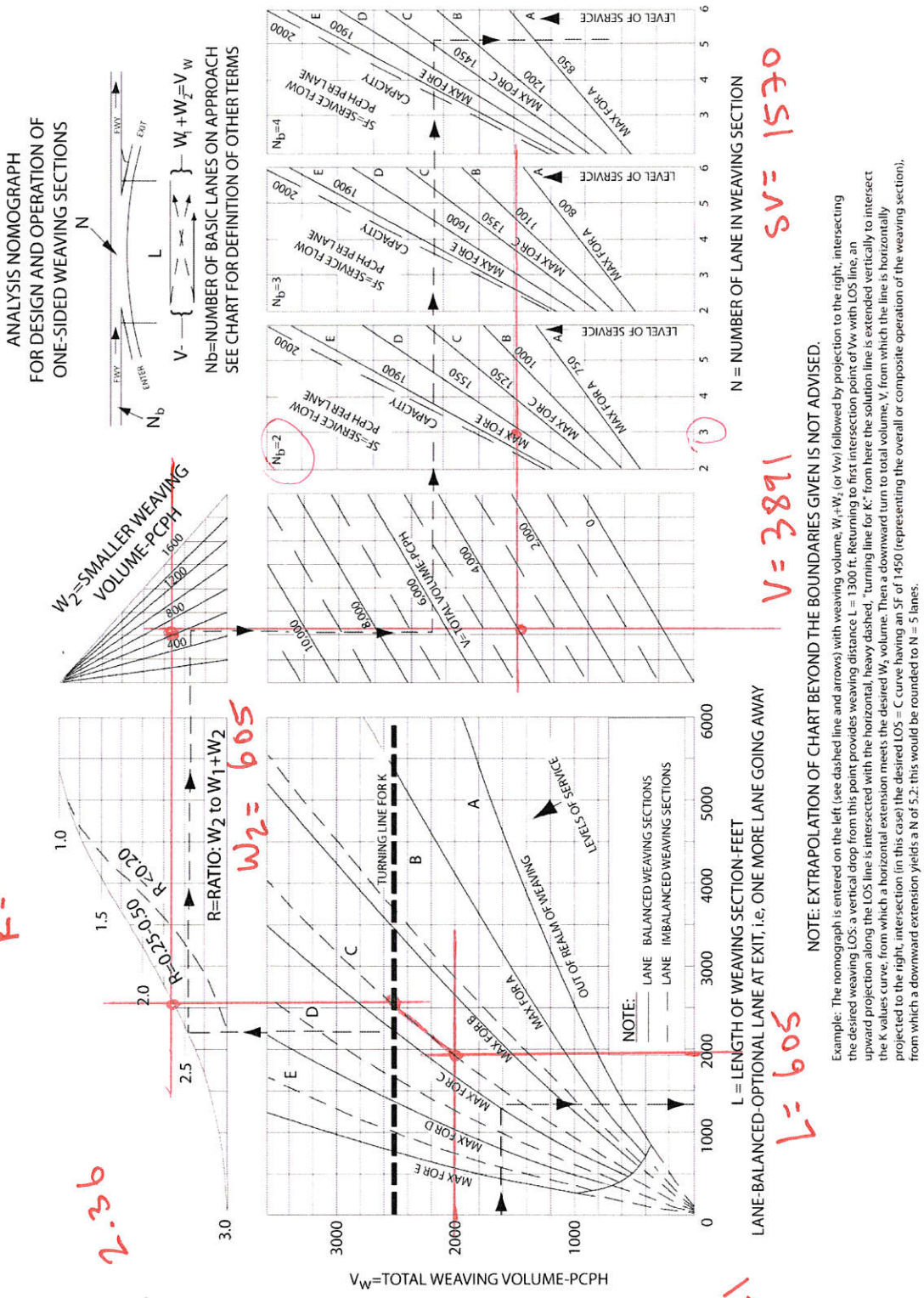
Figure 504.7A
Design Curve for Freeway and Collector Weaving



NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K." from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

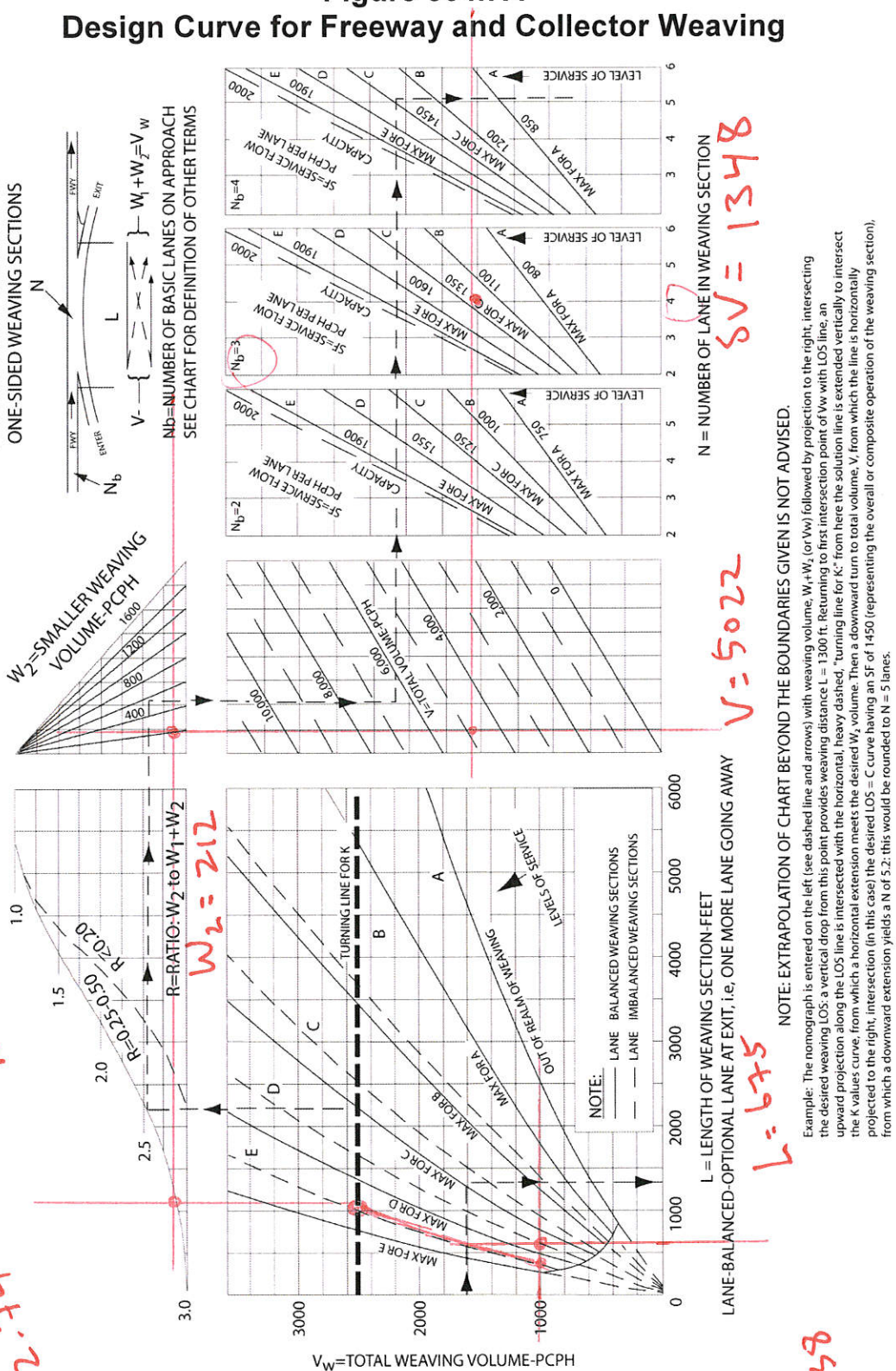
Figure 504.7A
Design Curve for Freeway and Collector Weaving



NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K." from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

Figure 504.7A
Design Curve for Freeway and Collector Weaving



NOTE: EXTRAPOLATION OF CHART BEYOND THE BOUNDARIES GIVEN IS NOT ADVISED.

Example: The nomograph is entered on the left (see dashed line and arrows) with weaving volume, W_1+W_2 (or Vw) followed by projection to the right, intersecting the desired weaving LOS: a vertical drop from this point provides weaving distance L = 1300 ft. Returning to first intersection point of Vw with LOS line, an upward projection along the LOS line is intersected with the horizontal, heavy dashed, "turning line for K." from here the solution line is extended vertically to intersect the K values curve, from which a horizontal extension meets the desired W_2 volume. Then a downward turn to total volume, V, from which the line is horizontally projected to the right, intersection (in this case) the desired LOS = C curve having an SF of 1450 (representing the overall or composite operation of the weaving section), from which a downward extension yields a N of 5.2: this would be rounded to N = 5 lanes.

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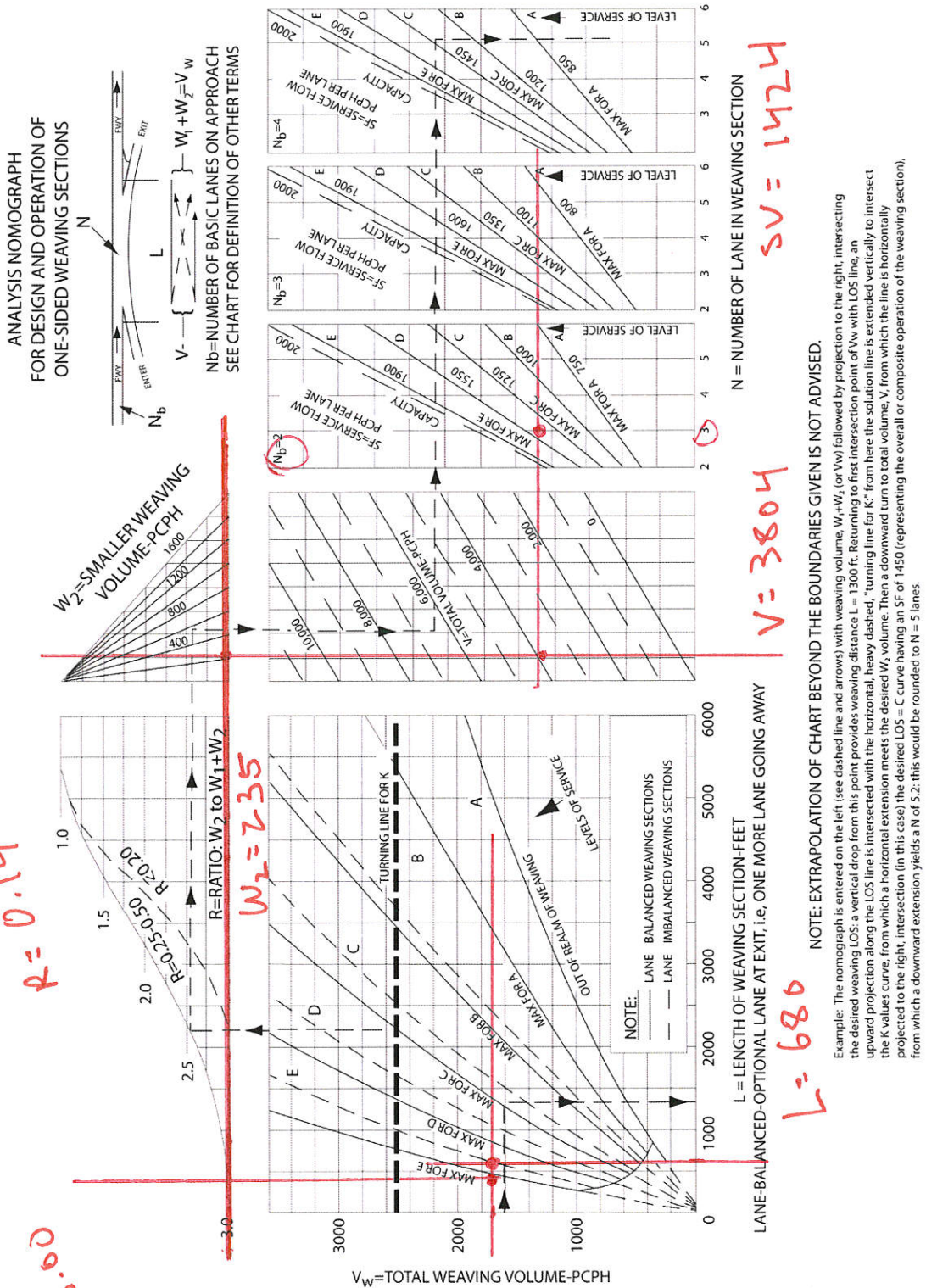

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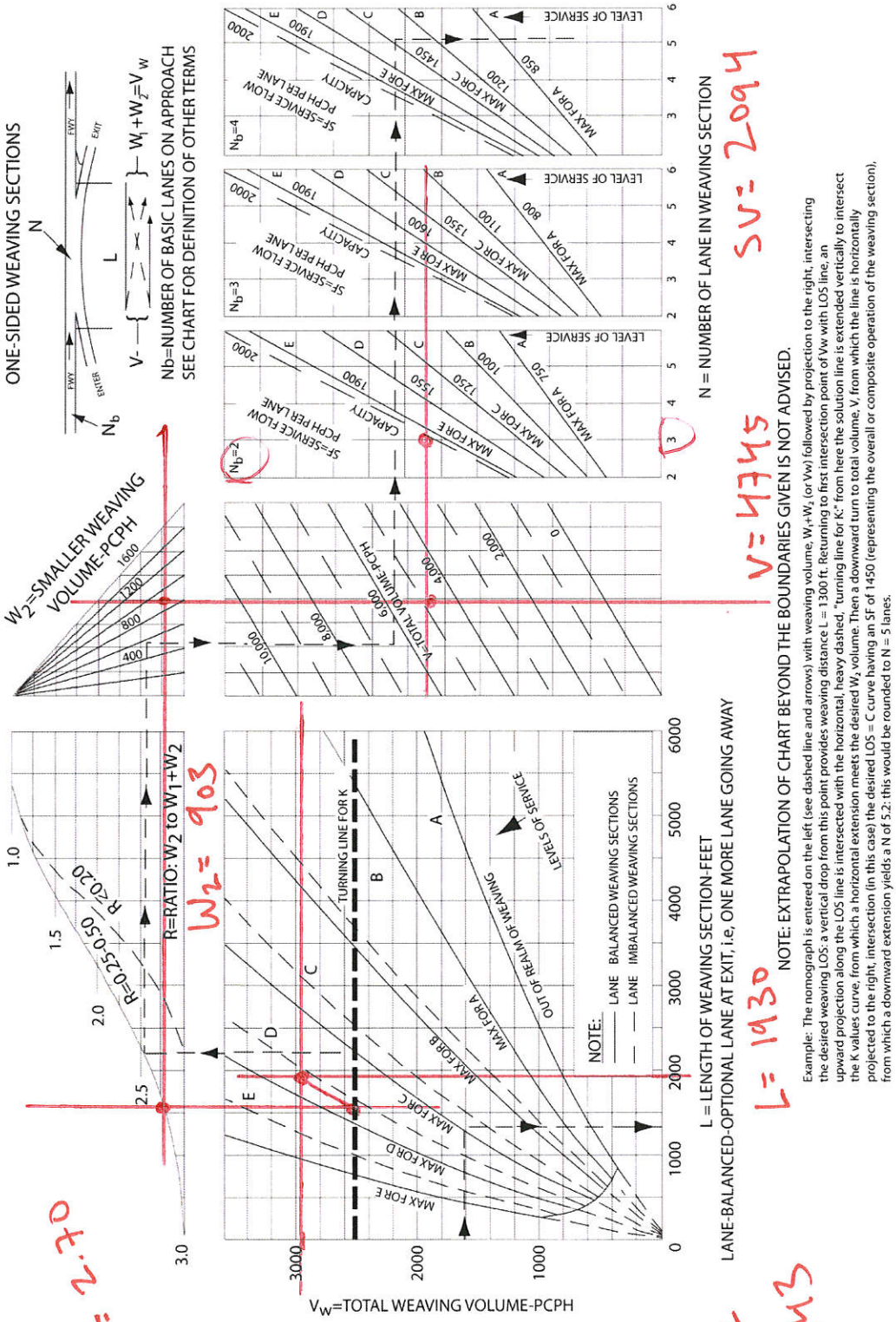

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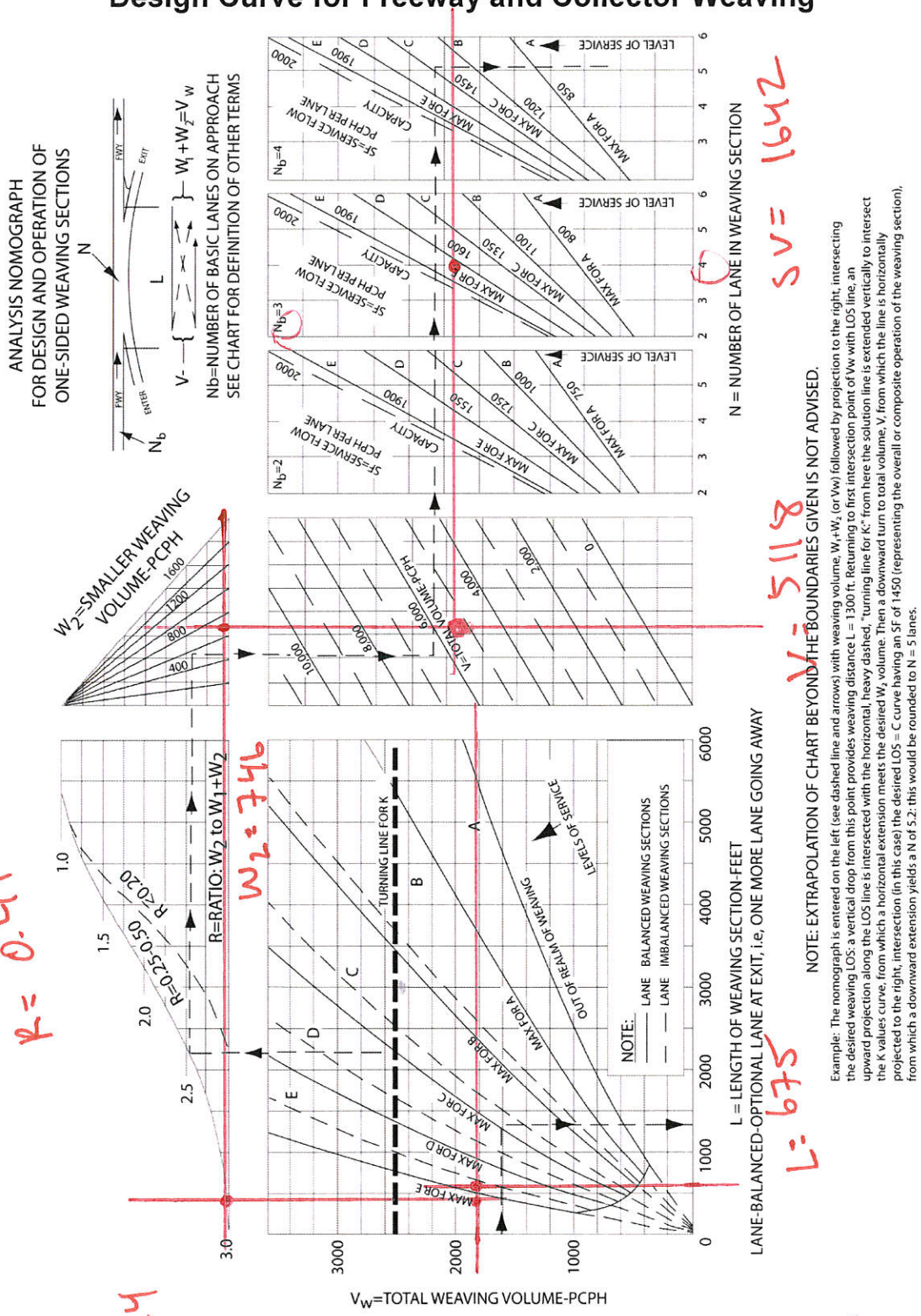

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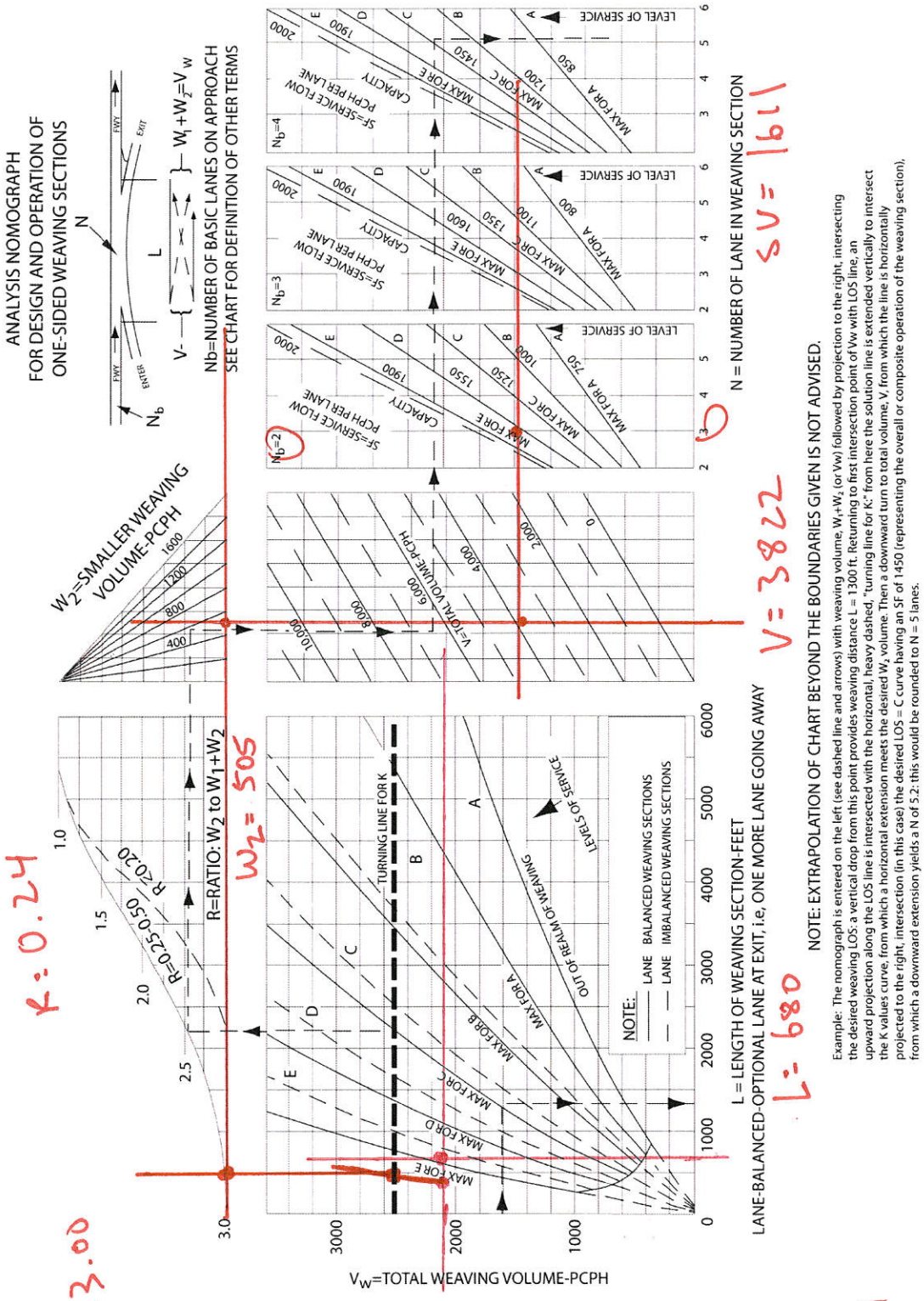

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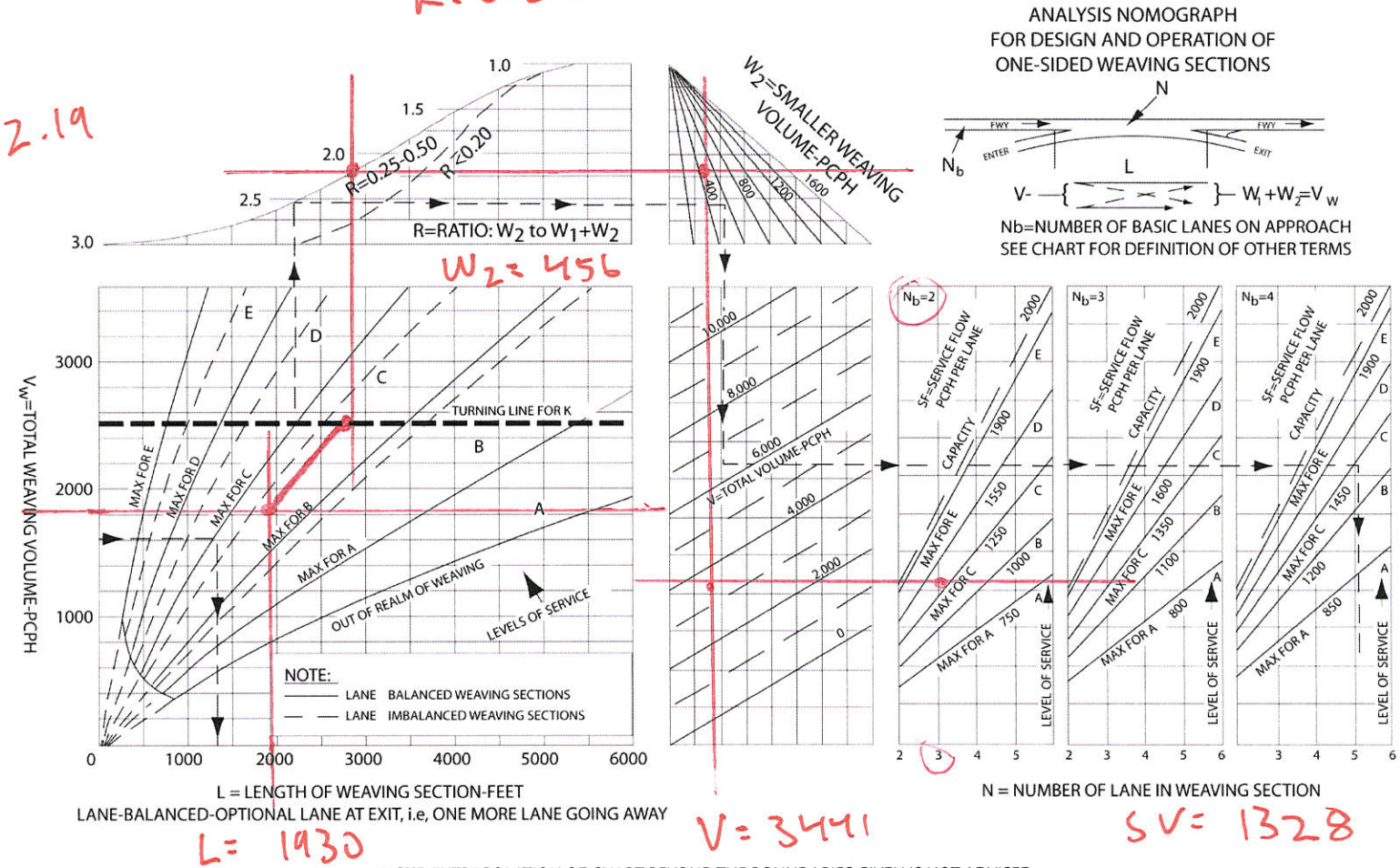
LOS D

29

K = 0.26

K = 2.19

W_2 = 456



L = 1930

V = 3441

SV = 1328

W_1+W_2 = 1780

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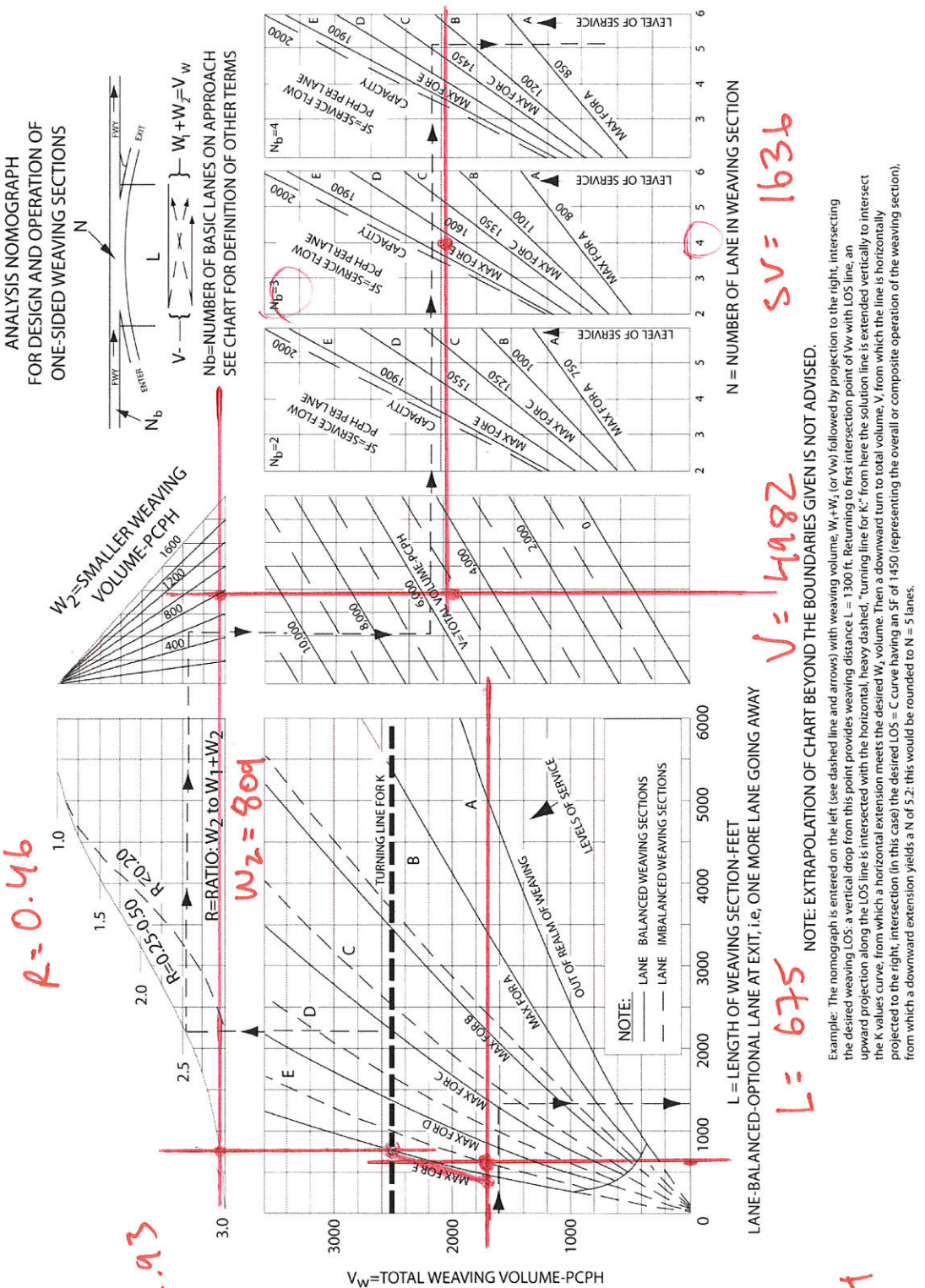

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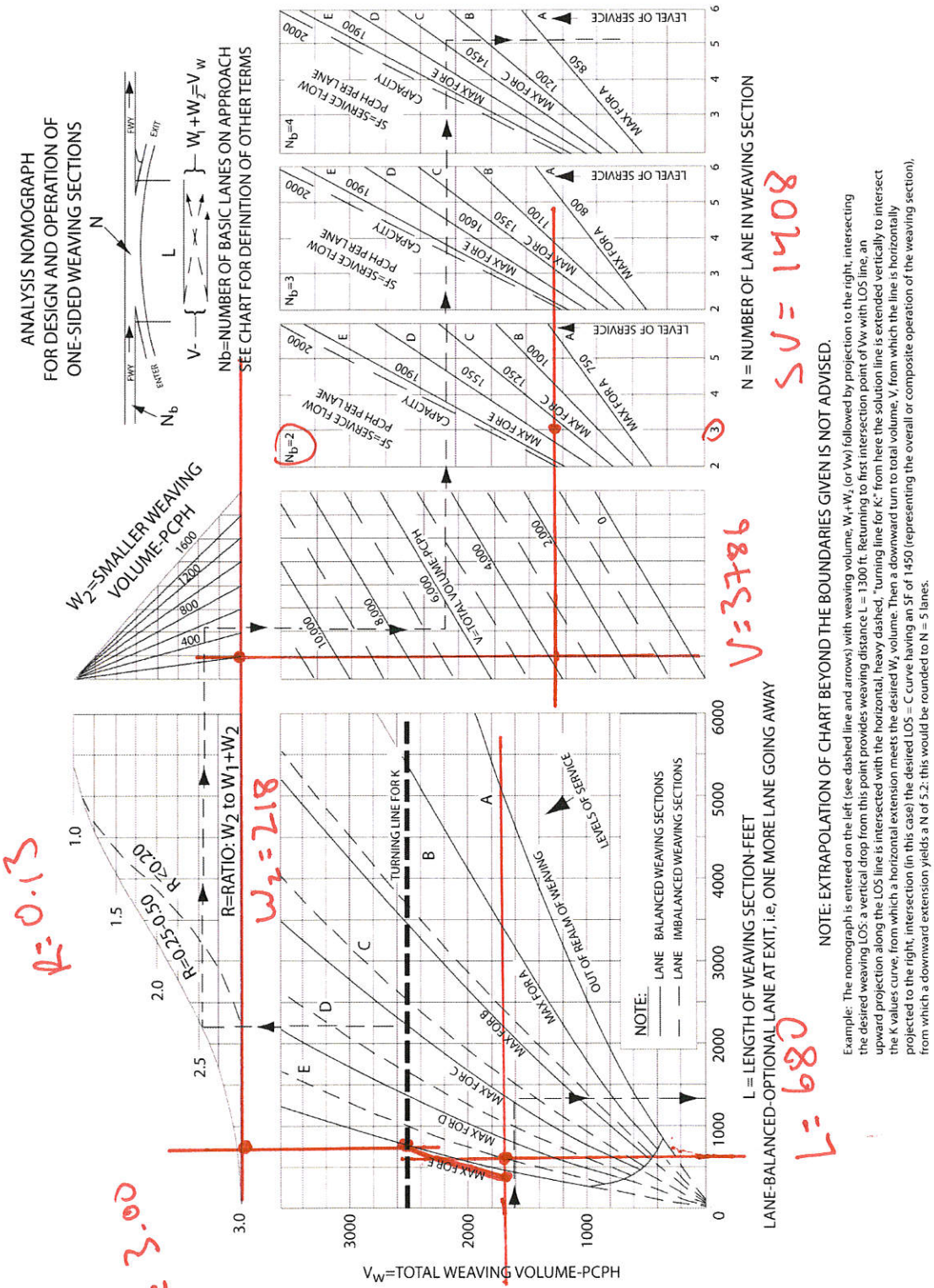

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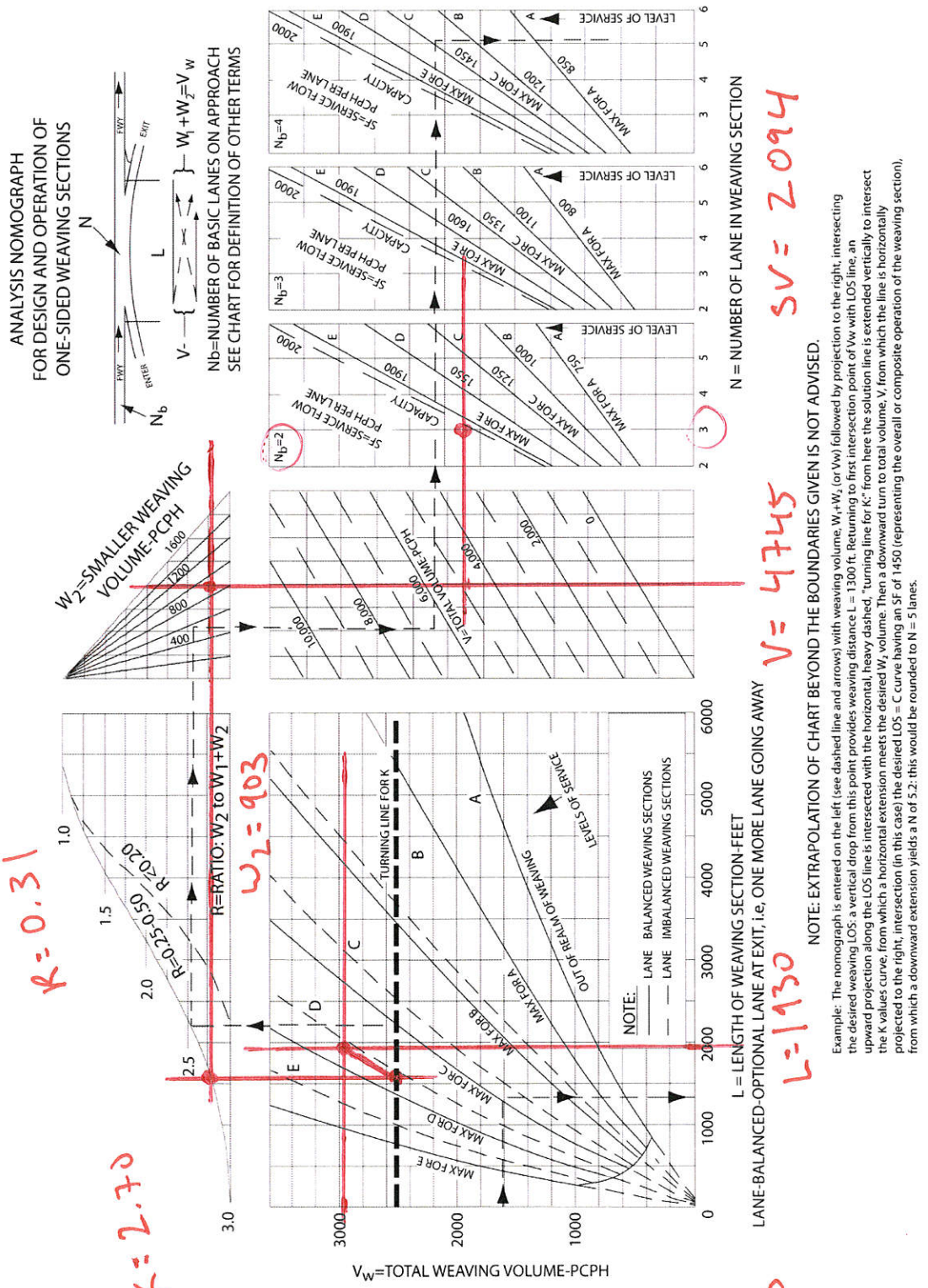

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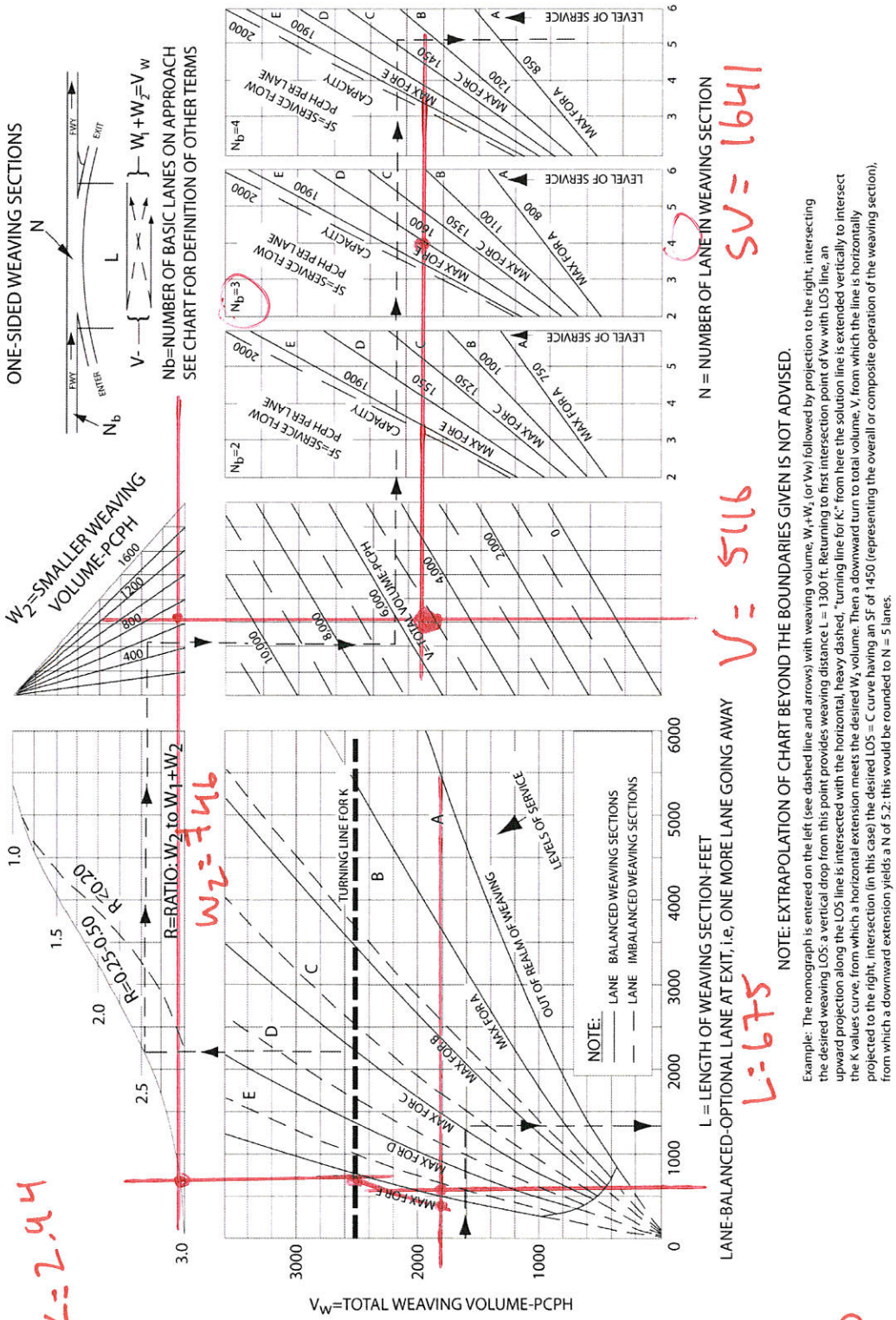

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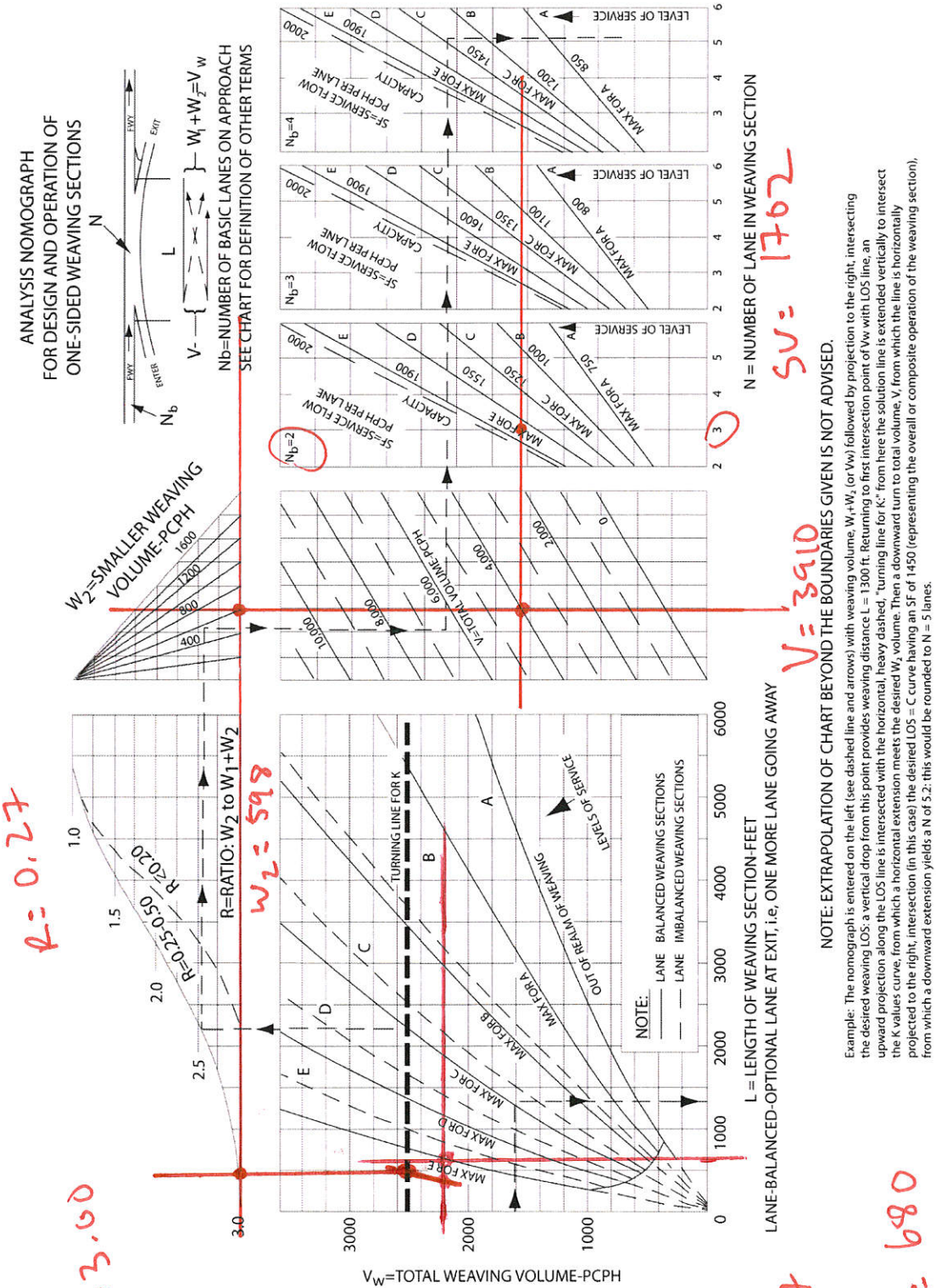

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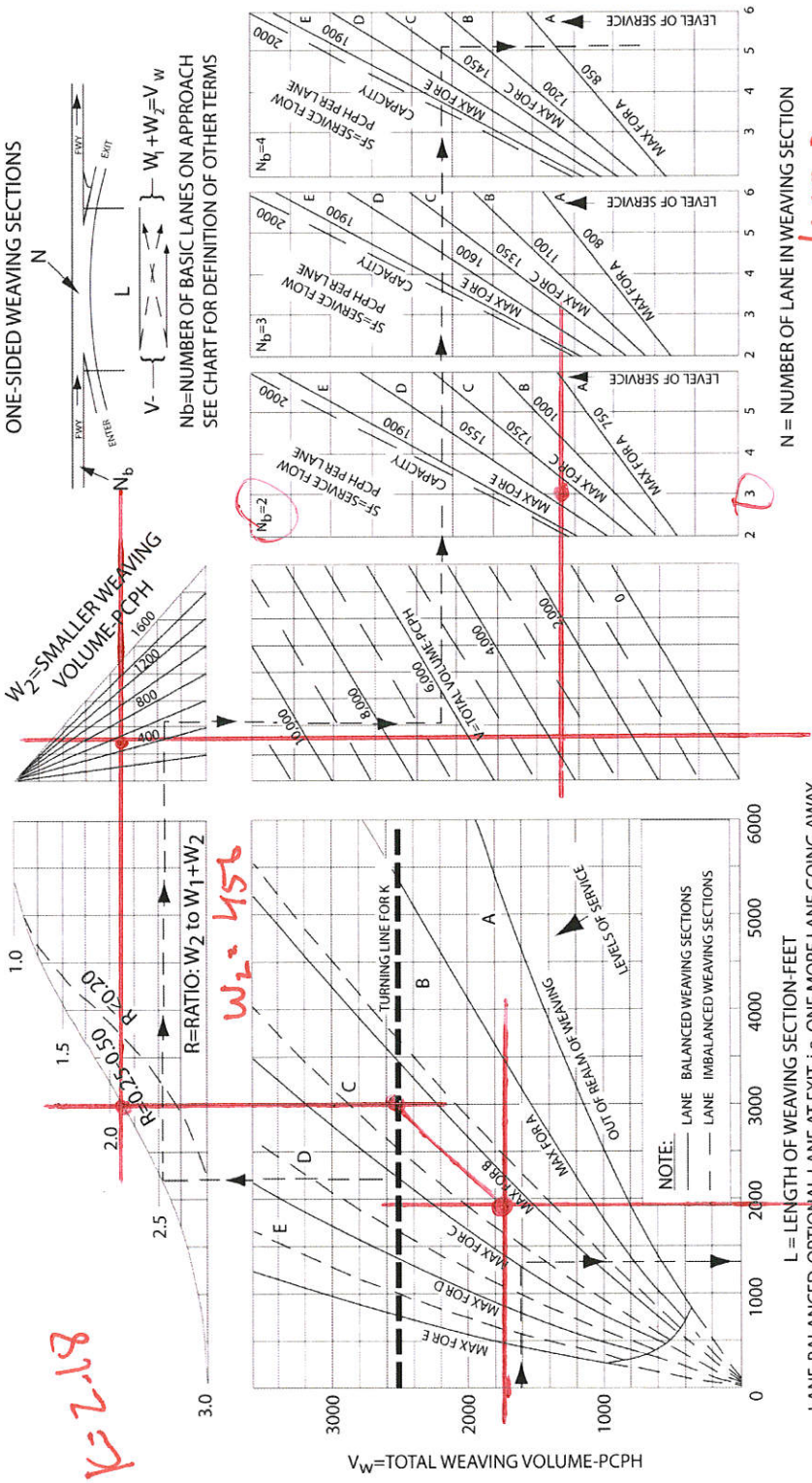

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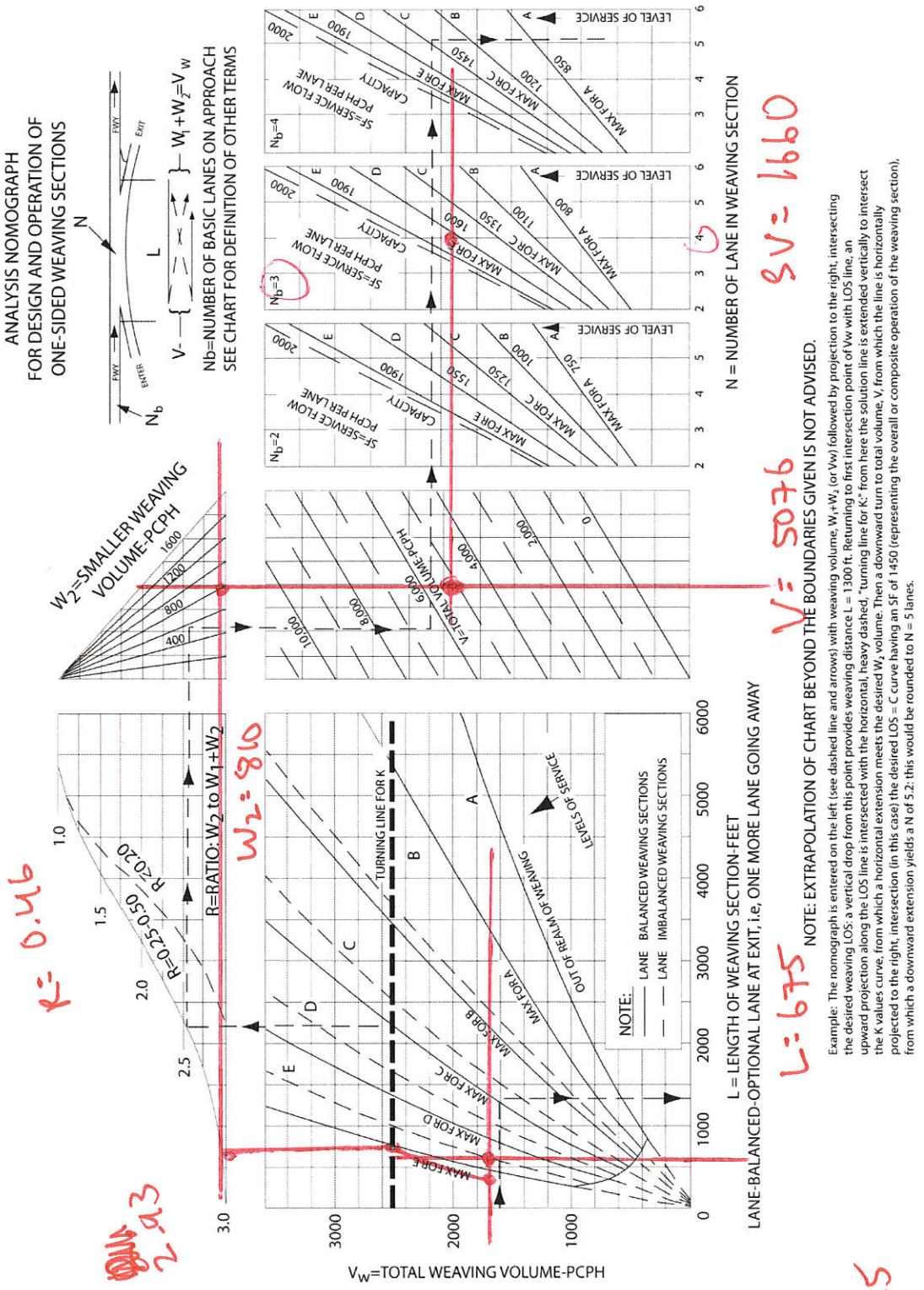

VISUAL IMPACT ASSESSMENT

Mathilda Avenue Improvements at SR 237 and US 101 Project

May 2016

California Department of Transportation

District 4, Santa Clara County, SR 237 and US 101
SR 237 PM 2.7/3.3
US 101 PM 45.2/45.8
EA 04-4H2900

Prepared by: J. Stock **Date:** May 13,2016
Jennifer Stock
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Approved by: Kimberly White **Date:** 5/17/16
Kimberly White
Branch Chief, Design A
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Caltrans, District 4

Statement of Compliance: Produced in compliance with California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this project.

VISUAL IMPACT ASSESSMENT
Mathilda Avenue Improvements at SR 237 and US 101 Project

PURPOSE OF STUDY AND ASSESSMENT METHOD

The purpose of this visual impact assessment (VIA) is to document potential visual impacts caused by the Mathilda Avenue Improvements at State Route 237 (SR 237) and United States Highway (US 101) project (project) and propose measures to lessen any detrimental impacts that are identified. Visual impacts are demonstrated by identifying visual resources in the project area, measuring the amount of change that would occur as a result of the project, and predicting how the affected public would respond to or perceive those changes. This VIA follows the guidance outlined in *Visual Impact Assessment for Highway Projects*, published by the Federal Highway Administration (FHWA) in March 1988.

PROJECT DESCRIPTION

The project is proposing to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue/Ahwanee Avenue to Innovation Way, including on- and off-ramp improvements at SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges. On SR 237, the project limits are from 0.3 miles east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 miles east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the project limits are from 0.5 miles south of Mathilda Avenue overcrossing (PM 45.2) to 0.3 miles south of SR 237/US 101 interchange (PM 45.8). The total length of the project on Mathilda Avenue is approximately one (1) mile. **Figure 1** shows the location of the project.

The project alternatives include Build Alternative 1, Build Alternative 2, and the No-Build Alternative. The design features of the two Build Alternatives (**Figures 2a and 2b**) include reconfiguration of the US 101/Mathilda Avenue and SR 237/Mathilda Avenue interchanges. The Build Alternatives include design variations for reconfigured roadways and intersections, and construction of new signalized intersections. Proposed improvements included in the Build Alternatives south of Ross Drive on Mathilda Avenue and at the US 101 interchange are identical. This includes new bicycle and pedestrian facilities, utility relocations, new storm water treatment facilities, enhanced lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall. In addition to the improvements listed above, Build Alternative 2 includes construction of a diverging diamond interchange (DDI)[1] north of Ross Drive on Mathilda Avenue (**Figure 3**).

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction of Mathilda Avenue.
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp.

[1] A diverging diamond interchange (DDI), also called a double crossover diamond interchange (DCD) is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (phases when a traffic signal allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

- Realign and widen northbound US 101 ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US Highway 101 loop on-ramp.
- Realign southbound US 101 off-ramp and loop on-ramp, and signalize ramp intersection with Mathilda Avenue.
- Modify Mathilda Avenue / Ross Drive signal intersection.
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection.
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration.
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a DDI configuration. Eastbound Moffett Park Drive between Innovation Way and Mathilda Avenue would be diverted to Innovation Way to access Mathilda Avenue.

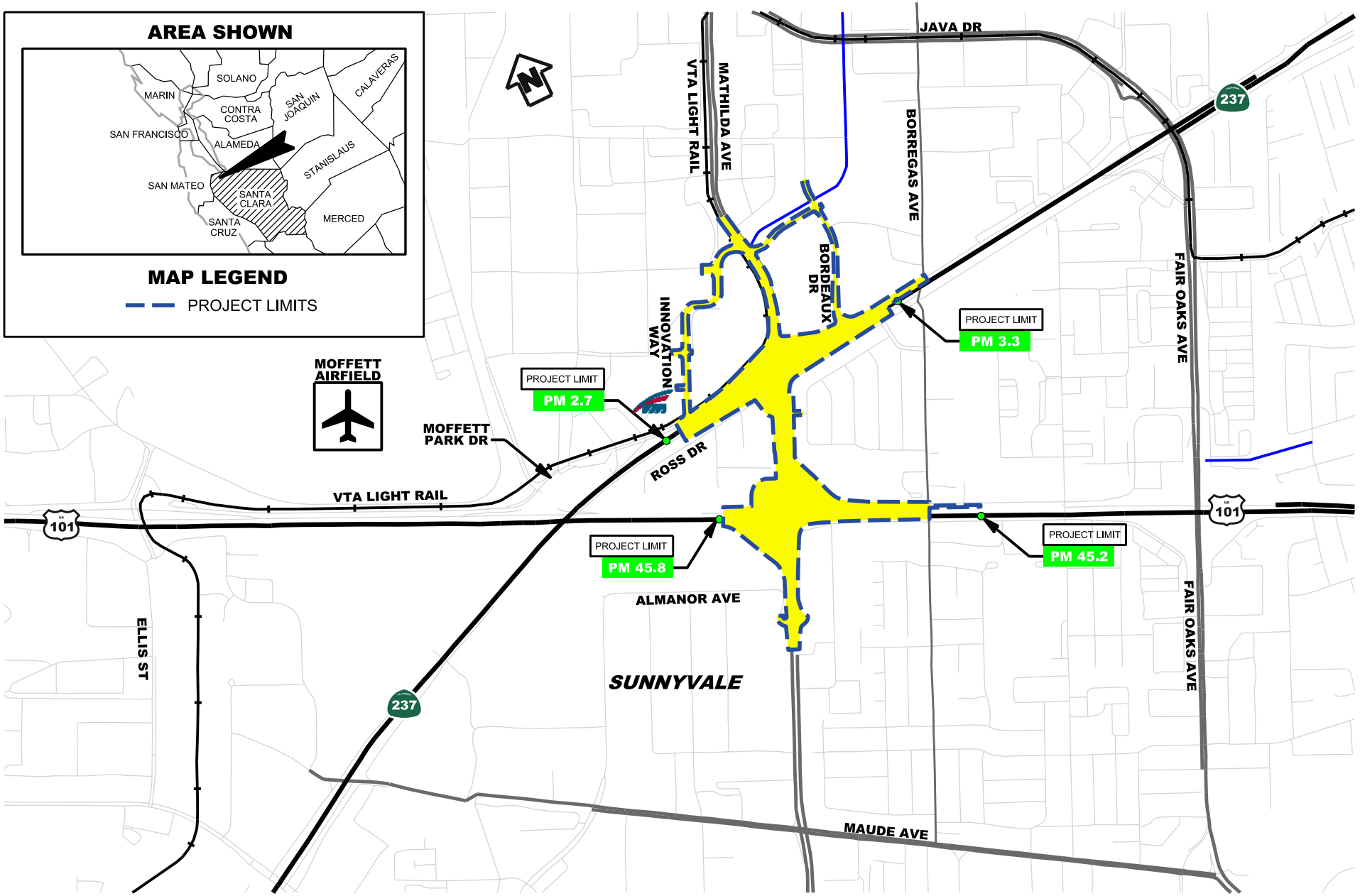
Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consist of both Class II and Class III bikeways, based on available pavement widths within the project limits, and would connect to the existing Class III bikeway north of Innovation Way and Class I bikeway on the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered based on available pavement widths within the project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue within the project limits with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized. In addition, both Build Alternatives would provide replacement planting within the US 101 and SR 237 interchanges with Mathilda Avenue and along Mathilda Avenue within the project limits.

Under the No-Build Alternative, no changes would be made to the existing local roadways or freeway system within the project limits.

PROJECT LOCATION AND SETTING

The project location and setting provides the context for determining the type and severity of changes to the existing visual environment. The project is located on Mathilda Avenue, generally between Innovation Way and Almanor Avenue, in the City of Sunnyvale, California. The project is located in the Central Coast biogeographic province, just south of the southern portion of San Francisco Bay (Bay) and the associated Baylands. The project vicinity consists of South Bay urban development, Bay waters, and the Baylands' salt evaporation ponds, salt marshes, and wetlands. The Baylands provide relatively flat open expanses of natural wetland features that have both sinuous and geometric shapes and earth-toned colors that provide an undeveloped, more natural visual contrast to the nearby, densely populated urban area that is characteristic of the project corridor.

The project corridor is defined as the area of land that is visible from, adjacent to, and outside the highway Right of Way (ROW), and is determined by topography, vegetation, and viewing distance. The project corridor is generally flat, except at the highway interchanges that are built up to accommodate the grade-separated crossing of SR 237 over Mathilda Avenue and the crossing of Mathilda Avenue over US 101. Land uses primarily include hotels and office complexes located on either side of Mathilda Avenue; single-

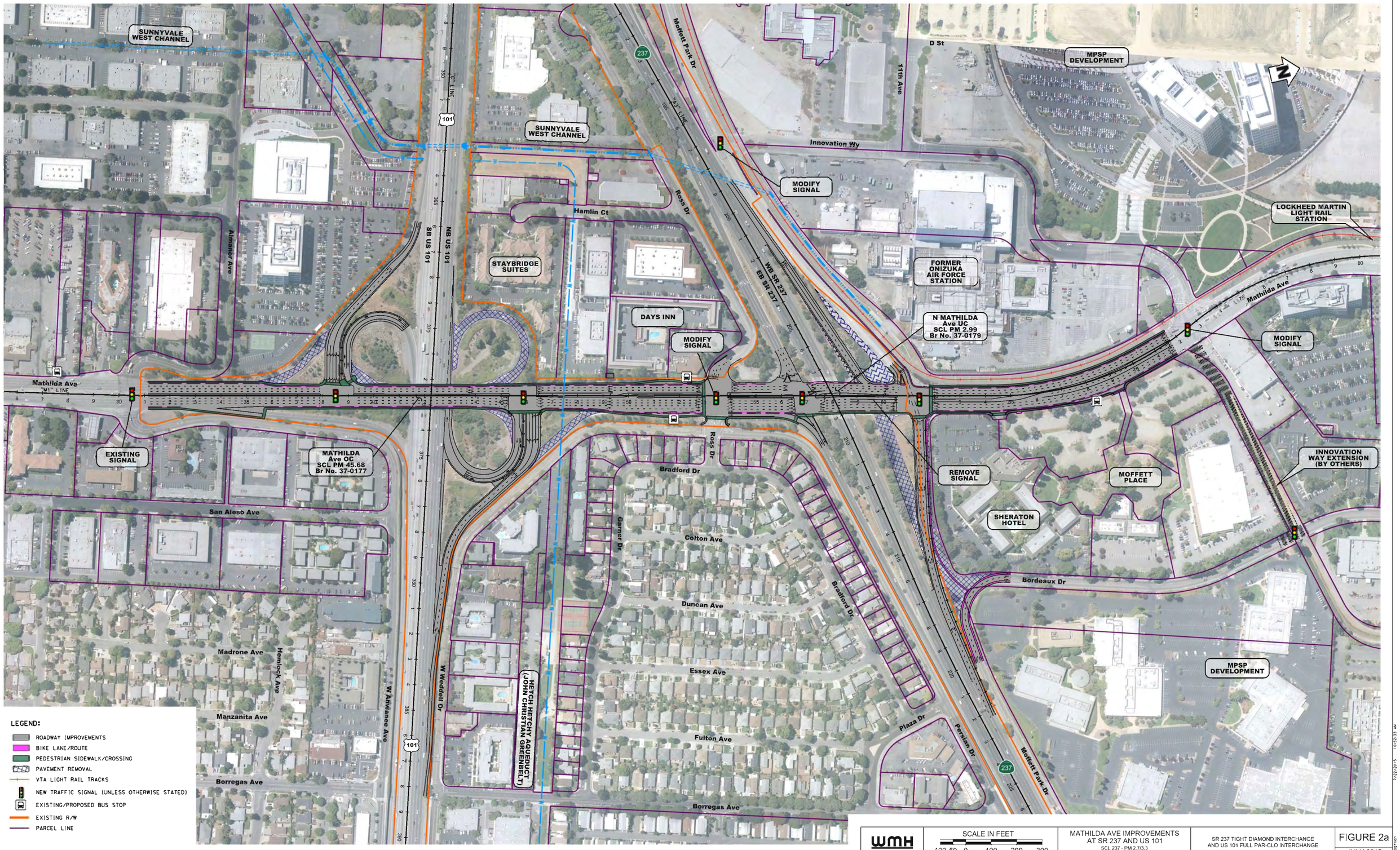


Prepared By: WMH

Mathilda Avenue Improvement at SR 237 and US 101

PROJECT LOCATION MAP

Figure 1



LEGEND:

- ROADWAY IMPROVEMENTS
- BIKE LANE/ROUTE
- PEDESTRIAN SIDEWALK/CROSSING
- PAVEMENT REMOVAL
- VTA LIGHT RAIL TRACKS
- NEW TRAFFIC SIGNAL (UNLESS OTHERWISE STATED)
- EXISTING/PROPOSED BUS STOP
- EXISTING R/W
- PARCEL LINE

WMH

SCALE IN FEET
100 50 0 100 200 300

MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101
SCL 237 - PM 2.7/3.3
SCL 101 - PM 45.4/45.8

SR 237 TIGHT DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE

FIGURE 2a
JULY 2015

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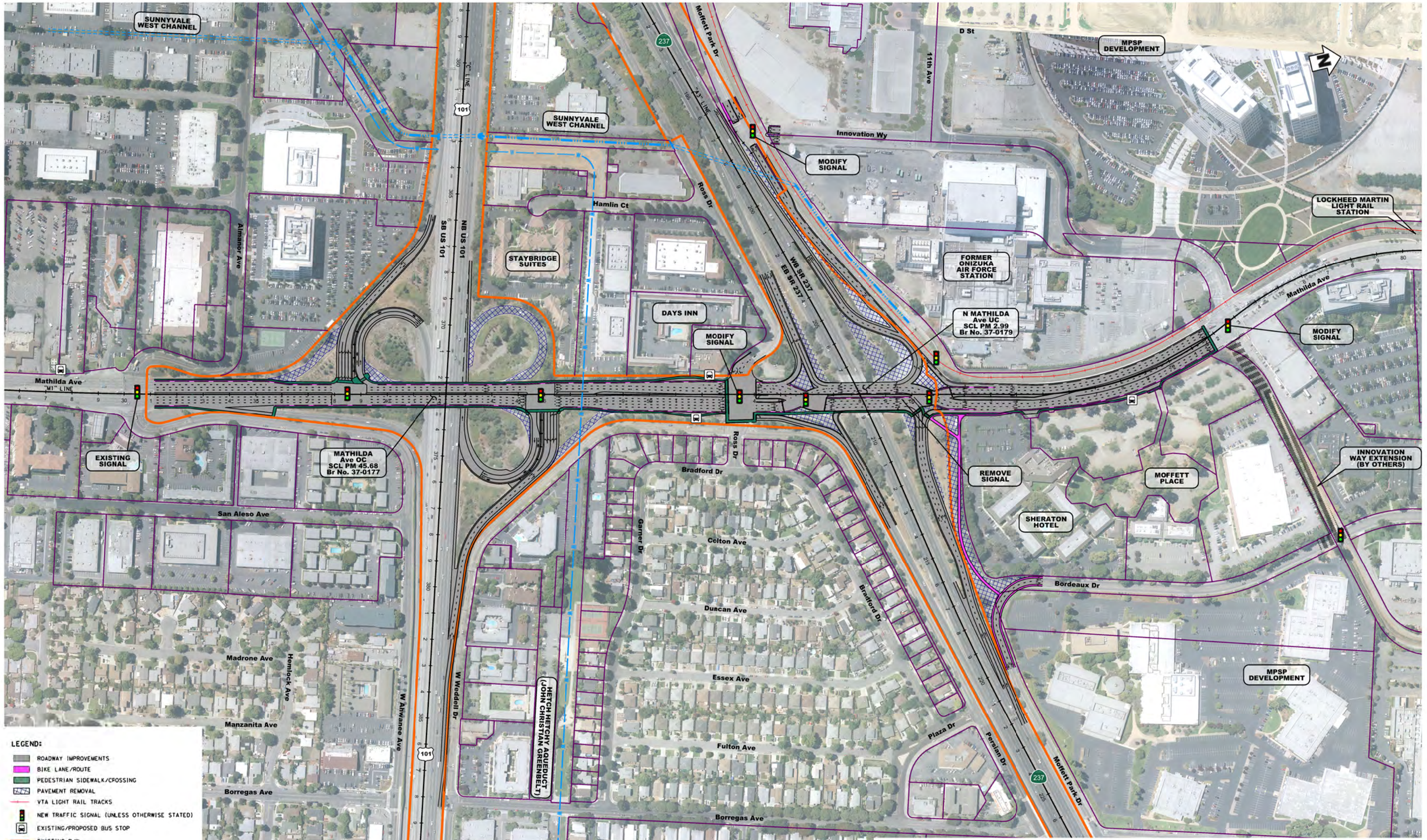

WMH	SCALE IN FEET 100 50 0 100 200 300	MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101 SCL 237 - PM 2.7/3.3 SCL 101 - PM 45.4/45.8	SR 237 TIGHT DIVERGING DIAMOND INTERCHANGE AND US 101 FULL PAR-CLO INTERCHANGE	FIGURE 2b JULY 2015

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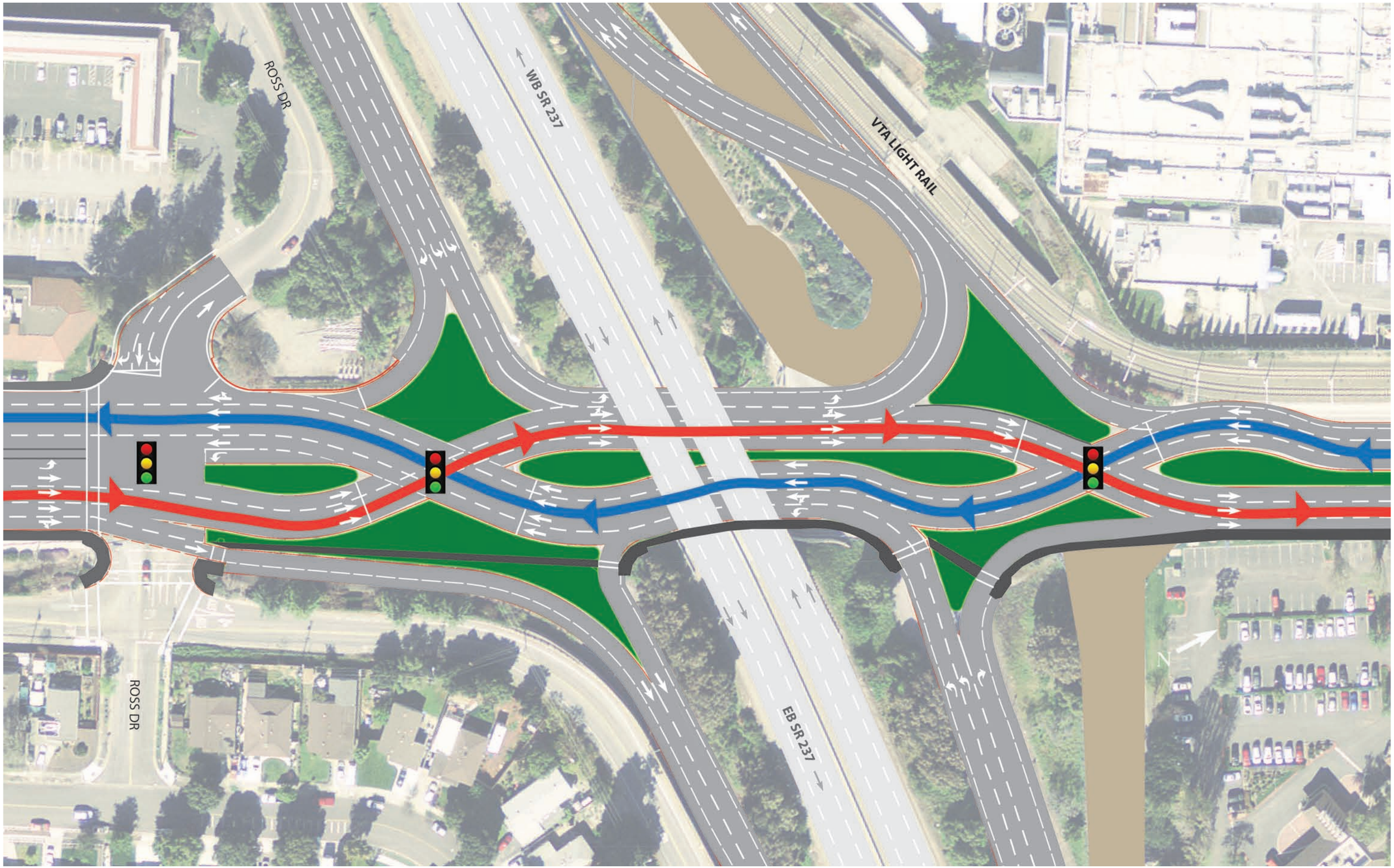

WMH	NOT TO SCALE	MATHILDA AVE IMPROVEMENTS AT SR 237 AND US 101 SCL 237 - PM 2.7/3.3 SCL 101 - PM 45.4/45.8	DIVERGING DIAMOND INTERCHANGE (DDI) ILLUSTRATION	FIGURE 3 JULY 2015

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family and multi-family residences located east of Mathilda Avenue; and major and minor transportation facilities associated with SR 237, US 101, Mathilda Avenue, and adjoining local roadways and associated signage. The Sunnyvale General Plan Community Character – Design Element identifies that SR 237, US 101, and Mathilda Avenue at US 101 are City gateways that could be improved through the use of special landscaping, signage, patterned pavement, and monuments or artwork (City of Sunnyvale 2011: 4-4). Mature trees and shrubs are present within two median plantings, plantings within interchange loops, and roadside landscaping associated with businesses and residential areas to provide visual buffering from Mathilda Avenue, SR 237, and US 101.

While not scenic vistas, the wide corridors of Mathilda Avenue, SR 237, US 101 and the elevated SR 237/Mathilda Avenue and Mathilda Avenue/US 101 overcrossings allow for scenic background views of the Diablo Range to the northeast and the Santa Cruz Mountains to the southwest. Vista views are not available due to buildings, infrastructure, and mature trees that intervene within potential vista views. There is no roadway within or near the project area that is designated in federal, State, or local plans as a scenic highway or route worthy of protection for maintaining and enhancing scenic viewsheds (Caltrans 2016, City of Sunnyvale 2011).

US 101 is classified by Caltrans as a Landscaped Freeway between PM 45.57 and 47.14 (Caltrans 2014a). Along US 101, this designation begins approximately at the gore of northbound Mathilda Avenue exit ramp and continues north past the project limits on US 101. As defined by the Outdoor Advertising Act, a landscaped freeway "means a section or sections of a freeway that is now, or hereafter may be, improved by the planting at least on one side or on the median of the freeway ROW of lawns, trees, shrubs, flowers, or other ornamental vegetation requiring reasonable maintenance." Landscaped freeways must have planting areas that are at least 1,000 feet in length that are in healthy condition and improve the aesthetic appearance of the highway. Functional plantings (i.e., plantings for erosion control, traffic safety, reduction of fire hazards, and traffic noise abatement, or other non–ornamental purposes) do not qualify. The placement of advertising is prohibited within 660 feet of the edge of the ROW of a landscaped freeway. (Caltrans 2014b.)

The project corridor is well-lit from street lighting along Mathilda Avenue and at the SR 237 and US 101 interchanges, safety lighting in parking lots, and interior and exterior building lighting associated with residences and businesses.

VISUAL RESOURCES AND RESOURCE CHANGE

Visual resources of the project setting are defined and identified below by assessing *visual character* and *visual quality* in the project corridor. *Resource change* is assessed by evaluating the visual character and the visual quality of the visual resources that comprise the project corridor before and after the construction of the project.

The visual character of the project would be compatible with the existing visual character of the corridor. The project and its Build Alternatives would reconfigure the SR 237 and US 101 interchange ramps and reconfigure Mathilda Avenue to accommodate new signalized intersections and left-turn lanes. To accommodate this, mature trees and shrubs would be removed at the median planting between Stations[2] 47+00 to 51+00 and 64+00 to 68+00 on Mathilda Avenue, within the SR 237 and US 101 interchange loops to accommodate the shifted ramps, west of Mathilda Avenue to accommodate a new retaining wall between

[2] Refer to Figures 2 and 3a for stationing.

Stations 46+00 and 49+50, and east of Mathilda Avenue between Stations 49+00 and 56+00 to accommodate new lanes for the SR 237 onramp and right hand turns onto Ross Drive. These changes would impact the views from nearby property owners and views from the roadway corridor. However, most of the areas with existing landscaping that would be disturbed during construction would receive replacement plantings to restore the aesthetic qualities that such landscaping provides. In addition, new landscape plantings would occur where paved portions of ramps are removed to accommodate the reconfigurations, improving aesthetics; the reconfigured ramps would not greatly alter the appearance of the SR 237 and US 101 interchanges with Mathilda Avenue. Therefore, the visual character of the corridor and land adjacent to the ROW would not be greatly altered. Signalized intersections, bicycle and pedestrian facilities, street lighting, ramp metering, signage, and light rail crossing facilities are all existing elements associated with the project corridor and changes associated with these features would be implemented in a manner that maintains the existing visual character. Similarly, modifications to existing retaining walls and sound walls would be consistent with existing conditions and would not greatly alter views associated with the corridor.

The visual quality of the existing corridor would be slightly altered by the project. Generally, the corridor would be slightly wider, but would retain its form, line, color, and texture in a manner that is consistent with existing conditions. Views from the project corridor to the surrounding landscape would be much the same because the Build Alternatives would only result in minor changes along the existing corridor to accommodate the project and landscaping would be replaced, retaining the existing vividness, intactness, and unity. Views of the Diablo Range and Santa Cruz Mountains would not be altered. Views of the project corridor from neighbors and from the roadway corridor would be slightly altered in a manner that would result in a slight reduction in the overall visual quality, largely due to vegetation removal. While these areas would be landscaped as part of the project, it would take several years for the vegetation to mature.

As a result, Resource Change (changes to visual resources as measured by changes in visual character and visual quality) would be moderate-low.

VIEWERS AND VIEWER RESPONSE

Neighbors (people with views *to* the road) and *roadway users* (people with views *from* the road) will be affected by the project. Neighbors consist of employees and patrons at nearby businesses and residents that immediately border the project corridor. Neighbors also include roadway users connecting to the project corridor from local roadways. Business occupants and residents are considered to have high visual sensitivity because while they are accustomed to views of the existing roadways and passing traffic, they generally view the project site for an extended period. Therefore, business occupants and residents are likely to have a high sense of ownership over local views, and are more likely to be affected by changes in the views from their businesses or homes than the visiting, business patrons or those passing by the site on local roadways. Business patrons are more focused on visiting businesses than on the project corridor and they have intermittent and limited views of the project corridor. Therefore, business patrons are likely to have moderate-low visual sensitivity.

Roadway users include local commuters traveling to and from work, shoppers, recreational travelers, and commercial vehicles on Mathilda Avenue, SR 237, US 101, Moffett Park Drive, Bordeaux Drive, and Innovation Way. Roadway users travel at speeds ranging from a stop to approaching 75 miles per hour (the posted speed limit is 65 miles per hour) on SR 237 and US 101, 55 miles per hour (the posted speed limit is 45 miles per hour) on Mathilda Avenue, 55 miles per hour (the posted speed limit is 45 miles per hour) on Bordeaux Drive, and 35 miles per hour (the posted speed limit is 25 miles per hour) on Innovation Way.

Depending on speed, drivers and passengers are able to take in brief to longer views of the scenery around them. Most views from the project corridor are of surrounding development; however, sections of the roadway provide for more scenic views of a vegetated roadway corridor with views to the hillsides and mountains in the background. Therefore, roadway users are considered to have moderate visual sensitivity.

Public scoping comments generally focus on providing feedback and questions on specific elements of the project, such as bicycle and pedestrian safety considerations. The public comments did not express opposition to the project. Therefore, while not specifically stated, the responses tend to indicate general public support of improving the project corridor. Therefore, it is anticipated that the average response of all viewer groups will be moderate due to viewer group sensitivities and public interest surrounding the project.

VISUAL IMPACT

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. As discussed above in *Project Location and Setting*, there are no officially designated scenic roadways within or near the project corridor. In addition, scenic vista views are not available from the corridors of Mathilda Avenue, SR 237, and US 101 at the project site due to buildings, infrastructure, and mature trees that intervene within these potential vista views. Therefore, implementation of the project would not damage scenic resources, such as trees, rock outcroppings, and historic buildings along a scenic highway or scenic vistas. Impacts to visual resources resulting from changes to the existing visual character and quality of the site and changes in light and glare are discussed below.

Build Alternatives

As described in the *Project Description*, Build Alternatives 1 and 2 have the same footprint for the US 101 interchange with Mathilda Avenue, and the same roadway cross section between the US 101/Mathilda Avenue interchange and Ross Drive, the Moffett Park Drive connection to Bordeaux Drive, and between the Sheraton Sunnyvale parking lot entrance on Mathilda Avenue and the Innovation Way extension to Mathilda Avenue. These changes would look the same under both Build Alternatives. The primary difference is that Build Alternative 1 would have a diamond configuration while Build Alternative 2 would have a DDI configuration. Both of these configurations would have a similar visual character and would result in similar impacts to existing features within the project corridor. Because the Build Alternatives would be visually similar, temporary and permanent impacts are discussed together below. Simulations for key observation points (KOPs) were used to evaluate project impacts. The KOPs are mapped on **Figure 4** and the simulations are provided in **Figure 5 to Figure 7**.

Temporary Impacts – Build Alternatives 1 and 2

General construction activities, construction staging/stockpiling, the storage of road-widening/building materials, the presence of construction equipment, and temporary traffic barricades would result in temporary construction impacts by altering the composition of the view available from and to the project corridor. Under both Build Alternatives, the greatest focus of visible activities associated with construction would be on roadway and ramp modifications. Other visible activities occurring during construction under both Build Alternatives, which have the potential to result in visual impacts are described in more detail under *Permanent Impacts – Build Alternatives 1 and 2,* and include the removal of mature landscaping including trees, shrubs, and/ or vines; replacement of the sound wall between Weddell Drive and the northbound US 101 off-ramp; the installation of the new retaining wall that would be located within existing state ROW on the west side of Mathilda Avenue north of the existing northbound US 101 loop off-

ramp; the modification of the local roadway intersection connections and driveway entrances to Mathilda Avenues; the relocation of utilities; the modification and installation of lighting, ramp metering, and overhead signage; and the enhancement of bicycle and pedestrian facilities. During construction, these activities would be seen as a continuation of construction activities associated with roadway and ramp improvements and would only result in minor visual changes as the modifications are occurring. In addition, construction staging areas would be temporarily visible within the US 101 interchange with Mathilda Avenue and between the westbound SR 237 ramps and Moffett Park Drive, where some trees and shrubs would be affected to accommodate staging.

Individuals most affected by construction would be single-family residences along Weddell Drive and Persian Drive and multi-family residences along Weddell Drive. Single-family residences along Weddell Drive and Persian Drive face Bradford Drive. Privacy fences and Weddell Drive and Bradford Drive separate their back yards from Mathilda Avenue. These residents would experience visually disruptive construction activities within close proximity to their homes. Construction occurring north of SR 237 would not greatly affect businesses in this area because there has been and continues to be a great deal of construction occurring within this area due to its redevelopment, and existing businesses would be accustomed to seeing construction activities. Construction activities would be visible from SR 237 and US 101, but roadway users would pass by the Mathilda Avenue interchanges very quickly and would have only brief, passing views lasting a few seconds at normal highway speeds. Businesses located west of Mathilda Avenue, off of Hamlin Court, would have extremely limited views of construction associated with vegetation removal to install a new retaining wall. The majority of construction activities would be visible to roadway users on Mathilda Avenue, where the bulk of construction would take place. Specific equipment that would be used for construction includes graders, excavators, pavers, compactors, and various types of construction vehicles. In general, the visual presence of construction activities is considered temporary because the project would take 12 months to construct. Temporary visual changes from construction signaling, signage, and lighting would occur, though they are not considered to be adverse. Nighttime construction would likely occur and some nighttime lighting at the construction site would be required and could result in nuisance light if not properly designed. Avoidance, Minimization, and/or Mitigation Measure, *Minimize Fugitive Light from Portable Sources Used for Construction*, would ensure that lighting used for construction would be directed downward and that spill light would be minimized to the greatest extent possible.

Permanent Impacts – Build Alternatives 1 and 2

There are no scenic roadways or scenic vista views in or near the project area, so there would be no affect to such resources. Minor visual changes would result from the project and its Build Alternatives. The presence of relocated utilities would be consistent with existing conditions, because they are already an existing visual element within the project corridor. Therefore, their relocation would not alter the visual character of views of and from the project corridor. Underground utilities would be relocated and would not be seen because they would again be placed underground, consistent with existing conditions. Slightly modified business entrances would not be very noticeable under both Build Alternatives, would be visually consistent with existing conditions, and would not alter the appearance of these driveways. Similarly, ramp metering facilities and overhead signage already exists within the project corridor and relocating and modifying ramp meters and overhead signs would be visually consistent with existing conditions and would not result in notable changes to the visual appearance of the project corridor. Therefore, the most notable visual changes resulting from both Build Alternatives would be modifications to Mathilda Avenue, modifications to the SR 237 and US 101 on- and off-ramps, and associated vegetation removal. Both Build Alternatives would require removal of mature landscaping including trees, shrubs, and/ or vines at the following locations:

- At the US 101 interchange with Mathilda Avenue and between the westbound SR 237 ramps and Moffett Park Drive to accommodate construction staging areas;
- Within the Mathilda Avenue medians between Stations 47+00 to 51+00 and Stations 64+00 to 68+00 to accommodate lane modifications;
- Within the SR 237 and US 101 interchange loops to accommodate staging, ramp modifications, and the clear recovery zone;
- Between Weddell Drive and the northbound US 101 off-ramp to slightly shift and relocate the sound wall;
- West of Mathilda Avenue between Stations 46+00 to 49+50 to accommodate a new retaining wall; and
- East of Mathilda Avenue between Stations 49+00 to 56+00 to accommodate new lanes for the SR 237 onramp and right hand turns onto Ross Drive.

Mature landscaping is considered to be an attractive visual resource. Most of these areas would be replanted as a part of the project. This includes portions of areas disturbed for construction staging that would be converted to vegetated, grassy bioretention basins while other portions would be re-landscaped. Implementation of Avoidance, Minimization, and/or Mitigation Measures, *Restore Highway Planting* and *Incorporate Bioretention Basins in Planting Design*, would ensure that replacement planting and bioretention basins will be designed to blend with highway planting and create a cohesive landscape.

As shown in the *Simulated Views* for KOP 1 (**Figure 5**) and KOP 2 (**Figure 6**), changes to the Mathilda Avenue corridor to accommodate turn lanes, bicycle facilities, and intersection improvements would result in slight alterations to views associated with the project corridor, but the changes would be largely consistent with the existing visual character of the multi-lane corridor. As shown in the simulations, changes to landscaping on both sides of the northbound US 101 on- and off-ramp to accommodate the reconfigured ramp, west of Mathilda Avenue to accommodate the new retaining wall; and east of Mathilda Avenue to accommodate new lanes for the SR 237 onramp and right hand turns onto Ross Drive would result in slight visual changes but views would still be largely vegetated with replacement plantings.

As seen in the *Simulated View* for KOP 1, some vegetation removal would be needed to shift the ramps over to create a perpendicular connection for the proposed northbound US 101 on- and off-ramps to Mathilda Avenue. The relocated sidewalk and crosswalk would be slightly more visible from this vantage. New elements within this view would be the new traffic signal and a short, concrete barrier that would be seen on the ramp to separate traffic that is entering and exiting the ramp. Groundcovers and accent shrubs would be planted where the old ramp alignment is removed. These changes would create a slightly wider ramp but would allow for the existing northbound US 101 off-ramp to be removed and revegetated. The proposed southbound on- and off-ramps would also result in similar visual changes associated with creating a perpendicular intersection with Mathilda Avenue. These changes would be visible to roadway users on Mathilda Avenue and using the ramps and to pedestrians using sidewalks.

Both Build Alternatives would involve the installation of one new retaining wall that would be located within the existing state ROW on the west side of Mathilda Avenue, north of the existing northbound US 101 loop off-ramp. The wall would be approximately 400 feet long and vary in height from 2 to 4 feet. The face of the wall would be adjacent to the existing ROW line and require vegetation removal to construct the wall. Removal of mature trees and shrubs west of Mathilda Avenue would slightly detract from views, but this area would be replanted with screening shrubs and the new retaining wall would not be visible from Mathilda Avenue because it would be even with or at a slightly lower elevation than the roadway,

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Figure 4
KOP Simulation Location Map
Mathilda Avenue Improvements at SR 237 and US 101 Project

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Figure 5
KOP 1 – Existing and Simulated Views for Build Alternatives 1 and 2
Mathilda Avenue Improvements at SR 237 and US 101 Project

Graphics ... 00522.13 (5-2-2016) tm

Figure 6
KOP 2 – Existing and Simulated Views for Build Alternatives 1 and 2
Mathilda Avenue Improvements at SR 237 and US 101 Project

Graphics ... 00522.13 (5-12-2016) tm

Figure 7
KOP 3 – Existing and Simulated Views for Build Alternatives 1 and 2
Mathilda Avenue Improvements at SR 237 and US 101 Project

as shown in the *Simulated View* for KOP 1. Views from the parking lot of businesses to the west of this new retaining wall would be slightly affected by tree removal. However, views of the wall would be screened by the existing privacy fencing along the parking lot that buffers views of the roadway and re-planting with screening shrubs would help to replace some of the screening that existing trees and shrubs provide. As shown in the *Simulated View* for KOP 2, the landscaping changes west of Mathilda Avenue are not very noticeable because they would blend in with the existing roadside vegetation. Avoidance, Minimization, and/or Mitigation Measure, *Implement Aesthetic Treatments on Bridge Barriers, Sound Walls, and Retaining Walls*, would ensure that the aesthetic treatment of any visible wall surface will be included.

Both Build Alternatives would also require that the vegetation between Mathilda Avenue and Persian and Weddell Drives, between Stations 49+00 and 56+00, be removed to accommodate new lanes for the SR 237 onramp and right hand turns onto Ross Drive, which can be seen in the *Simulated Views* for KOP 1 and KOP 2. Removing this vegetation would slightly detract from views associated with the project under both Build Alternatives. As shown in the simulations, this area would be replanted with trees, shrubs, and groundcovers but it would take several years for this landscaping to mature and provide the same level of vegetative cover and shade. However, the landscaping would still be attractive and aide in maintaining a vegetated roadway corridor. These changes would be most visible to roadway users and pedestrians. It would not be readily visible to adjacent residences because the existing noise barrier along Mathilda Avenue would remain and residential privacy fencing and residential landscaping helps to limit views. However, at some locations, the tall evergreen trees growing in this landscaped area (refer to *Existing View* for KOP 2) would no longer be visible rising above the fence lines because they would be removed.

The roadway widening would slightly increase the roadway surface area and roadway striping would be altered but would not substantially change the character of the roadway under both Build Alternatives. As shown in the *Existing View* for KOPs 1 and 2, cobbles pave the thinner portions of the median that is located between Stations 47+00 and 51+00 and mature trees are growing where the median is slightly wider. Under both Build Alternatives, as shown in the simulations, the median footprint would be slightly modified and cobbles would still be used to pave thinner portions of the median. As shown in KOP 1, the thinner median sections would not be wide enough to accommodate replacement plantings, which would result in views of a slightly wider roadway corridor. As shown in the simulation for KOP2, instead of trees, low-growing groundcover and accent shrubs would be planted in the median near the Mathilda Avenue intersection with Ross Drive, which would slightly alter views but would not substantially alter the visual character of the project corridor. The medians from the US 101 ramps and south to Almanor Avenue and north of Ross Drive would be slightly reconfigured, but would remain paved with cobbles and concrete, consistent with existing views. However, wider portions of theses reconfigured medians would also be planted with low-growing groundcover and accent shrubs. This would increase the amount of plantings within medians under both Build Alternatives. In addition, while trees would also be removed from the median located between Stations 64+00 and 68+00, both Build Alternatives would include replacement tree plantings within this median. The primary difference between Build Alternatives 1 and 2 is that the DDI configuration associated with Build Alternative 2 creates slightly more areas within which low-growing groundcover and accent shrubs would be planted north of Ross Drive for a slightly greener view within this portion of the project corridor.

Pedestrian facilities along Mathilda Avenue would be very similar to existing conditions, under both Build Alternatives, and sidewalks would only be slightly shifted to accommodate turn lanes as shown in the *Simulated Views* for KOP 1 and KOP 2. Similarly, under both Build Alternatives, striping would be added to delineate bicycle facilities as shown in the simulations. Both Build Alternatives would have the same layout for bicycle facilities south of Ross Drive and the layouts to the north of Ross Drive would differ slightly due

to the diamond versus DDI configurations. South of Ross Drive, striping would be used to delineate the bike lanes. The existing concrete barrier on the Mathilda Avenue Bridge over US 101 that separates vehicular from pedestrian traffic would be removed. A bike lane would be on both sides of the bridge, separated from traffic only by striping. In addition, the sidewalk along the southbound lanes of the bridge would be removed and only the sidewalk along northbound lanes of the bridge would remain, separated from traffic by the new bike lane. The outermost bridge barrier would be replaced with a new barrier. This would slightly alter views on the bridge by removing the intermediate barrier between roadway travel lanes and sidewalks and using roadway striping in place of the barrier. Avoidance, Minimization, and/or Mitigation Measure, *Implement Aesthetic Treatments on Bridge Barriers, Sound Walls, and Retaining Walls*, would ensure that the aesthetic treatment of any visible barrier surface will be included. Regardless of Build Alternative, bicycle facilities to the north of Ross Drive would have the same visual character that is associated with striping to delineate the bike lanes. Bicycle facilities associated with the project would increase recreational viewer access because bicycle facilities within the existing project corridor are limited.

The SR 237 ramp connections to Mathilda Avenue would also result in small areas of vegetation removal that would be needed for the ramp reconfigurations and these changes are primarily associated with the westbound SR 237 ramps. However, shifting the westbound off-ramp under Build Alternative 1 to follow the current alignment of Moffett Park Drive creates a newly available space for planting in the area where the old ramp segment would be removed. Build Alternative 2, in a similar fashion, would remove the connection of Moffett Park Drive to Mathilda Avenue between Mathilda Avenue and Bordeaux Drive and this area would be planted. Both Build Alternatives would provide bicycle facilities between Mathilda Avenue and Bordeaux Drive, in a very similar connection design. Both Build Alternatives would also connect Moffett Park Drive to Bordeaux Drive, in the same manner, to maintain vehicular access to Mathilda Avenue via Innovation Way. The westbound SR 237 on-ramp would be slightly reconfigured under both Build Alternatives. Build Alternative 1 would have a grassy bioretention area while Build Alternative 2 would provide more room for landscaping, in addition to a smaller, grassy bioretention area.

The diamond versus DDI configurations associated with Build Alternatives 1 and 2, respectively, would result in a similar visual character along Mathilda Avenue. While there would be a visible difference in traffic patterns, both Build Alternatives would have signalized intersections, a similar width, a similar number of lanes, lane striping and directional arrows, bicycle and pedestrian facilities, medians, and roadway signage. This would result in a very similar visual character for both Build Alternatives even though, as described above, Build Alternative 2 would have slightly more planted areas.

Views from SR 237 and US 101 would not be greatly altered by either Build Alternative. Under both Build Alternatives, roadway users on the freeways would quickly pass by the interchanges. At highway speeds, viewers would notice changes resulting from the vegetation removal. Implementation of Avoidance, Minimization, and/or Mitigation Measure, *Restore Highway Planting*, would ensure that infill plantings will be provided to further supplement replacement plantings proposed under the Build Alternatives and create a visually cohesive highway landscape. The eastbound SR 237 on- and off-ramps would not result in visually apparent changes when seen in passing on the freeway because changes would primarily be lane striping occurring further up the ramps, closer to the intersection with Mathilda Avenue. Views from westbound SR 237 would be slightly visible in passing but would be of slightly wider ramp exits and altered lane striping to accommodate an addition off-ramp lane.

From US 101, there would be noticeable visual changes due to hardscape changes associated with ramp reconfiguration, landscape changes associated with vegetation removal, the installation of replacement plantings under both Build Alternatives, and changes resulting from the modification and installation of

safety barriers. As shown in the *Simulated View* for KOP 3 (**Figure 7**), the southbound US 101 off-ramp would be slightly wider and the off-ramp intersection with Mathilda Avenue would be a little more exposed. The wider ramp would slightly increase the amount of visible pavement and make it so that passing traffic on Mathilda Avenue would be a little more visible from this vantage. As shown in the foreground of the simulation, the most notable changes from this vantage would be associated with vegetation removal along the right side of the ramp. Removing the existing mature trees and shrubs and replanting this area with shorter shrubbery would expose and create more direct views of the office building, parking lot, parked cars, and fencing located at 525 Almanor Avenue which, as shown in the simulation, would be visible above the shorter replacement plantings. A limited amount of vegetation would also be removed to the left of the ramp to accommodate the ramp realignment that would be replanted with low-growing groundcovers. In addition, portions of existing vegetation within the ramp loop, not visible within the simulation behind existing vegetation to remain, would be affected by the project. However, most of these areas would be replanted with low-growing groundcovers and shrubs, as part of the project, except for within the clear recovery zone and in the areas that would be converted to bioretention basins. While replacement plantings proposed under the Build Alternatives would aid in improving project aesthetics, implementation of Avoidance, Minimization, and/or Mitigation Measure, *Restore Highway Planting*, would ensure that infill plantings will be provided to further supplement proposed replacement plantings and further improve project aesthetics.

The bioretention basins would not be visible to viewers from the vantage of KOP 3 due to screening from existing and newly planted trees and shrubs, as illustrated by the simulation. The bioretention basins would mostly be seen by roadway users traveling on the US 101 ramps who would see sunken, grassy depressions that would hold water for short periods of time until the water infiltrates or enters the drainage system. Implementation of Avoidance and Minimization Measure *Incorporate Bioretention Basins in Planting Design*, would use design means to blend the bioretention basins with the overall highway planting, thus improving project aesthetics.

Similar visual changes associated with vegetation removal, replacement plantings, and bioretention basins would be seen when traveling on northbound US 101. Reconfiguration of the existing northbound US 101 off-ramp to northbound Mathilda Avenue would occur in the project area that corresponds to the Classified Landscaped Freeway portion of US 101. Replacement plantings would occur in this area. Consequently, views of this section of US 101 would not be greatly affected and the replacement planting would serve to retain Classified Landscaped Freeway designation. In addition, landscaping would be planted where the northbound loop off-ramp is removed, increasing the overall amount of landscaping associated with the interchange. Implementation of Avoidance, Minimization, and/or Mitigation Measure, *Restore Highway Planting*, would ensure that additional plantings will be provided to supplement replacement plantings proposed under the Build Alternatives and create a visually cohesive highway landscape.

The modified outer barrier along the Mathilda Avenue Bridge over US 101 and barriers along the ramps, placed to separate traffic traveling in opposite direction, would be visible from the vantage of KOP 3, as shown in the *Simulated View* . Avoidance, Minimization, and/or Mitigation Measure, *Implement Aesthetic Treatments on Bridge Barriers, Sound Walls, and Retaining Walls*, would ensure that the aesthetic treatment of any visible barrier surface will be included. This would ensure that changes resulting from the outer bridge barrier would not be visually apparent when seen in passing on the freeway because the changes would be consistent with transportation corridor aesthetics. The barrier along the ramp would be hard to seek out and focus upon in passing at fast freeway speeds but would be visible to roadway

users on the ramps as they drive past the barrier. As shown in the simulation, new lane striping on the ramps would be consistent with existing visual conditions and would not stand out.

The sound wall between Weddell Drive and the northbound US 101 off-ramp would be replaced. The new wall would be the same height and would be shifted three feet towards Weddell Drive to accommodate the slightly wider ramp at this location. This would not allow enough space on the Weddell Drive side of the wall to replant the creeping vines that would be removed during construction. Therefore, the bare wall surface would remain visible along this affected segment. While this is a relatively short segment of sound wall, this would negatively affect views seen from multi-family residences located along this portion of Weddell Drive and as seen by pedestrians, recreationists, and roadway users using Weddell Drive and its associated sidewalks. These viewers would now see a stark wall surface, instead of a more pleasing, vegetated wall surface. It would also detract from views seen by roadway users along us 101 and the northbound US 101 off-ramp, although briefly since viewers tend to pass this location quickly. The replaced sound wall would use materials, colors, and texture that improve its aesthetic quality and complement the existing surroundings. Avoidance, Minimization, and/or Mitigation Measure, *Implement Aesthetic Treatments on Bridge Barriers, Sound Walls, and Retaining Walls*, would ensure that aesthetic treatment of the visible sound wall surfaces will be included.

The project would result in a nominal increase in daytime glare by increasing the paved area and by removing some of the mature roadside vegetation that provides shade. However, the pavement would be grey, similar to existing conditions, which would reduce glare, and mature roadside vegetation would remain along the ROW to provide some shade. In addition, while it would take a few years to mature and provide the same level of shading, new highway and street planting would be provided within the project corridor. Therefore, the project would not create a new source of substantial glare that would adversely affect daytime or nighttime views in the area.

Both Build Alternatives propose very similar changes to signalized intersections and street lighting. The Mathilda Avenue intersections with Innovation Way, Moffett Park Drive, SR 237 West, SR 237 East, Ross Drive, and Almanor Avenue; and the Innovation Way intersection with Moffett Park Drive are signalized. Under both Build Alternatives, the signal at Mathilda Avenue and Almanor Avenue would not be affected; the signal at Mathilda Avenue and Moffett Park Drive would be removed; the Mathilda Avenue signals at Innovation Way and Ross Drive and at Innovation Way's intersection with Moffett Park Drive would be modified, including the associated light rail crossing signals and facilities; the Mathilda Avenue signals for westbound and eastbound SR 237 would be removed and new signals would be installed for the relocated ramp entrances; and new traffic signals would be installed at the Mathilda Avenue intersection with northbound and southbound US 101. Signal modification and the overall contribution of one additional signalized intersection compared to existing conditions would result in an inconsequential increase in lighting from signals in an area that is already well-lit. Under both Build Alternatives, the existing overhead cobra street lighting would also need to be modified to accommodate the new, slightly expanded roadway corridor and reconfigured ramps. Lighting would be relocated where the widened corridor would affect existing light posts along the edge of the roadway and ramps and within the median near Moffett Place. In addition, lighting would be enhanced for security and safety purpose increasing the amount of lighting within the corridor. While improving safety, the increased lighting level could negatively affect nearby roadway neighbors if not properly designed. Lights can negatively affect humans by increasing nuisance light and glare, in addition to increasing ambient light glow, if shielding is not provided and blue-rich white light lamps (BRWL) are used (International Dark-Sky Association 2010a, 2010b, 2015). This would result in a substantial source of nighttime light and glare that could adversely affect nighttime views in the area.

Avoidance, Minimization, and/or Mitigation Measure, *Apply Minimum Lighting Standards*, would ensure that adverse effects associate with lighting are reduced.

No-Build Alternative

Under the No-Build Alternative, the project would not be constructed and there would be no visual impacts on the existing visual character, visual quality, or affected viewer groups.

AVOIDANCE, MINIMIZATION, and/or MITIGATION MEASURES

Avoidance, minimization, and/or mitigation measures have been identified and can lessen visual impacts caused by the project. Also, the inclusion of aesthetic features in the project design previously discussed can help generate public acceptance of a project. This section describes additional avoidance, minimization, and/or mitigation measures to address specific visual impacts. These will be designed and implemented with concurrence of the District Landscape Architect.

The following measures to avoid or minimize visual impacts will be incorporated into the project:

- **Implement Aesthetic Treatments on Bridge Barriers, Sound Walls, and Retaining Wall.** The project will incorporate architectural treatment on new bridge barriers, sound walls and the visible side of the retaining wall.

- **Restore Highway Planting.** A restored highway landscape will be provided within the interchanges of S.R 237 and U.S. 101 with Mathilda Avenue. A cohesive highway planting design, including additional plantings in areas not directly impacted by project construction, will ensure that replacement plantings are integrated with the existing landscape to meet community expectations. A plant establishment period of three (3) years will be provided to ensure that new planting matures.

- **Incorporate Bioretention Basins in Planting Design.** The design of bioretention basins will be integrated with the overall highway planting design, using techniques such as landform grading and/ or the incorporation of varied plant materials.

- **Apply Minimum Lighting Standards.** All artificial outdoor lighting and overhead street lighting will be designed to have minimum impact on the surrounding environment. Design measures used to reduce light pollution will use the technologies available at the time of project design to allow for the highest potential reduction in light pollution. Such measures will include the use of downcast, cut-off type fixtures that are shielded and that direct the minimum necessary light only toward objects requiring illumination.

- **Minimize Fugitive Light from Portable Sources Used for Construction.** At a minimum, the construction contractor shall minimize project-related light and glare to the maximum extent feasible, given safety considerations. Color-corrected halide lights will be used. Portable lights will be operated at the lowest allowable wattage and height and will be raised to a height no greater than 20 feet. All lights will be screened and directed downward toward work activities and away from the night sky and highway users and highway neighbors, particularly residential areas, to the maximum extent possible. The number of nighttime lights used will be minimized to the greatest extent possible.

CONCLUSIONS

Build Alternatives 1 and 2 would result in similar visual impacts. Both Build Alternatives would slightly widen Mathilda Avenue and modify the SR 237 and US 101 interchanges with Mathilda Avenue. Changes and modifications associated with sound walls, barriers, signage, ramp metering, lane striping, utility relocations, lighting, signalization, and bicycle and pedestrian facilities would be very similar under both Build Alternatives. All of these project features are existing corridors elements. Consequently, changes to these elements associated with roadway reconfiguration would not greatly alter the visual character of the project area. Additionally, light and glare affects would likely be minimal. Although mature trees and shrubs would be removed under Build Alternatives 1 and 2, both Build Alternatives would replant medians, roadside locations east and west of Mathilda Avenue, and the areas within the interchanges. Restoring the highway landscape will enhance the proposed replacement planting and minimize visual impacts from the loss of mature vegetation, especially trees and vines that cannot can be replaced in their original locations. The restored highway planting can be expected to compensate for vegetation loss within 5 years of installation.

While there would be a visible difference in traffic patterns, the diamond versus DDI configurations associated with Build Alternatives 1 and 2, respectively, would result in a similar visual character along Mathilda Avenue. The primary difference between Build Alternatives 1 and 2 is that the DDI configuration associated with Build Alternative 2 creates slightly more areas within which low-growing groundcover and accent shrubs would be planted north of Ross Drive for a slightly greener view within this portion of the project corridor, compared to Build Alternative 1.

The Avoidance, Minimization, and/or Mitigation Measures would improve the aesthetics of built project features, provide attractive landscaping, reduce the effects of nighttime construction, and reduce light and glare impacts from lighting enhancements. With the incorporation of the specified minimization measures, the proposed Build Alternatives will not have an adverse significant impact.

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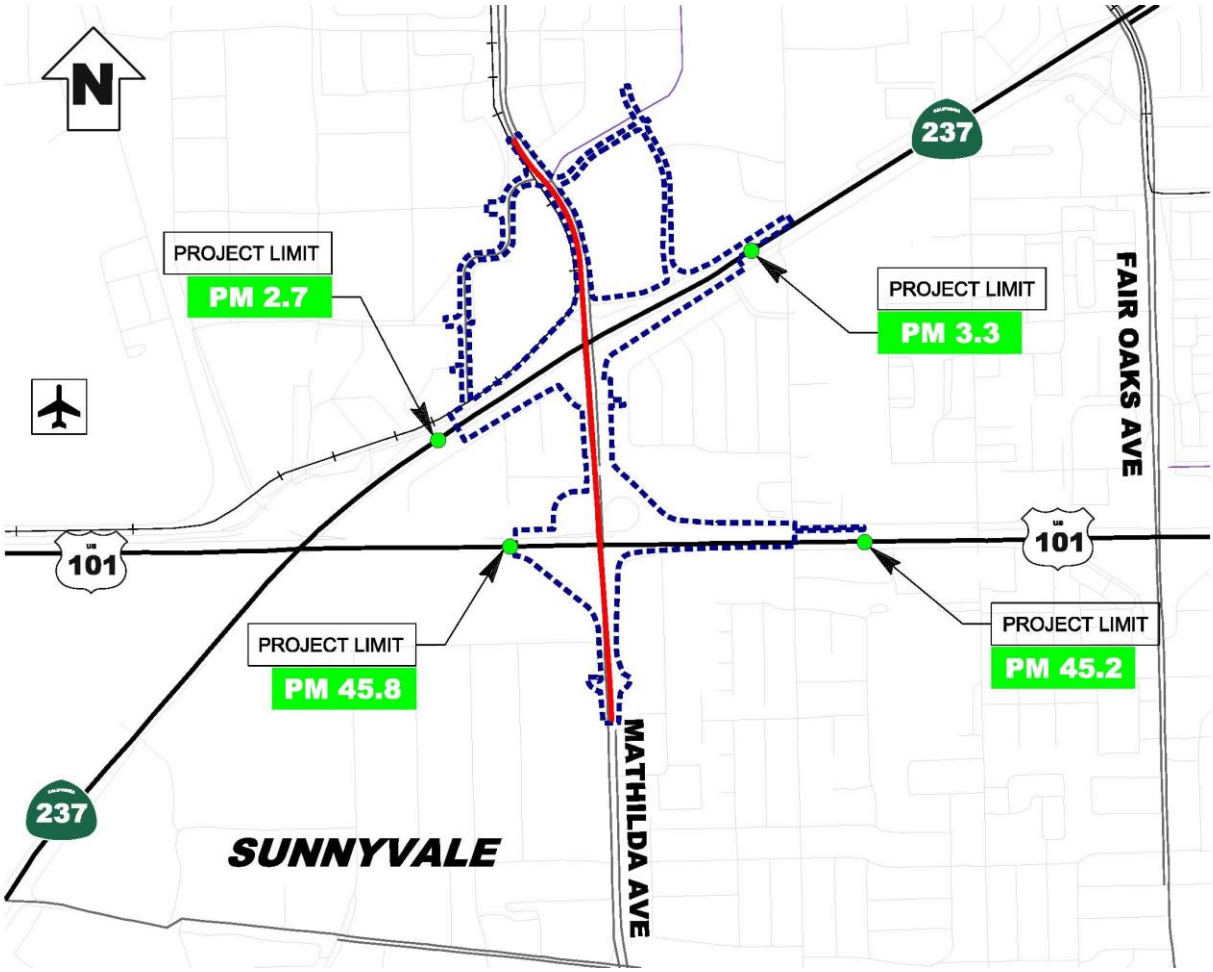
SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

Water Quality Assessment Report

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:
WRECO

Dated: January 2016

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Executive Summary

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 mile east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.3 mile south of the Mathilda Avenue overcrossing (PM 45.2) to 0.3 mile south of the SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately one mile.

A No-Build Alternative and two Build Alternatives are being considered for the Project. The primary differences between the alternatives relate to construction of a diverging diamond interchange for Build Alternative 2.

The purpose of the Water Quality Assessment Report (Report) is to fulfill the requirements of the California Environmental Quality Act (CEQA), and to provide information, to the extent possible, for National Pollutant Discharge Elimination System (NPDES) permitting. The report examines the potential for any proposed Project activity to result in impacts to water resources or potential increases in sediment load and other pollutants to surface and groundwater.

The Project is within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board. The approximately 3-mile-long Sunnyvale West Channel is the receiving water body. The channel originates at Maude Avenue as a concrete pipe culvert until it reaches Almanor Avenue in the northeastern direction. The channel becomes an earth-excavated channel from Almanor Avenue to Mathilda Avenue. The channel flows northeast to Guadalupe Slough via Moffett Channel, and then ultimately drains to San Francisco Bay. Within the Project limits, the channel crosses SR 237 through a culvert at approximately PM 2.80 near Innovation Way and again at Mathilda Avenue about 100 feet south of Innovation Way.

Sunnyvale West Channel was identified as a non-wetland water of the United States. However, no Project activities will take place within the channel, therefore no federal permits (Section 401 or 404) will be required. No wetlands or other jurisdictional areas were found within the study area.

In compliance with National Pollutant Discharge Elimination System Program (NPDES) Permits for Caltrans (Order No. 2014-0077-DWQ) and the San Francisco Bay Region (Municipal Regional Permit R2-2015-0049), the Project must comply with Clean Water Act Section 402. The Project would be also required to comply with the State Water Resources Control Board Construction General Permit (CGP) (Order No. 2012-0006-DWQ).

Project activities within the City of Sunnyvale right-of-way would result in insignificant amounts of disturbed soil or impervious area (see tables ES-1 and ES-2). Nearly all of the disturbed soil area (DSA) would be within Caltrans right-of-way. Both Build Alternatives would have a DSA of more than one acre and would add and reworked impervious surface areas. Therefore, the Project would have the potential to cause water quality impacts to Sunnyvale West Channel. To address short-term and long-term water

quality impacts, the Project would implement Caltrans-approved best management practices (BMPs) to avoid and minimize temporary construction impacts and permanent operational impacts.

Table ES-1. Disturbed Soil, Existing and Added Impervious and Reworked Areas for Build Alternative 1

Right-of-Way	Disturbed Soil Area (acre)	Existing Impervious Area (acre)	Added Impervious Area (acre)	Reworked Impervious Area (acre)	Added and Reworked Impervious Area (acre)
Caltrans	20	45.5	2	4	6
City of Sunnyvale	0.011	4.5	0.01	0.001	0.011
Total	20.011	50	2.01	4.001	6.011

Source: WMH

Table ES-2. Disturbed Soil, Existing and Added Impervious and Reworked Areas for Build Alternative 2

Right-of-Way	Disturbed Soil Area (acre)	Existing Impervious Area (acre)	Added Impervious Area (acre)	Reworked Impervious Area (acre)	Added and Reworked Impervious Area (acre)
Caltrans	22	45.5	3	5	8
City of Sunnyvale	0.011	4.5	0.01	0.001	0.011
Total	22.011	50	3.01	5.001	8.011

The CGP requires determination of a project risk level to establish the applicable monitoring and sampling requirements during construction. A Storm Water Pollution Prevention Plan (SWPPP) is required for all risk levels. The calculated R factor for this Project is 35, the weighted average K factor within the Project area is 0.28, and the LS factor within the Project area is 0.36. The product of these values is 3.53; the Project would be classified as having a low sediment risk. The Project also has a low receiving water risk; therefore, the Project would be classified as Risk Level 1 under the CGP.

The Project would not include work in Sunnyvale West Channel. Nevertheless, the Project would add impervious area and, therefore, could potentially increase the volume and velocity of stormwater flow to the downstream receiving water body. The goal of the Project drainage design would be to maintain the existing drainage patterns; however, the amount of runoff from the added impervious area may result in minimal impacts to the existing hydrograph (including minimal increases in low and peak flow velocity and volume). However, the Project is located in an area where the catchment drains to a hardened channel and/or tidal areas, so hydromodification management (HM) is not required per the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) *C.3 Stormwater Handbook* and SCVURPPP *Hydromodification Plan*.

Any stormwater impacts would be addressed through proper implementation of approved design, pollution prevention, and permanent treatment BMPs. High groundwater at the Project site may affect the choice of treatment BMPs and may require dewatering during construction. Due to potential shallow groundwater and soil type (hydrologic soil group C), biofiltration swales are anticipated to be

the preferred BMP and infiltration may not be practical. Treatment BMPs will be further evaluated in the PS&E phase when further hydrologic and geologic field work is conducted.

The general approach of the Project would be to avoid or minimize impacts and to implement measures for any unavoidable impacts. This Project would have minimal impacts to water quality if the avoidance and minimization measures in compliance with the applicable NPDES permits are incorporated. Because the Project would meet water quality goals, incorporate other applicable NPDES permit requirements, and comply with Project-specific permit or agreement requirements, the Project is expected to have a less-than-significant impact on water resources.

Acronyms

ADA	Americans with Disabilities Act
ASBS	Areas of Special Biological Significance
BFE	base flood elevation
bgs	below ground surface
BMP	best management practices
Caltrans	California Department of Transportation
CFR	Code of Federal Regulations
CGP	Construction General Permit
CEQA	California Environmental Quality Act
CPUC	California Public Utilities Commission
CWA	Clean Water Act
DCD	double crossover diamond interchange
DDI	diverging diamond interchange
DSA	disturbed soil area
DWQ	Division of Water Quality
EB	eastbound
EPA	U.S. Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
GO	General Order
HMP	Hydromodification Management Plan
HSA	hydrologic sub-area
I-	Interstate
LID	low impact development
LRT	Light Rail Transit
LUST	Leaking Underground Storage Tank
MS4	Municipal Separate Storm Sewer System
NB	northbound
NOAA	National Oceanic and Atmospheric Administration
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
PA/ED	Project Approval/Environmental Document
PG&E	Pacific Gas & Electric
PM	Post Mile
POTW	Publicly Owned Treatment Works
PPDG	*Project Planning and Design Guide*
PS&E	Plans, Specifications, and Estimates
RWQCB	Regional Water Quality Control Board
SB	southbound
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SFPUC	San Francisco Public Utilities Commission
SMARTS	Storm Water Multiple Application and Report Tracking System

SR	State Route
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TMDL	total maximum daily load
TDM	Transportation Demand Management
TSM	Transportation System Management
USACE	U.S. Army Corps of Engineers
VTA	Valley Transportation Authority
WDR	Waste Discharge Requirement
WB	westbound
WPCP	Water Pollution Control Program

1 INTRODUCTION

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at the State Route (SR) 237/Mathilda Avenue and U.S. Highway 101 (US 101)/Mathilda Avenue interchanges. On SR 237, the Project limits are from 0.3 mile east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3 mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.3 mile south of the Mathilda Avenue overcrossing (PM 45.2) to 0.3 mile south of the SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately one mile. Figure 1 shows the location of the Project, and Figure 2 shows the vicinity of the Project.

1.1 Purpose and Need

The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Specifically, the goals and objectives of the Project are to:

- Reduce congestion and improve traffic operations along Mathilda Avenue and at the SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges.
- Improve mobility for all travel modes in the area including motor vehicles, transit, bicycles, and pedestrians.
- Provide standard crosswalks and sidewalks along Mathilda Avenue, improving access to local destinations such as Moffett Park, the VTA Light Rail Transit (LRT) stations, and downtown Sunnyvale.

The Project is needed for the following reasons:

- Regional growth and new local development combined with inefficient roadway operations has resulted in substantial traffic congestion on Mathilda Avenue.
- Efficient access for all travel modes into and out of downtown Sunnyvale and development to the north of SR 237 is critical to a healthy and sustainable economy. Congestion on Mathilda Avenue adversely affects the economic vitality of the City of Sunnyvale.

Overall, the Project is needed to address several issues in the Project area including roadway deficiencies, lack of or discontinuous bicycle and pedestrian access, improvement of local roadway and freeway ramp operations, and provision of access to current and future economic development.

1.2 Project Description and Alternatives

The Project alternatives that were developed to meet the purpose and need of the Project include Build Alternative 1, Build Alternative 2, and the No-Build Alternative (refer to Figure 3 and Figure 4). Under the No-Build Alternative, no changes would be made to the existing local roadways or freeway system within the Project limits. No construction activities would occur, and there would be no change in the operations of the existing facilities.

The design features of the two Build Alternatives include reconfiguration of the US 101 and SR 237 interchanges with Mathilda Avenue. The Build Alternatives include design variations for reconfigured roadways and intersections, and construction of new signalized intersections. Proposed improvements included in the Build Alternatives south of Ross Drive on Mathilda Avenue and at the US 101

interchange, are identical. This includes new bicycle and pedestrian facilities, utility relocations, new stormwater treatment facilities, new safety lighting, ramp metering modifications, modification of overhead signage, and a new retaining wall. Unique improvements, north of Ross Drive on Mathilda Avenue, primarily include improvements related to construction of a diverging diamond interchange (DDI)[1] under Build Alternative 2 (Figure 4).

Roadway Improvements

The Build Alternatives would consist of the following roadway improvements:

- Provide three continuous through lanes in each direction of Mathilda Avenue
- Remove northbound US 101 loop off-ramp and shift traffic to northbound US 101 diagonal off-ramp
- Realign and widen northbound ramps and signalize ramp intersection with Mathilda Avenue, and construct left-turn lane on southbound Mathilda Avenue to access northbound US 101 loop on-ramp
- Realign southbound US 101 off-ramp and loop on-ramp and signalize ramp intersection with Mathilda Avenue
- Modify Mathilda Avenue/Ross Drive signal intersection
- Close Moffett Park Drive between Bordeaux Drive and Mathilda Avenue, replace with a Class I bikeway (as described below), and shift traffic to Bordeaux Drive and Innovation Way.[2]
- Remove westbound SR 237 ramp signal intersection. Realign westbound SR 237 off-ramp opposite Moffett Park Drive and modify signal intersection
- Build Alternative 1 would modify westbound SR 237 ramps to provide a diamond configuration (see Figure 3)
- Build Alternative 2 would modify Mathilda Avenue and SR 237 ramps to provide a diverging diamond configuration (see Figure 4). Eastbound Moffett Park Drive between Innovation Way and Mathilda Way would be diverted to Innovation Way to access Mathilda Avenue

Bicycle and Pedestrian Facilities

Enhanced bicycle and pedestrian facilities would be provided. Bicycle improvements on Mathilda Avenue would consider both Class II and Class III bikeways[3], based on available pavement widths within the project limits, and would connect to the existing Class III bikeway north of Innovation Way and Class I bikeway on the Sunnyvale West Channel. Bicycle improvements on Moffett Park Drive would consist of a Class I bikeway between Bordeaux Drive and Mathilda Avenue. Between Mathilda Avenue and Innovation Way, Class II and Class III bikeways would be considered based on available pavement widths within the project limits. A continuous sidewalk would be provided on the east side of Mathilda Avenue

[1] A diverging diamond interchange (DDI), also called a double crossover diamond interchange (DCD), is a type of diamond interchange where traffic briefly crosses over to the left (opposite) side of the roadway, guided by traffic signals at each crossover. This allows vehicles to turn left onto freeway on-ramps without stopping and without conflicting with through traffic. The signals at ramp terminal intersections can be operated with two signal phases (a signal phase allows for traffic at an intersection to cycle through specific movements for each direction) instead of three.

[2] Innovation Way would be extended from Mathilda Avenue to Bordeaux Drive by the Moffett Place development project.

[3] Class I bikeway is a bicycle path. Class II bikeway is a bicycle lane. Class III bikeway is bicycle route [Source: Highway Design Manual Index 1002.1]

within the project limits with crosswalks, curb ramps, and pedestrian countdown signals at each intersection. The new crosswalks at the reconfigured ramp intersections would be signalized.

1.3 Approach to Water Quality Assessment

The purpose of the Water Quality Assessment Report (Report) is to fulfill the requirements of the California Environmental Quality Act (CEQA), and to provide information, to the extent possible, for National Pollutant Discharge Elimination System (NPDES) permitting. The document includes a discussion of the proposed Project, the regulatory framework, and physical setting of the Project area with respect to water quality. It also provides data on surface water and groundwater resources within the Project area and the quality of these waters, describes water quality impairments and beneficial uses, identifies potential water quality impacts/benefits associated with the Project, and recommends avoidance and/or minimization measures for potentially adverse impacts.

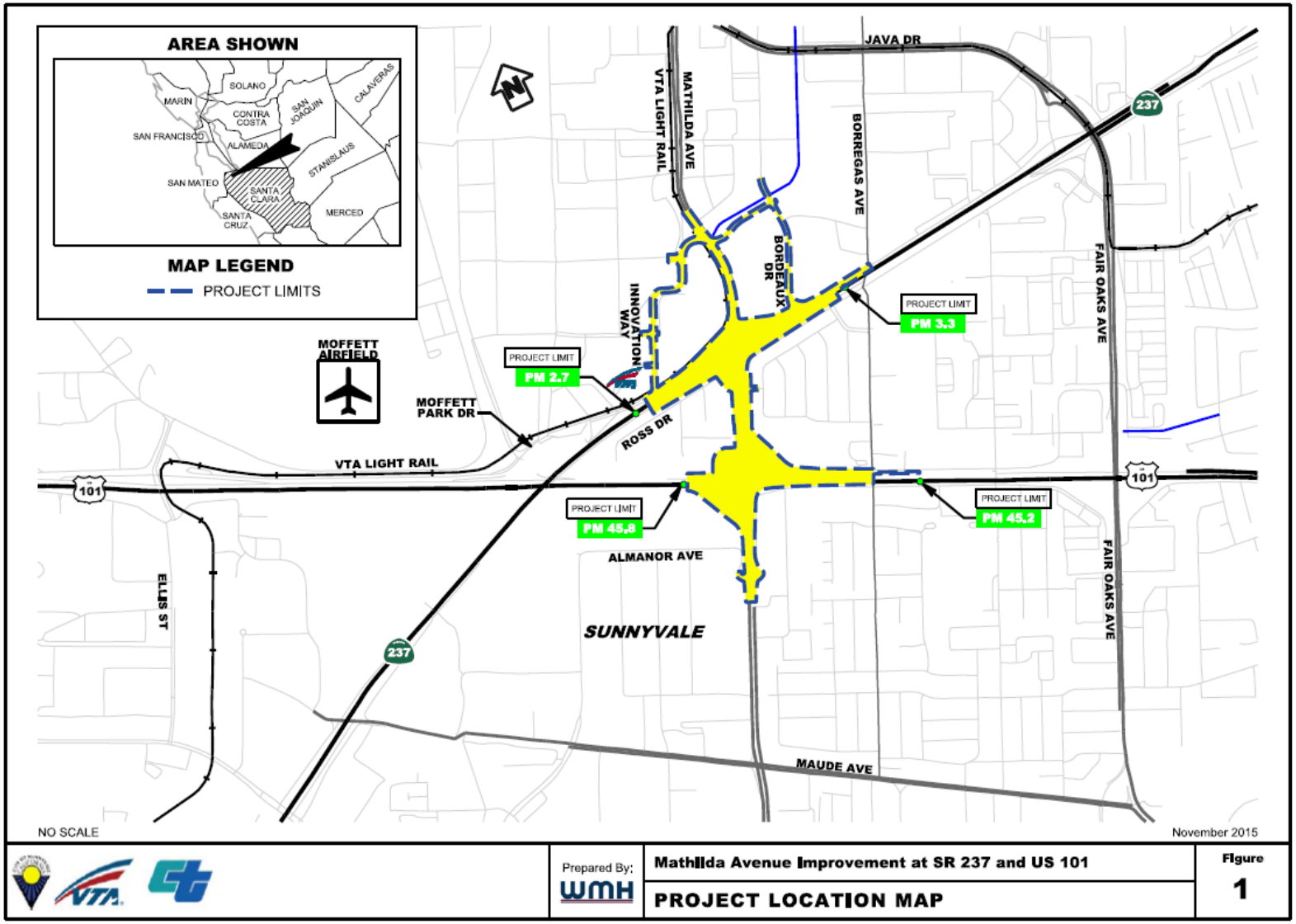

Figure 1. Project Location Map

Source: WMH Corporation

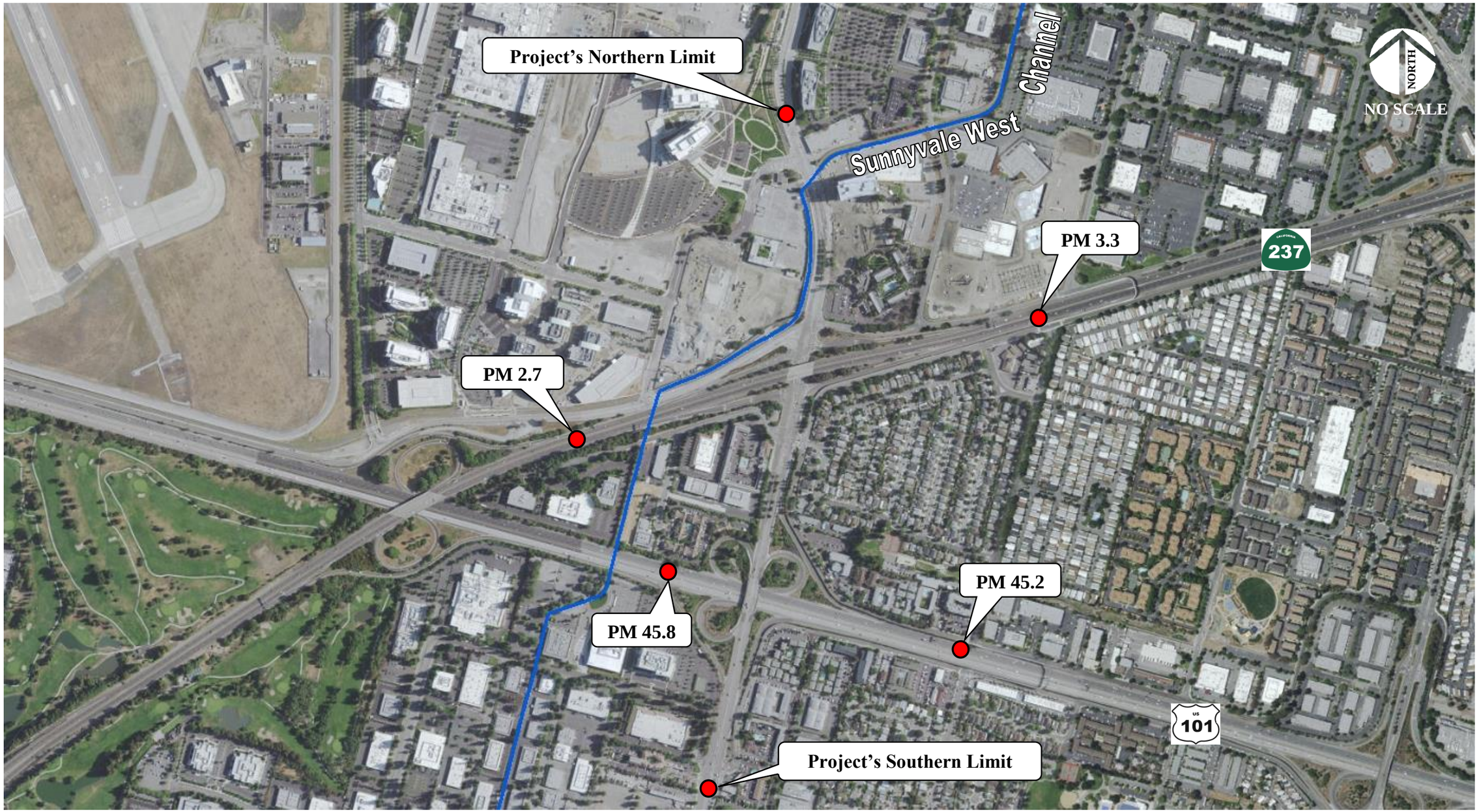

Figure 2. Project Vicinity Map

Source: Caltrans, Environmental System Research Institute (ESRI) and Santa Clara Valley Water District

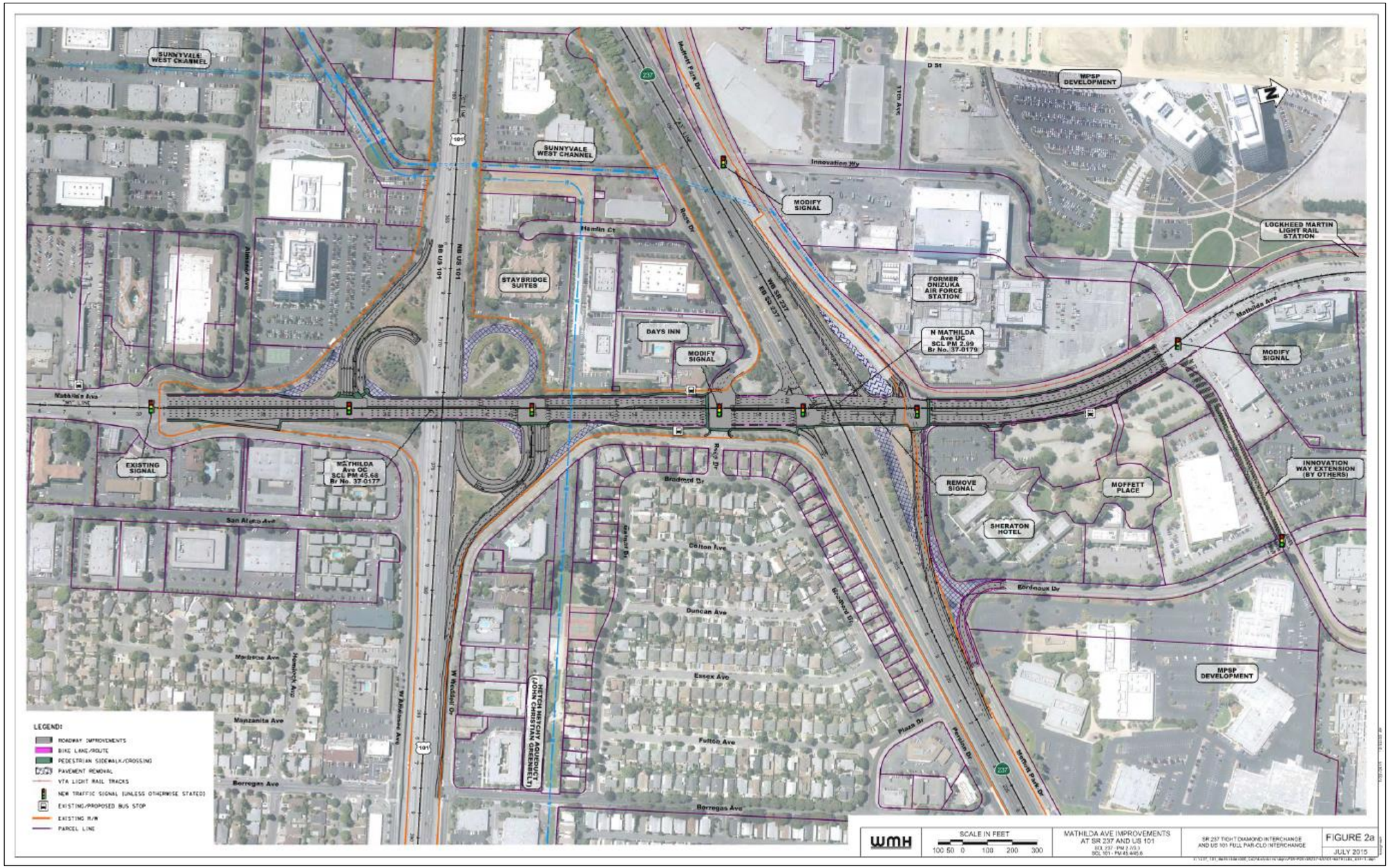

Figure 3. Build Alternative 1

Source: WMH Corporation

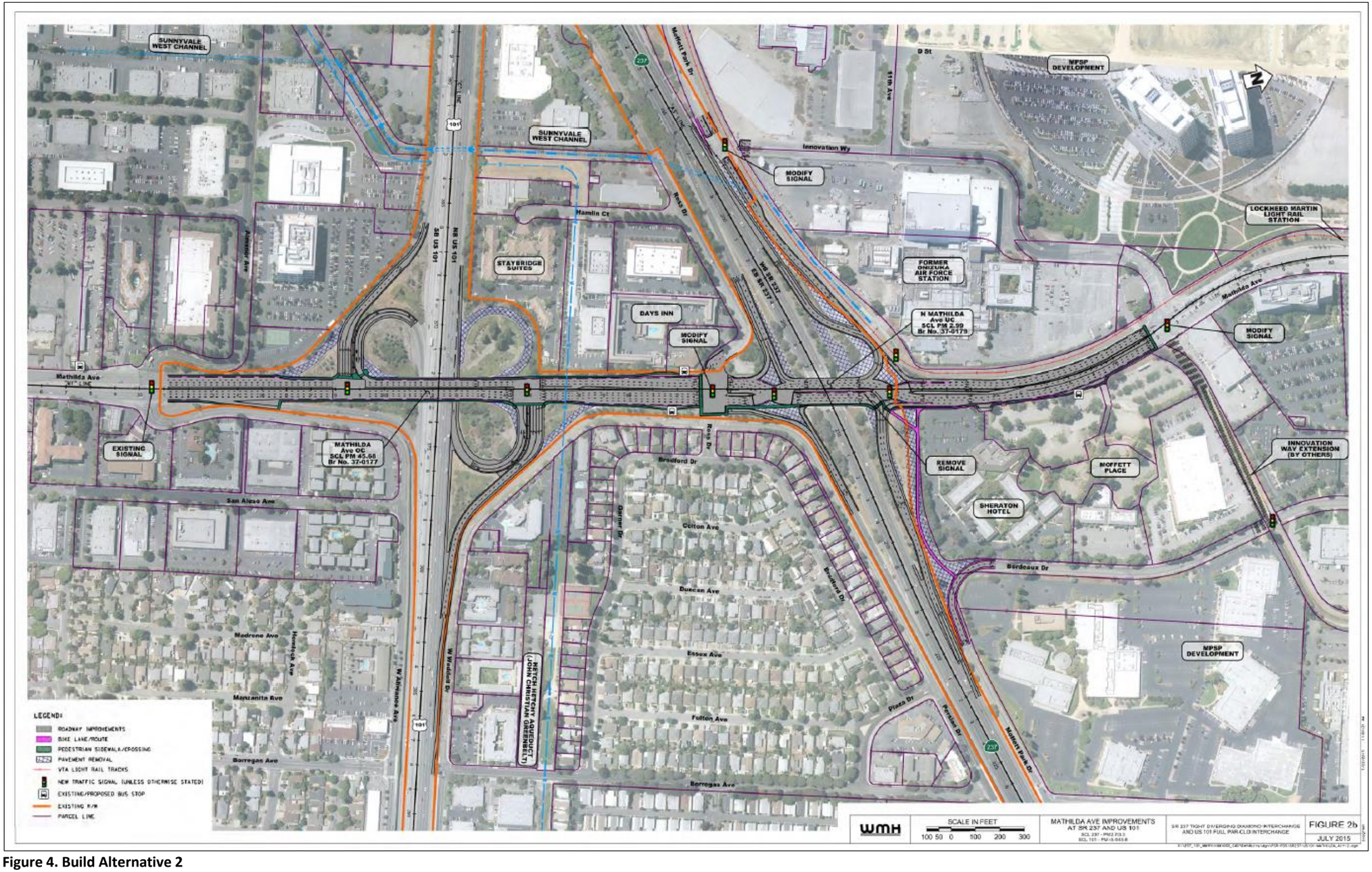

Figure 4. Build Alternative 2

Source: WMH Corporation

2 REGULATORY SECTION

This section summarizes the regulatory requirements associated with the issues of water quality that are mandated at federal, state, and local levels.

2.1 Federal Laws and Requirements

The Clean Water Act (CWA) regulates the quality of surface and groundwater at the federal level. The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Details of the CWA are discussed below.

2.1.1 Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source unlawful unless the discharge is in compliance with an NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires that an applicant for a federal license or permit for any activity potentially resulting in a discharge to waters of the U.S. must obtain certification from the State that the discharge will comply with other provisions of the act. It is most frequently required in tandem with a Section 404 permit request.
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Each Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction and Municipal Separate Storm Sewer Systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

Sunnyvale West Channel, the Project receiving water body, has been designated as a non-wetland water of the United States (Section 3.1.5). Because no Project activities will take place within the channel, no federal permits (Section 401 or 404) will be required. In compliance with the Caltrans and City NPDES Permits (Section 2.2.1), the Project must comply with Section 402.

2.1.2 National Pollutant Discharge Elimination System Program

2.1.2.1 Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of stormwater dischargers, including MS4s. The U.S. EPA defines an MS4 as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that are designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/operator of an MS4 pursuant to federal regulations. Caltrans' MS4 permit covers all Caltrans rights-of-way, properties, facilities, and activities in the State. The SWRCB or the RWQCB

issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit (Order No. 2014-0077-DWQ), which became effective in July 2014, applies to projects that did not complete their Project Initiation Design (PID) phase before July 1, 2013. This permit applies to the Project because the Project did not complete the PID phase prior to this date. It contains three basic requirements:

- Compliance with the requirements of the Construction General Permit (CGP; see Section 2.1.2.2)
- Implementation of a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and
- Stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) best management practices (BMPs) to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet water quality standards.

To comply with the permit, Caltrans developed the Statewide Stormwater Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices that Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The Project would be required to follow the guidelines and procedures outlined in the SWMP (May 2003, revised July 2012) to address stormwater runoff.

The Project is in a high trash-generating area and will consider appropriate trash capture BMPs in the PS&E phase.The Permit requires timely implementation of controls in all high trash-generating areas for the prohibition of discharge of trash and include the following:

- Implementation of full capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchment that service the significant trash generating areas.
- Coordinate with neighboring MS4 permittees to construct, operate and maintain those controls listed above.
- Assess for the effectiveness of enhanced maintenance controls implemented in high generating trash areas, as well as coordination with local municipalities.
- Abate trash from construction and reconstruction projects.
- Include trash capture devices on the outlets of treatment systems for new and redeveloped highway projects to achieve the full trash capture standard.

2.1.2.2 Construction General Permit

The Construction General Permit (CGP) (Order No. 2012-0006-DWQ) became effective on July 17, 2012. The CGP regulates stormwater discharges from construction sites that result in a disturbed soil area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. For all

projects subject to the CGP, applicants are required to develop and implement an effective Stormwater Pollution Prevention Plan (SWPPP). This Project is subject to the CGP.

By law, all construction activity (e.g. clearing, grading, and excavation) that results in soil disturbance of at least one acre is subject to the provisions of the CGP. Operators of regulated construction sites are required to develop SWPPPs; implement sediment, erosion, and pollution prevention control measures; and obtain coverage under the CGP.

The CGP separates projects into risk levels 1, 2, or 3. Risk levels are determined during the planning and design phases and are based on potential erosion and transport to receiving waters. Requirements apply according to the risk level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows. The Project is risk level 1 (see Section 5.1.1)

2.2 Regional and Local Requirements

2.2.1 San Francisco Bay RWQCB Basin Plan

The Project is under the jurisdiction of the San Francisco Bay RWQCB. The RWQCB implements the San Francisco Bay Basin Water Quality Control Plan (Basin Plan; 2015) to regulate surface and groundwater quality in the region. The Basin Plan lists beneficial uses and water quality objectives to protect those uses.

2.2.2 Municipal Separate Storm Sewer Systems (MS4s)

Almost all of the DSA resulting from the Project would be within Caltrans right-of-way, but would include some restriping and signal work on City of Sunnyvale streets. Runoff from the Project would discharge to Caltrans' and the City of Sunnyvale's drainage systems.

The City of Sunnyvale is a member of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP), an association of 15 agencies in Santa Clara Valley that are part of a region-wide permit to discharge stormwater to local waterways and the San Francisco Bay. The Municipal Regional Stormwater NPDES Permit (R2-2015-0049) was first issued in 1990 and has been reissued four times (1995, 2001, 2009 and 2015). According to the SCVURPPP C.3 Stormwater Handbook (April 2012), hydromodification management (HM) is not required (see Section 2.2.3 for details).

The City of Sunnyvale has prepared a *Long-Term Trash Load Reduction Plan and Assessment Strategy* (2014) in compliance with the NPDES permit. The Project will evaluate appropriate trash reduction and capture BMPs during the PS&E phase.

2.2.3 Hydromodification Management Requirements

According to the SCVURPPP *C.3 Stormwater Handbook* (April 2012) and SCVURPPP Hydromodification Plan (April 2005), the Project is in a catchment draining to hardened channel and/or tidal areas, so HM is not required (see Figure 5).

The project is subject to Caltrans' NPDES Permit (Order No 2014-0077-DWQ). Therefore, treatment and hydromodification controls would be required based on the amount of added and reworked impervious areas in Caltrans' right-of-way. Caltrans may propose, subject to Caltrans Headquarters' approval, that no

hydromodification controls would be necessary for this Project because none is required under local regulations.

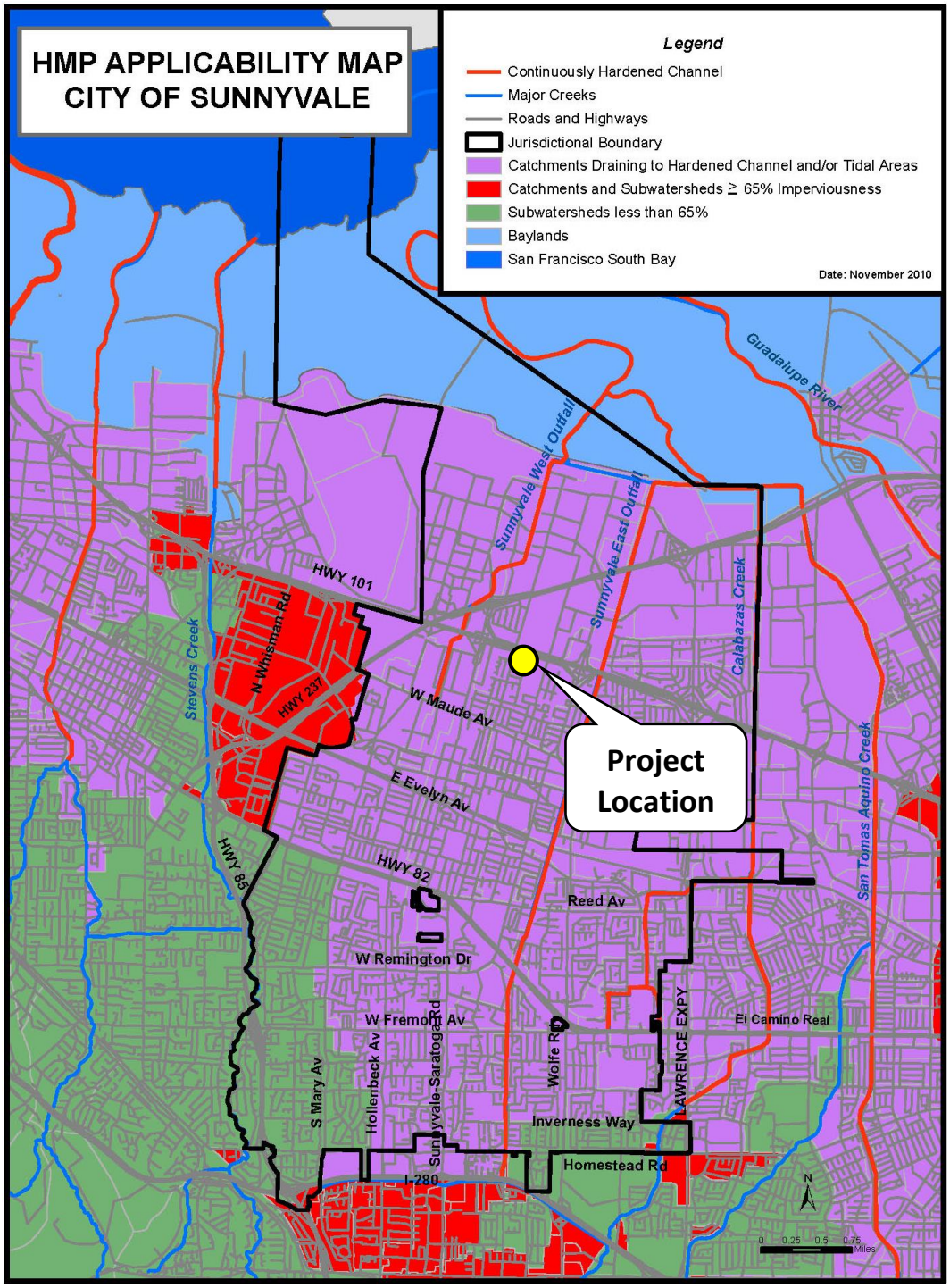

Figure 5. Hydromodification Applicability Map for the City of Sunnyvale

Source: SCVURPPP

3 AFFECTED ENVIRONMENT/EXISTING CONDITIONS

This section describes the physical setting of the Project area. The Project limits cover approximately one mile along Mathilda Avenue between US 101 and SR 237 in the City of Sunnyvale.

3.1 General Setting

3.1.1 Population and Land Use

The *2010 Census Data for the City of Sunnyvale* shows that the City of Sunnyvale had a population of 140,081. By 2025, Sunnyvale is expected to have a population of 150,600, according to the *General Plan* (City of Sunnyvale 2011). The largest groups of employers include professional, scientific and management, and administrative and waste management services. Several technology companies including Yahoo! Inc., Network Appliance, Inc., and Juniper Networks have headquarters in Sunnyvale. Residential areas comprised about half (52%) of the City's land use in 2011, according to the Consolidated General Plan (City of Sunnyvale 2011), followed by Industrial/Office (26%). The City has about 8% open space, excluding the Baylands. The Baylands—consisting of landfill hills, treatment ponds, salt ponds, recreational trails, and parks—border Sunnyvale at the southwest corner of San Francisco Bay.

Mathilda Avenue is a main thoroughfare in the City. Industry and hotels surround the Project area except to the west and southwest, which are residential (see Figure 3 and Figure 4).

3.1.2 Topography

The Federal Emergency Agency (FEMA) Flood Insurance Study (FIS, No. 06085CV002B) for Santa Clara County (FEMA 2014) states that Santa Clara County is primarily in a flat alluvial plain that lies between the Santa Cruz Mountains and the Diablo Range. Most of the area consists of basically level terrain; toward the east and west, this gives way to rolling foothills. These foothill areas, in turn, become steeper and graduate into the mountain ranges that flank the City of Gilroy. The land slopes toward the south.

Based on the Project's topographic drawings, the elevation of SR 237 within the Project limits drops from approximately 35 feet in the northeast to 21 feet in the southwest. The elevation of US 101 in the Project area is flat with an elevation range of 32 to 34 feet.

3.1.3 Hydrology

3.1.3.1 Regional Hydrology

The Project area is located within the Sunnyvale West Watershed (Figure 6). The watershed sits on the alluvial plain of the Santa Clara Valley. It drains 7.6 square miles and is almost entirely urbanized.

Precipitation and Climate

The climate of the City of Sunnyvale is characterized by warm, dry summers and cool, moist winters. According to the *Community Fact Sheet for Sunnyvale* (City of Sunnyvale 2015), temperature averages range from 58°F in January to 78°F in July. Average annual rainfall is 11.85 inches. Violent thunderstorms, snowfall, and other extreme weather conditions are rare.

Surface Streams

The Project would drain to Sunnyvale West Channel. Within the Project limits, the channel crosses SR 237 through a culvert at approximately PM 2.80 near Innovation Way and again at Mathilda Avenue about 100 feet south of Innovation Way. The channel was built in 1964 to alleviate flooding in the watershed. Runoff from the Project is expected to be collected by Caltrans' and the City's drainage systems, which eventually drain to the channel.

The Sunnyvale West Channel is the receiving water body, and it is approximately 3 miles in length. The channel originates at Maude Avenue as a concrete pipe culvert until it reaches Almanor Avenue in the northeastern direction. The channel becomes an earth-excavated channel from Almanor Avenue to Mathilda Avenue. The channel flows northeast to Guadalupe Slough via the Moffett Channel, and then ultimately drains to San Francisco Bay. Figure 6 and Figure 7 show waterways near the Project.

Floodplains

FEMA issues the Flood Insurance Rate Maps (FIRMs) that delineate flood hazard zones. The 1% annual chance flood and floodplain have been adopted as a common design and regulatory standard in the United States.

The *Floodplain Encroachment Technical Memorandum* (WRECO 2015a) prepared for the Project describes the floodplain characteristics in detail and describes potential impacts and whether avoidance, minimization or mitigation measures would be needed. The FIRM for the Project is Map Number 06085C0045H, shown in Figure 8 (FEMA 2009).

A Zone AE floodplain area is associated with Sunnyvale West Channel. The description of Zone AE in the Project vicinity is "1% annual chance flood discharge contained in channel." The northern limit of the Project would extend into Zone AE; however, no major construction is anticipated to occur in that area. Signal modifications, restriping, and/or other minor improvements may be performed.

The FIRM identifies SR 237, US 101, and Mathilda Avenue in the Project limits as being within areas classified as shaded Zone X. The description of shaded Zone X in this FIRM is "areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood."

Municipal Supply

The water supply system in Santa Clara County includes surface sources (reservoirs, creeks and others) and groundwater found in aquifers. The City of Sunnyvale obtains its drinking water from eight local groundwater wells, as well as from imported water from the Santa Clara Valley Water District, Hetch Hetchy, and Sunol Valley water supply from the San Francisco Public Utilities Commission (SFPUC).

There are no drinking water reservoirs or recharge facilities within the Project limits. There are no reservoirs in the Sunnyvale West Channel watershed.

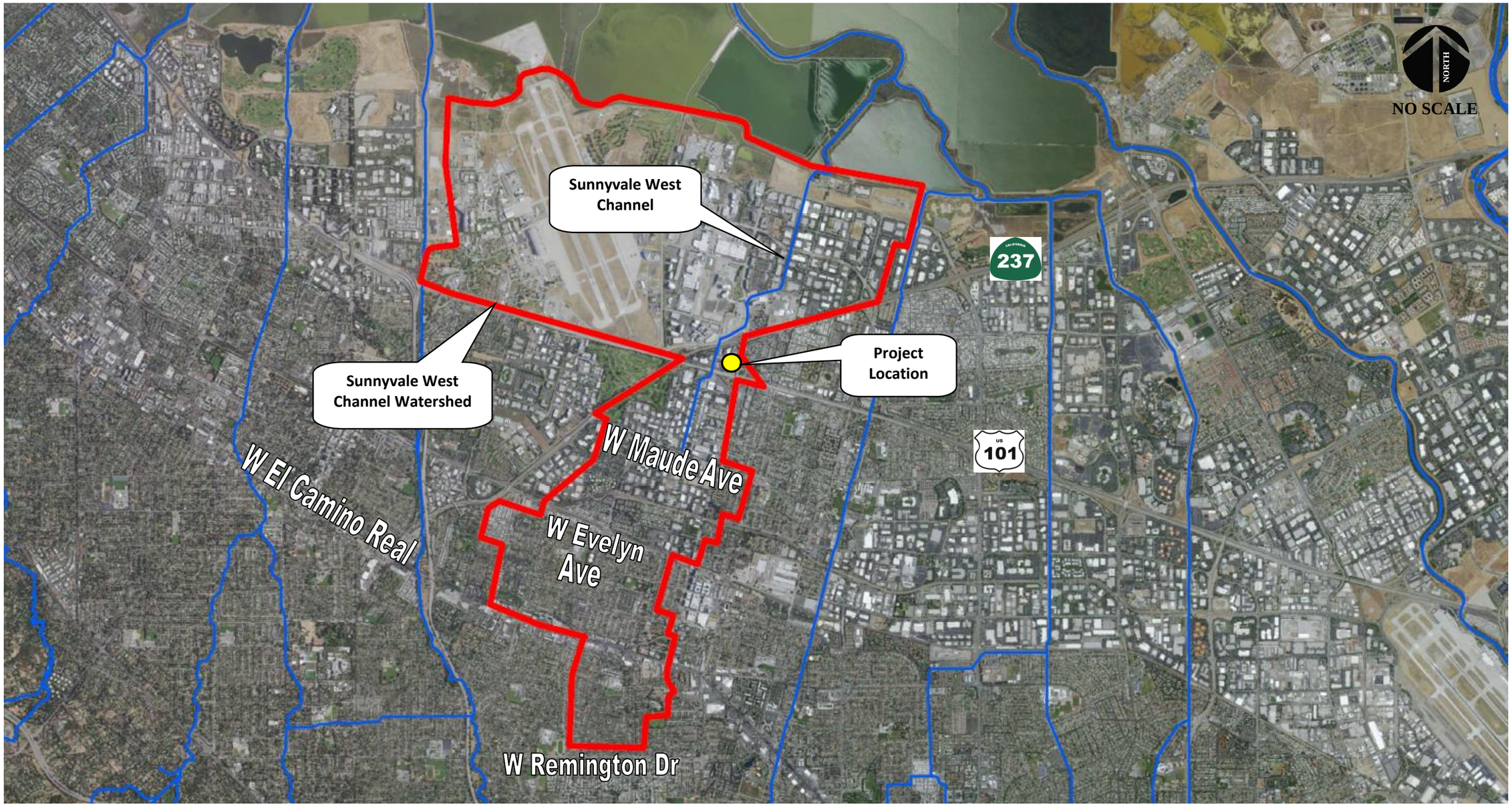

Figure 6. Sunnyvale West Watershed

Source: Santa Clara County

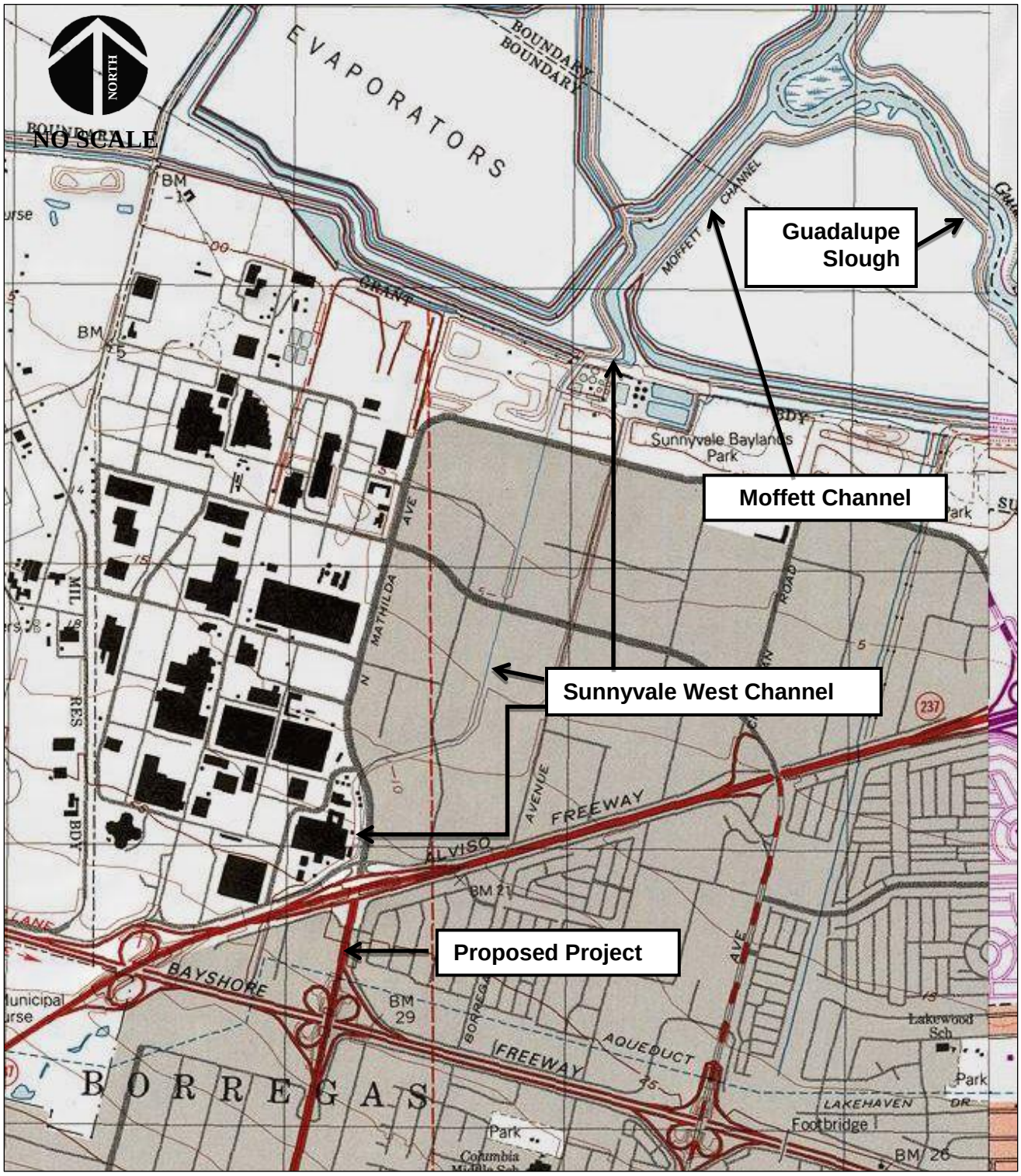

Figure 7. Topographic Map of Project Area

Source: USGS

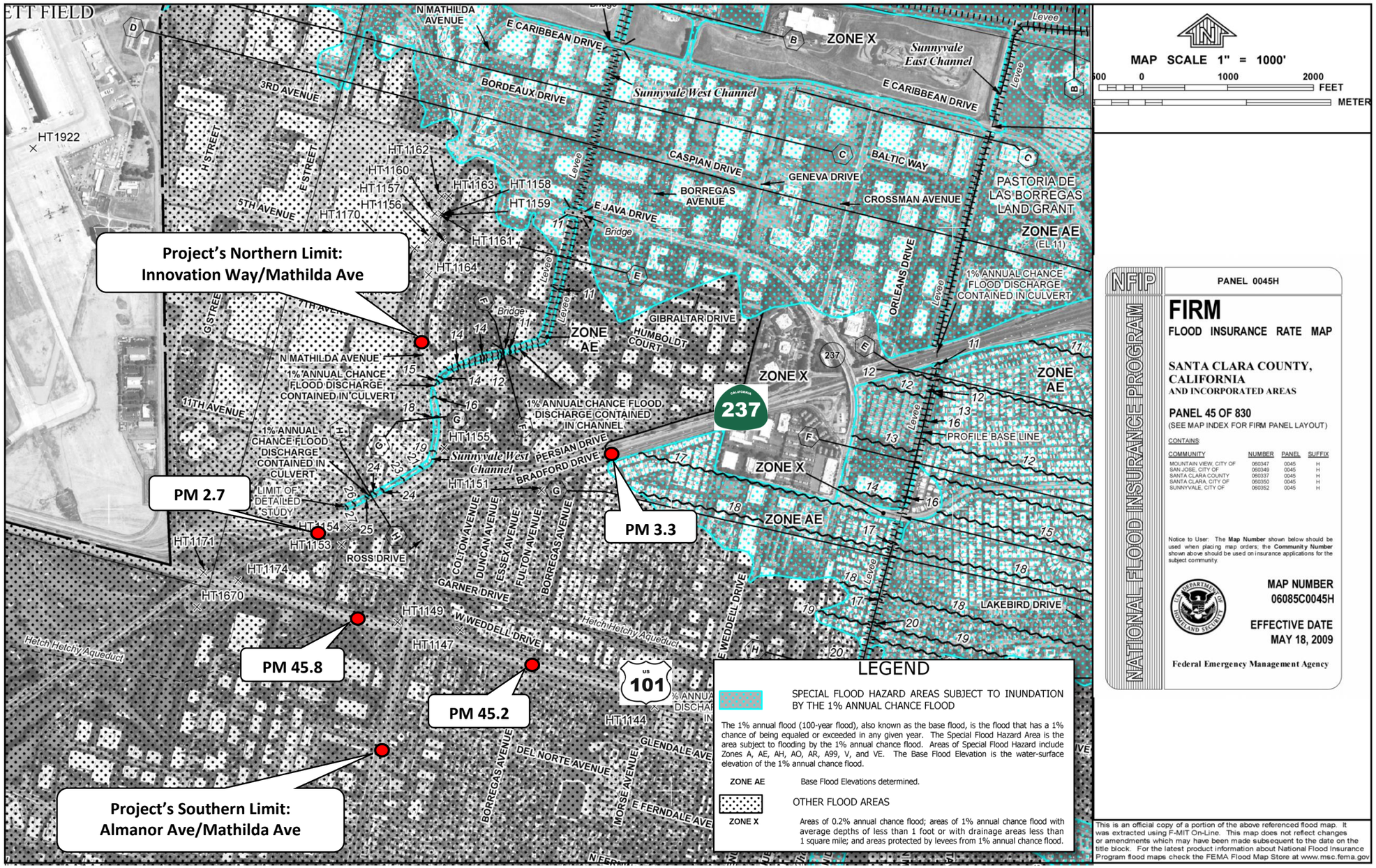

Figure 8. FIRM for Santa Clara County, California, and Incorporated Areas

Source: FEMA

3.1.3.2 Groundwater Hydrology

The Flood Insurance Study (FIS) for Santa Clara County (FEMA 2014) states that the rapid urbanization of the Santa Clara Valley has lowered the water table, with resulting subsidence of the lands adjacent to San Francisco Bay. Subsidence ceased after 1970 when water was brought into the area. The Santa Clara Valley Water District periodically releases water from reservoirs into stream channels and percolation basins, so it can percolate down to the water table.

Project-specific soil borings are not available at this phase. The *Preliminary Geological Assessment* (PGA) conducted by BASELINE Environmental Consulting (2015) used GeoTracker to review ambient groundwater-level data for sites at 724 Mathilda Avenue and 102 Persian Drive. Depth to groundwater ranged from 7 to 15 feet below ground surface (bgs). Based on the regional topography and previously measured groundwater levels, groundwater is expected to flow to the north-northeast across the Project site.

High groundwater may affect the choice of treatment BMPs and may require dewatering during construction. If there is high groundwater, infiltration devices may not be feasible for the Project. Hydrologic information will be updated when additional field work is performed during the PS&E phase.

3.1.4 Geology/Soils

The PGA indicates that the Project is generally underlain by Holocene alluvium with an average thickness of about 55 ft. As part of the PGA, the Web Soil Survey from the Natural Resources Conservation Service (NRCS) was reviewed for the Project. The Project area is entirely Urbanland-Hangerone complex, 0 to 2 percent slopes, drained. According to the Web Soil Survey, this soil is within hydrologic soil group (HSG) C. According to the NRCS (2007), HSG C soils have moderately high runoff potential and restricted water transmission.

The low permeability of this soil group suggests that infiltration devices may not be feasible for the Project. Amended or engineered soil media can be used to increase the infiltration potential of proposed treatment BMPs in these areas. The design feasibility of infiltration devices should be further evaluated during the PS&E phase once detailed infiltration studies have been conducted and appropriate soil amendments or engineered soil mixes have been developed. An underdrain will likely be necessary to convey water from the site.

Geologic information will be updated when additional field work is performed during the PS&E phase.

3.1.4.1 Soil Erosion Potential

According to the PGA, the Project is located in the Coast Ranges Geomorphic Province of northern California, consisting of northwest-trending folds and faults associated with the San Andreas Fault Zone. Due to the Project location, the site could impact or be impacted by soil erosion, expansive soils, corrosive soils, seismic ground shaking, and liquefaction. These hazards could affect the structural integrity of Project structures, including new pavement, new retaining walls, and traffic operations.

The Project would be designed in accordance with the Caltrans Seismic Design Criteria. During the PS&E phase, additional data would be collected to confirm site conditions and determine appropriate construction measures based on the geologic conditions.

3.1.5 Wetlands/Waters

ICF International conducted a delineation of waters of the U.S. for the Project (ICF 2015). Sunnyvale West Channel was identified as a non-wetland water of the United States. Because no Project activities will take place within the channel, no federal permits (Section 401 or 404) will be required. No wetlands or other jurisdictional areas were found within the study area.

3.2 Water Quality Objectives/Standards and Beneficial Uses

The beneficial uses of water are defined in the Basin Plan as those necessary for the survival or well-being of humans, plants, and wildlife. Examples of beneficial uses include drinking water supplies, swimming, industrial and agricultural water supply, and the support of freshwater and marine habitats and their organisms.

3.2.1 Surface Water Quality Objectives

The general water quality objectives established for surface waters within the San Francisco Bay region include bacteria, bioaccumulation biostimulatory substances, color, dissolved oxygen, floating material, oil and grease, population and community ecology, pH, radioactivity, salinity, sediment, settleable material, suspended material, sulfide, taste and odors, temperature, toxicity, turbidity, and un-ionized ammonia (Appendix A.1). All urban creeks in the region are subject to a water quality attainment strategy and TMDL for diazinon and pesticide-related toxicity (Appendix A).

The Basin Plan does not list any existing beneficial uses for Sunnyvale West Channel. The Project is located more than one mile from Moffett Channel and Guadalupe Slough, and no impacts to those water bodies are anticipated.

3.2.2 Groundwater Quality Objectives

The “maintenance of existing high quality of groundwater” is the primary groundwater objective. General water quality objectives established for groundwater within the San Francisco Bay region include bacteria, organic and inorganic chemical constituents, radioactivity, and taste and odors. Additional objectives are established for municipal and agricultural supply. The relevant water quality objectives from the Basin Plan are included in Appendix A.

The Santa Clara Groundwater Sub-basin has the following existing beneficial uses (San Francisco Bay RWQCB 2015):

- Existing municipal and domestic water supply (MUN)
- Potential industrial process water supply (PROC)
- Potential industrial service water supply (IND)
- Existing agricultural water supply (AGR)

3.3 Existing Water Quality

This section describes the water quality in the existing condition of the Project area.

3.3.1 List of Impaired Waters

There are no impaired waters listed on the CWA 303(d) list within the Project limits.

3.3.2 Trash Load Reduction

Sunnyvale is the second largest city in Santa Clara County and the fifth largest in the San Francisco Bay area. The Project is in a High to Very High trash generation area (City of Sunnyvale 2014; WRECO 2015b). Appropriate trash capture BMPs will be evaluated in the PS&E phase.

4 ENVIRONMENTAL CONSEQUENCES

The following sections present the potential temporary and permanent water quality impacts from the proposed Project activities.

Temporary water quality impacts can result from sediment discharge from DSAs and construction near water resources. Permanent impacts to water quality result from the addition of impervious area; this additional impervious area prevents runoff from naturally dispersing and infiltrating into the ground, resulting in increased concentrated flow.

Table 1 and Table 2 summarize the anticipated DSAs, reworked impervious areas, and added impervious areas for each Build Alternative. The No-Build Alternative would not result in any DSA or modification to impervious areas. Build Alternative 2 would have the greatest DSA (22 acres), added impervious area (3 acres), and reworked impervious area (5 acres). The DSA values and impervious areas would be further refined during the PS&E phase when the limits of grading and locations of construction staging and other areas of disturbance are further defined.

Table 1. Disturbed Soil, Existing and Added Impervious, and Reworked Areas for Build Alternative 1

Right-of-Way	Disturbed Soil Area (acre)	Existing Impervious Area (acre)	Added Impervious Area (acre)	Reworked Impervious Area (acre)	Added and Reworked Impervious Area (acre)
Caltrans	20	45.5	2	4	6
City of Sunnyvale	0.011	4.5	0.01	0.001	0.011
Total	20.011	50	2.01	4.001	6.011

Source: WMH

Table 2. Disturbed Soil, Existing and Added Impervious, and Reworked Areas for Build Alternative 2

Right-of-Way	Disturbed Soil Area (acre)	Existing Impervious Area (acre)	Added Impervious Area (acre)	Reworked Impervious Area (acre)	Added and Reworked Impervious Area (acre)
Caltrans	22	45.5	3	5	8
City of Sunnyvale	0.011	4.5	0.01	0.001	0.011
Total	22.011	50	3.01	5.001	8.011

4.1 Potential Impacts to Water Quality

The Project would add impervious area and therefore could potentially impact water quality. Stormwater runoff from the Project corridor would drain to Sunnyvale West Channel via storm drains. Of the two Build Alternatives, Alternative 2 has the potential for greater impact, with one additional acre compared to Alternative 1.

4.1.1 Anticipated Changes to the Physical/Chemical Characteristics of the Aquatic Environment

The Project would add impervious area and therefore could potentially increase the volume and velocity of the stormwater flow to receiving water bodies. In addition, the pollutant loading could increase. The added impervious area is directly related to the potential for permanent water quality impacts and changes to the hydrograph due to increased flow and velocity. Disturbed soil from construction activities could potentially result in soil particles entering receiving waters. Any stormwater impacts would be minimized through proper implementation of permanent design pollution prevention and treatment BMPs.

4.1.1.1 Currents, Circulation, or Drainage Patterns

The Project drainage design would strive to maintain the existing drainage patterns. The additional runoff from the added impervious area may result in minimal impacts to the existing hydrograph, including minimal increases in low and peak flow velocity and volume. The Project may require modifications to some existing drainages. Existing underground drainage systems and cross culverts may be upgraded as needed to accommodate the Project.

4.1.1.2 Suspended Particulates (Turbidity)

The Project would result in the creation of two to three acres of additional impervious area, which increases the amount of runoff that does not infiltrate or disperse over unpaved surfaces. This non-infiltrated and concentrated runoff could result in the direct discharge of sediment-laden flow from the roadway to receiving water bodies. Any stormwater impacts would be minimized through proper implementation of permanent design pollution prevention and treatment BMPs. Realignment, removal, and construction of traffic lanes, on- and off-ramps, and bicycle and pedestrian facilities will disturb at least 20 acres of soil, potentially increasing the particulates available for discharge into receiving waters. Temporary site management BMPs will be used to minimize potential construction-related impacts.

4.1.1.3 Oil, Grease, and Chemical Pollutants

Heavy metals associated with vehicle tire and brake wear, oil and grease, and exhaust emissions are the primary pollutants associated with transportation corridors. Generally, highway stormwater runoff has the following pollutants: total suspended solids, nitrate nitrogen, total kjeldahl nitrogen, phosphorus, ortho-phosphate, copper, lead, and zinc. The pollutants are dispersed from aerially deposited pollutants that accumulate on tree leaves, combustion products from fossil fuels, and the wearing of brake pads and tires. The No-build Alternative would have potential permanent water quality impacts due to increasing congestion, leading to a greater deposition of particulates from exhaust and heavy metals from braking. The two Build Alternatives would also potentially increase deposition of particulates from increased traffic loads due to the widening of the northbound ramps.

The removal and construction of concrete roadways, as well as the use of cleaning supplies, could potentially release phosphates, VOCs, and SVOCs into the environment. Temporary site management BMPs will be used to minimize potential construction-related impacts.

4.1.1.4 pH

Sand and curing compounds used in the production of concrete, and the resultant concrete washout wastewater can increase pH if released into receiving waters. Cement used in the repair and maintenance of culverts can also cause a pH increase as water contacts the newly applied material. Existing underground drainage systems and cross culverts may need to be upgraded to accommodate the Project, causing the potential for water flow to be exposed to cement. Temporary site management BMPs will be used to minimize potential construction-related impacts. Non-stormwater BMPs will be considered for the Project.

4.1.1.5 Aquifer Recharge/Groundwater

This Project would result in the addition of impervious area but would not substantially reduce the amount of unpaved area available to allow runoff to infiltrate into the soil. The reduction of runoff infiltrating through native soils has the potential to result in loss in volume or amount of water that previously recharged localized aquifers and to reduce regional groundwater volumes. While the increase in impervious area would reduce the available area for infiltration of stormwater, as shown in Table 3, the increase in impervious surface area compared to the total watershed area would be minimal for both alternatives. Therefore, the amount of surface runoff that infiltrates into the groundwater system would be minimally affected.

Table 3. Increase in Impervious Area Compared to Watershed

Build Alternative	Added and Reworked Impervious Area (acre)	Watershed Area (acre)	% Increase of Impervious Area in Watershed
1	6.011	147,267	0.004
2	8.011		0.005

4.1.2 Short-Term Impacts During Construction

During construction, runoff from DSAs could cause potentially sediment-laden flows to enter storm drainage facilities. Earth-moving and other construction activities could cause minor erosion and runoff of top soils into the drainage systems along the Project corridor, which could temporarily affect water quality in local waterways. Sources of sediment that could result in increases in turbidity include uncovered or improperly covered active and non-active stockpiles, unstabilized slopes, and construction staging areas. These impacts would be minimized through the use of construction site BMPs (Caltrans 2003).

Stormwater runoff from the Project site during construction may transport pollutants to the Sunnyvale West Channel and storm drains; therefore, both Build Alternatives for the Project would have potential short-term water quality impacts. Any stormwater impacts would be minimized through proper implementation of construction site pollution prevention BMPs.

If fueling or maintenance of construction vehicles occurs within the Project site during construction, there is a risk of accidental spills or releases of fuels, oils, or other potentially toxic materials. An accidental release of these materials may pose a threat to water quality if contaminants enter storm drains, open channels, or surface water receiving bodies. The magnitude of the impact from an accidental release depends on the amount and type of material spilled.

The Project would involve excavations that may affect groundwater resources, and construction may have localized impacts to the flow of groundwater. Dewatering would be needed at locations of excavation work with high groundwater.

Overall, the Project would have temporary impacts during construction. These impacts would be minimized through the use of BMPs as described in Section 5.1.

4.2 Cumulative Impacts

There may be a cumulative impact from the Project and other nearby projects. The approved Moffett Place complex, located between Borregas Drive and Mathilda Avenue, includes six eight-story buildings, two parking structures, an amenities building, and an extension of Innovation Way to Bordeaux Drive. However, because each project would be subject to NPDES requirements and implement BMPs, the cumulative impacts would be minimal.

5 AVOIDANCE AND MINIMIZATION MEASURES

This Project would have minimal impacts to water quality if the following avoidance and minimization measures are incorporated.

As mentioned in Section 2.3.3, the Project is in a catchment draining to hardened channel and is exempt from SCVURPPP hydromodification requirements. The Project will be subject to Caltrans treatment and hydromodification controls unless Caltrans proposes (and gets Headquarters' approval), that no hydromodification controls would be necessary for this Project because none is required under local regulations.

As mentioned in Section 3.1.5, no work will be done inside Sunnyvale West Channel, and neither a 401 nor a 404 permit is required.

5.1 Temporary Avoidance and Minimization Measures

5.1.1 Construction General Permit

The Project would involve more than one acre of DSA and therefore must comply with the Construction General Permit (CGP). Projects subject to the CGP must perform a risk level assessment to determine BMP implementation, sampling and analysis, and reporting requirements related to construction activities. A project's risk level is determined from the receiving water risk and sediment risk. The Project is classified as having a low receiving water risk because Project receiving waters (Sunnyvale West Channel, which drains to Moffett Channel and Guadalupe Slough) are not on the CWA 303(d) list as impaired for sedimentation or siltation, and do not have the combined existing beneficial uses of cold freshwater habitat (COLD), fish migration (MIGR), and fish spawning (SPWN).

The sediment risk factor is determined from the product of the rainfall erosivity factor (R), the soil erosion factor (K), and the length-slope factor (LS). Based on the planned construction duration from May 5, 2018, to May 3, 2019, the R factor was calculated for this period to be 35. Per the Natural Resources Conservation Service Web Soil Survey, the weighted average K factor within the Project area is 0.28. The Caltrans Water Quality Planning Tool identifies the LS factor within the Project area as 0.36. The product of these values is 3.53; because this value is less than 15, the Project would be classified as having a low sediment risk. The sediment risk would be updated during the PS&E phase as detailed Project information becomes available.

Table 4 summarizes the sediment and receiving water risk and presents the calculated risk level. The factors used to determine the planning watershed sediment risk are included in Appendix B.

The risk level is classified as Risk Level 1 if both the sediment and receiving water risk are low, is classified as Risk Level 3 if both the sediment and receiving water risk are high, and all other combinations are classified as Risk Level 2. Based on the low receiving water risk and the low sediment risk, the Project would be classified as Risk Level 1 under the CGP.

Table 4. Sediment Risk Factors

R Factor	K Factor	LS Factor	Product (R*K*LS)	Sediment Risk	Receiving Water Risk	RISK LEVEL
35	0.28	0.36	3.53	Low	Low	1

All risk levels are subject to temporary construction site BMP implementation and visual monitoring requirements. The BMP implementation and sampling required under each risk level are measures that will minimize impacts to receiving water bodies and water resources. The risk level presented in this section is based on planning-level information available at the time of preparation of this Water Quality Assessment Report. The actual Project risk level would be refined during the Project design phase.

5.1.2 Storm Water Pollution Prevention Plan

Risk Level 1 projects are subject to BMP and visual monitoring requirements. A Storm Water Pollution Prevention Plan (SWPPP) must be prepared by the contractor and approved by the Caltrans Resident Engineer prior to the start of construction. The SWPPP must comply with the conditions of Caltrans' MS4 permit and the CGP to address temporary water quality impacts resulting from construction activities associated with the Project. The SWPPP includes the development of a Construction Site Monitoring Program that presents procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants, sediment and turbidity, and pH.

Because the Project must comply with the CGP, a Notice of Intent would be filed. To obtain permit coverage under the CGP, all dischargers must electronically file Permit Registration Documents through the SWRCB's Stormwater Multiple Application and Report Tracking System (SMARTS). Notice of Termination, changes of information, sampling and monitoring information, annual reporting, and other compliance documents are also filed via SMARTS.

The SWPPP is intended to address construction-phase impacts, and include, at a minimum, the following elements:

- Project Description – The project description includes maps and other information related to construction activities and potential sources of pollutants.
- Minimum Construction Control Measures – These measures may include limiting construction access routes, stabilization of areas denuded by construction, and using sediment controls and filtration.
- Erosion and Sediment Control – The SWPPP is required to contain a description of soil stabilization practices, control measures to prevent a net increase in sediment load in stormwater, controls to reduce tracking sediment onto roads, and controls to reduce wind erosion.
- Non-Storm Water Management – The SWPPP includes provisions to reduce and control discharges other than stormwater.
- Post-Construction Storm Water Management – The SWPPP includes a list of stormwater control measures that provide ongoing (permanent) protection for water resources.
- Waste Management and Disposal – The SWPPP includes a waste management section including equipment maintenance waste, used oil, batteries, etc. All waste must be disposed of as required by state and federal law.

- Maintenance, Inspection, and Repair – The SWPPP requires an ongoing program to ensure that all controls are in place and operating as designed.
- Monitoring – This provision requires documented inspections of the control measures.
- Reports – The contractor would prepare an annual report on the construction project and submit this report on September 1 each year. This report would be submitted on the SMARTS website to the SWRCB.
- Training – The SWPPP provides documentation on the training and qualifications of the designated Qualified SWPPP Developer and Qualified SWPPP Practitioner. Trained personnel must do inspections, maintenance, and repair of construction site BMPs.
- Construction Site Monitoring Program – The SWPPP includes a Construction Site Monitoring Program detailing the procedures and methods related to the visual monitoring and sampling and analysis plans for non-visible pollutants.

5.1.3 List of Proposed Temporary Construction Site Best Management Practices

Caltrans is required to reduce pollutants in stormwater discharges to the maximum extent practicable during construction. Pollutants must be reduced using the Best Available Technology Economically Achievable, and conventional pollutants (i.e. total suspended solids and pH) must be reduced using the Best Conventional Technology.

Construction work for this Project is expected to take 250 days. When possible, the scheduling of earth-disturbing construction activities should not be made during anticipated rain events. To avoid and minimize any potential sediment-laden or contaminated runoff or run-on within the Project area, construction site BMPs should be installed prior to the start of construction or as early as feasibly possible during construction.

High groundwater may affect the choice of treatment BMPs and may require dewatering during construction.

Temporary impacts to water quality can be avoided or minimized by implementing standard BMPs recommended for a particular construction activity. The selected temporary BMPs are consistent with the practices required under the CGP and the Caltrans MS4 permit and are intended to achieve compliance with the requirements of the permits. Compliance with the requirements of these permits, and adherence to the conditions, reduces or avoids potentially significant construction-related impacts.

Adverse impacts can occur during construction-related activities. Soil erosion, especially during heavy rainfall, can increase the suspended solids, dissolved solids, and organic pollutants in stormwater runoff generated within the project limits. These conditions would persist until completion of construction activities and implementation of long-term erosion control measures.

Utilities installations and cross culvert extensions or modifications may require dewatering. Contract documents would address any necessary permits for dewatering.

Non-stormwater waste management is also essential to minimize the potential for water quality impacts. Accidental spills of petroleum hydrocarbons (such as fuels and lubricating oils), concrete wastewater, and possibly sanitary wastes from construction work site wash facilities are also of concern during construction activities.

A spill on the roadway would trigger immediate response actions to report, contain, and mitigate the incident. The California Office of Emergency Services has developed a Hazardous Materials Incident Contingency Plan, which provides a program for response to spills involving hazardous materials. The plan designates a chain of command for notification, evacuation, response, and cleanup of spills. Caltrans also has spill contingency procedures and response crews.

Temporary erosion control measures can be applied to all exposed areas during construction, including the trapping of sediment within the construction area through the placing of barriers, such as silt fences, at the perimeter of downstream drainage points or through the construction of temporary detention basins. Other methods of minimizing erosion impacts include the implementation of hydromulching and/or limiting the amount and length of exposure of graded soil. In addition to these erosion control measures, the use of compost is strongly encouraged by Caltrans. Compost not only improves erosion resistance and vegetation establishment, but it also helps immobilize heavy metals that are common along highways. Compost can be considered or specified during the design phase of the Project.

The suggested minimum temporary control BMPs that would be necessary for the Project are included in Table 5. Further evaluation of the BMPs necessary for this Project to comply with the CGP and the Caltrans MS4 permit would be detailed during the PS&E phase. The proposed construction site BMPs would be reviewed and approved by the Caltrans District 4 Stormwater Coordinator during the PS&E phase.

Table 5. Temporary Best Management Practices

Temporary BMP	Purpose
Soil Stabilization	
Move-In/Move-Out	To stabilize material storage areas.
Hydromulch	To stabilize idle disturbed areas during construction, especially slopes.
Temporary Cover	Plastic covers for stockpiles.
Sediment Control	
Temporary Silt Fence	Linear, permeable fabric barriers to intercept sediment-laden sheet flow. Placed downslope of exposed soil areas, along channels and project perimeter.
Temporary Gravel Bag Berm	Single row of gravel bags installed end-to-end to form a barrier across a slope to intercept runoff. Can be used to divert or detain moderately concentrated flows.
Temporary Check Dams	Small constructed device of rock or other product placed across a channel or ditch to reduce flow velocity.
Temporary Drainage Inlet Protection	Runoff detainment devices used at storm drain inlets that are subject to runoff from construction activities.
Tracking Control	
Temporary Construction Entrances/Exits	Points of entrance/exit to a construction site that are stabilized to reduce the tracking of mud and dirt onto public roads.
Street Sweeping	Removal of tracked sediment to prevent it from entering a storm drain or watercourse.
Non-Stormwater Management	
Dewatering	For managing groundwater within excavations due to anticipated high groundwater.
All other anticipated non-stormwater management measures are covered under Job Site Management.	
Waste Management and Materials Pollution Control	
Temporary Concrete Washout Facilities	Specified vehicle washing areas to contain concrete waste materials.
All other anticipated waste management and materials pollution control measures are covered under Job Site Management.	
Job Site Management	
General measures covered under job site management include: • spill prevention and control • materials management • stockpile management • waste management • hazardous waste management • contaminated soil • concrete waste • sanitary and septic waste and liquid waste Miscellaneous job site management includes: • training of employees and subcontractors • proper selection, deployment and repair of construction site BMPs	Non-stormwater management consists of: • water control and conservation • illegal connection and discharge detection and reporting • vehicle and equipment cleaning • vehicle and equipment fueling and maintenance • paving, sealing, saw cutting and grinding operations • thermoplastic striping and pavement markers • concrete curing and concrete finishing

Source: Caltrans

5.2 Permanent Avoidance and Minimization Measures

The section describes the permanent BMPs that would be considered for implementation.

5.2.1 Permanent Pollution Prevention Design Measures

The Caltrans MS4 permit contains provisions to reduce pollutant loadings from the facility once construction is complete. The permit stipulates that permanent measures that control pollutant discharges must be considered and implemented for all new or reconstructed facilities. Permanent control measures located within Caltrans right-of-way reduce pollutants in stormwater runoff from the roadway. These measures reduce the suspended particulate loads, and thus pollutants associated with the particles, from entering waterways. The measures would be incorporated into the final engineering design or landscape design of the Project and would take into account expected runoff from the roadway. In addition, the permit also stipulates that an operation and maintenance program be implemented for permanent control measures. This category of water quality control measures can be identified as including both design pollution prevention BMPs and treatment BMPs.

5.2.1.1 Proposed Design Pollution Prevention BMPs

The estimated added and reworked impervious areas for each alternative within the Project limits are shown in Table 1 and Table 2.

The following design pollution prevention BMPs would be incorporated into the project design:

- Conserve natural areas, to the extent feasible, including existing trees, stream buffer areas, vegetation and soils;
- Minimize the impervious footprint of the project;
- Minimize disturbances to natural drainages;
- Design and construct pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope and other pertinent factors;
- Implement landscape and soil-based BMPs such as compost-amended soils and vegetated strips and swales;
- Use climate-appropriate landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers; and
- Design all landscapes to comply with State, local, and Caltrans requirements.

5.2.1.2 Proposed Treatment BMPs

Under the Caltrans MS4 permit, Caltrans is required to implement post-construction treatment control BMPs for projects that create one acre or more of new impervious surface. The estimated added and reworked impervious areas within the Project limits are shown in Table 1 and Table 2.

High groundwater may affect the choice of treatment BMPs. Consistent with Caltrans' MS4 permit, treatment control BMPs constructed for Caltrans projects would be designed according to the following priorities (in order of preference):

a) Infiltrate, harvest and re-use, and/or evapotranspire the stormwater runoff;
b) Capture and treat the stormwater runoff.

Because the site soil is HSG C, infiltration devices would likely not be feasible, but this will be verified when more information becomes available during the PS&E phase.

Caltrans has an approved list of treatment BMPs that have been studied and verified to remove targeted design constituents and provide general pollutant removal. The stormwater treatment facilities for both build alternatives may include any of the following:

- Biofiltration swales/strips
- Dry weather flow diversion
- Infiltration devices
- Detention devices
- Gross solids removal devices
- Media filters
- Multi-chambered treatment train
- Wet basin

Due to potential shallow groundwater and soil type, biofiltration swales are anticipated to be the preferred BMP. Because the water will likely not infiltrate completely, an underdrain will likely be needed for conveyance. Any underdrains or infiltration trenches would need to be lined with an impermeable layer to prevent comingling of groundwater with runoff. The area is largely flat, and exposed soil would be hydroseeded. Treatment BMPs will be further evaluated in the PS&E phase when further hydrologic and geologic field work is conducted.

The Project is in a high trash-generating area, and additional trash production and release is a concern. Appropriate trash capture BMPs will be evaluated in the PS&E phase.

5.2.2 Project Operation and Maintenance

Maintenance of facilities would be provided by Caltrans, unless a maintenance agreement is established. Maintenance of facilities and agreements would be further investigated during the design phase of the Project. The Maintenance Unit field representatives have unique insight into local problems and maintenance and safety concerns. Maintenance coordination for Project-related issues includes:

- Drainage patterns (particularly known areas of flooding, debris, etc.)
- Possible material borrow or spoil sites
- Concerns of the local residents
- Existing and potential erosion problems
- Facilities within the right-of-way that would affect alternative designs
- Whether facilities are safe to maintain
- Known environmentally sensitive areas

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Appendix A Excerpts from the *Water Quality Control Plan for the San Francisco Bay Region (Basin Plan)*

Appendix A.1 Water Quality Objectives for Surface Water and Groundwater

CHAPTER 3: WATER QUALITY OBJECTIVES

The overall goals of water quality regulation are to protect and maintain thriving aquatic ecosystems and the resources those systems provide to society and to accomplish these in an economically and socially sound manner. California's regulatory framework uses water quality objectives both to define appropriate levels of environmental quality and to control activities that can adversely affect aquatic systems.

3.1 WATER QUALITY OBJECTIVES

There are two types of objectives: narrative and numerical. Narrative objectives present general descriptions of water quality that must be attained through pollutant control measures and watershed management. They also serve as the basis for the development of detailed numerical objectives.

Historically, numerical objectives were developed primarily to limit the adverse effect of pollutants in the water column. Two decades of regulatory experience and extensive research in environmental science have demonstrated that beneficial uses are not fully protected unless pollutant levels in all parts of the aquatic system are also monitored and controlled. The Regional Board is actively working towards an integrated set of objectives, including numerical sediment objectives, that will ensure the protection of all current and potential beneficial uses.

Numerical objectives typically describe pollutant concentrations, physical/chemical conditions of the water itself, and the toxicity of the water to aquatic organisms. These objectives are designed to represent the maximum amount of pollutants that can remain in the water column without causing any adverse effect on organisms using the aquatic system as habitat, on people consuming those organisms or water, and on other current or potential beneficial uses (as described in Chapter 2).

The technical bases of the region's water quality objectives include extensive biological, chemical, and physical partitioning information reported in the scientific literature, national water quality criteria, studies conducted by other agencies, and information gained from local environmental and discharge monitoring (as described in Chapter 6). The Regional Board recognizes that limited information exists in some cases, making it difficult to establish definitive numerical objectives, but the Regional Board believes its conservative approach to setting objectives has been proper. In addition to the technical review, the overall feasibility of reaching objectives in terms of technological, institutional, economic, and administrative factors is considered at many different stages of objective derivation and implementation of the water quality control plan.

Together, the narrative and numerical objectives define the level of water quality that shall be maintained within the region. In instances where water quality is better than that prescribed by the objectives, the state Antidegradation Policy applies (State Board Resolution 68-16: Statement of Policy With Respect to Maintaining High Quality of Waters in California). This policy is aimed at protecting relatively uncontaminated aquatic systems where they exist and preventing further degradation. The state's Antidegradation Policy is consistent with the federal Antidegradation Policy, as interpreted by the State Water Resources Control Board in State Board Order No. 86-17.

When uncontrollable water quality factors result in the degradation of water quality beyond the levels or limits established herein as water quality objectives, the Regional Board will conduct a case-by-case analysis of the benefits and costs of preventing further degradation. In cases where this analysis indicates that beneficial uses will be adversely impacted by allowing further degradation, then the Regional Board will not allow controllable water quality factors to cause any further degradation of water quality. Controllable water quality factors are those actions, conditions, or circumstances resulting from human activities that may influence the quality of the waters of the state and that may be reasonably controlled.

The Regional Board establishes and enforces waste discharge requirements for point and nonpoint source of pollutants at levels necessary to meet numerical and narrative water quality objectives. In setting waste discharge requirements, the Regional Board will consider, among other things, the potential impact on beneficial uses within the area of influence of the discharge, the existing quality of receiving waters, and the appropriate water quality objectives.

In general, the objectives are intended to govern the concentration of pollutant constituents in the main water mass. The same objectives cannot be applied at or immediately adjacent to submerged effluent discharge structures. Zones of initial dilution within which higher concentrations can be tolerated will be allowed for such discharges.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from submerged outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum-induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

Compliance with water quality objectives may be prohibitively expensive or technically impossible in some cases. The Regional Board will consider modification of specific water quality objectives as long as the discharger can demonstrate that the alternate objective will protect existing beneficial uses, is scientifically defensible, and is consistent with the state Antidegradation Policy. This exception clause properly indicates that the Regional Board will conservatively compare benefits and costs in these cases because of the difficulty in quantifying beneficial uses.

These water quality objectives are considered necessary to protect the present and potential beneficial uses described in Chapter 2 of this Plan and to protect existing high quality waters of the state. These objectives will be achieved primarily through establishing and enforcing waste discharge requirements and by implementing this water quality control plan.

3.2 OBJECTIVES FOR OCEAN WATERS

The provisions of the State Board's "Water Quality Control Plan for Ocean Waters of California" (Ocean Plan) and "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California" (Thermal Plan) and any revision to them will apply to ocean waters. These plans describe objectives and effluent limitations for ocean waters.

3.3 OBJECTIVES FOR SURFACE WATERS

The following objectives apply to all surface waters within the region, except the Pacific Ocean.

3.3.1 BACTERIA

Table 3-1 provides a summary of the bacterial water quality objectives and identifies the sources of those objectives. Table 3-2 summarizes U.S. EPA's water quality criteria for water contact recreation based on the frequency of use a particular area receives. These criteria will be used to differentiate between pollution sources or to supplement objectives for water contact recreation.

3.3.3.1 Implementation Provisions for Water Contact Recreation Bacteria Objectives

Water quality objectives for bacteria in Table 3-1 shall be strictly applied except when otherwise provided for in a TMDL. In the context of a TMDL, the Water Board may implement the objectives in fresh and marine waters by using a "reference system and antidegradation approach" as discussed below. Implementation of water quality objectives for bacteria using a "reference system and antidegradation approach" requires control of bacteria from all anthropogenic sources so that bacteriological water quality is consistent with that of a reference system. A reference system is defined as an area (e.g., a subwatershed or catchment) and associated monitoring point(s) that is minimally impacted by human activities that potentially affect bacteria densities in the reference receiving water body.

This approach recognizes that there are natural sources of bacteria (defined as non-anthropogenic sources) that may cause or contribute to exceedances of the objectives for indicator bacteria. It also avoids requiring treatment or diversion of water bodies or treatment of natural sources of bacteria from undeveloped areas. Such requirements, if imposed by the Water Board, could have the potential to adversely affect valuable aquatic life and wildlife beneficial uses supported by water bodies in the region.

Under the reference system approach, a certain frequency of exceedance of the single-sample objectives shall be permitted. The permitted number of exceedances shall be based on the observed exceedance frequency in a selected reference system(s) or the targeted water body, whichever is less. The "reference system and antidegradation approach" ensures that bacteriological water quality is at least as good as that of a reference system and that no degradation of existing bacteriological water quality is permitted where existing bacteriological water quality is better than that of the selected reference system(s).

The appropriateness of this approach, the specific exceedance frequencies to be permitted under it, and the permittees to whom it would apply will be evaluated within the context of TMDL development for a specific water body, and decided by the Water Board when considering

adoption of a TMDL. These implementation provisions may only be used within the context of a TMDL addressing municipal stormwater (including discharges regulated under statewide municipal NPDES waste discharge requirements), discharges from confined animal facilities, and discharges from nonpoint sources.

3.3.2 BIOACCUMULATION

Many pollutants can accumulate on particles, in sediment, or bioaccumulate in fish and other aquatic organisms. Controllable water quality factors shall not cause a detrimental increase in concentrations of toxic substances found in bottom sediments or aquatic life. Effects on aquatic organisms, wildlife, and human health will be considered.

3.3.3 BIOSTIMULATORY SUBSTANCES

Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses. Changes in chlorophyll a and associated phytoplankton communities follow complex dynamics that are sometimes associated with a discharge of biostimulatory substances. Irregular and extreme levels of chlorophyll a or phytoplankton blooms may indicate exceedance of this objective and require investigation.

3.3.4 COLOR

Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.

3.3.5 DISSOLVED OXYGEN

For all tidal waters, the following objectives shall apply:

In the Bay:

Downstream of Carquinez Bridge	5.0 mg/l minimum
Upstream of Carquinez Bridge	7.0 mg/l minimum

For nontidal waters, the following objectives shall apply:

Waters designated as:

Cold water habitat	7.0 mg/l minimum
Warm water habitat	5.0 mg/l minimum

The median dissolved oxygen concentration for any three consecutive months shall not be less than 80 percent of the dissolved oxygen content at saturation.

Dissolved oxygen is a general index of the state of the health of receiving waters. Although minimum concentrations of 5 mg/l and 7 mg/l are frequently used as objectives to protect fish life,

higher concentrations are generally desirable to protect sensitive aquatic forms. In areas unaffected by waste discharges, a level of about 85 percent of oxygen saturation exists. A three-month median objective of 80 percent of oxygen saturation allows for some degradation from this level, but still requires a consistently high oxygen content in the receiving water.

3.3.6 FLOATING MATERIAL

Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

3.3.7 OIL AND GREASE

Waters shall not contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

3.3.8 POPULATION AND COMMUNITY ECOLOGY

All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce significant alterations in population or community ecology or receiving water biota. In addition, the health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.

3.3.9 pH

The pH shall not be depressed below 6.5 nor raised above 8.5. This encompasses the pH range usually found in waters within the basin. Controllable water quality factors shall not cause changes greater than 0.5 units in normal ambient pH levels.

3.3.10 RADIOACTIVITY

Radionuclides shall not be present in concentrations that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of the limits specified in Table 4 of Section 64443 (Radioactivity) of Title 22 of the California Code of Regulations (CCR), which is incorporated by reference into this Plan. This incorporation is prospective, including future changes to the incorporated provisions as the changes take effect (see Table 3-5).

3.3.11 SALINITY

Controllable water quality factors shall not increase the total dissolved solids or salinity of waters of the state so as to adversely affect beneficial uses, particularly fish migration and estuarine habitat.

3.3.12 SEDIMENT

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Controllable water quality factors shall not cause a detrimental increase in the concentrations of toxic pollutants in sediments or aquatic life.

3.3.13 SETTLEABLE MATERIAL

Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses.

3.3.14 SUSPENDED MATERIAL

Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

3.3.15 SULFIDE

All water shall be free from dissolved sulfide concentrations above natural background levels. Sulfide occurs in Bay muds as a result of bacterial action on organic matter in an anaerobic environment.

Concentrations of only a few hundredths of a milligram per liter can cause a noticeable odor or be toxic to aquatic life. Violation of the sulfide objective will reflect violation of dissolved oxygen objectives as sulfides cannot exist to a significant degree in an oxygenated environment.

3.3.16 TASTES AND ODORS

Waters shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

3.3.17 TEMPERATURE

Temperature objectives for enclosed bays and estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California," including any revisions to the plan.

In addition, the following temperature objectives apply to surface waters:

- The natural receiving water temperature of inland surface waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Board that such alteration in temperature does not adversely affect beneficial uses.
- The temperature of any cold or warm freshwater habitat shall not be increased by more than 5°F (2.8°C) above natural receiving water temperature

3.3.18 TOXICITY

All waters shall be maintained free of toxic substances in concentrations that are lethal to or that produce other detrimental responses in aquatic organisms. Detrimental responses include, but are not limited to, decreased growth rate and decreased reproductive success of resident or indicator species. There shall be no acute toxicity in ambient waters. Acute toxicity is defined as a median of less than 90 percent survival, or less than 70 percent survival, 10 percent of the time, of test organisms in a 96-hour static or continuous flow test.

There shall be no chronic toxicity in ambient waters. Chronic toxicity is a detrimental biological effect on growth rate, reproduction, fertilization success, larval development, population abundance, community composition, or any other relevant measure of the health of an organism, population, or community.

Attainment of this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, or toxicity tests (including those described in Chapter 4), or other methods selected by the Water Board. The Water Board will also consider other relevant information and numeric criteria and guidelines for toxic substances developed by other agencies as appropriate.

The health and life history characteristics of aquatic organisms in waters affected by controllable water quality factors shall not differ significantly from those for the same waters in areas unaffected by controllable water quality factors.

3.3.19 TURBIDITY

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases from normal background light penetration or turbidity relatable to waste discharge shall not be greater than 10 percent in areas where natural turbidity is greater than 50 NTU.

3.3.20 UN-IONIZED AMMONIA

The discharge of wastes shall not cause receiving waters to contain concentrations of un-ionized ammonia in excess of the following limits (in mg/l as N):

Annual Median	0.025
Maximum, Central Bay (as depicted in Figure 2-5) and upstream	0.16
Maximum, Lower Bay (as depicted in Figures 2-6 and 2-7):	0.4

The intent of this objective is to protect against the chronic toxic effects of ammonia in the receiving waters. An ammonia objective is needed for the following reasons:

- Ammonia (specifically un-ionized ammonia) is a demonstrated toxicant. Ammonia is generally accepted as one of the principle toxicants in municipal waste discharges. Some industries also discharge significant quantities of ammonia.

- Exceptions to the effluent toxicity limitations in Chapter 4 of the Plan allow for the discharge of ammonia in toxic amounts. In most instances, ammonia will be diluted or degraded to a nontoxic state fairly rapidly. However, this does not occur in all cases, the South Bay being a notable example. The ammonia limit is recommended in order to preclude any build up of ammonia in the receiving water.
- A more stringent maximum objective is desirable for the northern reach of the Bay for the protection of the migratory corridor running through Central Bay, San Pablo Bay, and upstream reaches.

3.3.21 OBJECTIVES FOR SPECIFIC CHEMICAL CONSTITUENTS

Surface waters shall not contain concentrations of chemical constituents in amounts that adversely affect any designated beneficial use. Water quality objectives for selected toxic pollutants for surface waters are given in Tables 3-3, 3-3A, 3-3B, 3-3C, 3-4 and 3-4A.

The Water Board intends to work towards the derivation of site-specific objectives for the Bay-Delta estuarine system. Site-specific objectives to be considered by the Water Board shall be developed in accordance with the provisions of the federal Clean Water Act, the State Water Code, State Board water quality control plans, and this Plan. These site-specific objectives will take into consideration factors such as all available scientific information and monitoring data and the latest U.S. EPA guidance, and local environmental conditions and impacts caused by bioaccumulation. The objectives in Tables 3-3 and 3-4 apply throughout the region except as otherwise indicated in the tables or when site-specific objectives for the pollutant parameter have been adopted. Site-specific objectives have been adopted for copper in segments of San Francisco Bay (see Figure 7.2-1-01), for nickel in South San Francisco Bay (Table 3-3A), and for cyanide in all San Francisco Bay segments (Table 3-3C). Objectives for mercury that apply to San Francisco Bay are listed in Table 3-3B. Objectives for mercury that apply to Walker Creek, Soulajule Reservoir, and their tributaries, and to waters of the Guadalupe River watershed are listed in Table 3-4A.

South San Francisco Bay south of the Dumbarton Bridge is a unique, water-quality-limited, hydrodynamic and biological environment that merits continued special attention by the Water Board. Controlling urban and upland runoff sources is critical to the success of maintaining water quality in this portion of the Bay. Site-specific water quality objectives have been adopted for dissolved copper and nickel in this Bay segment. Site-specific objectives may be appropriate for other pollutants of concern, but this determination will be made on a case-by-case basis, and after it has been demonstrated that all other reasonable treatment, source control and pollution prevention measures have been exhausted. The Water Board will determine whether revised water quality objectives and/or effluent limitations are appropriate based on sound technical information and scientific studies, stakeholder input, and the need for flexibility to address priority problems in the watershed.

3.3.22 CONSTITUENTS OF CONCERN FOR MUNICIPAL AND AGRICULTURAL WATER SUPPLIES

At a minimum, surface waters designated for use as domestic or municipal supply (MUN) shall not contain concentrations of constituents in excess of the maximum (MCLs) or secondary maximum contaminant levels (SMCLs) specified in the following provisions of Title 22, which are incorporated by reference into this plan: Table 64431-A (Inorganic Chemicals) of Section 64431,

and Table 64433.2-A (Fluoride) of Section 64433.2, Table 64444-A (Organic Chemicals) of Section 64444, and Table 64449-A (SMCLs-Consumer Acceptance Limits) and 64449-B (SMCLs-Ranges) of Section 64449. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. Table 3-5 contains water quality objectives for municipal supply, including the MCLs contained in various sections of Title 22 as of the adoption of this plan.

At a minimum, surface waters designated for use as agricultural supply (AGR) shall not contain concentrations of constituents in excess of the levels specified in Table 3-6.

3.4 OBJECTIVES FOR GROUNDWATER

Groundwater objectives consist primarily of narrative objectives combined with a limited number of numerical objectives. Additionally, the Water Board will establish basin- and/or site-specific numerical groundwater objectives as necessary. For example, the Water Board has groundwater basin-specific objectives for the Alameda Creek watershed above Niles to include the Livermore-Amador Valley as shown in Table 3-7.

The maintenance of existing high quality of groundwater (i.e., "background") is the primary groundwater objective.

In addition, at a minimum, groundwater shall not contain concentrations of bacteria, chemical constituents, radioactivity, or substances producing taste and odor in excess of the objectives described below unless naturally occurring background concentrations are greater. Under existing law, the Water Board regulates waste discharges to land that could affect water quality, including both groundwater and surface water quality. Waste discharges that reach groundwater are regulated to protect both groundwater and any surface water in continuity with groundwater. Waste discharges that affect groundwater that is in continuity with surface water cannot cause violations of any applicable surface water standards.

3.4.1 BACTERIA

In groundwater with a beneficial use of municipal and domestic supply, the median of the most probable number of coliform organisms over any seven-day period shall be less than 1.1 most probable number per 100 milliliters (MPN/100 mL) (based on multiple tube fermentation technique; equivalent test results based on other analytical techniques as specified in the National Primary Drinking Water Regulation, 40 CFR, Part 141.21 (f), revised June 10, 1992, are acceptable).

3.4.2 ORGANIC AND INORGANIC CHEMICAL CONSTITUENTS

All groundwater shall be maintained free of organic and inorganic chemical constituents in concentrations that adversely affect beneficial uses. To evaluate compliance with water quality objectives, the Water Board will consider all relevant and scientifically valid evidence, including relevant and scientifically valid numerical criteria and guidelines developed and/or published by other agencies and organizations (e.g., U.S. Environmental Protection Agency (U.S. EPA), the State Water Board, California Department of Health Services (DHS), U.S. Food and Drug

Administration, National Academy of Sciences, California Environmental Protection Agency's (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA), U.S. Agency for Toxic Substances and Disease Registry, Cal/EPA Department of Toxic Substances Control (DTSC), and other appropriate organizations.)

At a minimum, groundwater designated for use as domestic or municipal supply (MUN) shall not contain concentrations of constituents in excess of the maximum (MCLs) or secondary maximum contaminant levels (SMCLs) specified in the following provisions of Title 22, which are incorporated by reference into this plan: Tables 64431-A (Inorganic Chemicals) of Section 64431, Table 64433.2-A (Fluoride) of Section 64433.2, and Table 64444-A (Organic Chemicals) of Section 64444. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)

Groundwater with a beneficial use of agricultural supply shall not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. In determining compliance with this objective, the Water Board will consider as evidence relevant and scientifically valid water quality goals from sources such as the Food and Agricultural Organizations of the United Nations; University of California Cooperative Extension, Committee of Experts; and McKee and Wolf's "Water Quality Criteria," as well as other relevant and scientifically valid evidence. At a minimum, groundwater designated for use as agricultural supply (AGR) shall not contain concentrations of constituents in excess of the levels specified in Table 3-6.

Groundwater with a beneficial use of freshwater replenishment shall not contain concentrations of chemicals in amounts that will adversely affect the beneficial use of the receiving surface water.

Groundwater with a beneficial use of industrial service supply or industrial process supply shall not contain pollutant levels that impair current or potential industrial uses.

3.4.3 RADIOACTIVITY

At a minimum, groundwater designated for use as domestic or municipal supply (MUN) shall not contain concentrations of radionuclides in excess of the MCLs specified in Table 4 (Radioactivity) of Section 64443 of Title 22, which is incorporated by reference into this plan. This incorporation-by-reference is prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)

3.4.4 TASTE AND ODOR

Groundwater designated for use as domestic or municipal supply (MUN) shall not contain taste- or odor-producing substances in concentrations that cause a nuisance or adversely affect beneficial uses. At a minimum, groundwater designated for use as domestic or municipal supply shall not contain concentrations in excess of the SMCLs specified in Tables 64449-A (Secondary MCLs-Consumer Acceptance Limits) and 64449-B (Secondary MCLs-Ranges) of Section 64449 of Title 22, which is incorporated by reference into this plan. This incorporation-by-reference is

prospective, including future changes to the incorporated provisions as the changes take effect. (See Table 3-5.)

3.5 OBJECTIVES FOR THE DELTA

The objectives contained in the State Water Board's 1995 "Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary" and any revisions thereto shall apply to the waters of the Sacramento-San Joaquin Delta and adjacent waters as specified in that plan.

3.6 OBJECTIVES FOR ALAMEDA CREEK WATERSHED

The water quality objectives contained in Table 3-7 apply to the surface and groundwaters of the Alameda Creek watershed above Niles.

Wastewater discharges that cause the surface water limits in Table 3-7 to be exceeded may be allowed if they are part of an overall wastewater resource operational program developed by those agencies affected and approved by the Water Board.

TABLES

Appendix A.2 Water Quality Objectives for Municipal Supply and Agricultural Uses

Table 3-5: Water Quality Objectives for Municipal Supply

Parameter	Objective (in MG/L)
Physical:	
Color (units)[a]	15.0
Odor (number)[a]	3.0
Turbidity (NTU)[a]	5.0
pH[b]	6.0 - 8.5
TDS[c]	500.0
EC (mmhos/cm)[c]	900
Corrosivity	non-corrosive
Inorganic Parameters:	
Aluminum[d]	1.0[d] / 0.2[a]
Antimony[d]	0.006
Arsenic[d]	0.05
Asbestos[d]	7 MFL[e]
Barium[d]	1.0
Beryllium[d]	0.004
Chloride[c]	250.0
Cadmium[d]	0.005
Chromium[d]	0.05
Copper[a]	1.0
Cyanide[d]	0.15
Fluoride[f]	0.6 - 1.7[g]
Iron[a]	0.3
Lead[b]	0.05
Manganese[a]	0.05
Mercury[d]	0.002
Nickel[d]	0.1
Nitrate (as NO_3)[d]	45.0
Nitrate + Nitrite (as N)[d]	10.0
Nitrite (as N)[d]	1.0
Selenium[d]	0.05
Silver[b]	0.1
Sulfate[c]	250.0
Thallium[d]	0.002
Zinc[a]	5.0
Organic Parameters:	
MBAS (Foaming agents)[a]	0.5
Oil and grease[b]	none
Phenols[b]	0.001
Trihalomethanes[b]	0.1
Chlorinated Hydrocarbons:	
Endrin[h]	0.002
Lindane[h]	0.0002
Methoxychlor[h]	0.03
Toxaphene[h]	0.003
2,3,7,8-TCDD (Dioxin)[h]	3×10^{-8}
2,4-D[h]	0.07
2,4,4-TP Silvex[h]	0.05

Parameter	Objective (in MG/L)
Synthetic Organic Chemicals:	
Alachor[h]	0.002
Atrazine[h]	0.001
Bentazon[h]	0.018
Benzo(a)pyrene[h]	0.0002
Dalapon[h]	0.2
Dinoseb[h]	0.007
Diquat[h]	0.02
Endothall[h]	0.1
Ethylene dibromide[h]	0.00005
Glyphosate[h]	0.7
Heptachlor[h]	0.00001
Heptachlor epoxide[h]	0.00001
Hexachlorecyclopentadiene[h]	0.001
Molinate[h]	0.02
Oxarnyl[h]	0.05
Pentachlorophenol[h]	0.001
Picloram[h]	0.5
Polychlorinated Biphenyls[h]	0.0005
Simazine[h]	0.004
Thiobencarb[h]	0.07 / 0.001
Volatile Organic Chemicals:	
Benzene[h]	0.001
Carbon Tetrachloride[h]	0.005
1,2-Dibromo-3-chloropropane[h]	0.0002
1,2-Dichlorobenzene[h]	0.6
1,4-Dichlorobenzene[h]	0.005
1,1-Dichloroethane[h]	0.005
1,2-Dichloroethane[h]	0.0005
cis-1,2-Dichloroethlyene[h]	0.006
trans-1,2-Dichloroethylene[h]	0.01
1,1-Dichloroethylene[h]	0.006
Dichloromethane[h]	0.005
1,2-Dichloropropane[h]	0.005
1,3-Dichloropropene[h]	0.0005
Ethylbenzene[h]	0.7
Methyl-tert-butyl ether[h]	0.013 / 0.005
Monochlorobenzene[h]	0.07
Styrene[h]	0.1
1,1,2,2-Tetrachloroethane[h]	0.001
Tetrachloroethylene[h]	0.005
1,2,4-Trichlorobenzene[h]	0.005
1,1,1-Trichloroethane	0.200
1,1,2-Trichloroethane[h]	0.005
Trichloroethylene[h]	0.005
Trichlorofluoromethane	0.15

Parameter	Objective (in MG/L)
Volatile Organic Chemicals (cont'd):	
1,1,2-Trichloro-1,2,2 trifluoromethane[h]	1.2
Toluene[h]	0.15
Vinyl Chloride[h]	0.0005
Xylenes (single or sum of isomers)[h]	1.750
Radioactivity:	
Combined Radium-226 and Radium-228[i]	5
Gross Alpha Particle Activity[i]	15
Tritium[i]	20,000
Strontium-90[i]	8
Gross Beta Particle Activity[i]	50
Uranium[i]	20

NOTES:

a. Secondary Maximum Contaminant Levels as specified in Table 64449- A of Section 64449, Title 22 of the California Code of Regulations, as June 3, 2005.

b. Table III-2, 1986 Basin Plan

c. Secondary Maximum Contaminant Levels as specified in Table 64449-B of Section 64449, Title 22 of the California Code of Regulations, as of June 3, 2005. (Levels indicated are "recommended" levels. Table 64449-B contains a complete list of upper and short-term ranges.)

d. Maximum Contaminant Levels as specified in Table 64431-A (Inorganic Chemicals) of Section 64431, Title 22 of the California Code of Regulations, as of June 3, 2005.

e. MFL = million fibers per liter; MCL for fibers exceeding 10 um in length.

f. Flouride objectives depend on temperature.

g. A complete list of optimum and limiting concentrations is specified in Table 64433.2-A of Section 64433.2, Title 22 of the California Code of Regulations, as of June 3, 2005.

h. Maximum Contaminant Levels as specified in Table 64444-A (Organic Chemicals) of Section 64444, Title 22 of the California Code of Regulations, as of June 3, 2005.

i. Maximum Contaminant Levels as specified in Table 4 (Radioactivity) of Section 64443, Title 22 of the California Code of Regulations, as of June 3, 2005.

j. Included Radium-226 but excludes Radon and Uranium.

MG/L Milligrams per liter
pCi/L pico Curries per liter

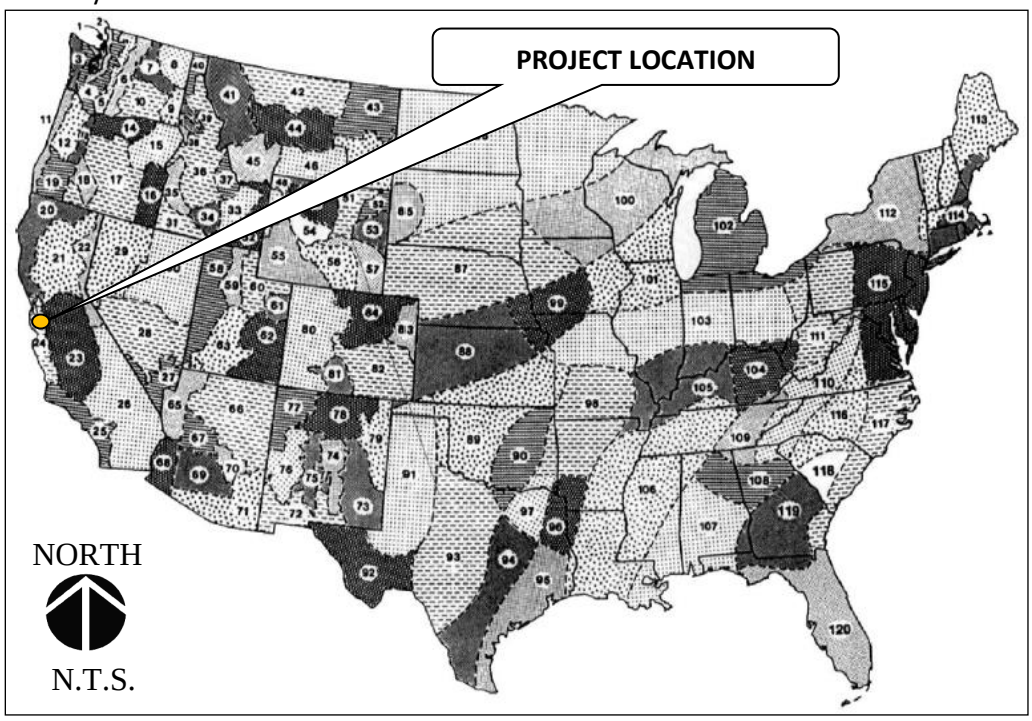
Table 3-6: Water Quality Objectives for Agricultural Supply[a] (in mg/l)

Parameter	Threshold	Limit	Limit for Livestock Watering
Physical:			
pH	5.5-8.3	4.5-9.0	
TDS			10,000.0
EC (mmhos / cm)		0.2-3.0	
Inorganic Parameters:			
Aluminum	5.0	20.0	5.0
Arsenic	0.1	2.0	0.2
Beryllium	0.1	0.5	
Boron	0.5	2.0	5.0
Chloride	142.0	355.0	
Cadmium	0.01	0.5	0.05
Chromium	0.1	1.0	1.0
Cobalt	0.05	5.0	1.0
Copper	0.2	5.0	0.5
Flouride	1.0	15.0	2.0
Iron	5.0	20.0	
Lead	5.0	10.0	0.1
Lithium		2.5[b]	
Manganese	0.2	10.0	
Molybdenum	0.01	0.05	0.5
Nickel	0.2	2.0	
$NO_3 + NO_2$ (as N)	5.0	30[c]	100.0
Selenium		0.02	0.05
Sodium adsorption ratio (adjusted)[d]	3.0	9.0	
Vanadium	0.1	1.0	0.1
Zinc	2.0	10.0	25

Appendix B Risk Level Determination Information

R Factor

Erosivity Index distribution zone = 24



Erosivity Index Zone Map

Source: EPA

N.T.

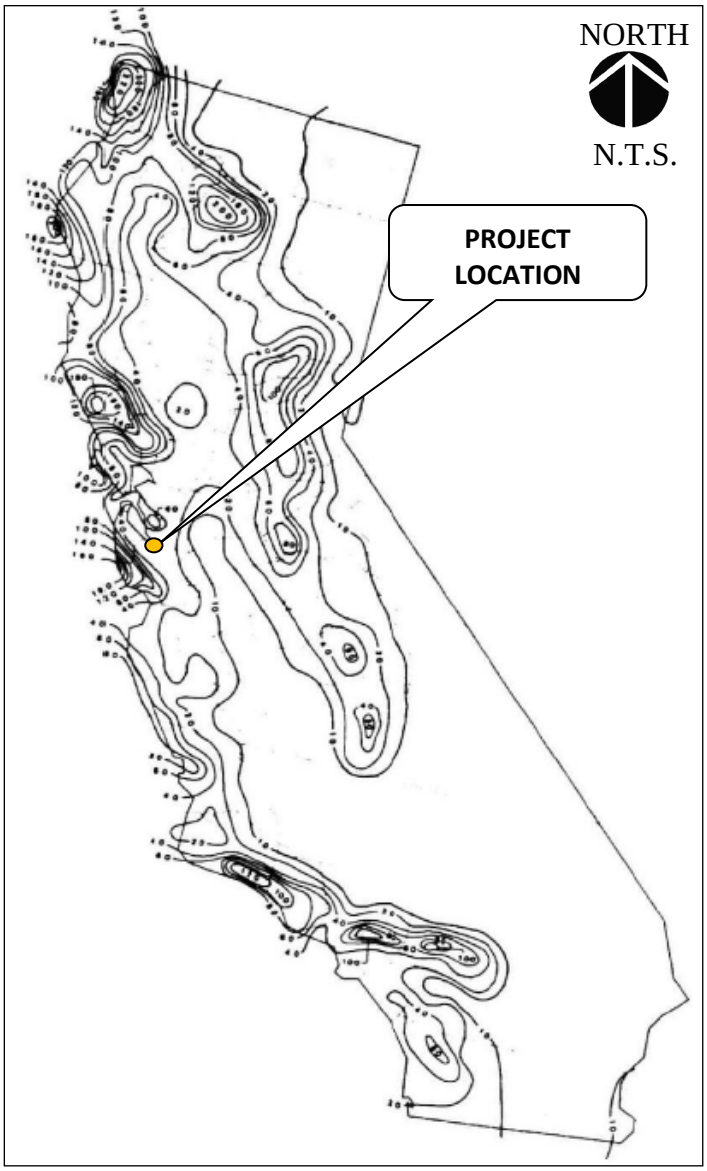
Table 1. Erosivity Index (%EI Values extracted from USDA Manual 703)

All values are at the end of the day listed below - Linear interpolation between dates is acceptable.
EI as a percentage of Average Annual R Value Computed for Geographic Areas Shown in Figure 1

Month	Jan	Jan	Jan	Feb	Mar	Mar	Mar	Apr	Apr	May	May	Jun	Jun	Jul	Jul	Aug	Aug	Sept	Sept	Oct	Oct	Nov	Nov	Dec	Dec
Day	1	16	31	15	1	16	31	15	30	15	30	14	29	14	29	13	28	12	27	12	27	11	26	11	31
EI Zone																									
1	0	4.3	8.3	12.8	17.3	21.6	25.1	28	30.9	34.9	39.1	42.6	45.4	48.2	50.8	53	56	60.8	66.8	71	75.7	82	89.1	95.2	100
2	0	4.3	8.3	12.8	17.3	21.6	25.1	28.0	30.9	34.9	39.1	42.6	45.4	48.2	50.8	53.0	56.0	60.8	66.8	71.0	75.7	82.0	89.1	95.2	100
3	0	7.4	13.8	20.9	26.5	31.8	35.3	38.5	40.2	41.6	42.5	43.6	44.5	45.1	45.7	46.4	47.7	49.4	52.8	57.0	64.5	73.1	83.3	92.3	100
4	0	3.9	7.9	12.6	17.4	21.6	25.2	28.7	31.9	35.1	38.2	42.0	44.9	46.7	48.2	50.1	53.1	56.6	62.2	67.9	75.2	83.5	90.5	96.0	100
5	0	2.3	3.6	4.7	6.0	7.7	10.7	13.9	17.8	21.2	24.5	28.1	31.1	33.1	35.3	38.2	43.2	48.7	57.3	67.8	77.9	86.0	91.3	96.9	100
6	0	0.0	0.0	0.5	2.0	4.1	8.1	12.6	17.6	21.6	25.5	29.6	34.5	40.0	45.7	50.7	55.6	60.2	66.5	75.5	85.6	95.9	99.5	99.9	100
7	0	0.0	0.0	0.0	0.0	1.2	4.9	8.5	13.9	19.0	26.0	35.4	43.9	48.8	53.9	64.5	73.4	77.5	80.4	84.8	89.9	96.6	99.2	99.7	100
8	0	0.0	0.0	0.0	0.0	0.9	3.6	7.8	15.0	20.2	27.4	38.1	49.8	57.9	65.0	75.6	82.7	86.8	89.4	93.4	96.3	99.1	100.0	100.0	100
9	0	0.8	3.1	4.7	7.4	11.7	17.8	22.5	27.0	31.4	36.0	41.6	46.4	50.1	53.4	57.4	61.7	64.9	69.7	79.0	89.6	97.4	100.0	100.0	100
10	0	0.3	0.5	0.9	2.0	4.3	9.2	13.1	18.0	22.7	29.2	39.5	46.3	48.8	51.1	57.2	64.4	67.7	71.1	77.2	85.1	92.5	96.5	99.0	100
11	0	5.4	11.3	18.8	26.3	33.2	37.4	40.7	42.5	44.3	45.4	46.5	47.1	47.4	47.8	48.3	49.4	50.7	53.6	57.5	65.5	76.2	87.4	94.8	100
12	0	3.5	7.8	14.0	21.1	27.4	31.5	35.0	37.3	39.8	41.9	44.3	45.6	46.3	46.8	47.9	50.0	52.9	57.9	62.3	69.3	81.3	91.5	96.7	100
13	0	0.0	0.0	1.8	7.2	11.9	16.7	19.7	24.0	31.2	42.4	55.0	60.0	60.8	61.2	62.6	65.3	67.6	71.6	76.1	83.1	93.3	98.2	99.6	100
14	0	0.7	1.8	3.3	6.9	16.5	26.6	29.9	32.0	35.4	40.2	45.1	51.9	61.1	67.5	70.7	72.8	75.4	78.6	81.9	86.4	93.6	97.7	99.3	100
15	0	0.0	0.0	0.5	2.0	4.4	8.7	12.0	16.6	21.4	29.7	44.5	56.0	60.8	63.9	69.1	74.5	79.1	83.1	87.0	90.9	96.6	99.1	99.8	100
16	0	0.0	0.0	0.5	2.0	5.5	12.3	16.2	20.9	26.4	35.2	48.1	58.1	63.1	66.5	71.9	77.0	81.6	85.1	88.4	91.5	96.3	98.7	99.6	100
17	0	0.0	0.0	0.7	2.8	6.1	10.7	12.9	16.1	21.9	32.8	45.9	55.5	60.3	64.0	71.2	77.2	80.3	83.1	87.7	92.6	97.2	99.1	99.8	100
18	0	0.0	0.0	0.6	2.5	6.2	12.4	16.4	20.2	23.9	29.3	37.7	45.6	49.8	53.3	58.4	64.3	69.0	75.0	86.6	93.9	96.6	98.0	100.0	100
19	0	1.0	2.6	7.4	16.4	23.5	28.0	31.0	33.5	37.0	41.7	48.1	51.1	52.0	52.5	53.6	55.7	57.6	61.1	65.8	74.7	88.0	95.8	98.7	100
20	0	9.8	18.5	25.4	30.2	35.6	38.9	41.5	42.9	44.0	45.2	48.2	50.8	51.7	52.5	54.6	57.4	58.5	60.1	63.2	69.6	76.7	85.4	92.4	100
21	0	7.5	13.6	18.1	21.1	24.4	27.0	29.4	31.7	34.6	37.3	39.6	41.6	43.4	45.4	48.1	51.3	53.3	56.6	62.4	72.4	81.3	88.9	94.7	100
22	0	1.2	1.6	1.6	1.6	1.6	1.6	2.2	3.9	4.6	6.4	14.2	32.8	47.2	58.8	69.1	76.0	82.0	87.1	96.7	99.9	99.9	99.9	99.9	100
23	0	7.9	15.0	20.9	25.7	31.1	35.7	40.2	43.2	46.2	47.7	48.8	49.4	49.9	50.7	51.8	54.1	57.7	62.8	65.9	70.1	77.3	86.8	93.5	100
24	0	12.2	23.6	33.0	39.7	47.1	51.7	55.9	57.7	58.6	58.9	59.1	59.1	59.2	59.2	59.3	59.5	60.0	61.4	63.0	66.5	71.8	81.3	89.6	100
25	0	9.8	20.8	30.2	37.6	45.8	50.6	54.4	56.0	56.8	57.1	57.1	57.2	57.6	58.5	59.8	62.2	65.3	67.5	68.2	69.4	74.8	86.6	93.0	100

Source: EPA

Project duration: May 5, 2018 to May 3, 2019
EI percentage from May 1 to December 31: 100% - 39.7% = 60.3%
EI percentage from January 1 to May 1: 39.7% - 0% = 39.7%
Total EI percentage for 1 year duration: 60.3% + 39.7% = 100%



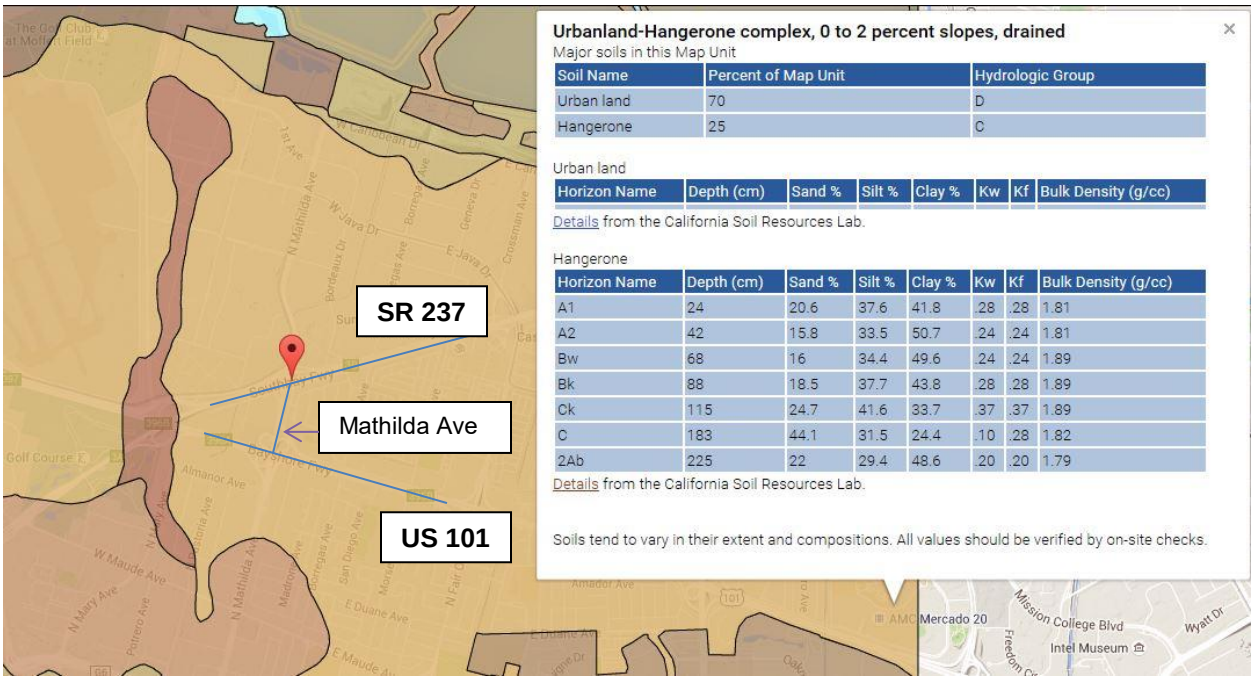
Isoerodent Map of California

Source: EPA

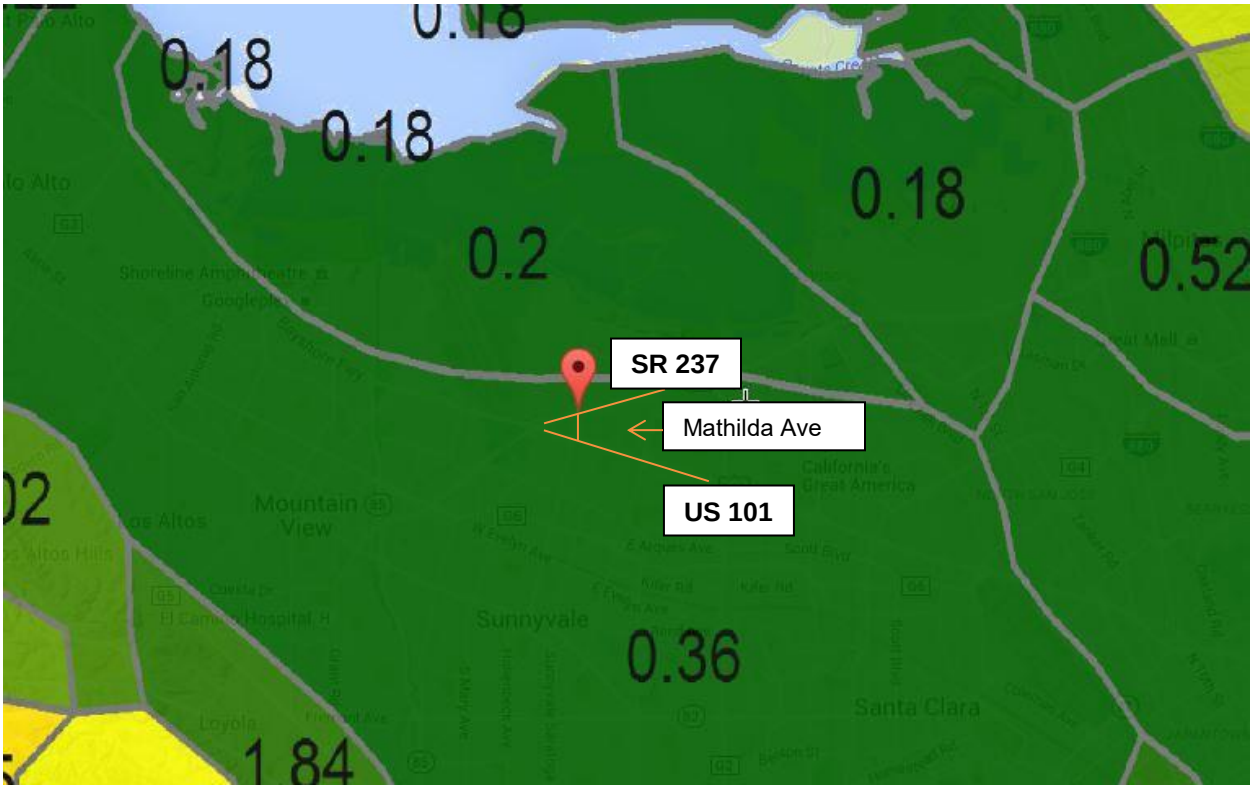
Annual Isoerodent = 35

R Factor for 1 year construction: 35 x 100% = 35

R Factor = 35



K Factor Source: Caltrans Water Quality Planning Tool



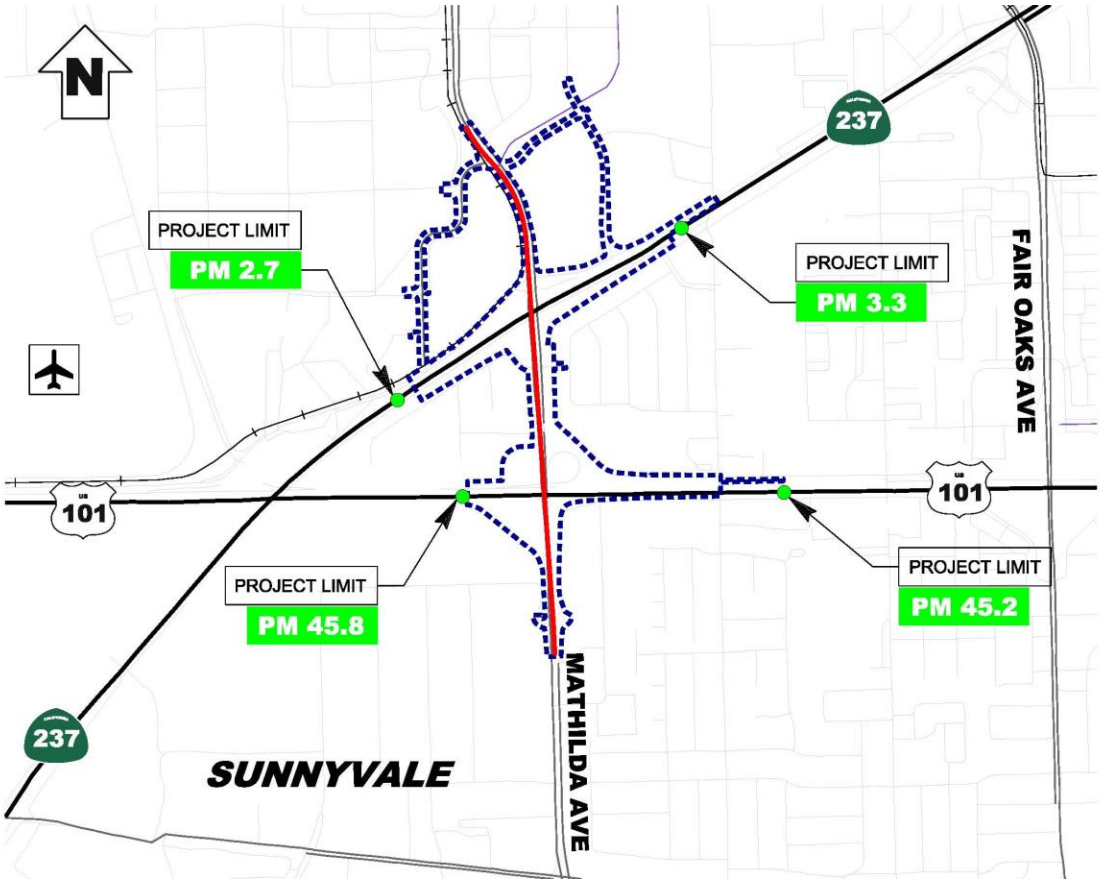
LS Factor Source: Caltrans Water Quality Planning Tool

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

WETLANDS ASSESSMENT

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT



Prepared for:

Santa Clara Valley Transportation Authority

California Department of Transportation
District 4

Prepared by:

ICF, International

Dated: December 2015

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WETLANDS ASSESSMENT

for the

MATHILDA AVENUE IMPROVEMENTS AT SR 237 AND US 101 PROJECT

on Mathilda Avenue from Almanor Avenue to Innovation Way; on SR 237 from 0.3 mile south of US 101/SR 237 Junction to 0.3 mile east of Mathilda Avenue Undercrossing; and on US 101 from 0.5 mile south of Mathilda Avenue to SR 237/US 101/SR 237 Junction in City of Sunnyvale, in Santa Clara County

SCL-237-PM 2.7/3.3; SCL-101-PM 45.2/45.8
EA 04-4H2900/Project ID 0413000204

December 2015

U.S. DEPARTMENT OF TRANSPORTATION
STATE OF CALIFORNIA

and

Cooperating Agency: Santa Clara Valley Transportation Authority

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Statement of Compliance: Produced in compliance with California Environmental Quality Act (CEQA) requirements, as appropriate, to meet the level of analysis and documentation that has been determined necessary for this project.

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Project Introduction and Purpose

The California Department of Transportation (Caltrans), in cooperation with the Santa Clara Valley Transportation Authority (VTA) and the City of Sunnyvale, is proposing the "Mathilda Avenue Improvements at SR 237 and US 101 Project" (Project) to improve Mathilda Avenue in the City of Sunnyvale from Almanor Avenue to Innovation Way, including on- and off-ramp improvements at SR 237/Mathilda Avenue and US 101/Mathilda Avenue interchanges. The primary purpose of the Project is to improve traffic operations on Mathilda Avenue through the US 101 and SR 237 interchanges. Figure 1 (Attachment A) shows the location of the Project. ICF International (ICF) conducted a delineation of waters of the United States within the Biological Study Area (BSA) of the Project in March and July 2015.

Site Description

The Project site is located within the City of Sunnyvale in Santa Clara County, California (Figure 1, Attachment A). It occurs in the Mountain View U.S. Geological Survey (USGS) 7.5-minute quadrangle. The BSA for the Project is based on the Project's limits (Figure 2, Attachment A). On SR 237, the Project limits are from 0.3-mile east of the US 101/SR 237 interchange (post mile [PM] 2.7) to 0.3-mile east of the Mathilda Avenue undercrossing (PM 3.3). On US 101, the Project limits are from 0.3-mile south of Mathilda Avenue overcrossing (PM 45.4) to 0.3-mile south of SR 237/US 101 interchange (PM 45.8). The total length of the Project on Mathilda Avenue is approximately one mile. The BSA includes a proposed road that would connect Mathilda Avenue to Bordeaux Drive; however, this road would be completed by the Moffett Place Project separate from the Mathilda Avenue Improvements at SR 237 and US 101 Project. The Mathilda Avenue Improvements at SR 237 and US 101 Project proposes to construct traffic signals and paint bicycle lanes on the road after it is constructed by the Moffett Place Project.

Elevations in the BSA range from approximately 15 feet in low-lying areas to 40 feet on raised highway ramps (Google Earth Pro 2015). Topography within the BSA is relatively flat with a gentle slope downwards from US 101 to SR 237. The BSA has an estimated mean annual temperature of 59 degrees Fahrenheit and an estimated mean annual precipitation of 15.71 inches (U.S. Department of Agriculture, Natural Resources Conservation Service 2015).

Vegetation

Land cover types within the BSA include developed areas (existing roadways, parking lots, etc.), ornamental landscaping, and ruderal ground cover. Typical ornamental landscaping species include purple lantana (*Lantana montevidensis*), pepper tree (*Schnius molle*), flowering cherry (*Prunus serrulata*), deodar cedar (*Cedrus deodara*), silver-dollar gum (*Eucalyptus polyanthemos*), southern magnolia (*Magnolia grandiflora*), white Lady Banks rose (*Rosa banksiae*), and olive (*Olea europaea*), to name a few. The ruderal ground cover consists predominantly of wild oat (*Avena* sp.), ripgut grass (*Bromus diandrus*), summer mustard (*Hirschfeldia incana*), Italian thistle (*Carduus pycnocephalus* subsp. *pycnocephalus*), bristly ox-tongue (*Helminthotheca echioides*), smilo grass (*Stipa miliaceae* var. *miliaceae*), and prickly lettuce (*Lactuca serriola*).

Soil

Soil at the Project site is composed of Urbanland-Hangerone complex with 0 to 2 percent slopes, drained (Figure 3, Attachment A). The Urbanland-Hangerone complex is listed as hydric by the U.S.

Department of Agriculture, Natural Resources Conservation Service (USDA NRCS 2014). The major soil types in this map unit are urban land (70%) and Hangerone (25%) with inclusions of Bayshore (2%), Clear Lake (2%), and Embarcadero (1%). The map unit aggregated data indicate that the soils typically occur on basin floors and are poorly drained (Natural Resources Conservation Service 2013).

Hydrology

Stormwater drainage ditches and the Sunnyvale West Channel occur within the BSA (Figure 4, Attachment A). The ditches drain stormwater runoff during rain events but flow does not persist after rain events. The Sunnyvale West Channel provides flood control protection and water flows through the channel to the San Francisco Bay via Guadalupe Slough (Figure 5, Attachment A). The Sunnyvale West Channel was constructed in the 1960s in response to flooding caused by a combination of major storm events, land subsidence, and inadequate drainage to the San Francisco Bay (Santa Clara Valley Water District 2015).

Methods

Prior to conducting fieldwork, ICF reviewed U.S. Fish and Wildlife Service's Wetlands Mapper (USFWS) (U.S. Fish and Wildlife Service 2015) and Google Earth aerial imagery (Google Earth Pro 2015) to identify areas with the potential to support waters of the United States, based on apparent signatures of hydrology, topography, and/or vegetation composition.

ICF wetland specialists conducted the delineation fieldwork on March 6 and July 29, 2015 within the BSA. Both site visits occurred on days with no precipitation. The delineation was conducted using the routine onsite determination method described in the *1987 U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the supplemental procedures and wetland indicators provided in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008a). Delineation data were collected to support a preliminary jurisdictional determination from U.S. Army Corps of Engineers (USACE).

Wetland boundaries were determined by establishing representative sampling points to evaluate the presence of positive indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The boundaries of nonwetland waters (other waters) in the BSA were identified by locating the ordinary high water mark (OHWM), which represents the lateral limit of USACE jurisdiction over non-tidal, non-wetland waters in the absence of adjacent wetlands (33 Code of Federal Regulations [CFR] 328.4[c]). The OHWM of intermittent streams was identified using the field indicators provided in 33 CFR 328.3(e) and 329.11(a)(1) and *A Field Guide to the Identification of the Ordinary High Water Mark in the Arid West Region of the Western United States* (U.S. Army Corps of Engineers 2008b). Historic and current Section 10 waters do not occur within the BSA and, therefore, were not evaluated during the delineation.

The base map used during fieldwork consisted of the BSA overlaid on 2012 aerial imagery obtained from Microsoft Bing Maps at a scale of 1″= 50'. The delineators used a resource-grade GPS (global positioning system) unit with sub-meter accuracy, supplemented with aerial photograph interpretation, to map sampling points, the boundaries of wetlands and other waters, and the

locations of representative photos in the BSA. All GPS data collected in the field were downloaded and differentially corrected using the nearest available base-station data to produce the delineation maps.

Results

The Sunnyvale West Channel occurs within the northwestern area of the BSA (Figure 4, Attachment A). The Sunnyvale West Channel is assumed to be subject to USACE jurisdiction under Section 404 of the Clean Water Act (CWA) and thus was identified by ICF as a water of the United States.

No other potential waters of the United States, including Section 404 wetlands and nonwetland waters or Section 10 waters, were observed within the BSA. Nonjurisdictional stormwater drainage ditches were noted along the eastern boundary of Mathilda Avenue and within the traffic circles (Photos 1-3, Attachment B).

Vegetation

Hydrophytic vegetation indicators (1-Dominance Test, 2-Prevalence Test, or 3-Morphological Adaptations) described in *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (U.S. Army Corps of Engineers 2008a) were not observed within the BSA.

Soil

Hydric soil indicators described in the *Regional Supplement* (U.S. Army Corps of Engineers 2008a) were not observed within the BSA.

Hydrology

Indicators of wetland hydrology described in the *Regional Supplement* (U.S. Army Corps of Engineers 2008a) were not observed within the BSA.

Discussion

The Sunnyvale West Channel is a concrete-lined, culverted channel that is assumed to be a jurisdictional feature due to its direct hydrologic connection to the San Francisco Bay (Figure 5, Attachment A).

The ditches observed within the BSA do not meet the technical criteria to qualify as waters of the United States based on the Clean Water Rule: Definition of "Waters of the United States"; Final Rule (USACE 2015, US EPA 2015). The ditches are excavated in dry land, and do not drain wetlands or relocate tributaries. The ditches drain stormwater runoff during rain events, but flow does not persist after rain events. Where there is vegetation associated with the ditches, instead of bare ground or gravel/cobble, the vegetation consists of ruderal or weedy species including wild oat, Italian thistle, and ripgut grass (Photos 1-3, Attachment B).

Conclusions

The Sunnyvale West Channel is assumed to be subject to USACE jurisdiction under CWA Section404. Other waters of the United States are not present in the BSA or Project site. A portion of the Sunnyvale West Channel occurs within the BSA (specifically at the proposed road connecting Mathilda Avenue and Bordeaux Drive); however, as mentioned above, this proposed connection would be constructed by the Moffett Place Project, not the Mathilda Avenue Improvements at SR 237 and US 101 Project. Because the Mathilda Avenue Improvements at SR 237 and US 101 Project will not affect the Sunnyvale West Channel, a Section 404 permit from the USACE should not be required to authorize Project construction.

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Attachment A

Figures

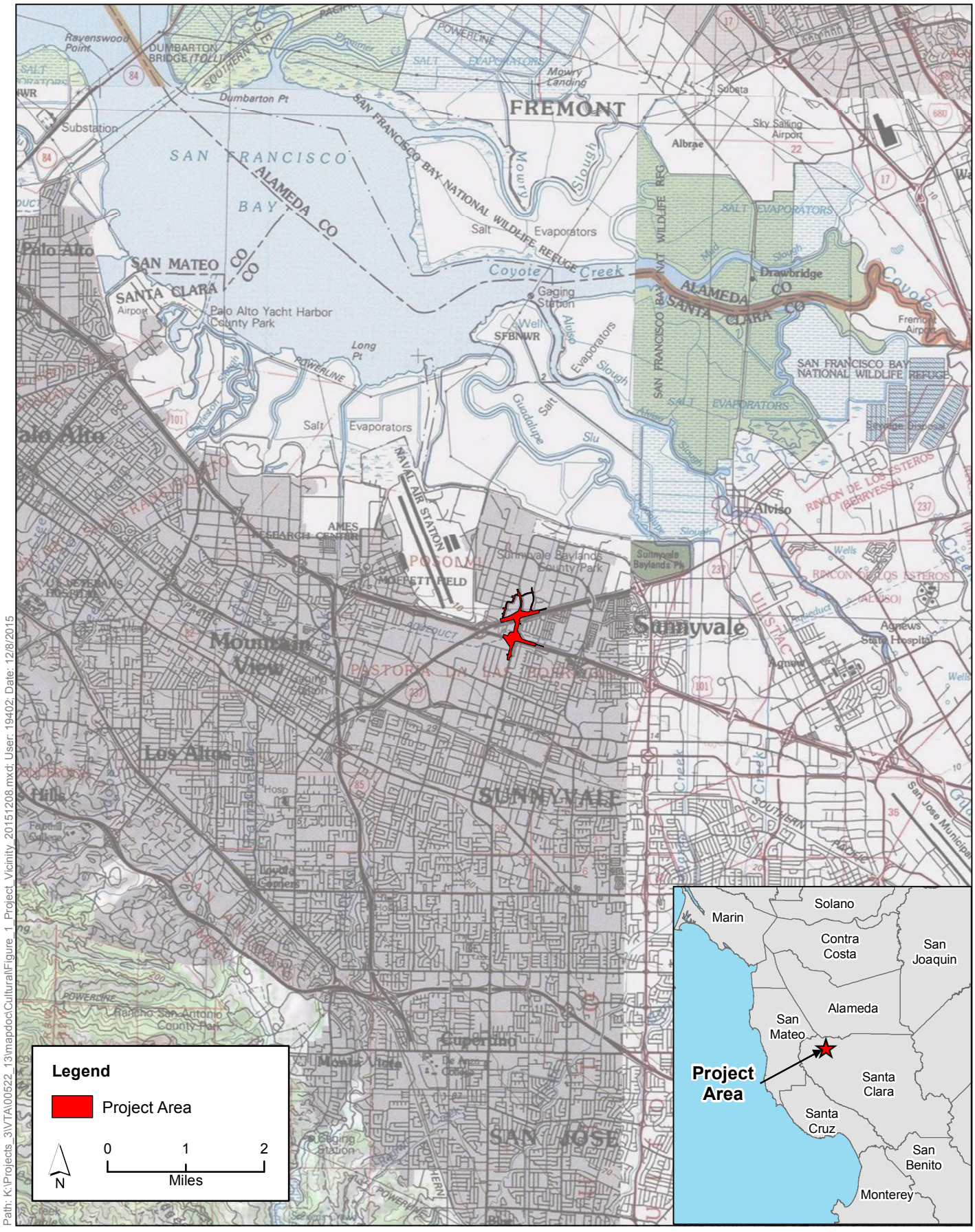

Figure 1
Project Vicinity
Mathilda Avenue Improvements at SR 237 and US 101

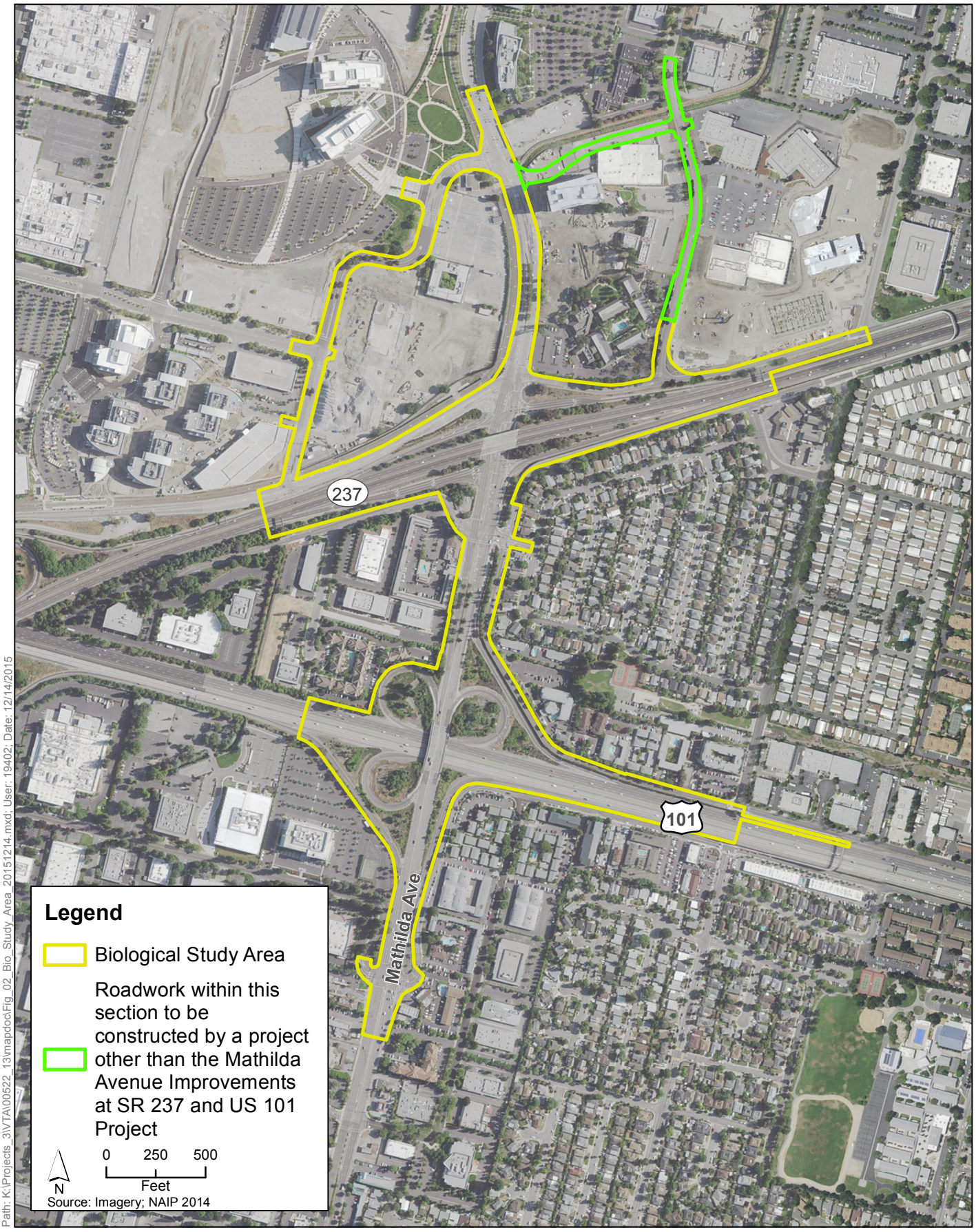

Figure 2
Biological Study Area
Mathilda Avenue Improvements at SR 237 and US 101 Project

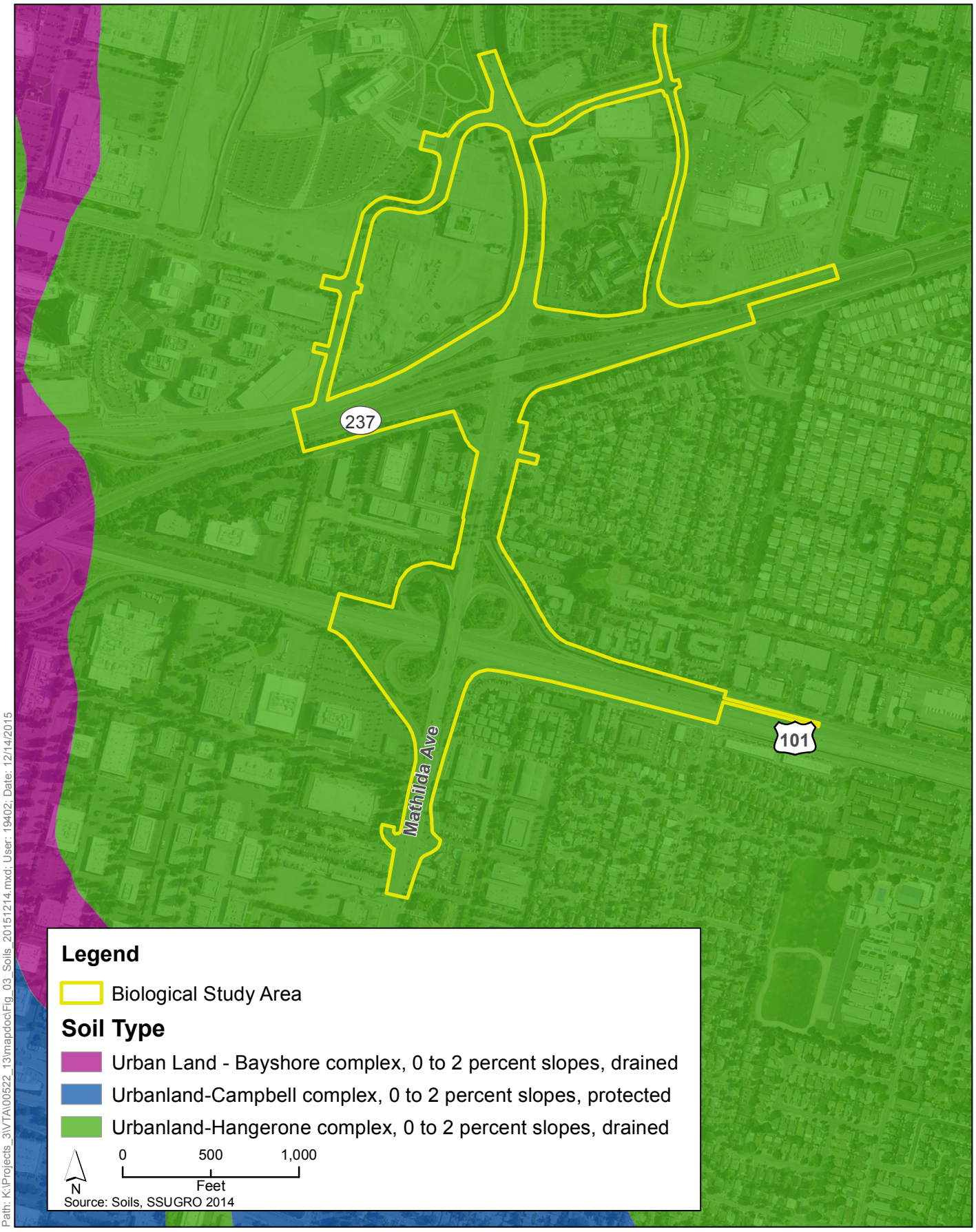

Figure 3
Soils
Mathilda Avenue Improvements at SR 237 and US 101 Project

Source: Imagery; NAIP 2014

Figure 4
Waters of the United States within the Biological Study Area
Mathilda Avenue Improvements at SR 237 and US 101 Project

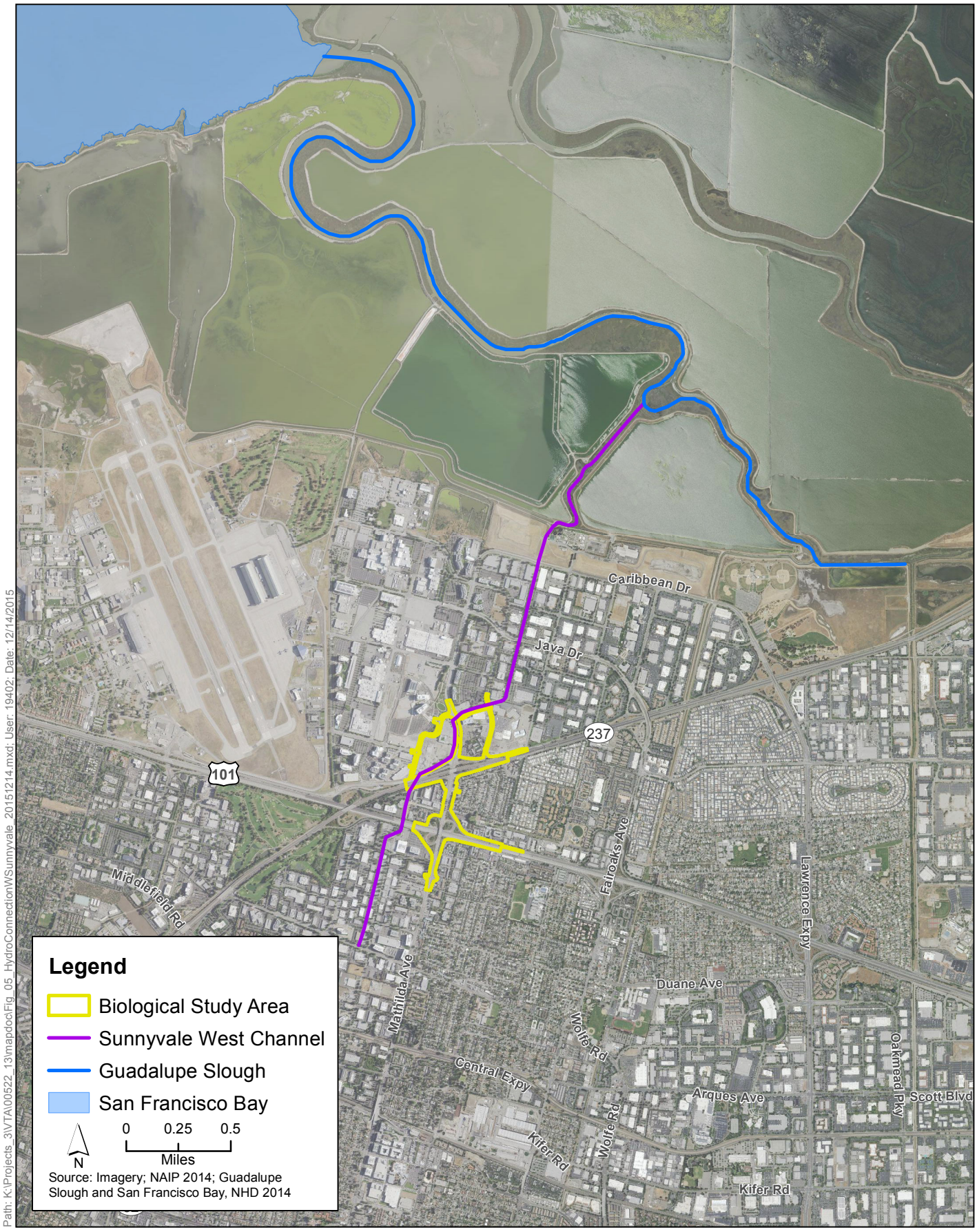

Figure 5
Hydrological Connection of Sunnyvale West Channel and the San Francisco Bay
Mathilda Avenue Improvements at SR 237 and US 101 Project

Attachment B

Photographs

Photo 1. Drainage parallel to Mathilda Avenue, facing south.

Photo 2. Drainage within the area immediately north of the Mathilda Avenue northbound to US 101 northbound interchange loop ramp, facing north.

Photo 3. Drainage within US 101 northbound to Mathilda Avenue southbound interchange loop ramp, facing southeast.