APPENDIX B

Opportunities and Constraints Report

VTA'S BART PHASE II TOD CORRIDOR STRATEGIES AND ACCESS PLANNING STUDY

OPPORTUNITIES & CONSTRAINTS REPORT

May 16, 2019

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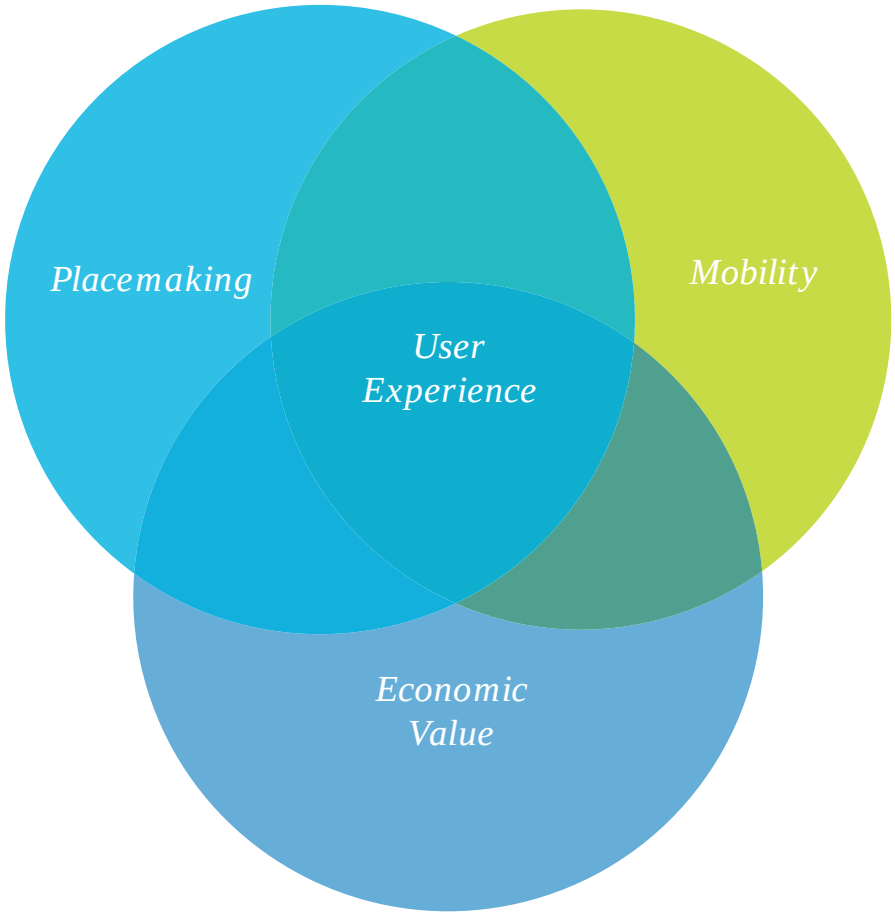
Background

The Santa Clara Valley Transportation Authority (VTA) is an independent district responsible for Santa Clara County countywide transportation planning and implementation, including bus and light rail operations, congestion management, and specific highway improvement projects. VTA is delivering a 16-mile extension to the Bay Area Rapid Transit (BART) system into Santa Clara County, known as VTA's BART Silicon Valley Extension Project.

Phase I of the extension adds two BART stations at Milpitas and Berryessa, which are under construction and undergoing track testing. Phase II will extend the BART system south and west from Berryessa/North San José Station for 6 miles below ground through San José and ending at-grade in Santa Clara adjacent to the Caltrain Station. The four Stations within the Phase II Extension are 28th Street, Downtown San José, Diridon*, and Santa Clara. Phase II is unique in that three of the four stations will be underground with station access in an area that has been urban for over a century. These new stations present a strategic opportunity to coordinate urban design along the BART Phase II corridor and to develop walkable station areas with extensive new Transit Oriented Development (TOD) and multi-modal accessibility.

VTA has initiated a corridor-wide study of strategies to maximize potential for TOD throughout the BART Phase II corridor and station areas, with the goal of maximizing ridership.



***A Note About Diridon**

Diridon Station is not within the scope of this study, as it is the subject of a separate planning effort between VTA, the City of San José, and other transportation agencies. Although Diridon is not part of this study, the relationship between Diridon and the other stations, and particularly the Downtown San José Station, is significant. This is because the TOD potential of all of the stations will depend to a large degree on future development at Diridon Station and what kinds of access benefits will accrue to the BART stations because of improvements at Diridon.

Diridon is the facility that will connect San José to the region and beyond via modes that are faster than BART. These faster longer-distance links will be important for heightening San José's position in the region and the state as an activity center. BART Phase II will provide finer-grained access to a series of station areas along the alignment.


Santa Clara Station
SANTA CLARA
Diridon Station
Downtown San José Station
SAN JOSÉ
28th Street Station

Study Overview and Schedule

This study lays the groundwork for sustainable development and redevelopment with three objectives:

- Increasing transit ridership
- Encouraging economic development
- Promoting a dynamic mixed-use, mixed income TOD environment at station areas

Subsequent phases of this study will identify and evaluate opportunities, formulate strategies (including funding) and provide a comprehensive road map and recommendations for TOD to benefit VTA, the cities of San José and Santa Clara, and local neighborhoods.

Stations included in this study are 28th Street, San José Downtown and Santa Clara.

Through a competitive procurement process, VTA selected the Perkins+Will (P+W) multi-disciplinary consultant team to prepare the TOD Access Strategy Study. The work includes:

1. Reviewing and analyzing various existing and pending visioning, planning and policy documents and describing existing 'background' conditions
2. Completing an opportunities and constraints analysis for the station areas and the corridor (this report)
3. Creating a consistent system-wide integrated approach to urban design that addresses the specific needs of individual station areas

This Opportunities and Constraints Report is the second phase of an approximately 17-month study. Major efforts of the project are as follows:

Task 1: January 2018 to May 2019
Project Initiation, coordination, community and stakeholder engagement

Task 2: January 2018 to May 2018
Background Conditions

Task 3: April 2018 to September 2018
TOD Corridor Opportunities and Constraints

Task 4: October 2018 to March 2019
TOD Schematics and Implementation Strategies

Task 5: April 2019 to May 2019
Final Report

Project team kick-off

Community Working Group meeting

Report Overview and Organization

OVERVIEW

This report constitutes Task 3 of VTA's BART Phase II TOD Corridors Strategies and Access Planning Study. Task 3 summarizes opportunities and constraints for TOD development throughout the corridor (including growth projections, TOD potential, TOD barriers, market and feasibility analysis, land use opportunities, fiscal impact analysis and funding and financing strategies) to identify beneficial opportunities and diminish obstacles for TOD. This report presents an analysis of opportunities and constraints broadly across the corridor and specifically within the station study areas.

As a next step, the TOD Corridor Strategy and Access Planning team will make specific recommendations, within the context of existing neighborhoods and districts, to the stakeholder agencies and jurisdictions.

ORGANIZATION

Section 1: Corridor Analysis
Section 1 analyzes how key aspects of each existing station's context may support or hinder the success of future TOD throughout the corridor.

Section 2: Market Analysis
Section 2 evaluates the market for office, multifamily housing, hotels, and retail uses in the station areas, and the potential impact of the new transit investment in catalyzing new development activity.

Section 3: Development Capacity Analysis
Section 3 discusses the process of categorizing opportunity sites and assigning building prototypes to determine initial development capacity.

Section 4: TOD Case Studies
Section 4 analyzes case studies as they relate to each station area and to the overall corridor.

Section 5: TDM and Ridership Potential
Section 5 identifies opportunities to tailor parking and TDM policies at each station to support active land uses and the transit stations. It also summarizes the potential for TOD in terms of daily weekday ridership generated from the three stations.

Section 6: Affordable Housing and Displacement Risk
Section 6 evaluates the opportunities and constraints for preserving existing affordable housing, producing new affordable housing, and protecting existing residents from displacement in the station areas.

Section 7: TOD Barriers
Section 7 identifies the barriers to TOD in terms of land use, market conditions, and affordable housing.

Appendix and Attachments
The appendix includes detailed prototypes. The attachments provide the full reports for the Market Study and Affordable Housing and Displacement Risk Assessment.

Executive Summary

SECTION 1: CORRIDOR ANALYSIS

This section analyzes how key aspects of each existing station's context may support or hinder the success of future TOD throughout the corridor.

Physical Opportunities and Constraints
The physical opportunities and constraints section finds that, when taken together, the stations in the Phase II corridor have the potential to maintain unique identities and amenities while simultaneously supporting a corridor-wide sense of place.

Santa Clara has a developing downtown, a strong institutional partner in Santa Clara University, and a unique historic character. Downtown San José has higher density developments, a thriving arts and culture scene, and food and beverage destinations. 28th Street has a strong connection to its cultural heritage and its community. Although the highways and natural features create barriers to access in some places, they also have an affect of defining the edges of the station areas and creating a sense of place. These aspects and the other opportunities discussed in this section should be leveraged in the future TOD.

There also exist unique constraints for each station area. Santa Clara has a low-density context, limited access, and significant height restrictions due to the nearby airport, making higher density development in this area a challenge. Downtown San José also has some height restrictions and, with the exception of the VTA block, a system of medium to small opportunity sites scattered throughout the station study area. 28th Street is impacted by the highway and creek that run along the edges of the station study area. Limited access to the station can impact the development of the opportunity sites.

Overall, the Phase II corridor stations have unique aspects that distinguish each station area. This is important for promoting distinct station area identities and should be leveraged in future TOD. Similarly, to overcome existing physical constraints, the stations should be considered as parts of a whole, building off their unique aspects in order to contribute to the placemaking, mobility, and user experience across the entire corridor.

Policy Opportunities and Constraints
This section provides a summary of opportunities and constraints to TOD posed by land use regulations and other policies in VTA's BART Phase II station areas.

At Santa Clara Station, the City of Santa Clara is planning for significant new development and public investment in and around the station area. However, the station area includes properties in both the Cities of Santa Clara and San José, and there is currently no framework for coordination between the two cities. Additionaly, there are several potential development opportunity sites in both cities that are zoned for industrial uses. The City of Santa Clara's review process creates uncertainty for new development and the community.

At Downtown San José Stations, several recent developments provide opportunities in the station areas.The City of San José has implemented several policies that have successfully encouraged high density development in Downtown San José over the last several years. The Downtown Strategy 2040 currently being developed will further increase the amount of residential and commercial development that can occur Downtown and the City is currently in the process of revising its Downtown Overlay zoning to more clearly specify where retail uses are required.

The policy constraints for the Downtown San José Station area include issues related to the limited opportunity sites. Most of the planned residential development capacity in Downtown has already been allocated. Additionally, the cost of developing in Downtown is increasing, due mostly to rapidly rising construction costs but also in part to recent City fee increases. Policies must be carefully calibrated to facilitate an appropriate mix of commercial and residential uses, while ensuring that they do not disincentivize development.

At 28th Street Station, city and community plans allow for high density development. The station area includes four Urban Villages, as identified in San José's General Plan. These areas are planned to accommodate significant new job and housing growth in a compact, walkable urban setting. The City of San José's new Urban Villages Implementation Framework is intended to expedite the entitlement process for residential development, and to leverage new development to pay for neighborhood improvements. However, San José's Urban Village policy emphasizes new commercial development, and restricts the timing and amount of market-rate residential development in the 28th Street station area. The development contribution required under the Urban Village Implementation Framework may also make residential development in the station area more challenging by increasing project costs. Constraints on residential development could potentially delay the timing of all new development in the station area. The market for residential development is expected to be significantly stronger than the market for commercial

space in short to medium term. The current requirement that all residential projects include a significant commercial component could thus delay any new development.

SECTION 2: MARKET ANALYSIS

The market analysis section of the report evaluates the market for office, multifamily housing, hotels, and retail uses in VTA's BART Phase II station areas, as well as the potential benefit of the new transit investment in catalyzing new development activity. This section also provides projections of future demand for TOD, assuming the corridor becomes more competitive for new development following the introduction of BART.

	Santa Clara Station	Downtown San José Station	Alum Rock/ 28th Street Station	Total Corridor
Net New Demand 2015-2040, Low*				
Office (sf)	1,282,000	2,862,000	306,000	4,449,000
Residential (Units)	6,866	28,462	6,247	41,575
Hotel (Rooms)**	590	1,340	130	2,060
Retail (sf)	53,445	251,695	43,800	348,940
Net New Demand 2015-2040, High*				
Office (sf)	2,332,000	4,674,000	496,000	7,502,000
Residential (Units)	8,626	36,452	7,827	52,905
Hotel (Rooms)**	850	1,930	190	2,970
Retail (ft)	93,345	391,595	58,300	543,240

VTA'S BART Phase II Station areas demand projections, 2015-2040. Source: Strategic Economics, 2018.
**Net of development completed since 2015 or under construction*
***The hotel projections cover the 2018-2040 period.*

The table to the right summarizes projected demand by land use and by station area through 2040, after netting out development that is currently under construction or has been recently completed. The two scenarios (low and high) represent a range of assumptions about the rate of the region's future economic growth and the share of regional growth that will be captured in the station areas. These demand projections are not constrained by land capacity or other constraints on supply. Development could shift within the corridor based on land use policy, capacity, infrastructure improvements, market changes, specific user needs, and other factors.

Key findings for each station area are summarized below.

Santa Clara Station Area

While the Santa Clara station area has not historically been a major office location, the Coleman Highline project is adding a significant amount of new office space, and the station area is well-positioned to attract additional office development over time. The Coleman Highline project and neighboring Gateway Crossing mixed-use residential developments are examples of the shift in Silicon Valley toward large mixed-use TOD projects that include major office components. If completed as planned, Coleman Highline has the potential to establish the Santa Clara station area as a new office center. The introduction of BART service will further increase the desirability of this area. There is projected demand for between 1.3 and 2.3 million square feet of new office space in the Santa Clara station area by 2040.

The Santa Clara station area is also a very desirable location for residential development. The station area benefits from proximity to major employment centers along Highway 101, Santa Clara University, and the existing Caltrain Station. The addition of BART will provide improved access to jobs and other destinations across the region, as well as direct connections to retail and entertainment in Downtown San José. The station area has already attracted significant residential development, particularly along El Camino Real, and several major apartment projects are currently proposed immediately adjacent to the station. Future demand for the station area is projected between 6,900 and 8,600 additional multifamily residential units by 2040.

The Santa Clara station area is well-positioned to attract hotel development given its proximity to Mineta San José International Airport, major employment centers, highways, and Santa Clara University. Passenger and flight activity at San José's airport have increased significantly, and new hotels have proliferated nearby (although mostly on the east side of the airport). Proximity to Highway 880 and El Camino Real also provide visibility, which is important for certain types of hotels. There is projected demand for between 590 and 850 additional hotel rooms by 2040.

Existing retail nodes in Downtown Santa Clara, along El Camino Real, and on The Alameda could grow to include additional small-scale retail development over time. These clusters on the west side of the railroad tracks benefit from proximity to Santa Clara University and high-in-

come neighborhoods. In addition, the City of Santa Clara is in the process of developing Precise Plans for the Downtown and El Camino Real areas, which will identify public investments to enhance their public realm and pedestrian environment. By contrast, the east side of the railroad tracks may be more challenging for new retail development. Although Coleman Avenue has attracted big box retailers, smaller retailers may consider spaces with limited surface parking or no frontage on Coleman Avenue challenging because of the poor vehicle and pedestrian connectivity to surrounding neighborhoods. Overall, there is projected demand for between 53,000 and 93,000 additional square feet of retail in the station area by 2040.

Downtown San José Station Area

Downtown San José is attracting increased attention from office tenants, although no new office construction has occurred in the current market cycle. Many older buildings are being renovated, and new office projects have recently been proposed. A combination of factors is driving this increased interest in Downtown San José, including: recent residential development and the associated increase in the number of households living in Downtown; proximity to the planned Google development, which could bring in thousands of new workers to the Diridon area; improved transit access with the new bus rapid transit and planned BART extension; and improved retail and dining opportunities. Downtown appears to be reaching an inflection point, where increasing demand and a continuing strong economy could lead to one or more office buildings being constructed in the current market cycle. Total new demand for office space in the station area is projected between 2.9 to 4.7 million square feet by 2040.

The Downtown San José station area is experiencing an unprecedented amount of residential development activity, and the area is likely to become an increasingly appealing location for residential development over time. Approximately 2,380 units are under construction and more than 4,600 additional residential units are entitled or under review, including a combination of high-rise and mid-rise developments. In the short term, the pace of residential development may be negatively impacted by rising construction costs. In the longer term, however, the growing concentration of activity in Downtown and future plans for the Google Village are expected to help spur the market. The planned BART station will also make the station area increasingly attractive as a residential location. Projected demand for new housing in the station area totals between 28,500 and 36,400 new units by 2040.

Overall, there is potential for significant additional hotel development in the Downtown San José station area, including in close proximity to the station itself (such as at the VTA block). Downtown San José is one of the largest hotel submarkets in Santa Clara County. Proximity to a growing office/tech concentration and to the McEnery Convention Center, which has recently seen increased activity, make Downtown San José attractive for additional hotel development. There is projected demand for between 1,300 and 1,900 additional hotel rooms in the station area by 2040.

In the short term, Downtown San José is poised to continue growing as a destination for dining and entertainment. Downtown is well positioned to leverage current retail industry trends that favor walkable, mixed-use environments. As worker and residential densities continue to grow, there will likely be increased demand for dining, entertainment, and neighborhood-serving goods and services in Downtown San José. In the long-term, the station area may also attract more retailers selling clothing, accessories, home furnishings, or other goods. Overall, demand for retail in the station area is projected at 250,000 to 390,000 additional square feet by 2040.

28th Street Station Area

A major mixed-use development driven by one or more large office users would be required to establish the 28th Street station area as an office location; otherwise, it is unlikely that the area will see significant office development in the short to medium term. The station area is viewed as a challenging location for office, despite relative proximity to the Downtown. Brokers and developers felt that a large-scale, mixed-use development (including 500,000 square feet or more of office space) would be required to create a successful office location in an unproven market such as the 28th Street station area. This scale of development would likely require one or more major office users to decide to locate in the station area. Assuming that the station area attracts one or more office users that drives this level of development, there could be demand for 300,000 to 500,000 square feet of office space by 2040.

The 28th Street station area is attracting growing interest from residential developers. Most recent development in the station area consists of affordable housing, but the announcement of a proposed large mixed-use project at 1325 E. Julian Street suggests that development interest in the station area is beginning to increase in response to the planned new BART station. In the long run, new residential development could help make the station area more appealing for office and retail uses. However, poten-

tial for residential development in the station area may be limited by San José's Urban Village policy, which restricts the location and timing of residential development. Demand for the station area is projected between 6,200 to 7,800 additional multifamily units by 2040.

It is unlikely that the 28th Street station area will see hotel development in the short to medium term. The station area and the broader East San José/International Business Park submarket have very little existing supply and have seen no new development in recent years. The station area has low employment densities and no major destinations. In the long run, the introduction of BART, new residential and office development, and other public improvements could potentially enable the station area to attract a small increment of hotel development, in the range of 130 to 190 hotel rooms by 2040.

The 28th Street station area has proven challenging for new retail development, but there is potential to add retail along the Alum Rock/East Santa Clara corridor in the medium to long term. New commercial development in the station area has been very limited. These new spaces have several long-term vacancies, and the area has struggled to attract larger chain tenants who are more likely to be able to support the higher rents associated with new retail space. However, in the medium to long term, there is potential to add incremental amounts of retail along the Alum Rock/East Santa Clara corridor, especially if improvements are made to pedestrian barriers that divide the East Santa Clara and Alum Rock Avenue retail nodes. Overall, demand in the station area is projected for between 44,000 and 58,000 additional square feet of retail. As new development occurs, there may be a need to implement strategies to prevent displacement of existing small businesses.

SECTION 3: DEVELOPMENT CAPACITY ANALYSIS

This section evaluates the development capacity of the opportunity sites using selected building prototypes.

While the analysis does not incude smaller parcels, the outcome of the exercise does show significant development potential at each of the station areas. The analysis examines the capacity of the parcels in two different scenarios. The first scenario tests the maximum capacity for housing. The residential development capacity at Santa Clara and 28th Street Stations exceeds the City Planned Capacity (through 2035) and the Market Demand Projections (through 2040). However, Downtown San José Station is below these projections.

The second scenario tests the maximum capacity for office space. The commercial development capacity at all three stations exceeds the City Planned Capacity (through 2035) and the Market Demand Projections (through 2040).

These abstract scenarios function as "bookends" that demonstrate the maximum amount of residential only and office only development that can occur using the prototypes discussed previously. Based on these "bookend" scenarios, an analysis that considers a balanced mix of residential and office development and parking ratios which reflect best TOD practice will be conducted in the next phase of the study.

SECTION 4: TOD CASE STUDIES

This section analyzes case studies as they relate to each station area and to the overall corridor.

TOD Station Area Case Studies
The TOD station area case studies provide insights into the right mix and intensities of uses that may be appropriate for the Phase II station areas. While not the only indicator of successful TODs, the analysis finds that there is a correlation and a dynamic relationship between the jobs and residential population densities in TOD station areas. Central business districts, like Downtown San José Station, Westlake Station in Seattle, and Union Station in Denver, may find more success with a higher jobs to residents ratio. Conversely, lower-density neighborhood centers, like 28th Street Station, Santa Clara Station, Fruitvale Station in Oakland, and Marine Drive Station in Vancouver, may find more success with a lower jobs to residents ratio.

TOD Corridor Case Studies
At a system scale, the TOD corridor case studies provide insights into the key planning and implementation strategies for all of the Phase II stations taken together. The analysis finds lessons in the use of overlay districts, the importance of high-density TODs that respect existing single family neighborhoods, the need to link transit and land use as a long-term economic development strategy, and the positive impact of a collaborative process with the private sector.

SECTION 5: TDM AND RIDERSHIP POTENTIAL

TOD is encouraged in many ways, including developing multiple land uses, locating those land uses close together, providing a walk- and bike-able environment so those land uses can be accessed easily, and serving the area with frequent and reliable transit. Combined, these components generate the most important factor in TOD: people. People to live, work, and play nearby, create a safe and active space, and people who ultimately take ownership of the community. Land uses, parking policy, and transportation demand management (TDM) can each offer opportunities to maximize TOD potential.

Maximizing TOD Potential through Land Use
The amount and mix of development at each station site will generate different ridership potential. The same footprint filled with office uses supports more people than space for residents. Initial ridership modeling of the three stations shows consistent results: all-office buildouts would generate between four and six times more daily weekday transit ridership than all-residential buildouts.

Maximizing TOD Potential through Parking Management and Transportation Demand Management
Walking, biking, taxis/TNC's, and connecting transit services are all ways to access transit stations, in addition to driving and parking. Surrounding transit stations with active land uses allows the spectrum of modes to become feasible (the closer to the station, the more reasonable it is to walk and bike; the more dense the corridor, the more efficient the connecting transit). With different access options, the amount of vehicle parking demanded and effective transportation demand management (TDM) techniques will also vary.

The Cities of San José and Santa Clara have developed tailored minimum parking standards in central transit oriented locations compared to other areas of their respective cities; these minimum standards are applicable to Phase II BART station areas. However, these requirements still exceed various observed levels of parking demand throughout the Bay Area's transit-oriented neighborhoods.

To maximize the potential for station area development without constraints from excess parking, municipal zoning requirements in Phase II station areas are recommended to be either significantly reduced from their current levels to meet actual observed demand in similar contexts, or eliminated entirely. Coupling these shifts from parking requirements with proactive TDM programs will help the station areas generate significant numbers of person trips, while minimizing the number of auto trips.

SECTION 6: AFFORDABLE HOUSING AND DISPLACEMENT RISK

The affordable housing section of the report evaluates the opportunities and constraints for producing new affordable housing, preserving existing affordable housing, and protecting existing residents from displacement in VTA's BART Phase II station areas.

In this analysis, housing is defined as "affordable" if a household spends 30 percent or less of its gross income on housing costs. By this definition, affordable housing includes regulated units that have limits on the maximum rents or sales prices (also called deed-restricted units), as well as unregulated units that have no restrictions on rents or sales prices but are relatively low cost. In the case of deed-restricted affordable housing, units are targeted to one of several income categories, including:

- Extremely Low-income (ELI) households, at or below 30 percent of area median income (AMI)
- Very Low-income (VLI) households, at 31 to 50 percent of AMI
- Low-income (LI) households, at 51 to 80 percent AMI
- Moderate-income (MOD) households, at 81 to 120 percent of AMI

Affordable Housing Production in the Station Areas
Transit investments and transit-oriented development, accompanied by supportive policies, have the potential to provide benefits to low and moderate income households in the station areas. VTA's BART Phase II extension will provide high-quality transit connections to existing employment areas across the region. In addition to providing improved job access, transit can also help lower household costs by reducing dependency on privately owned vehicles.

Reflecting the importance of enabling low income households to live near transit, VTA and the Cities of San José and Santa Clara have set ambitious goals for the production of affordable housing. The cities have implemented affordable housing targets ranging from 15 to 25 percent for the station areas. VTA's Joint Development Policy establishes a target of 35 percent lower income units portfolio-wide for its joint development sites, and individual joint development projects must include at least 20 percent lower income units.

Several new, local funding sources and publicly owned land in the station area provide an opportunity to help meet these affordable housing goals. Both cities recently

enacted or updated their inclusionary housing policies, and Santa Clara adopted a new commercial linkage fee. Other funding sources include new state sources, as well as Santa Clara County's Measure A, which funds housing for extremely-low income households, the homeless, and special needs groups. Finally, the station areas contain several large opportunity sites owned by public agencies, including VTA, the City of Santa Clara, and the Santa Clara County Housing Authority.

However, achieving these goals will be challenging. Some of the major challenges are as follows:

- Local inclusionary housing policies will not be sufficient on their own to meet the affordability goals set by VTA and the cities.
- New commercial development in San José is not currently required to contribute to affordable housing.
- Despite the new sources listed above, there is limited federal, state, and local funding for affordable housing production at all income levels. Funding for the production of moderate income housing is especially limited.
- Regulatory constraints on residential development, especially in Urban Villages, make affordable housing development more challenging.
- Rising construction and land costs make development, including affordable housing development, increasingly expensive.

Gentrification and Displacement in the Station Areas
The processes of gentrification and displacement are already underway in the Downtown San José and 28th Street station areas, and many households vulnerable to displacement still currently reside in the station areas. Even before the introduction of BART, Downtown San José and 28th Street have already undergone some gentrification and/or displacement. These station areas include households with high vulnerability to displacement as well as a substantial supply of affordable housing that is at-risk of conversion to market-rate housing. The data for Santa Clara station are insufficient to conclude whether households are at high risk of displacement.

There is an opportunity for VTA's BART Phase II TOD Study to build from ongoing efforts to prevent displacement, including the City of San José's recent implementation of tenant protection policies. The City of San José recently adopted policies to strengthen local rent stabilization and tenant protection ordinances. Other ongoing efforts include the regional Committee to House the Bay Area (CASA) and the City of San José's involvement in PolicyLink's All-In Cities Initiative, a year-long program focused on implementing anti-displacement strategies at the local level. The Diridon Station Area Advisory Group (SAAG) is also in the process of developing affordable housing and anti-displacement strategies for the Diridon station area.

However, there is limited funding available for policies and programs to prevent displacement and preserve existing affordable housing. Stakeholders cited a number of ways the cities could strengthen their existing displacement-prevention policies. For example, this could include a strategy for the acquisition/preservation of expiring deed-restricted projects and naturally-occurring affordable housing (NOAH) properties, and addressing gaps in existing tenant protections and mobilehome conversion controls. However, like most cities, San José and Santa Clara are unable to fully cover the costs of legal counseling and representation for lower income tenants at risk of eviction. There is also limited funding available to acquire and preserve NOAH units, or assist lower income homeowners.

SECTION 7: TOD BARRIERS

This section reviews existing land use designations as stated in Santa Clara's General Plan and San José's 2040 General Plan using the building prototypes. There are existing land uses in the City of Santa Clara which constrain the development of all of the building prototypes except the one with the lowest height and density. Recommendations for the City of Santa Clara will include increasing density and height limitations to allow for greater development capacity.

In San José, there is greater flexibility for the application of the building prototypes in the Downtown, Urban Village, and Transit Residential areas. Recommendations for the City of San José will include greater application of the previously mentioned land uses as well as increases in height and density limitations in other land use designations.


SOPA
PASEO
923B
MOUNTAIN VIEW
VTA

1

CORRIDOR ANALYSIS

1st St and Paseo de San Antonio. Photo Credit: SPUR, Sergio Ruiz

1.1 Physical Opportunities and Constraints

OVERVIEW

This section presents an analysis which builds off the initial Background Conditions Report of the Phase II TOD Corridor Strategy and Access Planning Study. The analysis determines how key physical aspects of each station's existing context may support or hinder the success of future TOD. This analysis has been developed through maps and diagrams to evaluate the impact of the following elements on the TOD potential:

Opportunities
The opportunities identified represent aspects which should be maintained and integrated in the new TOD. They are organized into two categories, identity and amenities, which support elements of good TOD. These elements can add diversity and support the experience of local residents and visitors alike:

- Identity: Elements which provide a sense of place and individuality to the station areas include physical and visual edges and historic resources.
- Amenities: Local assets such as open space, active ground floor uses, and anchor institutions that serve the users of the station areas.

Constraints
The constraints identified represents aspects which should be minimized or sensitively approached in the new TOD. They are organized into two categories, barriers and context, which hinder development of good TOD. Areas subject to these constraints will need to deploy tailored strategies that respect the context and maximize the development opportunities:

- Barriers: Obstacles which hinder movement and access to and from the station areas and constraints that limit development capacity.
- Context: Existing low-rise residential neighborhoods and/or historic districts bordering the station study areas.

STATION STUDY AREAS & CORRIDOR

Station Study Areas
The Opportunities and Constraints analysis focuses on the previously determined station study areas which are based on a combination of proximity to the stations, alignment with ongoing city-initiated planning efforts, and alignment with the Station Access Study.

In terms of proximity to the station, the station study area boundary does not extend beyond a 1-mile walking distance from the station. Within the 1-mile walking distance, the station study area follows boundaries previously established by other planning efforts around each of the respective stations. The station access study is focused on improving access to the stations themselves. Based on industry research of station catchment areas, nearly all transit access trips originate within 10 minutes of the station. The catchment area is defined within a 10 minute bike ride (1.5 mile bikeshed) and a 10 minute walk time (0.5 mile walkshed). It is anticipated that few station access trips would originate outside of these shed areas.

At Santa Clara and Downtown San José Stations, the station study areas include Santa Clara University and San José State University, to acknowledge the significant role these institutions play in shaping the character of their respective station areas, although it is not intended that these campuses be considered for development opportunities.

Corridor
The Corridor includes streets that play a role in shaping and connecting the station study areas. The Corridor streets were established based on their proximity to the station, their ability to connect the station areas, and a concentration of existing local transit services that traverse them.

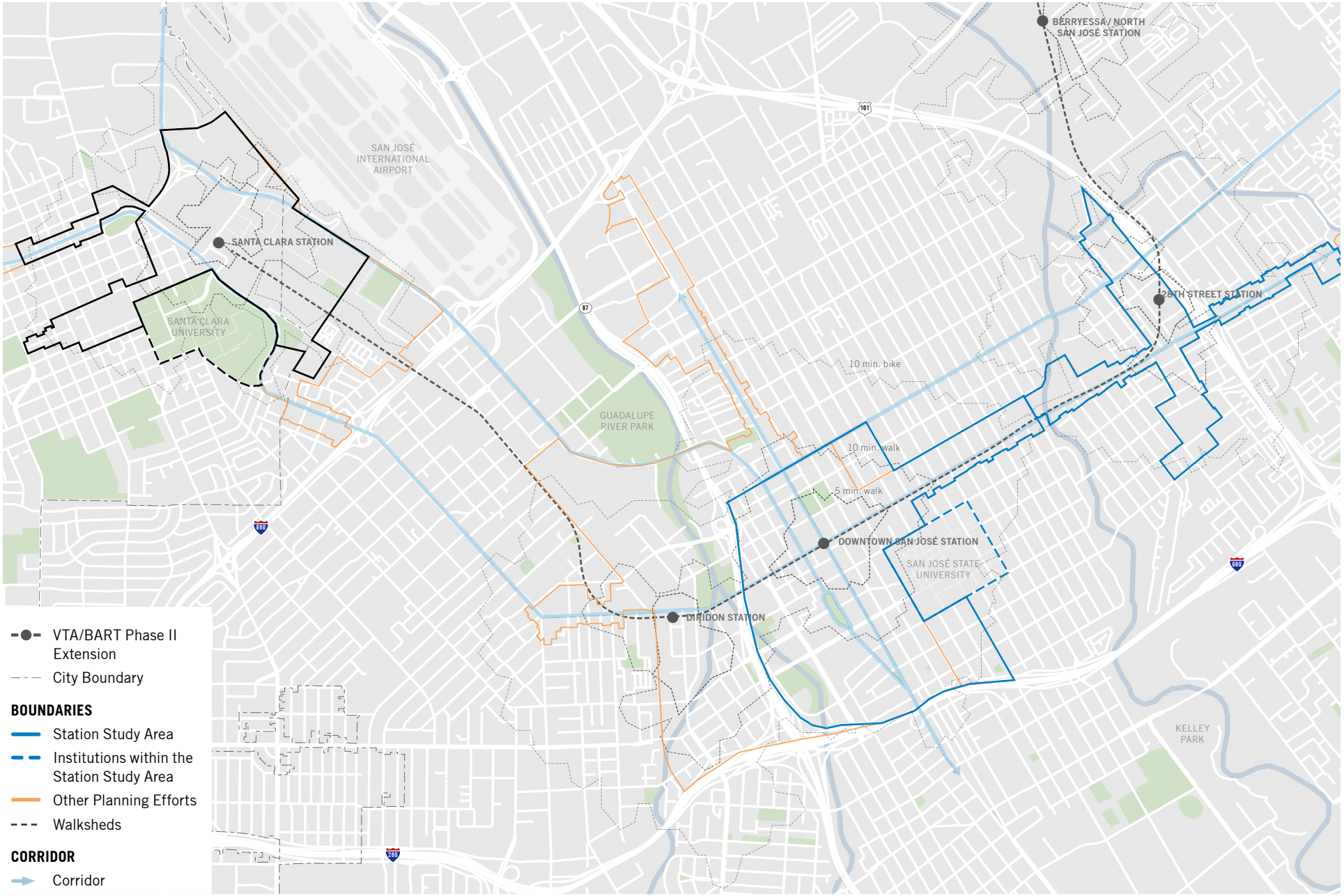


FIGURE 1.1.1 Study Areas and Corridor

OPPORTUNITY: IDENTITY

The station areas each have a unique identity that should be considered as an asset when contemplating development potential. While not exhaustive, the following aspects contribute to the identity of the station areas and should be built upon in creating an overall sense of place in the new TOD within each of the station areas.

Edges
Physical and visual edges have a positive impact of clearly establishing boundaries and helping to define the extents of an area. These edges may also pose a limit to the development potential as expressed in the "Barriers" section of the constraints analysis.

Historic Resources
Historic resources contribute to the overall culture and identity of a district and are an important asset for future TOD. Future TOD has the opportunity to preserve and celebrate these assets by making them accessible and visible.

Santa Clara Station

Edges
The San José International Airport to the east and I-880 to the south act as clear edges around the Santa Clara Station area. While improving access across I-880 would benefit the overall accessibility, the existing overpasses on Coleman Ave. and the Alameda function as recognizable gateways to the station area and help to define its extents.

Historic Resources
Within the station study area, existing historic resources are limited to the Santa Clara historic station and a few blocks located to the west of the future BART station. Adjacency of the opportunity sites to these resources should be made clear, specifically along Benton St and Franklin St, leading to Santa Clara Downtown.

Downtown San José Station

Edges
The CA-87 viaduct and the Guadalupe River Park are already acting as a clear line of demarcation between Downtown San José and the Diridon area. Crossings below the viaduct and across the open space system are provided in multiple locations. The city of San José has worked on improving the conditions under the viaduct with permanent art installations and landscaped areas connecting to the river that further mark and celebrate access to the downtown.

Historic Resources
Residing within the original city boundary, the Downtown San José Station study area is populated with numerous historic resources from single buildings that occupy various size parcels to entire historic districts comprising several blocks. A case-by-case analysis should be developed in order to best integrate future TOD within its historic context.

28th Street Station

Edges
The Coyote Creek, Lower Silver Creek, and Miguelita Creek act as an open space system which marks the access to the district from north, east and west. While improving access across this network of waterways would benefit the overall district accessibility, a carefully planned set of improvements of the landscape quality of this system would also positively contribute to the identity of the district.

Historic Resources
The Five Wounds Portuguese National Church is the most important historic resource within the 28th Street Station study area. The immediate proximity of the church to the area's larger opportunity sites requires an extremely sensitive approach to future development that is respectful of the local heritage. Similarly, along the Santa Clara St corridor, new development should recognize and respect this important cultural resource.

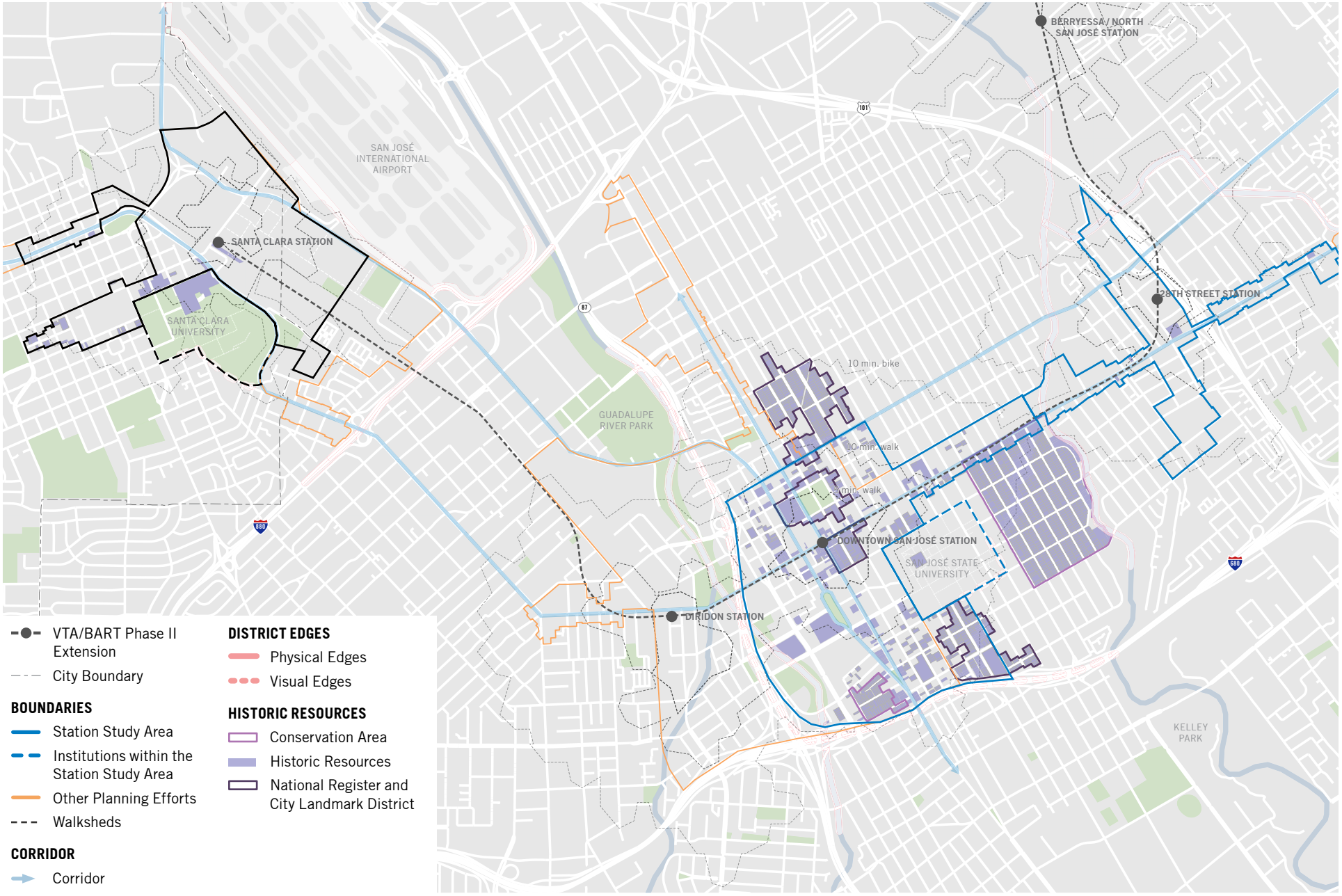


FIGURE 1.1.2 Corridor Opportunities: Identity

OPPORTUNITY: AMENITIES

Open Space
Open spaces contribute to the overall quality and livability of the district and are an important asset to future TOD. Understanding the qualities and overall character of such resources can help with the identification of appropriate strategies that will best respond to the needs of the existing and future users.

Active Uses
Active uses are considered ground floor commercial enterprises such as retail, restaurants, gyms, dry cleaners, etc. that have the potential to engage pedestrians within the public realm. Areas of high active use are those locations that have access to at least five active uses within a 2-minute walk.

Institutions
Access to education institutions is a benefit to residents of TOD and an asset for future TOD. Santa Clara University and San José State University are significant stakeholders along the BART corridor.

Santa Clara Station

Open Space
Several recreational and sport-focused open spaces are near Santa Clara Station, including Avaya Stadium, facilities within the Santa Clara University campus, and Larry J. Marsalli Park. The station study area lacks sufficient passive public open spaces, such as parks and plazas, specifically to support the future population and transit commuters.

Active Uses
Within the station study area, zones of high active uses are located where Homestead Rd and Lexington St intersect with Monroe St and Jackson St. Similar levels of active uses are located along The Alameda between Mission St and Chapman St. Both zones are approximately 1-mile walk from the station.

Institutions
Santa Clara University is an important institutional anchor in the Santa Clara Station study area with the potential to impact BART ridership and development near the station. The school plans to grow its undergraduate population to 6,000 students by 2020.[1]

Downtown San José Station

Open Space
Downtown San José offers adequate active and passive open spaces. St. James Park and Plaza de César Chávez are the two most recognizable civic open spaces, while Guadalupe River Park and its adjoining trail system provide recreation options within the downtown area. San José State University campus also contributes to the district open space resources.

Active Uses
Downtown San José Station study area includes the largest zones of active uses when compared to the other station study areas. The majority are located along 1st and 2nd Sts south of Santa Clara St. Similar levels of activity are on secondary streets between Santa Clara St and William St. Other pockets of activity are east of San José State University, along Santa Clara St between a ½-mile and 1-mile walk to the east of the station, and just beyond a ¼-mile walk from the station to the west.

Institutions
San José State University is an important institutional anchor in the Downtown San José Station study area, with the potential to impact BART ridership and development near the station. The 2018-19 year saw record total enrollment of 35,000 students.[2]

28th Street Station

Open Space
Roosevelt, Watson, and Plata Arroyo Parks are the main public open spaces within a 1-mile walk of the station. Coyote, Lower Silver, and Miguelita Creeks are also important assets for the station area but currently have limited points of access. These existing open spaces are at the outskirts of the 28th Street Station study area. The station study area lacks open spaces that can adequately serve the needs of future population and transit commuters while simultaneously celebrating the area's local, historic, and cultural significance (e.g. Five Wounds Portuguese National Church).

Coyote, Lower Silver and Miguelita Creeks, along with the railroad ROW are important open space assets for the area and represent opportunities to increase the number of connections by providing additional trails and crossings.

Active Uses
Zones of high active uses are located at the intersection of Santa Clara St and 33rd St and on Julian St as it intersects 24th, 25th, and 26th Street. Both zones are a

1 https://www.scu.edu/santaclara2020/elements/enrollment-plan/

2 https://www.kron4.com/news/bay-area/san-jose-state-sees-largest-enrollment-ever-in-2018-19-school-year/1383661771

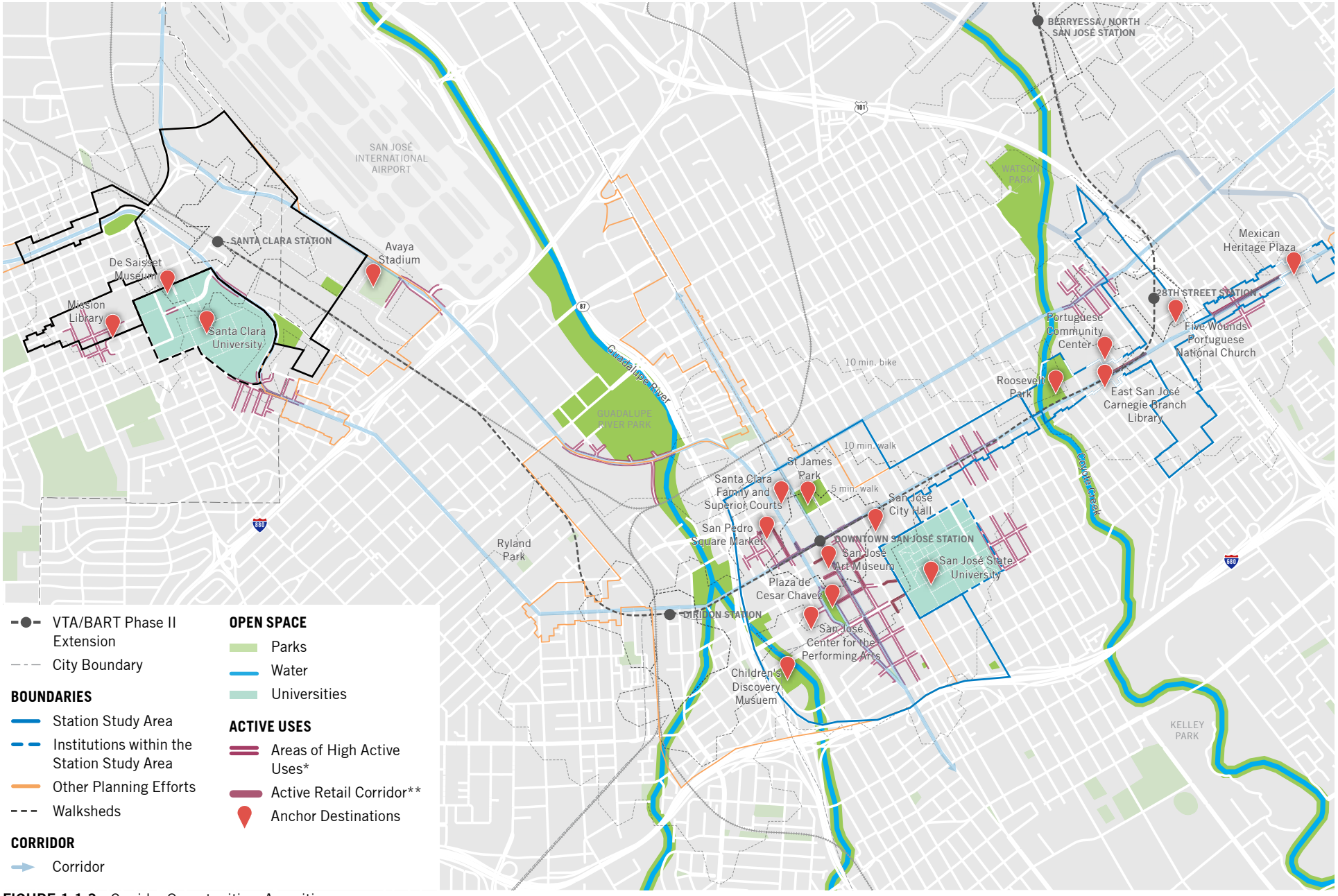


FIGURE 1.1.3 Corridor Opportunities: Amenities

**Based on data collected in the Background Conditions Report. **Based on observation of existing retail activities as developed by Strategic Economics.*

½-mile walk from the station. No active uses are detected in the immediate proximity of the future station.

Access Improvements
Planned access improvements for auto, transit, bicycle and pedestrian modes are described in detail, with companion graphics, in the VTA 28th Street Station Profile dated August 2018 are included as an Appendix to Background Conditions Report.

CONSTRAINT: BARRIERS

Horizontal Barriers
There are a number of physical and visual obstacles that restrict horizontal movement to and from the station areas. Understanding where these obstacles are located can help in the placement of future development.

Vertical Barriers
The height limitations, as stated in the "Draft Documentation Report San José International Airport Obstruction Clearance Study" commissioned by the City of San José in January 2006, restrict development of desirable densities in some of the station areas.

Santa Clara Station

Horizontal Barriers
Santa Clara Station has several physical constrains that can hinder the potential of successful TOD. A large portion of opportunity sites in the station study area are confined to a zone with limited access, being bounded by De La Cruz Blvd., San José International Airport, I-880, and the existing rail alignment which bisects the station study area along the northwest-southeast axis.

The proximity to the airport is not only a horizontal obstacle to the extension of TOD to east of Coleman Avenue, but it is also a vertical obstacle to the development potential of the opportunity sites, due to FAA height restrictions.

Vertical Barriers
Given the proximity to the San José International Airport, the station study area has the most constraining height limits of the three stations. Based on the above mentioned assumption, in this study are height limits range from 30'-55' to 130'-150' above ground (average mean elevation). Opportunity sites in immediate proximity to the station and those to the west of the station are within the 130'-155' height limit zone.

Downtown San José Station

Horizontal Barriers
The CA-87 and I-280 viaducts are recognizable physical and visual barriers that clearly mark the west and south edge of the station study area. While crossings under the viaducts are provided in multiple locations, the visual impact of such structures, if not properly mitigated, can have a negative effect on access to and from the station study area, particularly for bicyclists and pedestrians. Proximity to this infrastructure has an impact on the overall quality of the public realm and development potential. Further to the west and following a similar alignment as the viaduct, the Guadalupe River Park constitutes a disruption to the urban fabric. While it is an important open space asset for the area, it does limit east-west pedestrian and vehicular mobility. Establishing a legible wayfinding network and identity along the corridor may help to facilitate users as they traverse these barriers.

Vertical Barriers
The majority of the station study area is in the 270'-295' above ground height limit zone. The allowed maximum height gradually decreases to 170'-195' towards the west. This limits development in the downtown core area, and the parcels in immediate proximity to the station.

28th Street Station

Horizontal Barriers
US-101 is a strong physical barrier that clearly marks the east edge of the station study area. Crossings over this

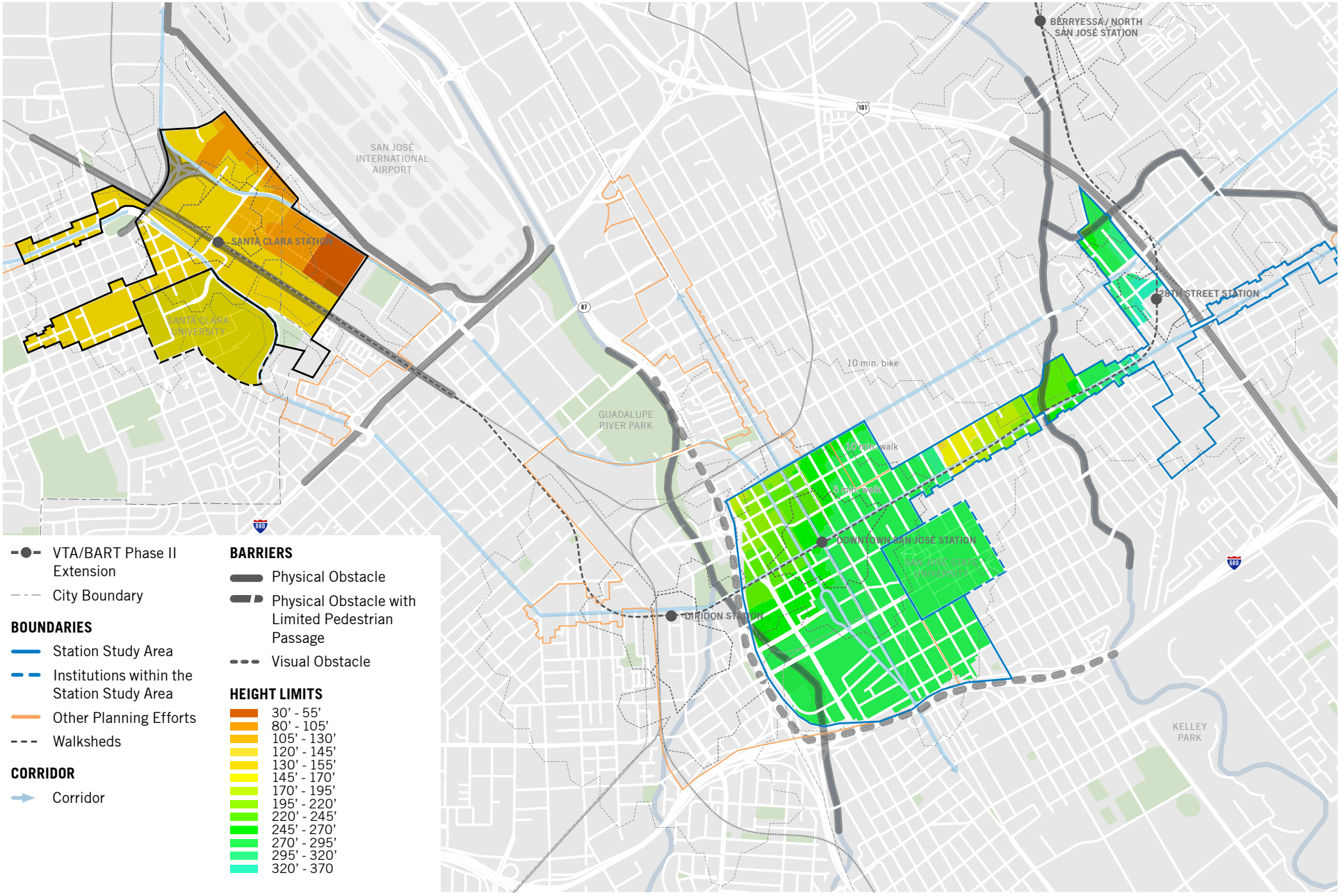


FIGURE 1.1.4 Corridor Constraints: Barriers

freeway are limited and particularly challenging for pedestrian and bicyclists, as noted during onsite observations. Particular attention needs to be paid to improving the crossing of Santa Clara St over US-101 in order to ensure the quality and success of TOD and the corridor. Strong wayfinding and identity along Santa Clara St, in addition to a complete pedestrian network, can help mitigate these constraints.

Vertical Barriers
The 28th Street Station study area is the least affected by vertical limitations among the three stations. Only properties to the north and west of the future station are limited by FAA height limits, ranging from 220'-245' above ground to the west and 320'-370' to the east. The remainder of the station study area is not constrained by any height limits.

CONSTRAINT: LOW-DENSITY CONTEXT

Residential Context
The areas surrounding the stations are predominantly occupied by single family homes. Given this low-density character, it is expected that a sensitive approach to new development should be considered for the opportunity sites that are near these areas. A transition zone allows for gradual stepping up from existing low-density development to higher density TOD in support of a visually pleasing public realm. While this has the possibility of limiting development potential on sites within the transition zone, this approach does not necessariliy exclude development of these areas into varied uses of greater density.

Historic Resources
Historic resources involve a similarly sensitive approach to new development, in addition to adherence with the requirements of their respective designations. While each of the three station study areas are constrained by the residential and historic contexts, there remains development potential in the areas immediately surrounding each of the BART stations which are mostly commercial, office buildings.

Santa Clara Station

The Santa Clara Station study area is mostly dominated by low-density residential neighborhoods to the west of El Camino Real, towards downtown.

Downtown San José Station

The Downtown San José Station study area borders low-density residential neighborhoods to the north, east, and south. The area within a ½-mile walk from the station area is covered by the above mentioned buffer zone.

28th Street Station

28th Street Station study area is the most affected by its low-density residential context. Nearly all of the opportunity sites fall within the defined transition zone with the exception of the station core area (approximately ¼-mile walk from the station).

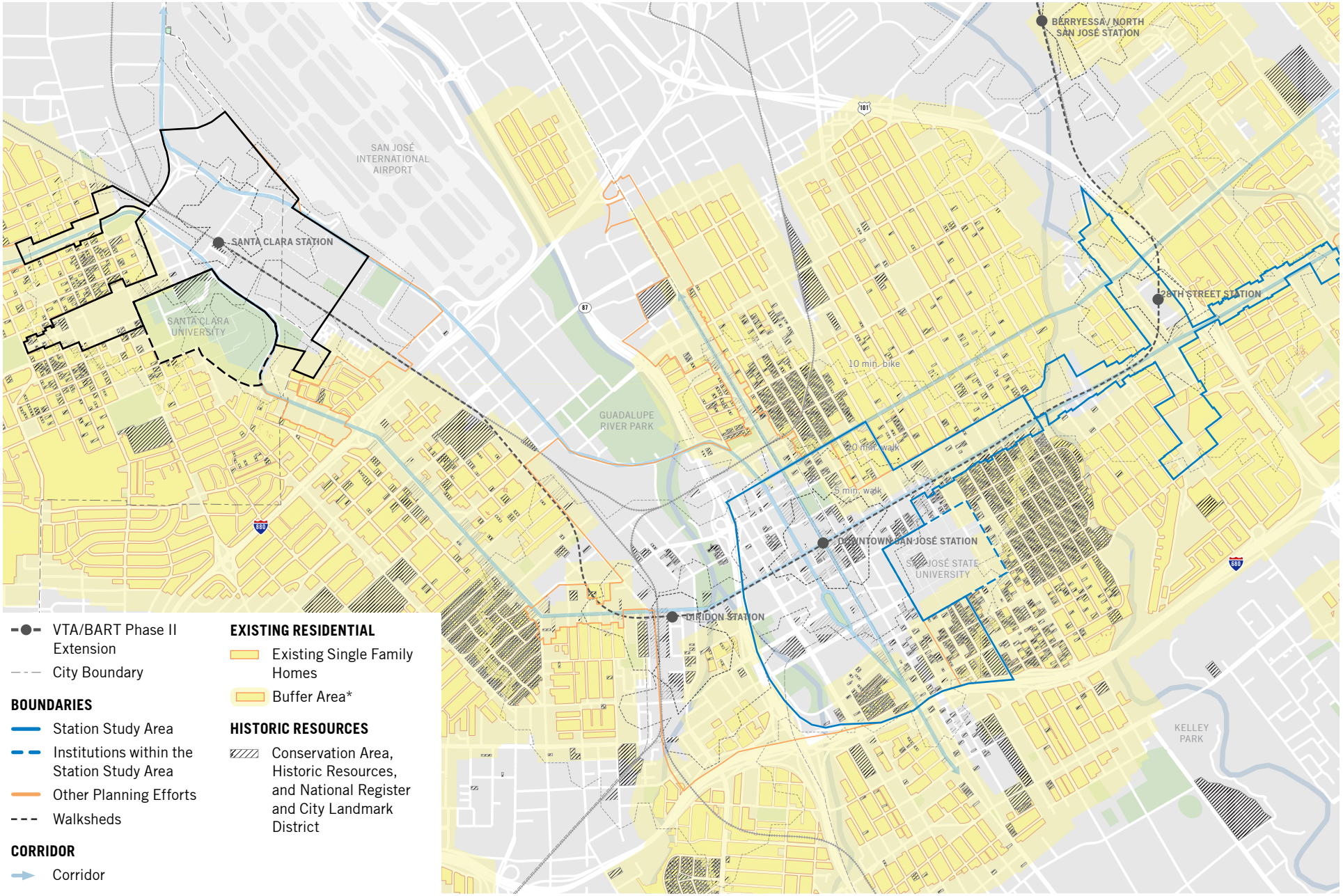


FIGURE 1.1.5 Corridor Constraints: Historic and Residential Context

**The buffer area is not a calculated measurement. It is meant to represent a consideration for the transition between single-family homes and higher densities.*

1.2 Policy Opportunities and Constraints

This section provides a preliminary summary of opportunities and constraints to TOD posed by land use regulations and other policies in VTA's BART Phase II station areas. The findings described below are based on Strategic Economics' findings from the TOD market analysis, and are intended to complement the analysis of land use policies, parking requirements, and other factors.

Opportunities and constraints related to real estate market conditions are described in Section 3 of this report. Opportunities and constraints related to affordable housing are described in Section 7 of this report.

Santa Clara Station Area

OPPORTUNITIES

- **The City of Santa Clara is planning for significant new development and public investment in and around the station area.** The City's General Plan designates the Santa Clara Station Area, Downtown Santa Clara, and El Camino Real as "Focus Areas" for new development. El Camino Real in particular has already attracted a number of new mixed-use residential development projects. The City is in the process of developing Precise Plans for Downtown and El Camino Real, which will identify opportunities for additional land use intensification, as well as public investments to improve the pedestrian environment, enhance pedestrian and vehicle connectivity, and add new public gathering spaces.
- **The portion of the station area located in the City of San José is located in a designated Opportunity Zone, which could make the area more attractive for investment.** The Opportunity Zone program was created as part of the 2017 tax bill. It allows investors to receive tax benefits in exchange for investing in real estate or businesses located in low-income Census Tracts designated as Opportunity Zones by the Governor. Eleven Census Tracts in San José have been designated as Opportunity Zones. The portion of the Santa Clara station area located in San José is part of the North San José Opportunity Zone (see Figure 1.2.1). San José's Office of Economic Development is actively promoting investment opportunities in the station area, including opportunities to invest in new startups and office, hotel, and mixed-use, mixed-income housing development. The City is also considering how to ensure that Opportunity Zone investments benefit existing residents, business owners, and workers, including studying anti-displacement strategies for residents and small businesses.

CONSTRAINTS

- **The station area includes properties in both the Cities of Santa Clara and San José, and there is currently no framework for coordination between the two cities.** In order for the station area to successfully develop as a cohesive transit-oriented district, the two cities will need to coordinate on issues such as land use, access improvements, and other public realm improvements. A 2010 station area plan was developed jointly by the City of Santa Clara, the City of San José, and VTA, but was never formally adopted by either City.
- **In both cities, several potential development opportunity sites are zoned industrial.** Allowing key sites to convert to higher intensity employment and residential uses over time could help maximize transit ridership and support the vision of TOD in the station area.
- **The City of Santa Clara's review process creates uncertainty for new development and the community.** The City's General Plan is supportive of density near the station. However, there is no Specific Plan in place for the station area, and development approvals are subject to the discretion of City Council. For example, a 2016 proposal to redevelop 575 Benton St into a five-story residential mixed-use project was met with community opposition over project size, density, and parking. Negotiations eventually fell apart and the developer pulled out after the City approved a plan that significantly decreased the project size, added more parking, and reduced the height to three stories.

The City is now considering a new proposal on the site. More proactive station area planning could help provide developers and community members with more certainty about the development densities, parking levels, and public benefits that new development is expected to provide.

Anchors

1. Mineta San Jose International Airport
2. Airport Office Submarket
3. Avaya Earthquakes Soccer Stadium/Coleman Highline
4. Lowe's (recently closed)
5. North First light rail corridor
6. Kaiser Permanente
7. Airport-area motel district
8. Industrial pocket
9. Bay 101
10. Casino M8trix

Resources:

- North San Jose Retail and Amenities Study: https://bit.ly/2RwUZxJ
- Daniel Rose Center North San Jose Study: https://bit.ly/2BgNPIw
- North San Jose Development Policy: http://www.sanjoseca.gov/index.aspx?NID=1744

FIGURE 1.2.1 Santa Clara Station Area Opportunity Zones

Downtown San José Station Area

OPPORTUNITIES

- **The City of San José has implemented several policies that have successfully encouraged high density development in Downtown San José.** Policies that have facilitated high density development include a program-level Environmental Impact Report (Downtown Strategy 2000) that enables projects in Downtown to move forward with limited environmental review; and a High-Rise Incentive Program that reduced impact fees and construction taxes for new residential buildings with 12 or more stories if they began construction before July 2018. In addition, the City has provided significant flexibility in applying existing parking requirements. These policies have helped facilitate new development in Downtown, including several residential towers currently under construction.
- **The Downtown Strategy 2040 currently being developed will further increase the amount of residential and commercial development that can occur Downtown.** The amount of approved and/or constructed residential development in Downtown is now approaching the capacities identified in Phase I of the Downtown Strategy 2000 EIR. Accordingly, the City is in the process of updating the EIR to allow up to 4,000 additional residential units and three million square feet of additional office space (the Downtown Strategy 2040 EIR).
- **The City is currently in the process of revising its Downtown Overlay zoning to more clearly specify where retail uses are required.** Currently, active ground floor uses are required on major corridors throughout Downtown. According to developers, the types of uses that qualify as "active" are unclear and the requirement is applied inconsistently. As part of the Downtown Retail Strategy, the City is considering a change to the Downtown Overlay zoning that would require retail or food services only in the specific locations that are most likely to support successful retail. On other major corridors, "active" ground floor uses will still be required, but could include office, services, or other uses so long as the building is designed to support a retail use in the future.
- **Downtown San José has been designated an Opportunity Zone, which could help attract new investors.** As discussed above, the Opportunity Zone program allows investors to receive tax benefits in exchange for investing in real estate or businesses located in low-income Census Tracts designated as Opportunity Zones. Downtown San José has been designated as an Opportunity Zone (see Figure 1.2.2). San José's Office of Economic Development is actively promoting investment opportunities in the station area, including opportunities to acquire and reposition historic or underused office buildings; partner on development projects that are already approved but not yet under construction; and create a small-business investment fund. The City is also considering how to ensure that Opportunity Zone investments benefit existing residents, business owners, and workers, including studying anti-displacement strategies for residents and small businesses.

CONSTRAINTS

- **Height restrictio ns associated with proximity to San José International Airport limit the densities that can be achieved Downtown.** The City is currently studying the potential to increase heights in the Downtown.
- **Most of the existing residential development capacity in Downtown has already been allocated.** Of the 10,350 housing units currently allowed in the Downtown Core, 8,333 are already entitled. The Environmental Impact Report update currently under review (Downtown Strategy 2040) would allow for an additional 4,000 units. However, assuming all of the units that are currently under review are eventually entitled, this would leave only around 3,500 additional units to be allocated if the EIR were completed today.
- **The cost of developing in Downtown is increasing, in part due to fee increases.** Developers cite the region's soaring construction costs as the most significant barrier preventing entitled projects, including several residential towers in Downtown San José, from breaking ground. The cost increases are primarily driven by the high cost of construction materials and rising labor costs, and previous analyses have found that the cost of City fees is marginal relative to other development costs. However, the expiration of the High-Rise Incentive Program and the phasing-in of the City's inclusionary housing ordinance in July 2018 will result in an approximate doubling of total fees on new high-rise development in Downtown.[1]
- **Policies must be carefully calibrated to facilitate an appropriate mix of commercial and residential uses, while ensuring that they do not disincentivize development.** To date, Downtown San José has proven more attractive for residential development than office development. Recently, however, Downtown is beginning to attract

1 City of San José, "Report on the Cost of Development in San José," April 20, 2018.

increased interest from office tenants and developers as a result of proximity to potential development in the Diridon station area (e.g., the Google development), plans for improved transit access, and recent residential development (which is helping to generate activity and support more restaurants and services). Given the limits on development, it maybe be beneficial to preserve certain prime sites (such as those in close proximity to BART) for future high-density employment uses. However, it will be important to ensure that policies do not disincentivize development, especially given that the increased number of households living Downtown is one of the factors that is helping to make the area more attractive for office development.

Anchor Institutions

1. Diridon Station
2. City Hall
3. Future BART station
4. St. James Park
5. SoFA Arts District
6. San Jose State University
7. Guadalupe River Park/Little Italy
8. McEnery Convention Center
9. Gardner Community Health
10. VTA transit center, SPUR SJ
11. Martha Gardens neighborhood
12. Discovery Meadow/Children's Discovery Museum
13. SAP Center

Cultural Institutions Not Shown

- SJ Museum of Art
- Tech Museum of Innovation
- Cathedral Basilica of St. Joseph
- MACLA
- SJ Museum of Quilts & Textiles
- Institute of Contemporary Arts

FIGURE 1.2.2 Downtown San José Station Area Opportunity Zones

28th Street Station Area

OPPORTUNITIES

- **City and community plans are supportive of high density development.** The station area includes four Urban Villages, as identified in San José's General Plan. These areas are planned to accommodate significant new job and housing growth in a compact, walkable urban setting. For example, the Five Wounds Urban Villages Plan envisions a building up to 12 stories immediately adjacent to the future BART station, with three- to nine-story buildings permitted in most of the rest of the plan area.
- **The new Urban Villages Implementation Framework is intended to expedite the entitlement process for residential development, and to leverage new development to pay for neighborhood improvements.** Under the new policy (passed in May 2018), the entitlement process for new residential development in Urban Villages is expected to be reduced to an estimated three to four months, as opposed to the current six- to 12-month process.[1] The policy also clarifies the expectation for residential developers to contribute to neighborhood amenities. Under the policy, developers will be required to pay into a fund or build amenities on-site worth up to 2 percent of estimated project value, in order to contribute to the implementation of local Urban Village plans.[2] Commercial development and 100 percent affordable housing can proceed without rezoning, and is not expected to contribute to neighborhood amenities.
- **Most of the station area is located in a designated Opportunity Zone, which could help attract new investment activity.** As discussed above, the Opportunity Zone program allows investors to receive tax benefits in exchange for investing in real estate or businesses located in low-income Census Tracts designated as Opportunity Zones. Most of the 28th Street station area is located in an Opportunity Zone (the Five Wounds/Little Portugal and South of BART Industrial District Opportunity Zone, as shown in Figure 1.2.3). San José's Office of Economic Development is actively promoting investment opportunities in the station area, including opportunities to support community-based small and local business on key corridors; reposition or redevelop underused commercial sites; and redevelop or reposition existing industrial buildings into denser employment centers. The City is also considering how to ensure that Opportunity Zone investments benefit existing residents, business owners, and workers, including studying anti-displacement strategies for residents and small businesses.

CONSTRAINTS

- **City policies limit residential development in this station area and constrain TOD.** San José's Urban Village policy restricts the timing and amount of market-rate residential development in the 28th Street station area. The Urban Village policy also requires that all residential projects include a significant commercial component. According to developers, this requirement creates challenges for residential development because of the limited market for office and retail development in the station area.
- **The development contribution required under the Urban Village Implementation Framework may also make residential development in the station area more challenging by increasing project costs.** The expected contribution is calibrated based on a citywide average value ($555 per net residential square foot). Previous analyses have found that new development in South and East San José is generally lower value than in other parts of the city.[3]
- **Constraints on residential development could potentially delay the timing of all new development in the station area.** The market for residential development is expected to be significantly stronger than the market for commercial space in short to medium term. The requirement that all residential projects include a significant commercial component could thus delay any new development. In addition, new residential development may help make the station area more appealing for office and retail uses in the long run (as has occurred in Downtown San José).

1 Under the new policy, developers of new mixed-use residential development will be required to apply to rezone their properties from Urban Village Commercial to Urban Village Mixed-Use.

2 More credit will be given for building amenities on-site than for making a monetary contribution.

3 Keyser Marston Associates, Inc.,Conceptual Pro Forma Analysis, performed for the City of San José April 17, 2018.

Selected Anchor Institutions

1. Five Wounds Portuguese National Parish and Cristo Rey San Jose Jesuit High
2. Future BART station site
3. Future 81-home affordable housing (First Community)
4. County Multi-Services Center
5. San Jose High
6. Roosevelt Community Center
7. Kellogg Eggo factory
8. Little Portugal neighborhood business district
9. Future 71-unit affordable housing (RCD) & Somos Mayfair HQ
12. Therma
13. Prospect SV
14. South of Berryessa BART industrial cluster
15. Berryessa BART station (opening late 2019)
16. SJ Flea Market & future development site

Resources:

- San Jose Urban Approved Village Plans: http://sanjoseca.gov/index.aspx?NID=4032
- Friends of Five Wounds Trail https://fivewoundstrail.org/
- CommUniverCity SJSU Community Planning: http://cucsj.org/community-planning/
- East Santa Clara Street Assessment (May 2010): http://www.sjsu.edu/urbanplanning/docs/EastSantaClaraStreetReport.pdf
- Five Wounds/Brookwood Terrace BART Station Area Community Concept Plan http://cucsj.org/wp-content/uploads/2015/09/FWBT_BART_CONCEPT_PLAN.pdf

FIGURE 1.2.3 28th Street Station Area Opportunity Zones


FIREHOUSE No. 1
GASTRO PUB
69

2

MARKET ANALYSIS

San José. Photo Credit: SPUR, Sergio Ruiz

2.1 Introduction and Purpose

To support the TOD strategy, Strategic Economics evaluated the market for office, multifamily housing, hotels, and retail uses in the 28th Street, Downtown San José, and Santa Clara station areas, and the potential benefit of the new transit investment in catalyzing new development activity. The market study also provides preliminary projections of future demand for TOD through 2040.

This section provides an overview of the key findings from the market study. The full market study is included as Appendix B.

FIGURE 2.1.1 Station Study Area Boundaries

2.2 Findings from Previous Research on Transit and Development Potential

The market study report summarizes research on the household and firm preferences that shape demand for TOD, as well and the property value and development impacts of transit. The report explores how these trends are already playing out in transit-served locations in Silicon Valley and other parts of the Bay Area, and the implications for TOD in VTA's BART Phase II station areas. Key findings from this research are summarized below.

Transit-served locations in Santa Clara County are increasingly attracting new development and achieving higher property values. The predominant land use pattern in Santa Clara County has traditionally been suburban and auto-oriented. However, studies as far back as the early 2000s found that commercial properties near VTA light rail and Caltrain stations commanded significant land value and rent premiums.[1] In the current market cycle, multifamily residential development – and, increasingly office development – in Santa Clara County is concentrated around VTA's planned BART stations, VTA light rail stations, and Caltrain stations (Figure 2.2.1).

BART station areas have attracted significant new office and residential development. In Alameda, Contra Costa, and San Mateo Counties, one-third of all new apartment development since 1999 has occurred within a half mile of a BART station. Office development has been more decentralized, but since the mid-1990s, almost 30 percent of the new office development in Alameda County and nearly 50 percent of new office development in San Francisco has been located within a half-mile of a BART station. BART has been particularly important in enabling Downtown San Francisco to grow and maintain its importance as the region's central business district, and more recently has helped to support office growth in Downtown Oakland. BART enables workers to commute without a car, decreasing demand for parking and freeing up developable area for additional rentable office space.

As a result, properties near BART stations can command a significant price premium. Recent studies have found that properties located within a quarter to a half mile of BART stations in Alameda and Contra Costa County command an 11 to 18 percent premium, depending on the property type (Figure 2.2.2).[2]

VTA's BART Phase II extension has the potential to significantly increase the attractiveness of the station areas for new development. Previous research has found that transit investments that provide frequent, reliable ser-

1 Robert Cervero and Michael Duncan, "Rail Transit's Value-Added: Effects of Proximity to Light and Commuter Rail Transit on Commercial Land Values in Santa Clara County, California," in Urban Land Institute & National Association of Realtors, 2001; Rachel Weinberger, "Light Rail Proximity: Benefit or Detriment in the Case of Santa Clara County, California?," Transportation Research Record: Journal of the Transportation Research Board 1747 (January 1, 2001): 104–13, https://doi.org/10.3141/1747-13.

2 Strategic Economics, "Property Value and Fiscal Benefits of BART" (Bay Area Rapid Transit (BART), August 2014), https://www.bart.gov/sites/default/files/docs/2014-08%20BARTPropValues_Final_0.pdf; Strategic Economics, "Benefits of BART for Office and Apartment Properties" (Bay Area Rapid Transit (BART), July 2015), https://www.bart.gov/sites/default/files/docs/2%20-%20BART_OfficeApartmentAnalysis_Final_07-2015_0.pdf; Strategic Economics, "Benefits of BART to Single-Family and Condominium Property Values by County," July 2015, https://www.bart.gov/sites/default/files/docs/1%20-%20BART%20Single%20Family%20and%20Condo%20Analysis_0.pdf

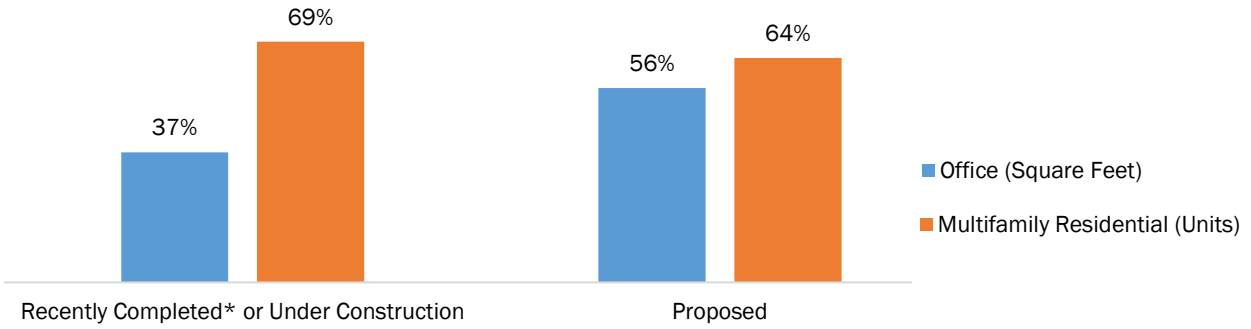


FIGURE 2.2.1 Percent of recent and proposed office and multifamily residential development in Santa Clara County located within a half mile of a transit station
**Since 2011.*
Includes office development within a half mile of VTA's BART stations, VTA Light Rail, and Caltrain stations.
Sources: CoStar, 2018; Strategic Economics, 2018.

vice and connections to major employment centers and other regional destinations are most likely to attract new development. VTA's BART Phase II extension shares these characteristics, including:

- Providing frequent, reliable service. BART will provide an alternative to highly congested freeways for East Bay workers commuting to San José and Santa Clara, and represent a significant improvement in frequency and reliability of service over the existing Amtrak Capitol Corridor.
- Connecting to major employment centers. With the completion of VTA's BART Phase II, the BART system will connect the region's three primary central business districts (Downtown San Francisco, Downtown Oakland, and Downtown San José). VTA light rail further extends the transit connection to major employment centers in North San José, North Santa Clara, and Milpitas (Figure 2.2.3).
- Connecting to other regional destinations. The Phase II extension will serve major educational institutions, including Santa Clara University and San José State, as well as a variety of other civic and educational institutions in Downtown San José. Once a connection to San José International Airport is completed, the BART system will serve three international airports.

Careful planning will be required to help unlock the full potential for TOD in the station areas. Research and experience from other transit investments suggest that proactive planning is required to help unlock the potential for high density, equitable development near transit stations. In particular:

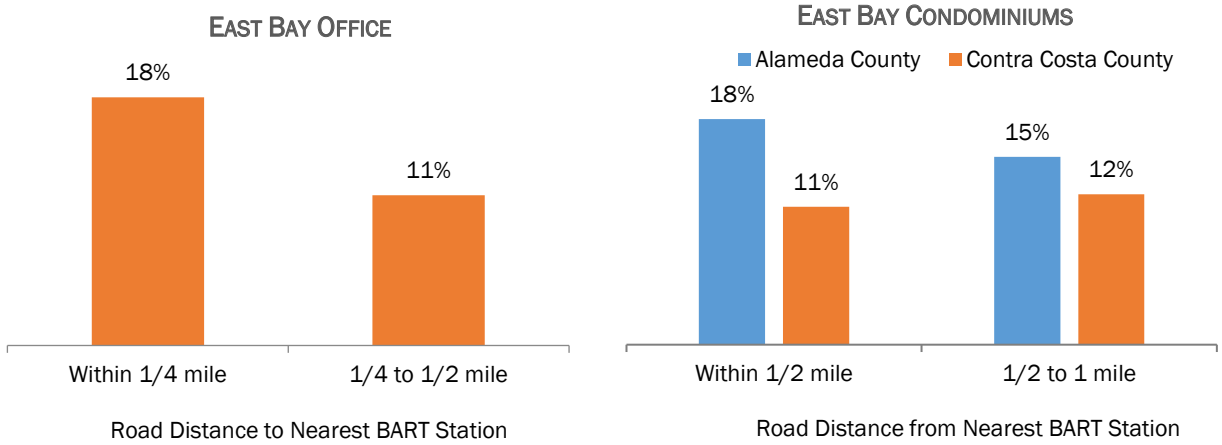


FIGURE 2.2.2 Office and condominium value premiums near East Bay BART stations
Percentage difference in office rents / condominium values, compared to locations more than ½ road mile from a BART station for office, and more than 5 road miles from a BART station for multi-family residential.
Source: Strategic Economics, 2015.

- Supportive land use policy can help reinforce the value of transit-served locations for new, higher-intensity development by allowing higher densities (resulting in increased potential revenues) and reduced parking requirements (resulting in decreased construction costs).
- Investments in improved connectivity also help support higher property values and new development. Properties are much more likely to attract TOD if they have direct, high-quality pedestrian and bicycle connections to the transit station.
- Proactive policies to prevent displacement and produce new affordable housing are required to ensure that the increased market activity often associated with new transit investments does not place transit-served locations out of reach of lower-income households. Section 6, more closely examines the potential for displacement at the Phase II stations and best practices for addressing these challenges.

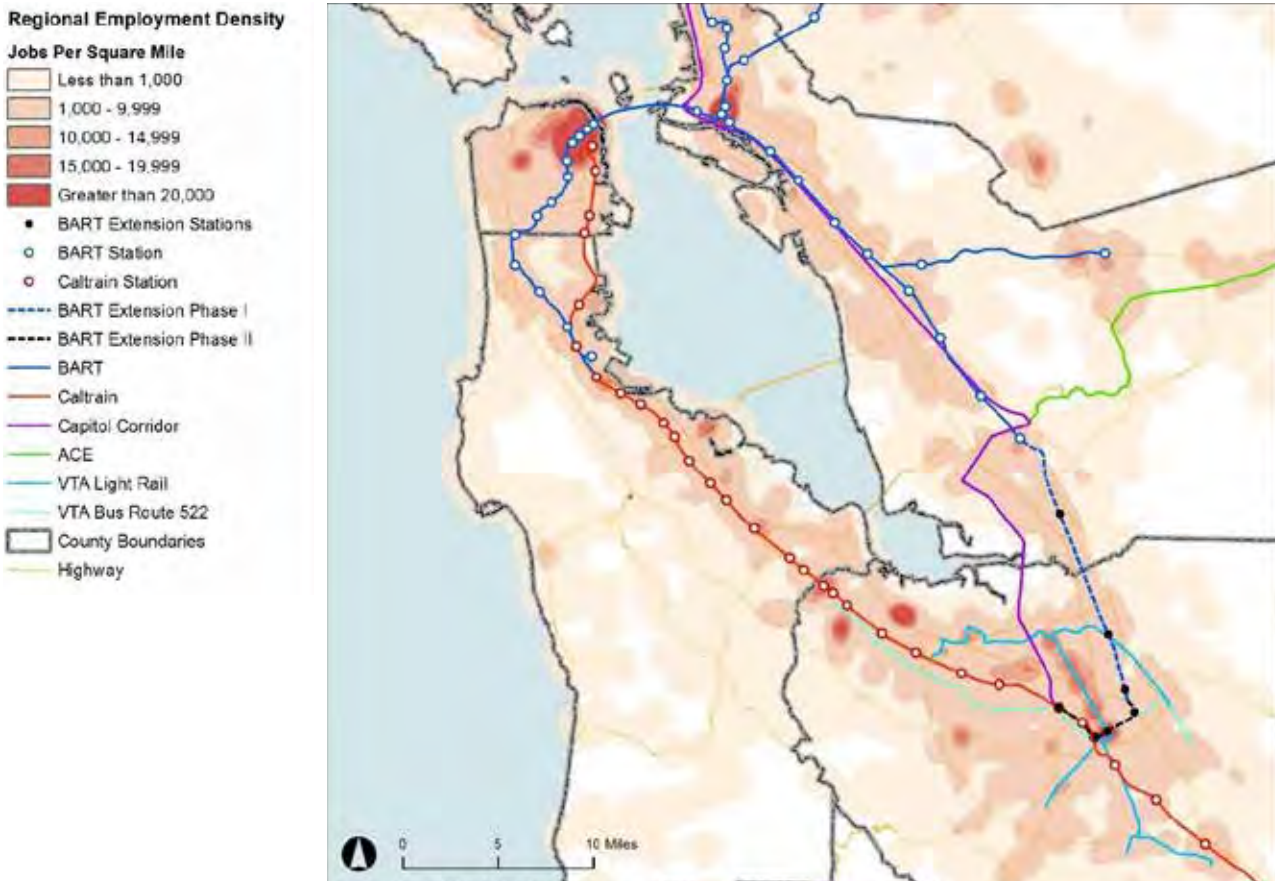


FIGURE 2.2.3 VTA'S BART to Silicon Valley will link to major employment centers and help complete the regional transit network
Source: LEHD, 2014; MTC; Strategic Economics, 2017.

2.3 Office Market

The market study report evaluates the market for office development along the VTA's BART Phase II extension, in the context of broader Silicon Valley office market trends.[1] Key findings are summarized below.

SILICON VALLEY MARKET TRENDS

Since the end of the recession in 2011, Silicon Valley is experiencing a major economic expansion, driven by job growth in the tech sector. Strong employment growth has spurred significant office development. Between 2017 and 2018 alone, nearly seven million square feet of new office space were completed, representing a ten percent increase over the 2017 office inventory.

Real estate market and economic indicators suggest that demand for office remains strong. Rents for all classes of office have remained stable since 2016. Although vacancies have increased since 2016, this trend primarily reflects large amounts of new construction coming online. In the last quarter of 2017 and the first quarter of 2018, the market absorbed a record amount of space, primarily in the form of pre-leases as tenants rushed to lease properties that were under construction or planned. Meanwhile, employment in Santa Clara County continues to increase (Figure 2.3.1).

However, economists have identified a number of risks that could affect the future of employment growth and office development in Silicon Valley, including national economic factors that could lead to an economic downtown in the short- to mid-term, and longer-term challenges such as the region's housing affordability crisis. Nationally, the economy has been expanding since 2009, making the current economic cycle one of the longest on record.[2] Although it is challenging to predict economic cycles, low unemployment rates, rising interest rates, and high stock valuations in mid-2018 are suggestive of an economy that could be in the middle to late stages of expansion and heading towards a downturn.[3] Concerns about rising tariffs and immigration restrictions are also contributing to short-term economic uncertainty, including for the tech industry which relies heavily on an immigrant workforce and on foreign markets for manufacturing, capital, and sales.[4] In the longer term, economists have identified the region's housing affordability crisis, increasing congestion, and aging infrastructure as major challenges for continuing to attract a talented workforce, expand the innovation economy, and maintain strong employment growth.[5]

1 For the purposes of the office market study, Silicon Valley was defined to include Santa Clara County and the City of Fremont.

2 As of June 2018, the economy had been expanding for 108 months. Since tracking began in the mid-1850s, only two other economic cycles (February 1961 – December 1969 and March 1991 - March 2001) have lasted more than 100 months. Source: National Bureau of Economic Research, US Business Cycle Expansions and Contractions, http://www.nber.org/cycles.html, accessed July 2018.

3 Karen Wallace, "Where Are We in 'The Cycle'?" March 1, 2018, https://www.morningstar.com/articles/852591/where-are-we-in-the-cycle.html.

4 For example, see Nelson W. Cunningam, "Trump's tariffs on Chinese tech exports worry Silicon Valley," San Francisco Chronicle, July 7, 2018, https://www.sfchronicle.com/opinion/openforum/article/Trump-s-tariffs-on-Chinese-tech-exports-worry-13055035.php; Ellen Sheng, "Silicon Valley is fighting a brain-drain war with Trump that it may lose," CNBC, April 9, 2018, https://www.cnbc.com/2018/04/09/trumps-war-on-immigration-causing-silicon-valley-brain-drain.html.

5 For example, see Bay Area Economic Institute, "Continuing Growth

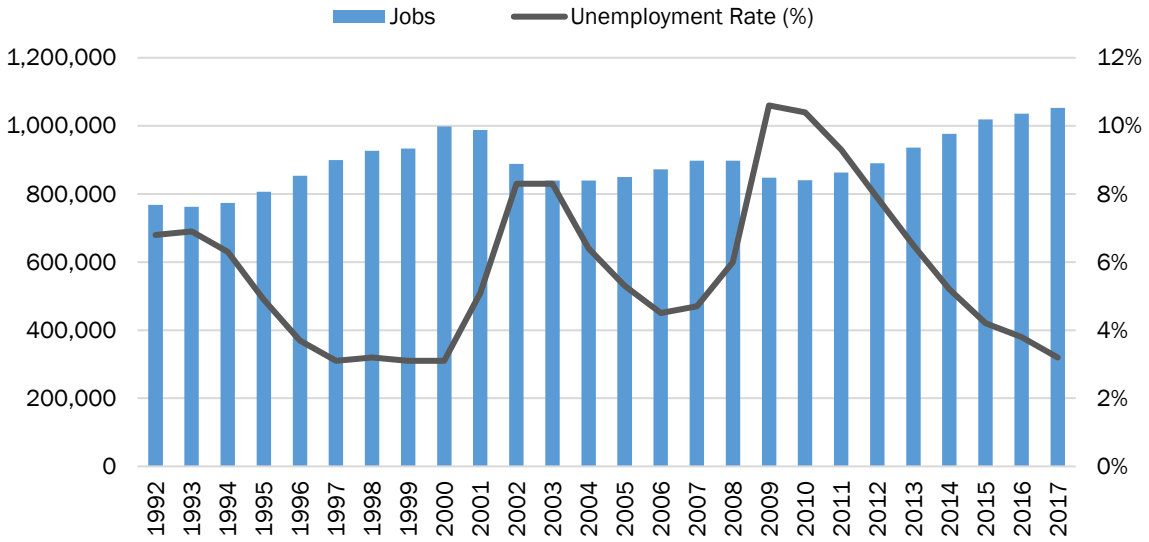


FIGURE 2.3.1 Santa Clara County jobs and unemployment rate, 1992-2017

Sources: U.S. Census, Quarterly Workforce Indicators, 2018; California Employment Development Department, 2018; Strategic Economics, 2018.

Within Silicon Valley, the Highway 101 corridor has historically been the most competitive location for office tenants, but tenants are increasingly looking to smaller, traditionally less competitive office markets with good transit access. The 101 corridor (including Palo Alto, Mountain View/Los Altos, Sunnyvale, and northern Santa Clara) commands the highest rents in Silicon Valley, and has attracted 70 percent of new office development completed since 2011. However, developers and brokers observe that with rising rents and limited supply, tenants are increasingly looking to traditionally less competitive office markets including San José (Figure 2.3.2). Locations in secondary markets with good transit access are particularly attractive. In keeping with this trend, Downtown San José is attracting increasing interest from office tenants and developers (as discussed in more detail below).

Suburban campuses are still the most common form of development in Silicon Valley, but office is also increasingly included as a component of major mixed-use developments centered around transit. For example, large mixed-use office projects currently under construction near Caltrain stations include Coleman Highline/Gateway Crossings (Santa Clara), Cityline (Sunnyvale), and San Antonio Village (Mountain View). Several large mixed-use projects are also proposed at planned BART stations, such as Market Park (Berryessa), Google Transit Village (Diridon), and Museum Place (Downtown San José).

SANTA CLARA STATION AREA

While the Santa Clara station area has not historically been a major office location, the Coleman Highline project is adding a significant amount of new office space and the station area is well-positioned to attract additional office development over time. Office development in Santa Clara has historically been focused along Highway 101. However, the 24-acre Coleman Highline project is planned to add up to 1.5 million square feet of office space in the station area, as well as two hotels. More than 600,000 square feet of this office space has already been pre-leased by Roku and 8x8. The Coleman Highline project and neighboring Gateway Crossing mixed-use residential development are examples of the shift in Silicon Valley toward large mixed-use TOD projects that include major office components. If completed as planned, Coleman Highline has the potential to establish the Santa Clara station area as a new office center. The introduction of BART service will further increase the desirability of this area as a transit-oriented location.

DOWNTOWN SAN JOSÉ STATION AREA

Although no new office construction has occurred in the current market cycle, Downtown San José is attracting increased attention from office tenants. Many older buildings are being renovated, and new office has recently been proposed. Developers and brokers report that rents are nearly high enough to make office development feasible in Downtown San José. Indeed, the broader Downtown San José submarket (including the Diridon area) accounts for approximately one-third of proposed future office development in Silicon Valley.

A combination of factors is driving increased interest in Downtown San José. These factors include:

- Recent residential development. The increased number of households living in the Downtown is helping to generate activity and support more restaurants and services, making the area more attractive for office users.

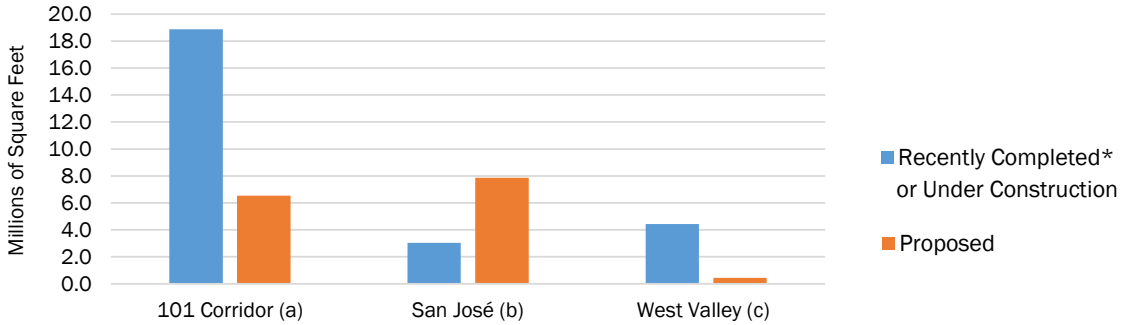


FIGURE 2.3.2 Recent and proposed office development in selected Silicon Valley submarkets
**Since 2011. (a) Includes Palo Alto, Mountain View, Los Altos, Sunnyvale, and Santa Clara. (b) Includes Downtown, North San José, and South and East San José. (c) Includes Cupertino, West San José, Campbell, Los Gatos, and Saratoga.*
Sources: CoStar, 2018; Strategic Economics, 2018.

and Unparalleled Innovation: Bay Area Economic Profile," July 2018, http://www.bayareaeconomy.org/files/pdf/BayAreaEconomicProfile2018Web.pdf; MTC and ABAG, "Regional Forecast of Jobs, Population, and Housing," Plan Bay Area 20140 Final Supplemental Report, July 2017.

- Proximity to the planned Google Village: Google's announcement that it intends to bring thousands of new workers to the Diridon area is helping to shift the perception of Downtown as a secondary office market, and could help the area to grow to become a true Central Business District over time.
- Improved transit access. Real estate professionals familiar with the Downtown office market cited new bus rapid transit along East Santa Clara, as well as the planned BART extension as factors helping to attract additional interest in Downtown. As discussed above, tech companies are increasingly seeking out transit-served locations.
- Improved retail and dining opportunities. The San Pedro Market area and SoFa district (southeast of Cesar Chavez Plaza) have added more retail and dining opportunities catering to the growing number of Downtown residents and employees.

Downtown appears to be reaching an inflection point, where increasing demand and a continuing strong economy could lead to one or more office buildings being constructed in the current market cycle. However, an economic downturn would likely push new office construction to the next expansionary period.

The VTA block could be a very attractive site for new office and assist in the creation of a concentration of office around First and Santa Clara Sts. This area is attracting interest from investors, as evidenced by recent property purchases and renovations. The new BART station is likely to make it an even more attractive location.

Competition for sites with residential development could limit the potential for office development. Previous analyses found that achieving the overall amount of development envisioned for Downtown San José will require every developable site in the Downtown to maximize its height and density, which may be challenging because of parking requirements and height restrictions related to proximity to the San José International Airport.[6] To date, Downtown San José has proven more attractive for residential development than office development. Given the limits on development, it maybe be beneficial to preserve certain prime sites (such as those in close proximity to BART) for future high-density employment uses. However, it is important to note that the increased number of households living Downtown is one of the factors that is helping to make the area more attractive for office development. Policies should be carefully calibrated to ensure that they do not disincentivize development, so that Downtown can continue to grow and evolve as a mixed-use district.

28TH STREET STATION AREA

It is unlikely that the 28th Street station area will see office development in the short to medium term. The station area is viewed as a challenging location for office, despite relative proximity to the Downtown. Real estate professionals interviewed for this study felt that while the station area may be able to attract medical office uses, the new BART station will help to stimulate the market for residential, rather than office development in the short- to medium-term. Other BART station areas, including Berryessa and Santa Clara, appear better positioned to attract office uses because they offer larger sites that can more readily accommodate a major mixed-use development project (as discussed below). However, in the long term, new residential development could help make the 28th Street station area more attractive for office development (as has occurred in the Downtown).

A major mixed-use development would be required to establish the area as an office location. According to brokers and developers, a large-scale, mixed-use development (including 500,000 square feet or more of office space) would be required to create a successful office location in an unproven market such as the 28th Street station area, even with a new BART station. A larger-scale development is better able to accommodate the mix of uses and amenities often required by major tech companies, such as restaurants and/or cafeterias, fitness studios, and open space. For example, Coleman Highline is planned for 1.5 million square feet of office on 22 acres, as well as hotel and office; the project will also be adjacent to substantial new residential development at Gateway Crossings. The Market Park project at the future Berryessa BART station is planned for 1.15 to 2.2 million square feet of office space as part of a larger, 120-acre mixed use project.

The station area may not have an appropriate site to accommodate this scale of development. The area's largest development opportunity site is the 11-acre, former San José Steel site at the planned 28th Street BART station. Many of the other opportunity sites within the station area are small and under fragmented ownership. Based on feedback from brokers and developers, it is not clear whether this will offer sufficient scale of development potential to enable new office development in an unproven market, even with improved transit access. The capacity for new office development in the station area will be explored further in the next task of the TOD Study.

6 SPUR, The Future of Downtown San José: How the South Bay's urban center can achieve its potential, 2013.

2.4 Multifamily Residential Market

The market study report evaluates the market for multifamily residential development in VTA's BART Phase II station areas, in the context of broader development trends in San José, Santa Clara and the County. Key findings are summarized below.

SANTA CLARA COUNTY MARKET TRENDS

There is significant pent-up demand for housing in Santa Clara County and the broader Bay Area region. Since the end of the recession in 2011, employment growth has significantly outstripped housing development. For example, between 2011 and 2017, the number of jobs in the nine-county Bay Area increased by nearly 21 percent, while the number of housing units increased by three percent.[1] In order to keep up with the rate of job growth, the regional housing market would have had to add 495,000 more housing units than were actually built during this period.[2] The pent-up demand for housing has led to rapid increases in rents and sales prices, as discussed below.

Rents in Santa Clara County have been rising for several years, although growth has slowed since 2015. Apartment rents accelerated beginning in 2011, as the economy emerged from the Great Recession, and continued growing at an average annual rate of nearly eight percent until 2015. Since then rents have continued to grow at a slower pace of about four percent. As of mid-2018, the average monthly rent in Santa Clara County was $2,575 (Figure 2.4.1). Rents in the City of Santa Clara tend to be slightly above the county average, while San José rents tend to be slightly lower. Vacancy rates have hovered around 5 percent for the past several years, reflecting the strong housing market.

As apartment rents and vacancies have begun to plateau, multifamily ownership prices have increased. As of April 2018, Santa Clara County's median sales price for multifamily ownership was $743 per square foot, an increase of 37 percent since 2017 (Figure 2.4.2). Local realtors note strong interest from first-time homebuyers – largely Millennials – who are shifting away from the region's high-rent apartment market. High sales prices can also be partially attributed to stiff competition for a limited inventory.

After several years of significant apartment development, the market is beginning to shift toward condominium projects. Between 2011 and mid-2018, 24,500 apartment units were completed in Santa Clara County, with the majority of units built in San José. During most of this time, condominium development was limited. However, Polaris Pacific (a brokerage firm that closely tracks the for-sale multifamily market) reports that as of mid-2018, San José has over 500 for-sale multifamily units under construction

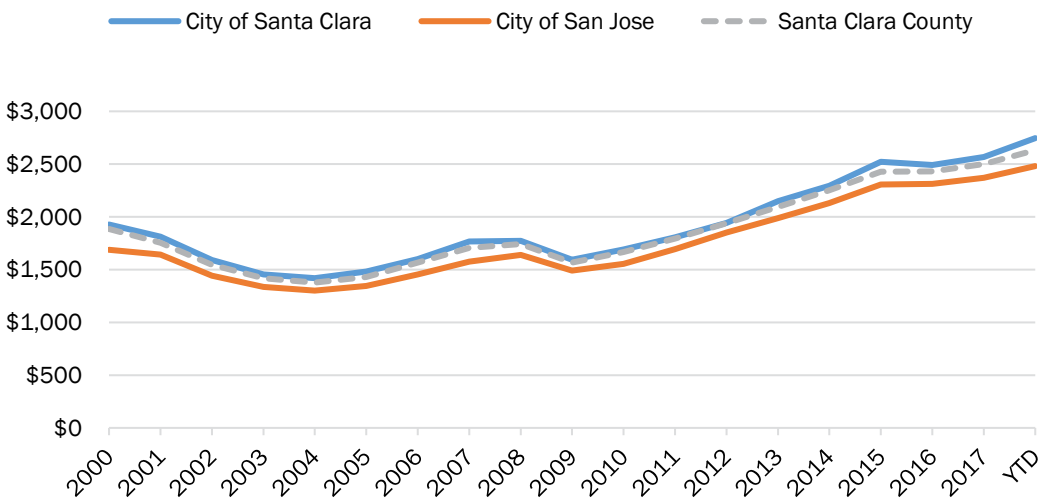


FIGURE 2.4.1 Average Rent: Santa Clara, San José, and Santa Clara County, 2000 through mid-2018
Rents for market-rate apartments, in nominal dollars.
Sources: Costar, 2018; Strategic Economics, 2018.

1 California Department of Finance Housing Estimates; : U.S. Census Bureau, Quarterly Workforce Indicators; MTC and ABAG, "Regional Forecast of Jobs, Population and Housing," July 2017; Strategic Economics, 2018.

2 Faster job growth relative to household growth has been made possible by a reduced unemployment rate, increased labor force participation, higher household sizes, and in-commuting from outside the region.

and an additional 1,800 units approved. According to developers, escalating construction costs and flattening rents are negatively affecting apartment feasibility. Meanwhile, comparatively high sales prices of for-sale housing are supporting development of condos and townhomes.

Developers cite the region's soaring construction costs as the most significant barrier preventing entitled projects, including several residential towers in Downtown San José, from breaking ground. The high cost of construction materials and rising labor costs are making it challenging for projects to move forward.

SANTA CLARA STATION AREA

The Santa Clara station area is a very desirable location for residential development. The station area has already attracted significant residential development, particularly along El Camino Real. Three major apartment projects which are proposed immediately adjacent to the station itself (Gateway Crossings, 575 Benton St, and a student housing project at the existing Caltrain station parking lot) could potentially add nearly 2,200 new residential units, more than doubling the number of housing units currently in the station area.[3] The station area benefits from proximity to major employment centers along Highway 101, the University, and the Caltrain Station. The addition of BART will provide improved access to jobs and other destinations across the region, as well as direct connections to retail and entertainment in Downtown San José.

FIGURE 2.4.2 Multifamily ownership median sales price per square foot: cities of San José and Santa Clara, selected submarkets, and Santa Clara County, 2012-2017
Source: Redfin, 2018.

3 According to the 2016 American Community Survey, the Santa Clara station area had just over 1,600 housing units in 2016. Note that this does not include Downtown Santa Clara.

DOWNTOWN SAN JOSÉ STATION AREA

The Downtown area is experiencing an unprecedented amount of residential development activity, with approximately 2,380 units currently under construction and more than 4,600 additional residential units entitled or under review. This includes a combination of high-rise and mid-rise developments targeting young professionals and households without children. Although most of the development to date has taken the form of apartments, several condominium projects are now planned. In addition, a few student housing projects are being built near San José State on the east side of Downtown.

Downtown San José is well positioned to continue to grow in appeal as a location for residential development over time. In the short term, the pace of residential development may be negatively impacted by rising construction costs. In the longer term, the growing concentration of activity in Downtown, future plans for the Google Village helping to spur the market, and the planned future BART station will help make the station area increasingly attractive as a residential location.

28TH STREET STATION AREA

The 28th Street Station Area is attracting growing interest from residential developers. Most recent development in the station area consists of affordable housing. However, the recent announcement of a proposed 332 unit mixed-use project at 1325 E. Julian St suggests that development interest in the station area is already beginning to increase in response to the planned new BART station.

City policies may limit residential development in this station area. San José's Urban Village policy restricts the location and timing of residential development in the station area. The Urban Village policy also requires that all residential projects include a significant commercial component. According to developers, this requirement creates challenges for residential development because of the limited market for office and retail development in the station area, which could potentially delay the timing of all new development.

In the long run, new residential development could help make the station area more appealing for office and retail uses. Policies that enable residential development could help strengthen demand for retail and service uses, and make the station area more attractive for other employment uses as well. For example, as discussed above, residential development in Downtown San José has been an important factor in catalyzing growing demand for office space.

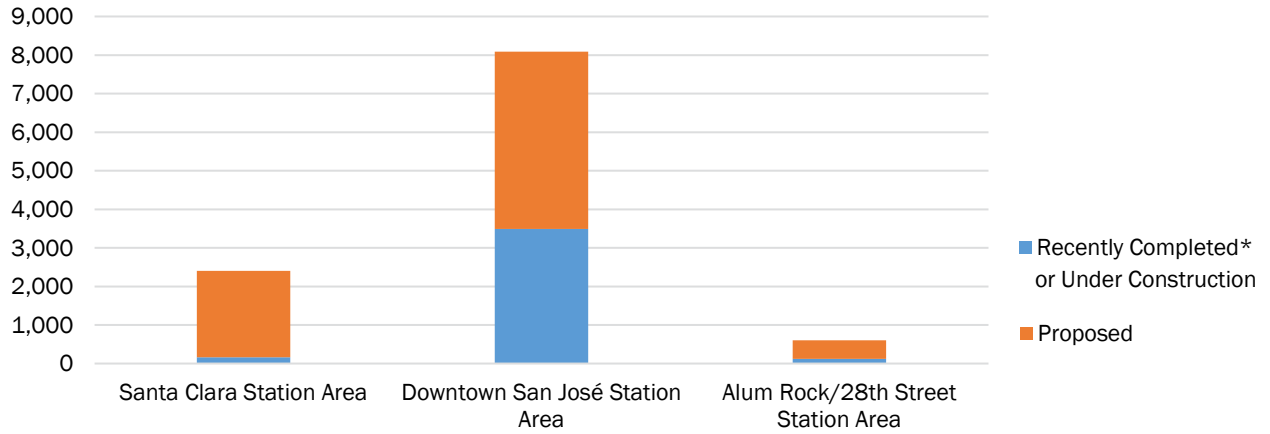


FIGURE 2.4.3 Recent and proposed residential development (units) in the station areas.
**Since 2011.*
Includes market-rate and affordable units.
Sources: CoStar, 2018; Cities of San José and Santa Clara, 2018; Strategic Economics, 2018.

2.5 Hotel Market

The market study report evaluates the potential for new hotel development in VTA's BART Phase II station areas given recent trends in the Santa Clara County hotel market. Key findings are summarized below.

SANTA CLARA COUNTY MARKET TRENDS

Silicon Valley has one of the strongest lodging markets in the country, with very high room revenues and occupancy rates. As of the end of 2017, average daily rates (ADR) exceeded $200 and revenue per room (RevPAR)[1] had reached $160. In comparison, the national average RevPAR was $83 in 2017.[2] Occupancy rates at Silicon Valley hotels increased rapidly since 2011, and have remained at nearly 80 percent since 2014 (Figure 2.5.1). This is well above the national industry standard (65-70 percent).

Hotel development has surged in Santa Clara County in the last several years, with approximately half of the development occurring in San José. In total, approximately 2,400 new rooms have been added to the county's inventory since 2011, which represents an increase of nearly 10 percent. Half of recently completed rooms are located in San José, while just over 100 rooms have been added in Santa Clara. Another 2,100 rooms are currently under construction, of which half are located either in San José (900 rooms) or Santa Clara (360 rooms).

Growing demand for hotels in Silicon Valley has been driven by employment growth, especially in the tech and construction industries. Hotel market experts cite Silicon Valley's sustained job growth, especially in the tech industry, as the main factor supporting sustained, strong hotel demand.[3] Silicon Valley's large corporations generate significant weekday business travel, especially in midprice, upscale, and luxury hotels.[4] Extended stay hotels (properties that quote weekly rates) and limited-service hotels (properties that offer few amenities, such as restaurants or spas) have also seen increased occupancy rates from crews of construction workers travelling from outside Silicon Valley to help fill the region's limited labor supply.[5]

1 Revenue per available room (RevPAR) is calculated by dividing total room revenue by the number of rooms available.

2 Colliers International, 2018. Market Forecast Report Silicon Valley.

3 HVS, September 2017. Market Pulse: Silicon Valley. https://www.hvs.com/article/8076-hvs-market-pulse-silicon-valley

4 Hotel News Now, April 2017. Development, demand has Silicon Valley hotels trending. http://www.hotelnewsnow.com/Articles/130271/Development-demand-has-Silicon-Valley-hotels-trending

5 Colliers International, 2018. Market Forecast Report Silicon Valley.

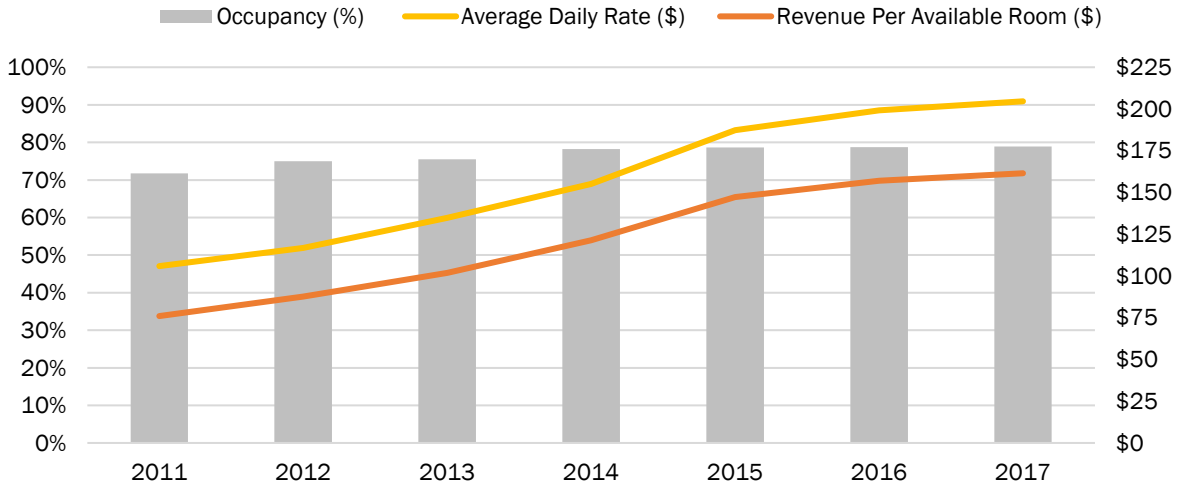


FIGURE 2.5.1 Performance indicators for midprice, upscale, and luxury hotels in Silicon Valley cities, 2011-2017*
**Includes hotels in the cities of San José, Santa Clara, Los Altos, Sunnyvale, Campbell, Cupertino, Fremont, and Milpitas. Excludes budget and economy hotels.*
Source: STR Global, 2018.

SANTA CLARA STATION AREA

Santa Clara Station is well-poised to attract hotel development given its proximity to San José International Airport, major employment centers, highways, and Santa Clara University. Passenger and flight activity at San José's airport have increased significantly, and new hotels have proliferated near the airport (although mostly on the east side of the airport, nearer the entrance). Proximity to I-880 and El Camino Real also provide visibility, which is important for certain types of hotels. Furthermore, from the University's perspective, there is a need for higher quality hotels to meet the growing demand from executives, visiting scholars, and visitors for events (graduations, open house, sports games, etc.).

DOWNTOWN SAN JOSÉ STATION AREA

Downtown San José is one of the largest hotel submarkets in Santa Clara County, and proximity to the McEnery Convention Center and a growing office and tech concentration make it attractive for additional hotel development. Downtown San José has approximately 2,700 rooms, 85 percent of which are classified as upscale or luxury, one of the largest concentrations in the county.[1] Daily rates and RevPAR in Downtown San José exceed the Silicon Valley average. Increased activity at the convention center (including more conferences and events), Adobe's planned expansion, and Google's anticipated Village at Diridon Station are attracting new interest from hotel developers.

Downtown San José is expanding its dining and entertainment cluster and it has seen an increase in tourism, but it does not yet attract a significant number of tourists. While the city's tourism industry has grown since 2016, most overnight visitation is still tied to business travel and conferences.

Overall, there is potential for significant additional hotel development in the Downtown San José station area, including in close proximity to the station itself (such as at the VTA block). Historically, most hotel development in Downtown has occurred within a half-mile of the convention center. However, the blocks immediately around the station are likely to become more attractive for hotel development as the area attracts new office and residential development, new retail and restaurants, and increased pedestrian activity. The VTA block could be an appropriate site for new hotel, especially as part of a larger mixed-use development.

ALUM ROCK/28TH ST STATION AREA

It is unlikely that the Alum Rock/28th St station area will see hotel development in the short to medium term. The station area, and the broader East San José/International Business Park submarket as a whole, has very little existing supply and has seen no new development in recent years. The station area has low employment densities, and no major destinations. Although Downtown San José is only about two miles away, business travelers do not tend to stay in hotels that far away from their destination. However, in the long run, the introduction of BART service, other public improvements, and new residential and office development could potentially enable the station area to attract a small increment of hotel development.

1 One way STR categorizes hotels is based on their market price segment. STR defines luxury hotels as those with an average daily rate at or above the 85th percentile for the metropolitan region; upscale hotels are those between 70-85th average daily rate percentile; mid-price hotels are in the 40-70th percentile; economy hotels are in the 20-40th percentile, and budget hotels are in the 0-20th percentile.

2.6 Retail Market

The market study report evaluates the potential for new retail development in VTA's BART Phase II station areas, with a focus on retail development that will support transit-oriented, mixed-use neighborhoods. Key findings are summarized below.

SANTA CLARA COUNTY MARKET TRENDS

Santa Clara County is showing continued signs of a strong retail market. Between 2013 and 2018, the average retail vacancy rate in Santa Clara County declined from about 6 percent to 3.7 percent. Meanwhile, rental rates have also steadily increased, reaching about $2.75 per square foot, triple net in 2018 (Figure 2.6.1). Rents and vacancies in the cities of San José and Santa Clara are similar to the countywide average.

The region's low unemployment rates, high incomes, and sustained job and residential growth appear to be protecting Santa Clara County from some of the challenges affecting brick-and-mortar retailers nationally. The retail industry is in the middle of a major transformation. The past two years have been notable for a flurry of store closures or bankruptcies across the U.S., primarily in the home entertainment, apparel, electronics, footwear, and department store categories. Consolidation in the industry is driven by several trends, including the growing influence of e-commerce. Non-store retail sales (a proxy for online sales) accounted for 12 percent of total U.S. retail sales in 2016, but more than 40 percent of the growth in total sales between 2014 and 2016.[1] However, fast-growing urban areas appear to be somewhat protected from the challenges facing brick-and-mortar retailers, and the retail market in Santa Clara County remains one of the strongest in the country. Brokers report that malls in Santa Clara County have lost some major anchors and other tenants, although they are successfully adapting by upgrading vacated spaces and re-tenanting.

Nevertheless, national retail industry trends are affecting the types of tenants that are driving demand for retail space in Santa Clara County, and there remains significant uncertainty around the future of brick-and-mortar retail. As traditional retailers have pulled back, restaurants and drinking places, entertainment uses, food-related retail, fitness centers, medical uses, and personal and financial services are driving much of the demand for retail space, both nationally and in Santa Clara County. For example, several malls are filling their large vacant spaces with fitness tenants like 24 Hour Fitness and City Sports Club (Eastridge Mall and Evergreen Plaza), developing new theaters (Westfield Valley Fair), and/or upgrading their food courts to remain competitive (Eastridge Mall). Shopping malls and districts are also starting to attract stores associated with online businesses (e.g., Warby Parker, Bonobos, Everlane) that enable customers to experience products in person. While malls and shopping districts in Santa Clara County have been largely successful at adapting to changing trends to date, there remains uncertainty about the amount of brick-and-mortar retail space that the region will be able to support in the long run as online shopping continues to grow.

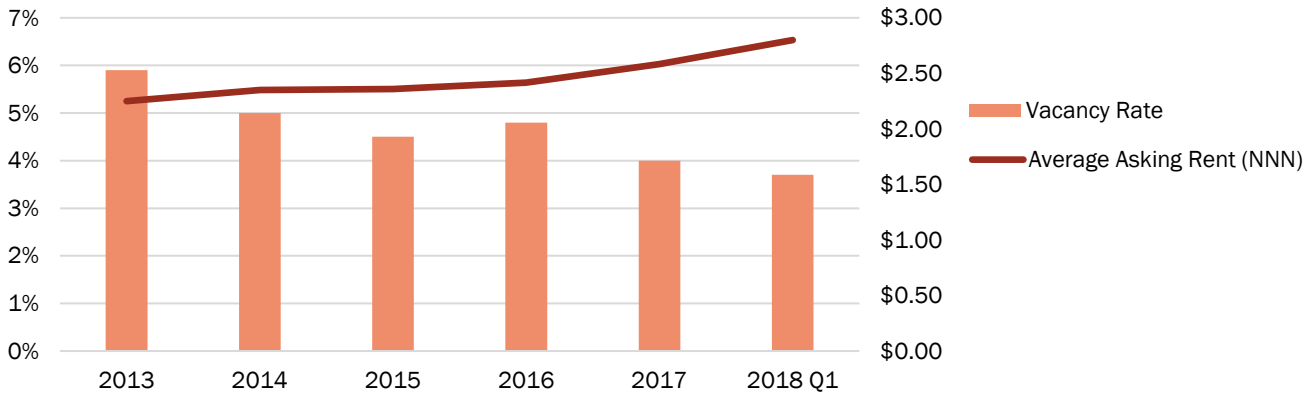


FIGURE 2.6.1 Santa Clara County retail market vacancy and asking rents, 2013-2018

Values approximated based on Cushman and Wakefield's Retail Market Beat Report for the Silicon Valley, Q1 2018. Rents represent an average of all space types. Average rents for Class A or new space are much higher, closer to $4-$6 per square foot. Rents are expressed as monthly rents per square foot, triple net.

Source: Cushman Wakefield, 2018; Strategic Economics, 2018.

1 Strategic Economics, State of the Retail Sector: Challenges and Opportunities for San Francisco's Neighborhood Commercial Districts, prepared for San Francisco Office of Economic and Workforce Development, 2018.

Walkable, mixed-use shopping districts are increasingly attractive for new retail investment, both nationally and locally. National market reports find that while new retail construction is at its lowest since 2015, urban and mixed-use products now account for the majority of new retail development.[2] Urban retail corridors offer access to a higher density of potential customers compared to more suburban locations, and provide a shopping environment characterized by pedestrian-friendly streets, architectural and historic appeal, and a mix of uses, parks, and public spaces that is increasingly appealing to many customers. In keeping with national trends, brokers anticipate that the "Almaden Ranch [a power center in South San José completed in 2017] is probably the last single-story, surface-park[ed] shopping [center] to be built in Silicon Valley."[3] Instead, developers are focusing on either building retail as part of mixed-use projects (e.g., San Antonio Center in Mountain View), or reinvesting in existing shopping centers.[4]

SANTA CLARA STATION AREA

Existing retail nodes in Downtown Santa Clara, along El Camino Real and on The Alameda could grow to include additional small-scale retail development over time. These clusters on the west side of the railroad tracks benefit from proximity to Santa Clara University and high-income residential neighborhoods. In addition, the City of Santa Clara is in the process of developing Precise Plans for the Downtown and El Camino Real, which will identify public investments to improve the pedestrian environment,

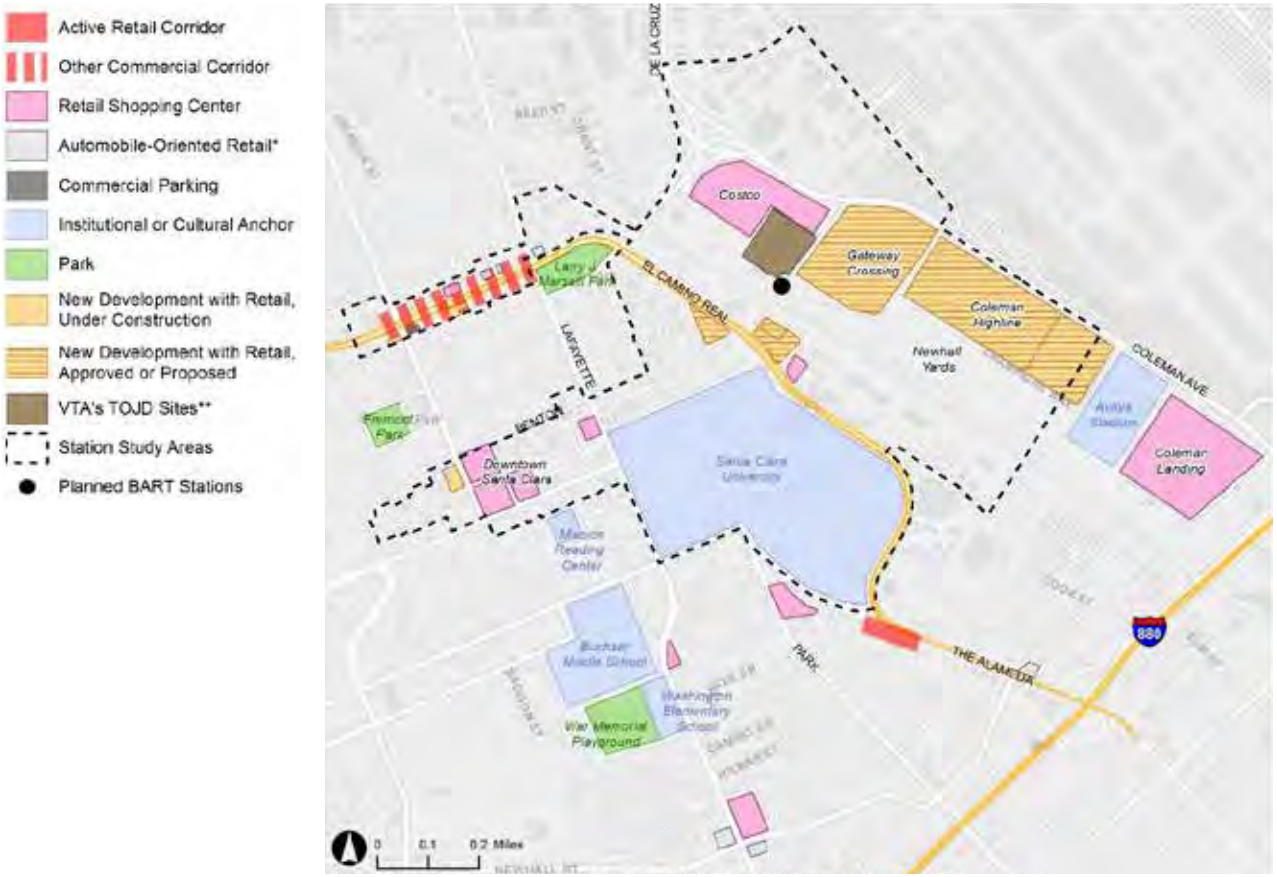


FIGURE 2.6.2 Existing and planned retail in the Santa Clara Station Area
**Includes gas stations, auto repair shops, and auto parts dealers.*
***Transit-oriented joint development sites owned by VTA.*
Sources: City of Santa Clara, 2018; City of San José, 2018; Strategic Economics, 2018.

2 JLL, United State Retail Outlook Q3 2017 and Q4 2018.

3 Colliers, 2018. Silicon Valley Market Forecast Report

4 Cushman and Wakefield, U.S. Market Beat Retail Shopping Center, Q4 2017.

enhance pedestrian and vehicle connectivity, and add new public gathering spaces. The plans may also identify some priority areas for focusing new ground floor retail development.

The east side of the railroad tracks may be more challenging for additional retail development, especially immediately adjacent to the station. Coleman Avenue has proven attractive for big box retailers. Future development (including the Gateway Crossing and Coleman Highline projects) has the potential to add new residents and workers and create a more welcoming pedestrian environment, and there could be opportunities for small increments of convenience retail to serve local residents, workers, and commuters. However, even with the new development, the blocks immediately adjacent to the station are likely to remain challenging locations for retail. In particular, retail space with limited surface parking or no direct frontage on Coleman Avenue would likely find a location on the east side of the station challenging, because of the poor vehicle and pedestrian connectivity to surrounding neighborhoods.

DOWNTOWN SAN JOSÉ STATION AREA

In the short term, Downtown San José is poised to continue growing as a destination for dining and entertainment. Downtown San José is increasingly emerging as a dining and entertainment destination. As worker and residential densities continue to grow, there will also likely be increased demand for dining, entertainment, and neighborhood-serving goods and services (e.g., grocery and drug store, personal services) to serve new residents, workers, and visitors.

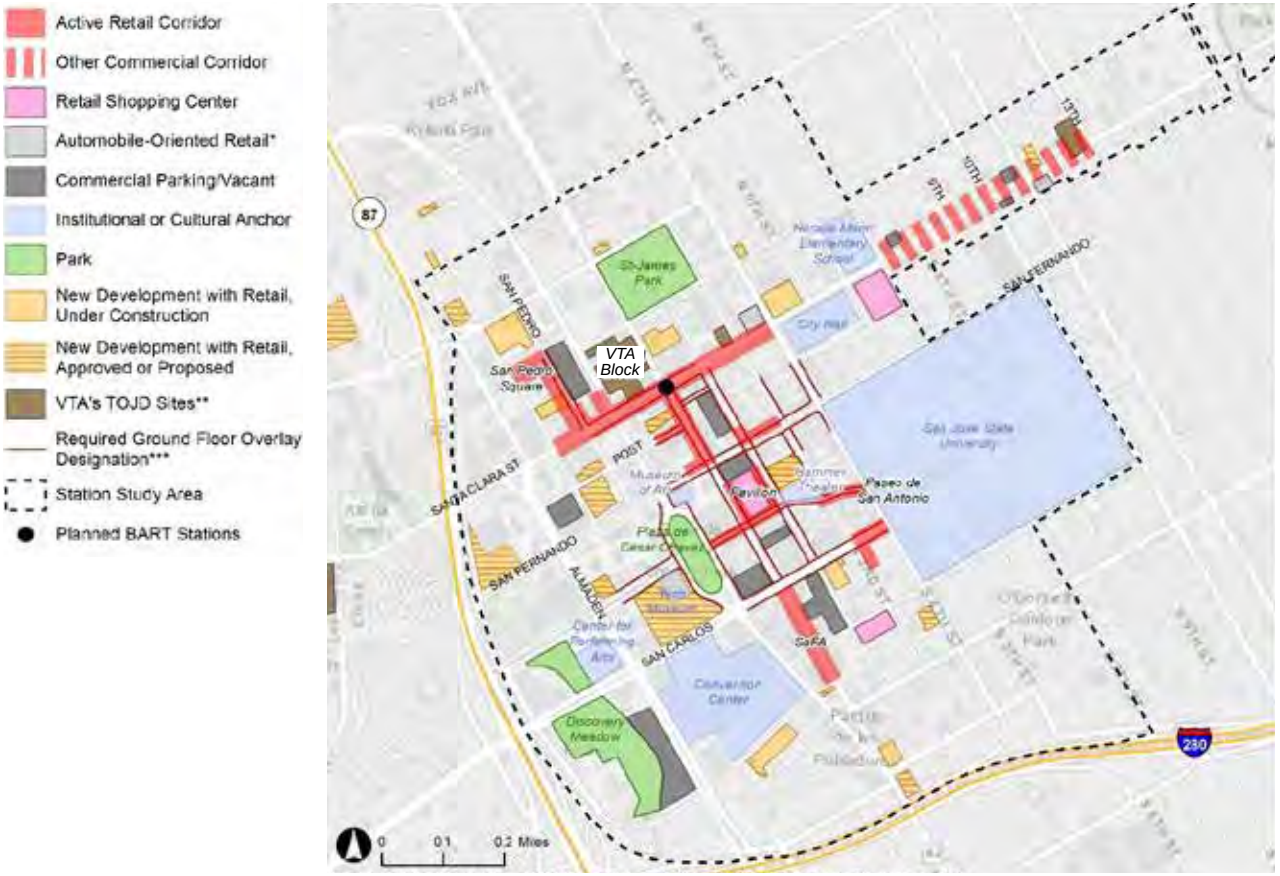


FIGURE 2.6.3 Existing and planned retail in the Downtown San José Station Area
**Includes gas stations, auto repair shops, and auto parts dealers.*
***Transit-oriented joint development sites owned by VTA.*
****Revisions to the city's ground floor retail overlay designation are currently underway.*
Sources: City of Santa Clara, 2018; City of San José, 2018; Strategic Economics, 2018.

While traditional retail in Downtown San José is currently very limited, in the long-term the station area has the potential to attract more retailers selling clothing, accessories, home furnishings, or other goods. Some of the challenges that have prevented Downtown from attracting traditional retail include competition with nearby malls and lifestyle centers; vacancies and challenges related to cleanliness and safety that negatively affect the pedestrian environment; and lack of appropriate space (such as a cluster of large, Class A retail space with good visibility and large storefronts). However, as the most urban shopping district in Santa Clara County, Downtown is well positioned to leverage current retail industry trends that favor more walkable, mixed-use environments. In addition, the City and the San José Downtown Association are working to address Downtown's quality of life challenges, including investing in public space improvements, cleanliness, and safety.

As more mixed-use development occurs, it will be important for new ground floor space to be appropriately designed. For example, store height and depth, utility connections, visibility, commercial on/off-loading are key issues for retailers.

The most promising locations for new retail in the station area are along Santa Clara and San Fernando Sts. The Downtown Retail Strategy identifies Santa Clara and San Fernando Sts as some of the most promising corridors for new retail. The VTA Block is located north of W. Santa Clara St, between Market and First St. Retail at this location is likely to do best if it is directly visible and accessible from Santa Clara and/or First Sts.

FIGURE 2.6.4 Existing and planned retail in the 28th Street Station Area
**Includes gas stations, auto repair shops, and auto parts dealers.*
***Transit-oriented joint development sites owned by VTA.*
Sources: City of Santa Clara, 2018; City of San José, 2018; Strategic Economics, 2018.

There may be potential for a new grocery store along the East Santa Clara St corridor, between the Downtown and 28th Street stations. A grocery store would require an adequately sized site and excellent visibility and access for both vehicles and pedestrians. San José's forthcoming Citywide Retail Strategy identifies the site of the former hospital at East Santa Clara St and North 17th St (now owned by Santa Clara County) as an appropriate location, and recommends that the City and County work together to include a grocery store in future development proposals.

28TH STREET STATION AREA

The 28th Street station area has proven challenging for new retail development. Recent commercial development in and around the station area has been limited to one new strip center built in 2013 (Bellini Plaza at King Road and Whitton Ave), and one mixed-use residential development with ground floor retail that was completed in 2004 (Tierra Encantada Apartments). The new retail space has several long-term vacancies. Brokers report that the area has struggled to attract the types of larger chain tenants who are more likely to be able to support the higher rents associated with new, larger retail space.

However, in the medium to long term there is potential to add incremental amounts of retail along the Alum Rock/East Santa Clara corridor to serve new residents and workers. Overcoming pedestrian barriers could also help make the station area more attractive for retail. In particular, Highway 101 creates a major pedestrian and physical barrier between the East Santa Clara and Alum Rock Avenue retail nodes.

Independent retailers may not be able to afford the higher costs associated with renting or purchasing new storefronts. As additional new development occurs, there may be a need to implement strategies to prevent displacement of existing small businesses.

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2.7 Demand Projections

The market study report projects demand for office, multifamily residential, hotel, and retail development, assuming that the corridor becomes more competitive for new development following the introduction of BART. Key findings are discussed below, for the corridor overall and by station area. The market study report provides more detail on the projection methodology and results.

CORRIDOR

Table 2.7.1 summarizes projected demand by land use in the corridor from 2015 through 2040, after netting out development that is currently under construction or has been recently completed. As mentioned above, the demand projections assume that the corridor becomes more competitive for new development following the introduction of BART. The two scenarios (low and high) represent a range of assumptions about the rate of the region's future economic growth, and the share of regional growth that will be captured in the station areas.[1] Note that the demand projections are not constrained by land use capacity.

1 For the purposes of the demand projections, the region was defined as the five BART-served counties (Alameda, Contra Costa, San Francisco, San Mateo, and Santa Clara).

	Low	High
Office (Sq. Ft.)	4,449,000	7,502,000
Residential (Units)	41,575	52,905
Hotel (Rooms)*	2,060	2,970
Retail (Sq. Ft.)	348,940	543,240

Net of development completed since 2015 or under construction.
*The hotel projections cover the 2018-2040 period.
Source: Strategic Economics, 2018.

TABLE 2.7.1 Corridor demand projections

The projections below allocate demand based on their relative market strength. However, its important to note that development could shift within the corridor based on factors such as land use policy, capacity, infrastructure improvements, market changes, specific user needs, and other factors.

SANTA CLARA STATION AREA

Table 2.7.2 shows projected demand in the Santa Clara station area by land use and five-year period. After accounting for recently completed and under construction development, demand for new development in the Santa Clara station area by 2040 is projected to include:

- 1.3 to 2.3 million square feet of office space
- 6,900 to 8,600 multifamily residential units
- 590 to 850 hotel rooms
- 53,500 to 93,400 square feet of retail

If built as planned, the commercial development currently proposed for the station area could absorb the majority of the projected demand for office, hotel, and retail. Currently, the development pipeline includes approximately 1.5 million square feet of proposed office, of which more than 600,000 square feet are pre-leased (Coleman Highline); 550 proposed hotel rooms (Gateway Crossings and Coleman Highline); and 84,000 square feet of proposed retail. In the high scenario, there could be demand for an additional 800,000 square feet of office, 300 hotel rooms, and some small additional increments of ground floor retail,[2] beyond the amount currently in the pipeline.

2 Some new retail space may be filled with other uses not included in the projections (e.g., fitness centers, personal services, medical services, and professional and financial services, etc.).

The City of Santa Clara's General Plan envisions approximately 500,000 square feet of office and up to 1.5 million square feet of retail and hotel space by 2035. These figures represent planned capacity, not a cap. It is important to note that part of the station area (including the Coleman Highline project) is within the City of San José, in the Santa Clara/Airport West Employment Area. The City has not established capacity projections for the employment area.

There may be demand for significantly more residential development than is currently planned in the station areas. The City of Santa Clara's General Plan envisions 2,600 new housing units in the station area by 2040. Residential development is not allowed in the portion of the station area located in San José. The development pipeline currently includes approximately 2,000 proposed residential units (at Gateway Crossings, 575 Benton St, and a student housing project on the Caltrain station parking lot).

DOWNTOWN SAN JOSÉ STATION AREA

Table 2.7.3 shows projected demand in the Downtown San José station area by land use and five-year period. After netting out recently completed and under construction development, demand for new development in the Downtown San José station area by 2040 is estimated to include:

- 2.8 to 4.6 million square feet of office
- 28,460 to 36,500 multifamily residential units
- 1,340 to 1,930 hotel rooms
- 250,000 to 390,000 square feet of retail

Some of the projected office and retail demand may be absorbed by renovating and filling existing vacant office

space and storefronts. According to CBRE, there are approximately 1.3 million square feet of vacant office space in the greater Downtown San José market area.

The projections assume that Downtown will become a more desirable location for office and residential uses due to the introduction of BART, Google Village, and other factors. However, the projections do not account for any other catalytic events (such as another large employer developing a major campus in Downtown) that could further shift Downtown's trajectory. Currently, the development pipeline in the Downtown San José station area includes about 1.8 million square feet of office, 4,500 residential units, 750 hotel rooms, and 140,000 square feet of retail.

The retail projections may not fully reflect the short-term potential for a grocery or drug store that might serve the broader Downtown/East San José submarket. As discussed above, the San José Citywide Retail Strategy identifies a need for grocery and drug store along the E. Santa Clara St corridor to serve the broader Downtown and East San José submarkets. A grocery and/or drug store in this corridor would serve pent up demand from existing residents, as well as the demand generated by new residents.

The City of San José is updating the amount of development planned for the greater Downtown/Diridon area (the Downtown Growth Boundary). In the Downtown strategy currently underway (Downtown Strategy 2040), the City envisions the following development by 2040:

- 14.2 million square feet of new office space
- 15,160 new residential units, of which 8,333 have already been entitled, leaving approximately 6,800 units that are not yet allocated to a project
- 3,600 hotel rooms
- 1.4 million square feet of retail

It is unclear at this point how much of the development envisioned in Downtown Strategy 2040 might be absorbed west of Highway 87, near the Diridon station. Media reports suggest that the proposed Google Transit Village could include 6 to 8 million square feet of office at Diridon Station. Google and Trammell Crow have not yet publicly released any plans for housing or other uses in the transit village. In addition to the Google Transit Village, an additional one million square feet of office is proposed at 440 W. Julian St, and 204,000 square feet are under construction at the River Corporate Center Phase 3.

28TH STREET STATION AREA

Table 2.7.4 shows projected demand in the 28th Street station area by land use and five-year period. After netting out recently completed and under construction development, demand for new development in the 28th Street station area by 2040 is estimated to include:

- 306,000 to 496,000 square feet of office
- 6,250 to 7,800 multifamily residential units
- 130 to 190 hotel rooms
- 43,800 to 58,300 square feet of retail

As discussed above, a major mixed-use project including a significant increment of office space (on the order of 500,000 square feet or more) may be required for 28th Street to become a viable location for office and hotel. The high-end scenario assumes that the station area attracts one or more large tenants that drive this level of development; however, it may be challenging to accommodate a major mixed-use development on the available land in the station area.

Accommodating the demand projected for the 28th Street station area would entail a significant increase in the pace of development in the station area, which has seen very little development activity in recent years. Currently, there is no office or hotel development proposed for the station area, although local property owners have reported interest from developers. As of summer 2018, there were 480 new residential units proposed (including 330 units at 1325 E. Julian Street, 80 units in the Roosevelt Park Affordable Housing project, and 70 units at Quetzal Gardens), as well as 21,000 square feet of ground floor retail in mixed-use projects. Note that the development pipeline is evolving, and additional projects may have been proposed since summer 2018.

The residential pipeline in the station area may in part be constrained by the Urban Villages policy, which places some restrictions on the timing and total amount of market-rate housing development that may occur. The City of San José currently caps housing development in the four Urban Villages in the station area (Roosevelt Park, Little Portugal, Five Wounds, and 24th and William St) at 2,022 units by 2040.[3] The City is planning for 1.6 million square feet of commercial space (including office, retail, hotel, and/or other employment uses) in the four Urban Villages (Table 2.7.5).

3 Once implementation plans are in place, residential development may move forward in the Horizon 1 Urban Villages (Roosevelt Park and Little Portugal). In the Horizon 2 and 3 Urban Villages (Five Wounds and S. 24th St./William Ct.), affordable housing and Signature Projects may be permitted once the implementation plans are completed.

	Projected Future Demand (Sq Ft./Units)						Development Completed Since 2015 or Under Construction as of Summer 2018	Net New Demand, 2015-2040**
	2015-20	2020-25	2025-30	2030-35	2035-40	Total 2015-40		
Low								
Office (Sq. Ft.)	395,000	479,000	249,000	252,000	263,000	1,639,000	357,000	1,282,000
Residential (Units)	940	1,610	1,430	1,590	1,460	7,030	164	6,866
Hotel (Rooms)*	120	140	100	110	110	590	N/A	590
Retail (Sq. Ft.)	15,700	21,000	13,200	13,900	13,700	77,500	24,055	53,445
High								
Office (Sq. Ft.)	710,000	739,000	387,000	412,000	441,000	2,689,000	357,000	2,332,000
Residential (Units)	1,180	2,010	1,790	1,980	1,830	8,790	164	8,626
Hotel (Rooms)*	180	200	150	160	160	850	N/A	850
Retail (Sq. Ft.)	26,600	30,700	18,900	20,400	20,700	117,400	24,055	93,345

TABLE 2.7.2 Santa Clara Station Area demand projections, 2015-2040

	Projected Future Demand (Sq Ft./Units)						Development Completed Since 2015 or Under Construction as of Summer 2018	Net New Demand, 2015-2040**
	2015-20	2020-25	2025-30	2030-35	2035-40	Total 2015-40		
Low								
Office (Sq. Ft.)	395,000	479,000	646,000	656,000	684,000	2,862,000	0	2,862,000
Residential (Units)	3,530	7,510	6,690	7,410	6,820	31,950	3,488	28,462
Hotel (Rooms)*	230	250	270	290	290	1,340	N/A	1,340
Retail (Sq. Ft.)	42,900	76,000	77,400	83,100	79,800	359,200	107,505	251,695
High								
Office (Sq. Ft.)	710,000	739,000	1,007,000	1,070,000	1,148,000	4,674,000	0	4,674,000
Residential (Units)	4,410	9,390	8,360	9,260	8,520	39,940	3,488	36,452
Hotel (Rooms)*	330	370	390	420	420	1,930	N/A	1,930
Retail (Sq. Ft.)	63,700	101,400	105,800	115,100	113,100	499,100	107,505	391,595

TABLE 2.7.3 Downtown San José Station Area demand projections, 2015-2040

	Projected Future Demand (Sq Ft./Units)						Development Completed Since 2015 or Under Construction as of Summer 2018	Net New Demand, 2015-2040**
	2015-20	2020-25	2025-30	2030-35	2035-40	Total 2015-40		
Low								
Office (Sq. Ft.)	0	0	99,000	101,000	105,000	306,000	0	306,000
Residential (Units)	240	1,610	1,430	1,590	1,460	6,330	83	6,247
Hotel (Rooms)*	0	0	40	50	50	130	N/A	130
Retail (Sq. Ft.)	1,300	8,700	10,800	11,700	11,200	43,800	0	43,800
High								
Office (Sq. Ft.)	0	0	155,000	165,000	177,000	496,000	0	496,000
Residential (Units)	290	2,010	1,790	1,980	1,830	7,910	83	7,827
Hotel (Rooms)*	0	0	60	70	70	190	N/A	190
Retail (Sq. Ft.)	1,600	10,900	14,500	15,900	15,400	58,300	0	58,300

TABLE 2.7.4 28th Street demand projections, 2015-2040

Alum Rock/28th St Station Urban Villages	Planning Horizon	Planned Housing Capacity (Units)	Planned Commercial Capacity (Square Feet)
Roosevelt Park	Horizon 1	650	181,500
Little Portugal	Horizon 1	310	82,000
Five Wounds BART	Horizon 2	845	1,215,000
S. 24th St/William Ct	Horizon 3	217	124,500
Subtotal		**2,022**	**1,603,000**

Note: Once implementation plans are in place, residential development may move forward in the Horizon 1 Urban Villages. In the Horizon 2 and 3 Urban Villages, affordable housing and Signature Projects may be permitted once the implementation plans are completed.
Source: Strategic Economics' review of City of San José planning documents.

TABLE 2.7.5 Planned capacity in the 28th Street Station Area

3

DEVELOPMENT CAPACITY ANALYSIS

San José City Hall. Photo Credit: SPUR, Sergio Ruiz

3.1 Opportunity Site Analysis

PROCESS

This section describes the methodical analysis of the Opportunity Sites. As described in the Background Conditions Report, a physical assessment was made of parcels that have a significant probability of being redeveloped. These Opportunity Sites are based on the following attributes:

- Vacant parcels
- Surface parking lots
- Parcels currently zoned as commercial and mixed-use with existing structures of 30 feet height or less (generally assumed to be one or two stories max.)
- Parcels currently zoned as industrial

These parcels were reviewed with VTA, the City of Santa Clara, the City of San José, and selected key members of the Technical Advisory Group (TAG) in order to gain consensus on the inclusion of such properties in the development capacity analysis. Sites that are currently available, or are in the approvals process, have been added, while sites that have low probability of changing uses have been removed (e.g. CostCo in Santa Clara). The sites which have been analyzed as part of this study are shown in Figure 3.1.1.

The analysis of these sites reflects the following steps:

1. Opportunity Site Categories: Organize sites into small, medium, large, and extra large categories
2. Building Prototypes: Identify TOD building prototypes for residential and commercial uses
3. Development Capacity: Match opportunity sites and building prototypes to calculate potential development
4. Development Capacity Comparison: Compare development potential with projected growth and market demand

Note: early in this process, small parcels were excluded from the analysis. This is based on a lack of development feasibility in the current and foreseeable market cycles.

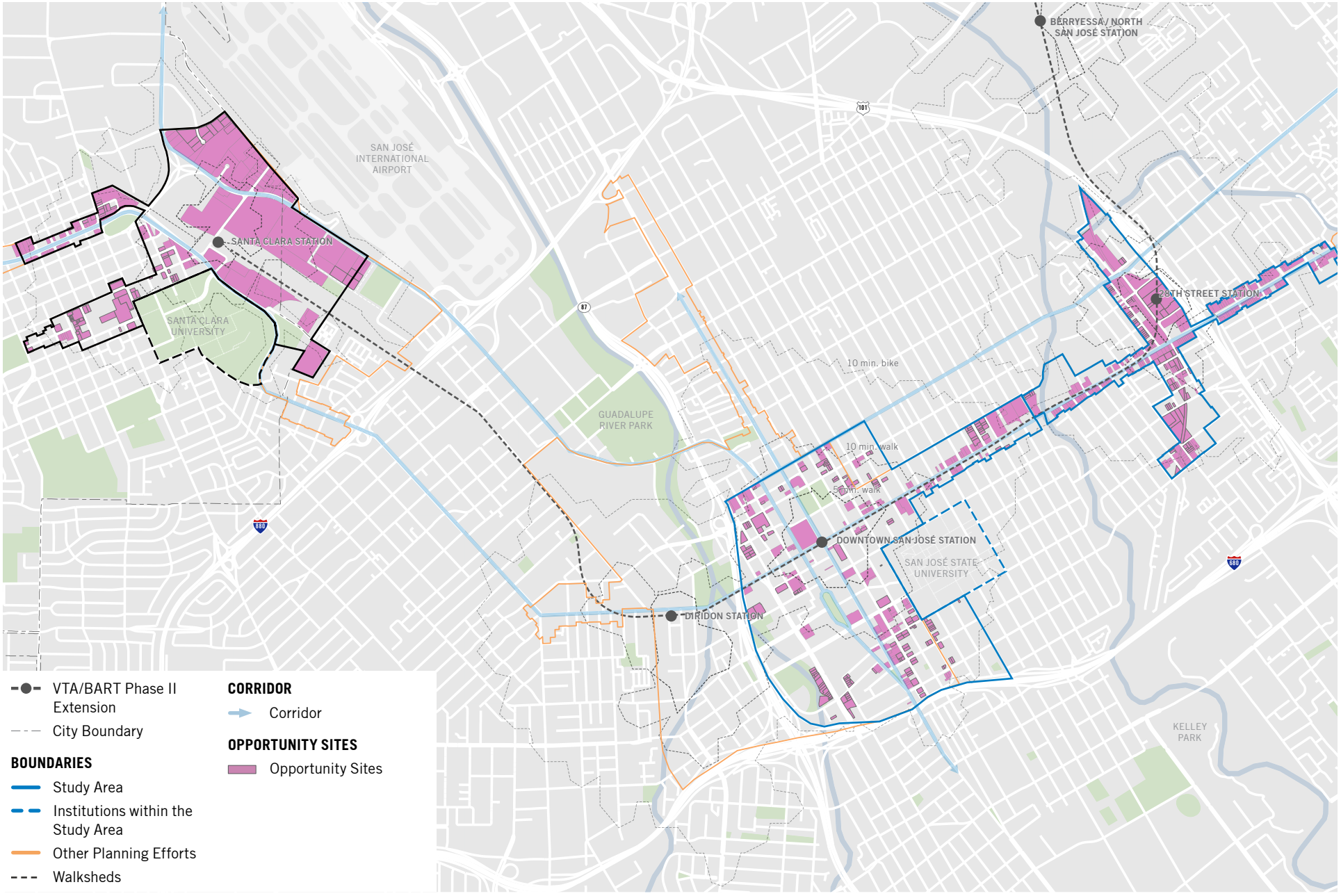


FIGURE 3.1.1 Opportunity Sites

3.2 Opportunity Site Categories

CATEGORIZATION

After a final list of selected opportunity sites was developed, each parcel's physical and dimensional attributes was evaluated. This evaluation examined the length, width, and area of each site.

The data gathered for each parcel was analyzed through a Gaussian Mixture Model[1] that segregated the parcels into four categories: small, medium, large, and extra large.

The results of this analysis were reviewed and edited with geometrically nonstandard parcels (including extra-large parcels) that were not processed automatically through the algorithm.

When the opportunity sites are organized by size and location, it is clear that the Santa Clara Station area has the greatest opportunity site area compared to Downtown San José and 28th Street Station study areas.

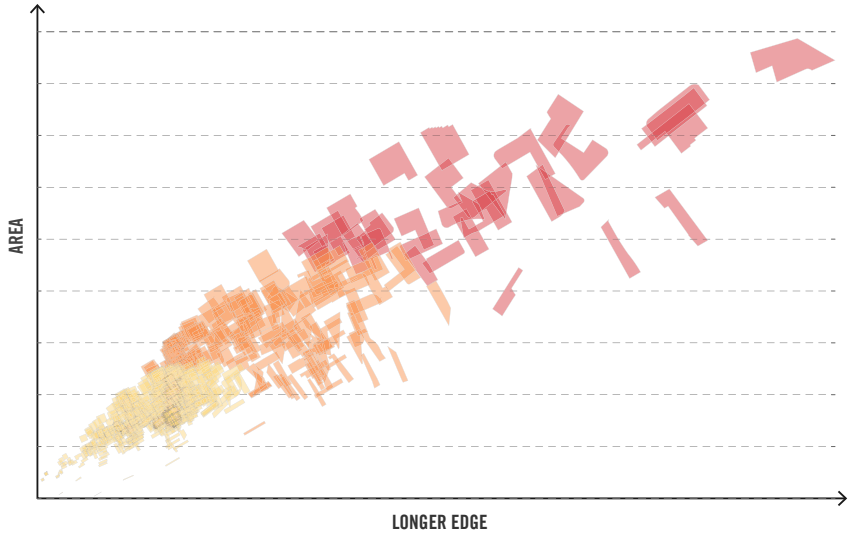
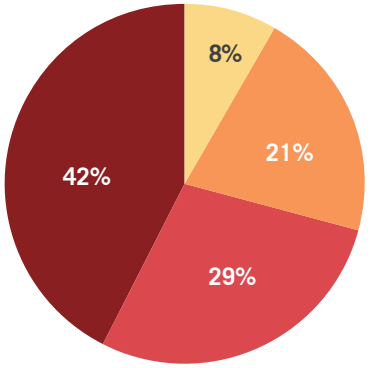
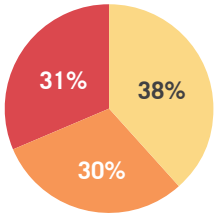
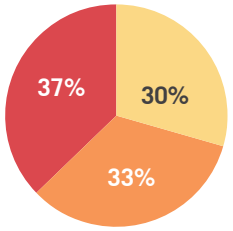


FIGURE 3.2.1 Opportunity sites clustered by size shows many small sites of similar sizes and larger sites with greater variety of sizes.







SANTA CLARA			DOWNTOWN SAN JOSÉ			28th Street		
TYPE	COUNT	TOTAL AREA	TYPE	COUNT	TOTAL AREA	TYPE	COUNT	TOTAL AREA
S	77	12 acres	S	230	32 acres	S	175	24 acres
M	48	30 acres	M	58	25 acres	M	65	27 acres
L	26	41 acres	L	14	26 acres	L	20	30 acres
XL	9	61 acres	XL	0	0 acres	XL	0	0 acres
TOTAL	**160**	**143 acres**	**TOTAL**	**302**	**83 acres**	**TOTAL**	**260**	**81 acres**

TABLE 3.1.1 Total acreage of opportunity sites by size and station area

1 Gaussian Mixture Model (GMM) is a parametric probability density function for representing normally distributed subpopulations within an overall population. GMM models in general do not require knowing which subpopulation a data point belongs to, allowing the model to learn the subpopulations automatically. Since subpopulation assignment is not known, this constitutes a form of Unsupervised Machine Learning.

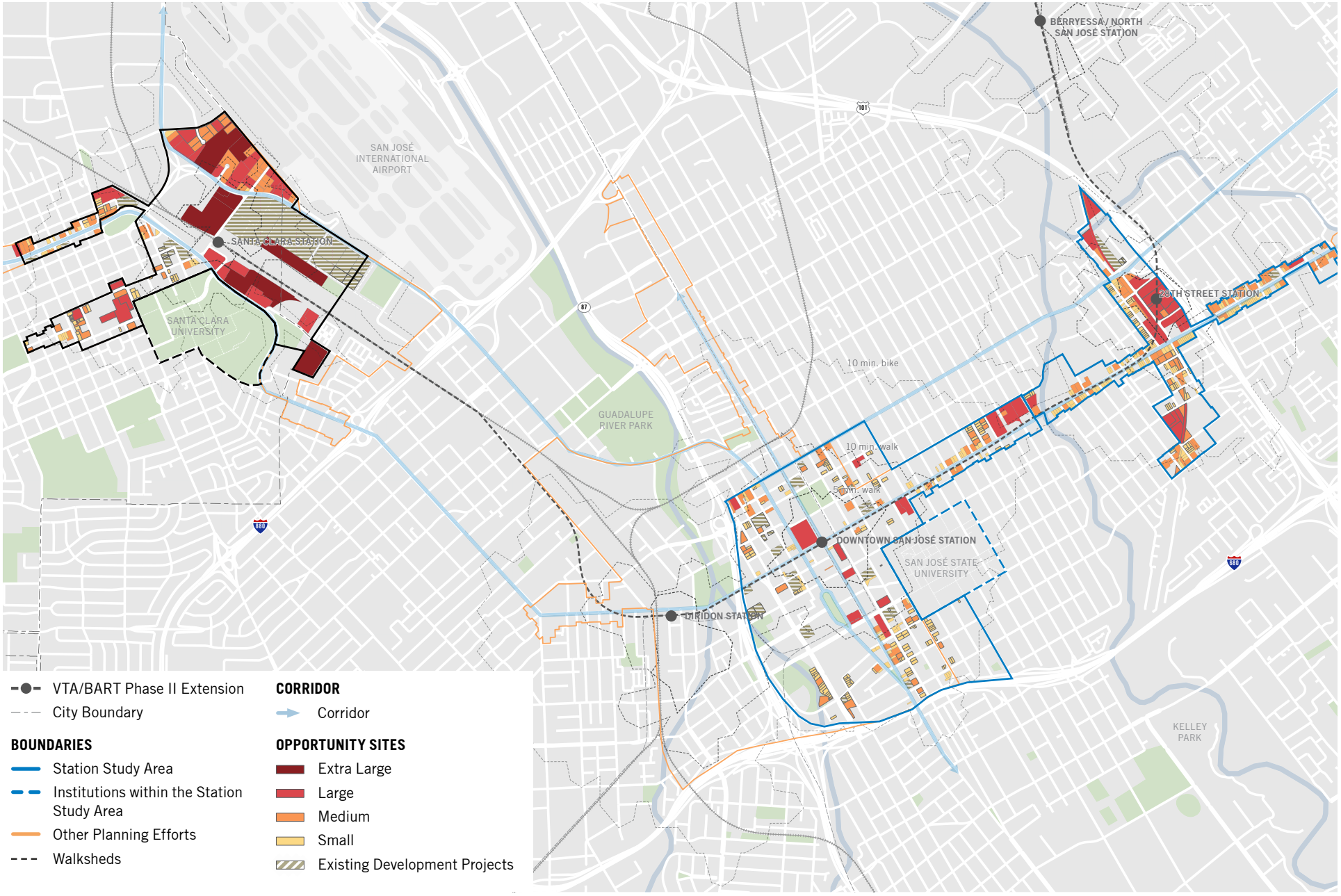


FIGURE 3.2.2 Opportunity sites colored by size

3.3 Building Prototypes

DEFINING BUILDING PROTOTYPES

For each parcel size category, (small, medium, large) an average parcel size can be determined. For extra large parcels in Santa Clara, the large parcel category is applied, assuming a walkable street grid will be implemented. The building prototypes are based on these average parcel sizes. The intent of the prototypes is to maximize the development opportunity of the sites while respecting the existing known constraints at each of the station study areas.

The range of development prototypes for residential and commercial growth is based on observed parcel sizes, potential building heights and densities, mix of uses, and proposed parking ratios.

For each station, the opportunity sites are organized into three standard categories:

- Small parcels: 40'-60' x 125'-150'
- Medium parcels: 150'-250' x 125'-150'
- Large parcels: 275'-500' x 250'-300'

Some parcels do not fall into these categories because of their non-standard shape or size. These non-standard parcels were visually checked and categorized based on their development potential.

See Appendix A for details on each of the prototypes.

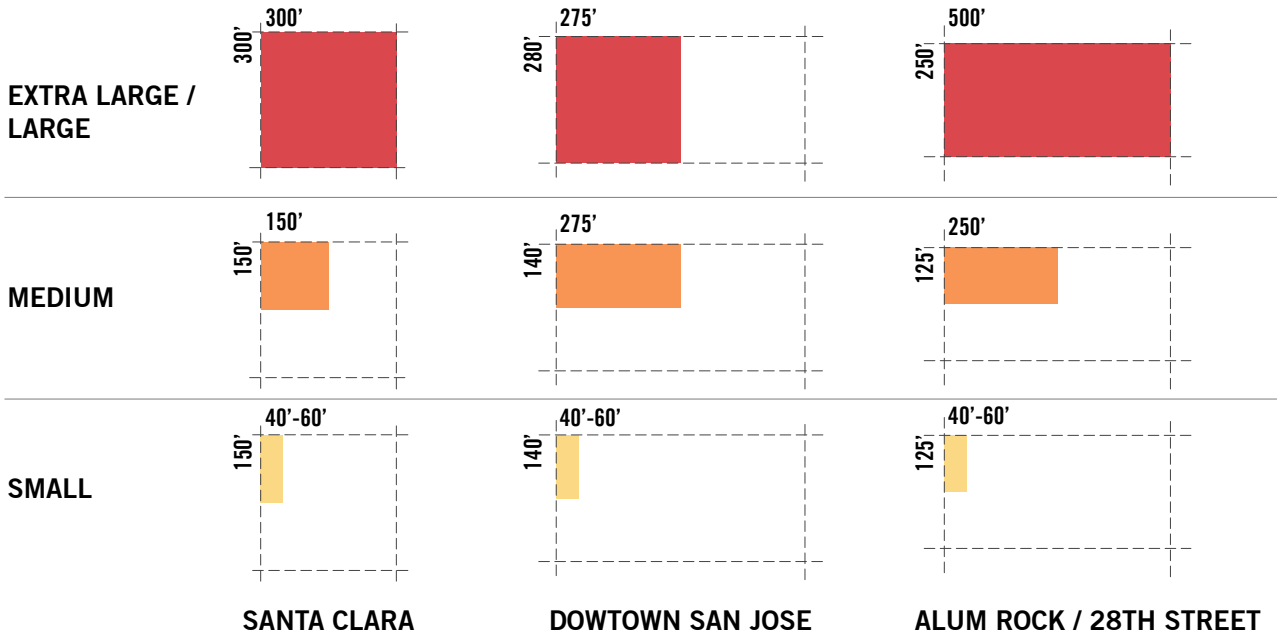


FIGURE 3.3.1 Building prototypes categorized by size

	SMALL		MEDIUM				LARGE					
	A	B	A		B		A		B		C	
Parcel Size	40' x 125'	80' x 125'	150' x 150'		125' x 250'*		275' x 280'		300' x 300'		280' x 550'	
Program	Residential	Residential	Residential	Office	Residential	Office	Residential	Office	Residential	Office	Residential	Office
Building Construction	Type V over I	Type V over I, Type III over I	Type III over I, Type I	Type I	Type III over I, Type I	Type I	Type III over I, Type I	Type I	Type III over I, Type I	Type I	Type III over I, Type I	Type I
Number of Floors	≤ 4	≤ 6, ≤ 8	≤ 8, ≤ 15**	≤ 6, ≤ 10**	≤ 8, ≤ 23, ≤ 29	≤ 6, ≤ 16, ≤ 20	≤ 8, ≤ 29	≤ 6, ≤ 20	≤ 8, ≤ 15**	≤ 6, ≤ 10**	≤ 8, ≤ 29	≤ 6, ≤ 20
Ground Floor	Active (recomm.)	Active (recomm.)	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active
Parking	1 Level Podium	1 Level Podium	Multi-Level (Podium, Basement)	Multi-Level (Basement)	Multi-Level (Podium, Basement)	Multi-Level (Basement)	Multi-Level (Podium)	Multi-Level (Basement)	Multi-Level (Podium)	Multi-Level (Basement)	Multi-Level (Podium)	Multi-Level (Basement)

TABLE 3.3.1 Building prototypes categorized by size

** Typical Opportunity Sites for Downtown San José of 140'X275" have similar development potential*

*** Santa Clara approx. height limit range = 55' to 155'*

3.4 Development Capacity

DEFINING DENSITY ZONES

As a guiding principle for assigning the appropriate building prototypes to specific parcels, a zone map (Figure 3.4.1) prioritizes the following development densities within various proximities to the stations.

- Zone 1 prioritizes the highest development densities within ¼-mile walking distance from the station
- Zone 2 prioritizes medium development densities within ½-mile walkshed from station
- Zone 3 represents a TOD corridor and prioritizes medium densities, similar to Zone 2, and emphasizes active ground floors such as retail, restaurants, and cafés
- Zone 4 allows for the lowest development densities amongst the building prototypes but does not exclude medium to high density development types on specific sites

While this zone map generally guides higher density towards high capacity transit, there exist sites which are further from transit that are good candidates for high-density and will be considered as such.

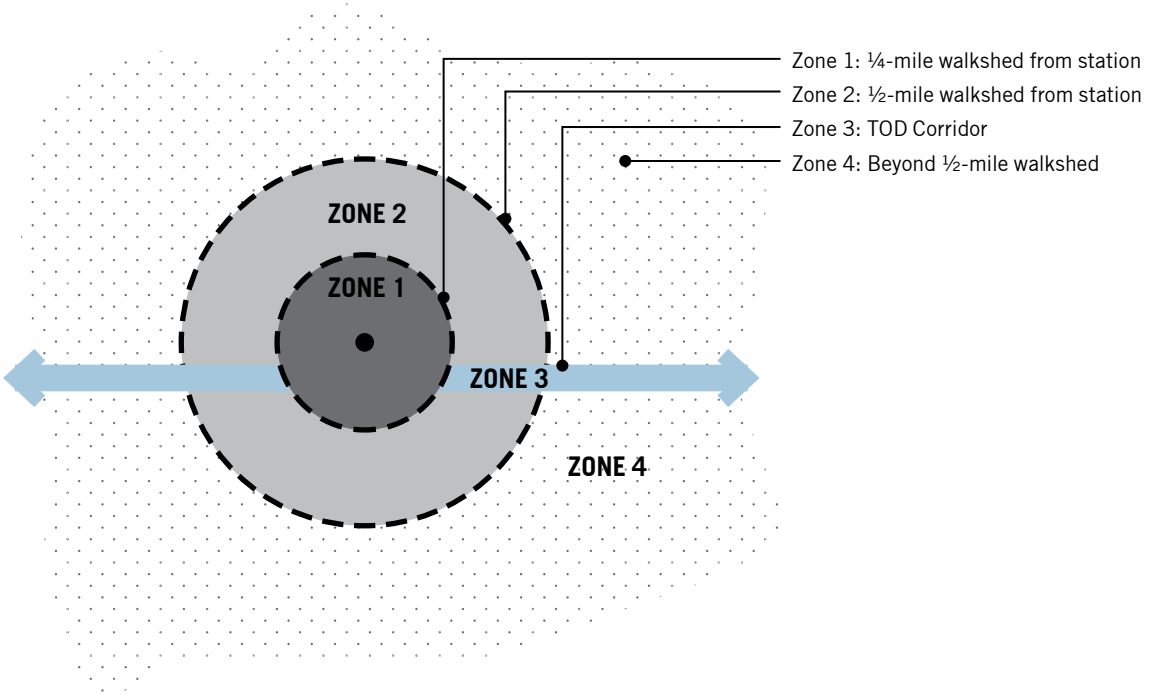


FIGURE 3.4.1 Density zones

ASSIGNING BUILDING PROTOTYPES TO OPPORTUNITY SITES

The building prototypes are assigned to opportunity sites based on density zones, parcel size dimension, and development constraints (e.g. FAA height limits and transition zones).

The prototypes include both residential and commercial building types and provide enough flexibility to respond to the local and prevailing market conditions while aiming to reach the maximum development capacity. Based on a market feasibility analysis, building prototypes that could be accommodated on small parcels are not viable in the current and foreseeable market conditions. Therefore, they have not been included in this study.

Growth predictions in this report are not site specific, other than that they have been tested against identified opportunity sites to confirm that growth can be accommodated within the defined constraints. Aggregations of smaller sites within each zone can help to transition parcels into medium and larger categories of opportunity sites, which can improve their individual yield.

However, as the 2040 market demand is well within overall physical capacity, aggregation of smaller sites, while welcome, is not necessary to support or justify the growth projections herein.

ZONE 1

EXAMPLES

RESIDENTIAL

OFFICE

BUILDING PROTOTYPES

M_A_RESI_HIGH

M_B_RESI_HIGH

M_A_OFFICE_HIGH

M_B_OFFICE_HIGH

L_B_RESI_HIGH

L_A_RESI_HIGH

L_C_RESI_HIGH

L_B_OFFICE_HIGH

L_A_OFFICE_HIGH

L_C_OFFICE_HIGH

ZONE 2 + ZONE 3

RESIDENTIAL

OFFICE

M_A_RESI_LOW

M_B_RESI_MED

M_A_OFFICE_LOW

M_B_OFFICE_MED

L_B_RESI_LOW

L_A_RESI_LOW

L_C_RESI_LOW

L_B_OFFICE_LOW

L_A_OFFICE_LOW

L_C_OFFICE_LOW

ZONE 4

RESIDENTIAL

OFFICE

M_A_RESI_LOW

M_B_RESI_LOW

M_A_OFFICE_LOW

M_B_OFFICE_LOW

L_B_RESI_LOW

L_A_RESI_LOW

L_C_RESI_LOW

L_B_OFFICE_LOW

L_A_OFFICE_LOW

L_C_OFFICE_LOW

FIGURE 3.4.2 Building prototype by density zone

indicates prototypes for Santa Clara only

POTENTIAL DEVELOPMENT ANALYSIS

As a first step in determining the final TOD potential, two development scenarios analyze all residential (scenario 1A) and all office (scenario 1B). These abstract scenarios function as "bookends" that demonstrate the maximum amount of residential only and office only development that can occur (listed in Table 3.4.1) using the prototypes discussed previously. Based on these "bookend" scenarios, an analysis that considers a balanced mix of residential and office development and parking ratios which reflect best TOD practice will be conducted in the next phase of the study.

As previously noted, small parcels have been excluded from this analysis.

	Scenario 1A: All Residential			Scenario 1B: All Office		
	DWELLING UNITS	**POPULATION**	**PARKING SPACES***	**BUILDING AREA**	**JOBS**	**PARKING SPACES***
SANTA CLARA	22,297 du	55,743 people	27,212 stalls	37,602,298 sf	133,029 jobs	44,258 stalls
DOWNTOWN SAN JOSÉ	7,468 du	18,670 people	6,354 stalls	17,052,083 sf	64,571 jobs	9,703 stalls
28th Street	10,413 du	26,031 people	7,970 stalls	24,529,478 sf	95,521 jobs	11,806 stalls

TABLE 3.4.1 Development Scenarios
**Represents the number of parking spaces that could be provided, not best practice TOD.*

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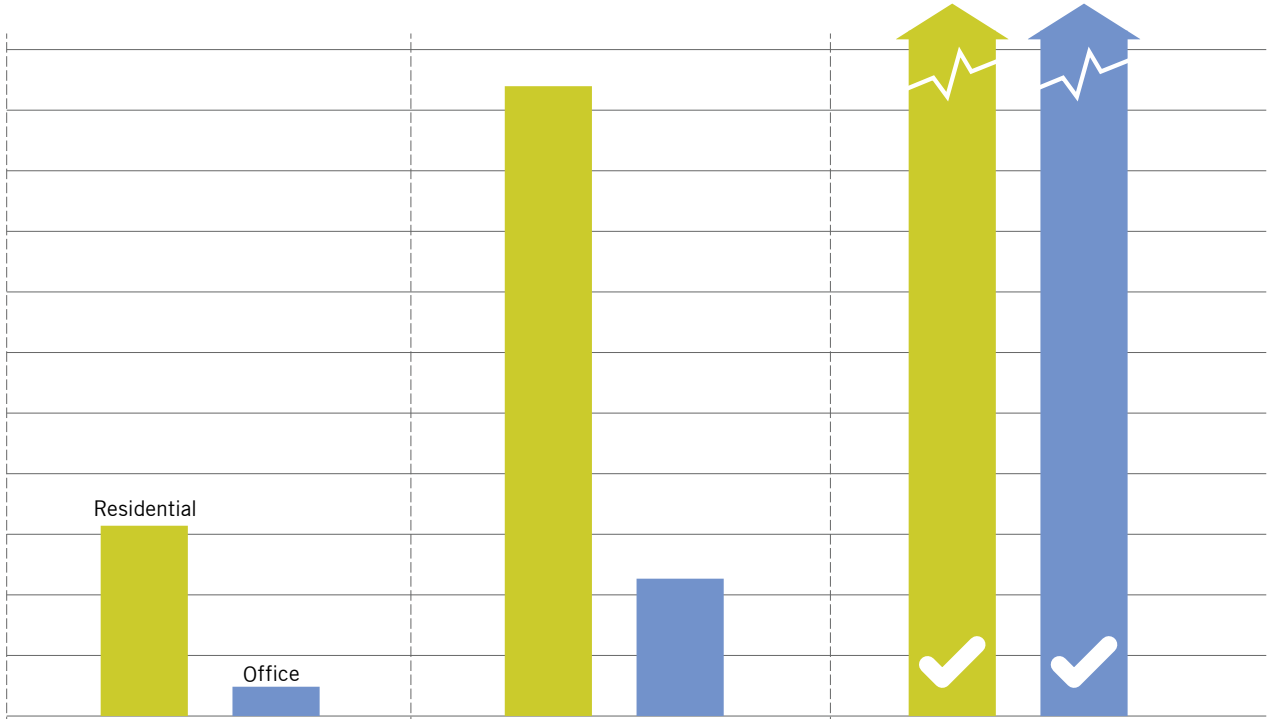
3.5 Development Capacity Comparison

The two "bookend" scenarios developed in this study are compared to the planned capacity, as defined by the cities of San José and Santa Clara, and to the projected market demand (see Section 2 for detail). This analysis measures the TOD potential in relation to the regulatory and market context. Understanding potential conflicts and untapped opportunities for TOD will inform strategic distribution of residential and commercial development along the corridor in order to respond to market demands, capitalize on the provided transit accessibility, and benefit the community.

Santa Clara Station

The market demand analysis projects a greater interest in residential and commercial development than is currently planned in this area by the Cities of Santa Clara and San José. Based on the analysis conducted at this stage of the project, the Santa Clara Station Area shows residential and commercial TOD capacity beyond what is currently planned* and what it is projected by the market.**



City Planned Capacity (through 2035)*	Market Demand Projection (through 2040)**	Development Capacity
2,600 multifamily residential units	6,900-8,600 multifamily residential units	
500,000 sf office	1.3-2.3 million sf office	**Scenario 1A: All Residential***** 22,300 dwelling units
1.5 million sf retail and hotel	590-850 hotel rooms	**Scenario 1B: All Office** 37.6 million sf
	53,500-93,400 sf retail	

FIGURE 3.5.1 Santa Clara development capacity comparison

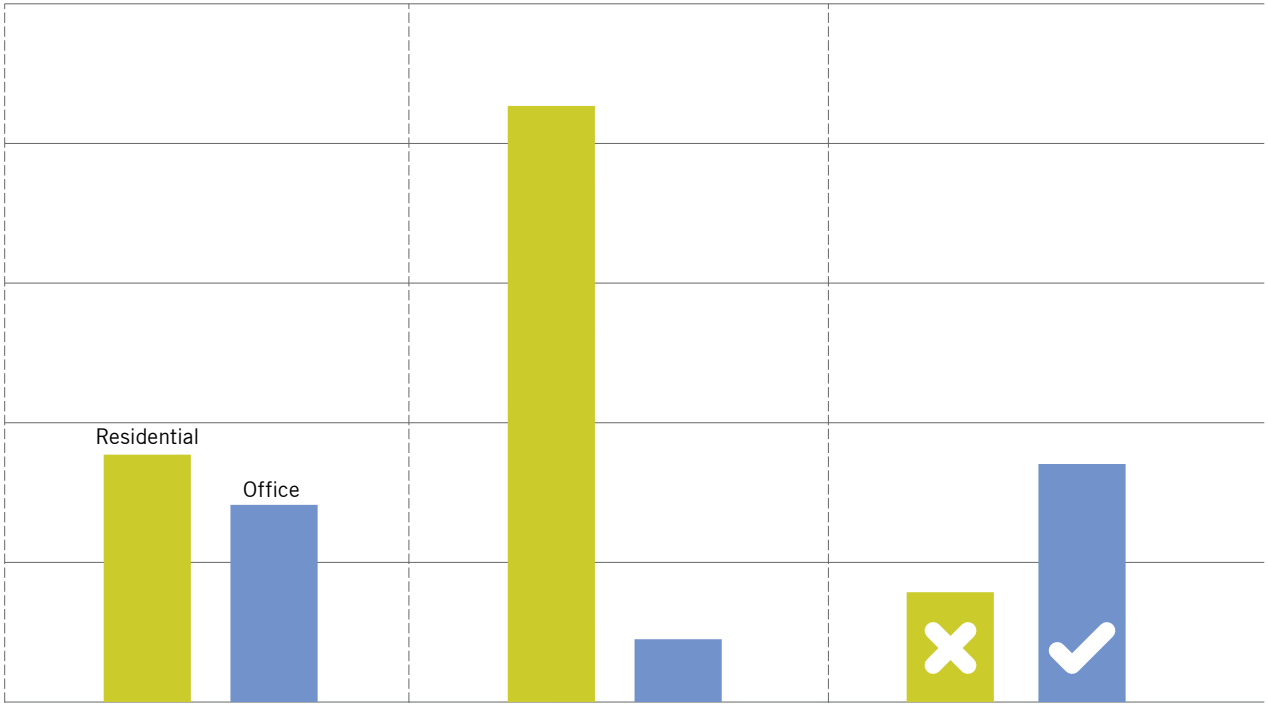
**Includes Santa Clara General Plan capacity for Santa Clara Station Focus Area and Downtown Focus Area, plus ¼ of planned residential capacity for El Camino Real Focus Area (approximate share of focus area that falls within TOD station area). Note this does not include portion of the station in San José (where Coleman Highline is located).*

***Does not include development that is currently under construction or recently completed.*

**** Dwelling units calculated at 1,200 sf/unit.*

Downtown San José Station

In comparison to the current plans,* the market demand analysis is projecting a greater demand for residential development but less interest in commercial development. The market pressure for multifamily residential units** in the downtown area is above the development capacity as determined by this study as well as the city planned residential growth.* Based on the analysis conducted at this stage of the project, the Downtown San José Station Area shows commercial development capacity that can accommodate both the city planned employment growth* and the projected market demand,** but that residential development capacity does not accommodate planned growth or projected market demand.



City Planned Capacity (through 2035)*	Market Demand Projection (through 2040)**	Development Capacity
15,160 multifamily residential units	28,460-36,500 multifamily residential units	
14.2 million sf office	2.8-4.6 million sf office	**Scenario 1A: All Residential***** 7,500 dwelling units
3,600 hotel rooms	1,340-1,930 hotel rooms	**Scenario 1B: All Office** 17 million sf
1.4 million sf retail	250,000-390,000 sf retail	

FIGURE 3.5.2 Downtown San José development capacity comparison

**Source: Downtown Strategy 2040. It is unclear at this point how much of the development envisioned in Downtown Strategy 2040 might be absorbed west of Highway 87, near the Diridon station.*

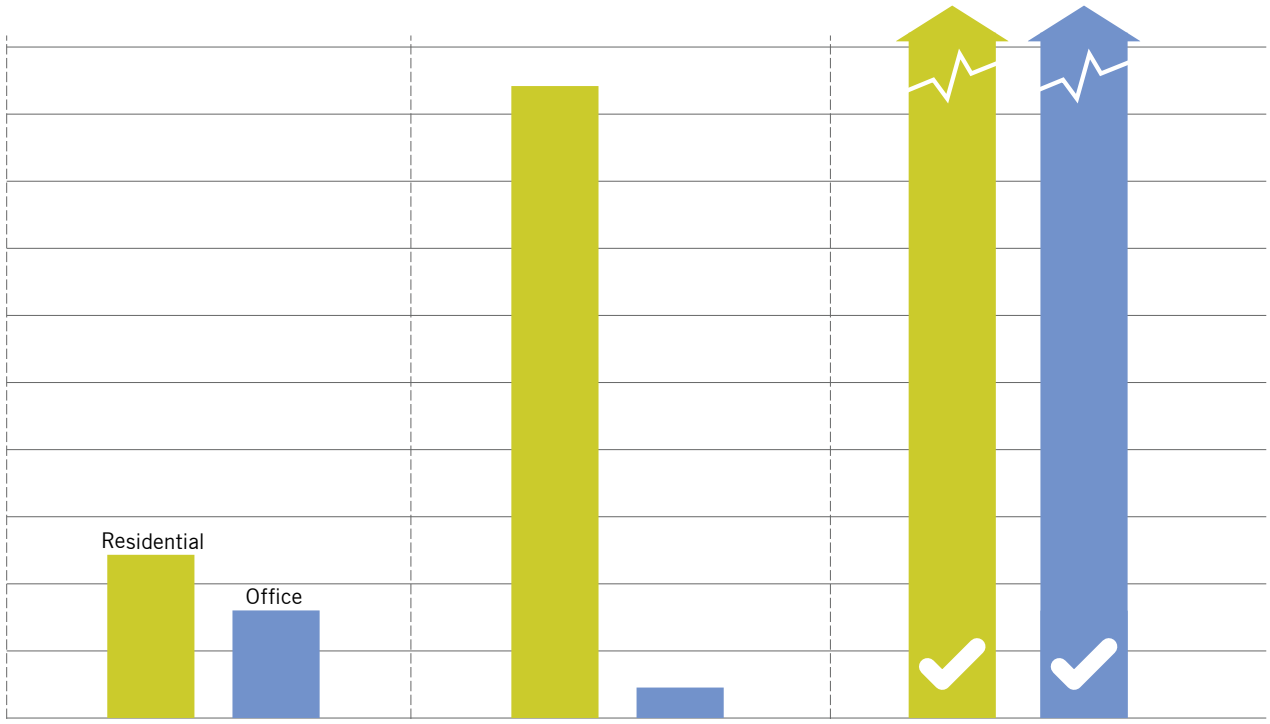
***Does not include development that is currently under construction or recently completed.*

**** Dwelling units calculated at 1,200 sf/unit.*

28th Street Station

In comparison to the current plans, the market demand analysis is projecting a greater interest in residential development and less demand for commercial development. Based on the analysis conducted at this stage of the project, the 28th Street station area shows greater capacity for residential and commercial development than what is currently planned* and than can be projected for the market demand.**

The project team is aware at the time of writing that further development projects are in the 'pipeline', such as 1325 Julian Street (332 units), Silicon Sage (728 units) and Empire Lumber (418 units) amongst others. This report captures a moment in time and is not intended to be updated with subsequent findings.



City Planned Capacity (through 2035)*	Market Demand Projection (through 2040)**	Development Capacity
2,022 residential units	6,250 to 7,800 multifamily residential units	**Scenario 1A: All Residential***** 10,400 dwelling units
1.6 million sf commercial space (inc. office, retail, hotel, etc.)	306,000 to 496,000 sf office 130 to 190 hotel rooms 43,800 to 58,300 sf retail	**Scenario 1B: All Office** 24.5 million sf

FIGURE 3.5.3 28th Street development capacity comparison
**Roosevelt Park, Little Portugal, Five Wounds, and 24th and William St Urban Village Plans.*
***Does not include development that is currently under construction or recently completed.*
**** Dwelling units calculated at 1,200 sf/unit.*

Figure 3.5.4 compares the study area and Urban Village boundaries. With respect to growth predictions, the Urban Village Plans state overall total development targets, supplemented by ranges of allowable densities (some minimums but mostly maximums) for sub-areas of the villages, whereas this study applies the market demand projections to the previously identified opportunity sites. While the study area boundary generally aligns with the outer boundaries of the four Urban Village Plans at this station, the study area boundary is approximately 11 acres larger. These additional 11 acres are on the eastern edge of the station area, running along E. Santa Clara from King Rd. (on the west) to McCreery Ave. (on the east).

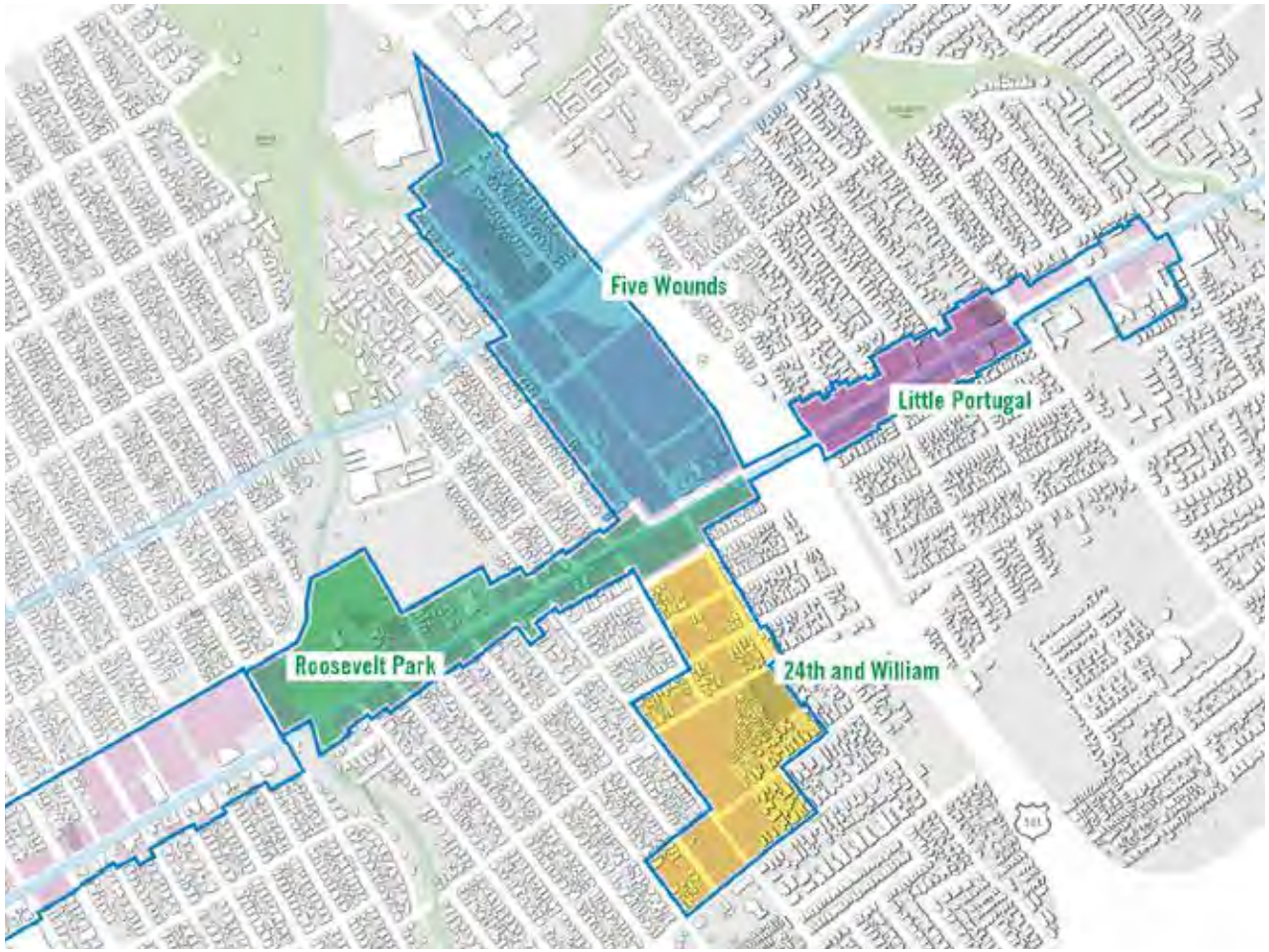


FIGURE 3.5.4 Comparison Of Station Area Boundary With Urban Village Boundaries

4

TOD CASE STUDIES

4.1 Approach

Great places for people to live, work, and play are a major asset of today's successful cities. Increased transit services in the station areas can be a fundamental game-changer for the cities of Santa Clara and San José. It is important that this major infrastructure investment is supported by a well-thought out set of programmatic strategies that unlock the potential of TOD within the stations' areas of influence.

The team analyzed national and international case studies of relevant TOD and TOD corridors in order to identify the minimum requirements to create complete communities and high performance TODs. This analysis will provide guidance for the regulatory and policy change recommendations, aimed at creating a more consistent and favorable political and economic framework to advance TOD implementation.

TOD STATION AREA CASE STUDIES

The team used an evidence-based methodology to analyze selected national and international case studies in order to inform appropriate targets for:

- Total population densities
- Residential population densities
- Employment population densities
- Active ground floor uses

This methodology will help determine the appropriate program that can support desired levels of vitality and livability for the stations areas and their surroundings. The team used census data for the analysis of residential population densities and employment population densities, whereas Google location data was used to identify commercial enterprises that are more likely to positively engage pedestrians in the public realm (e.g. cafés, restaurant, retail, etc.).

The following case studies are used in the comparative analysis based on their qualities and their similarities to VTA's BART Phase II station and corridor context:

Phase II Stations	Comparable Stations
Downtown San José Station	Seattle Westlake Station, Denver Union Station
Santa Clara Station & 28th Street Station	Oakland Fruitvale BART Station, Vancouver Marine Drive Station

The metrics used in the comparative analysis are the following:

Jobs and Housing Balance	Total Population Density Residential Population Density Employment Population Density Ratio of Jobs to Residents
Active Ground Floor Uses	Active Use Density
Access and Mobility	Street Network Station Access Bicycle and Transit Network
Walk Score	Walk Score Transit Score Bike Score

TOD CORRIDOR CASE STUDIES

The team developed also a qualitative analysis of the following TOD Corridor Case Studies:

- Wilshire/Vermont TOD - Los Angeles, California
- Rosslyn Ballston- Arlington County, Virginia
- Pearl District - Portland, Oregon
- Tysons Corner - Fairfax County, Virginia

This analysis is intended to highlight key planning and implementation strategies as well as placemaking and design choices that are applicable to VTA's BART Phase II station corridor.

4.2 TOD Station Area Case Studies

Seattle Westlake Station

Context
Seattle's Westlake Station is a multi-modal transit hub located at the north end of Downtown Seattle and adjacent to Westlake Shopping Center and Westlake Park. Amazon's headquarters are located to the north. The area has seen a remarkable office development (e.g. Amazon's headquarters) but also a significant residential development which has contributed in creating an attractive mixed use environment for residents and employees alike.

Westlake Station offers insights into high-density development within a dense central business district.

Access and Mobility
Westlake Station is served by Community Transit, King County Metro, and Sound Transit agencies. The station is served by one light-rail line, a combination of express and local bus routes, the Seattle Monorail, and the Seattle Streetcar. Sound Transit operates the Link light-rail line and Community Transit and King County Metro operate the bus routes that serve the station. The Seattle Monorail connects between Seattle Center station and Westlake Center Mall station. The South Lake Union Streetcar operates just north of the station. The Downtown Seattle Transit Tunnel is a pair of tunnels for public transit that run north and south under Downtown Seattle and have a stop at Westlake Station.

Westlake Station is served by the one-way roadway network of Downtown Seattle and I-5 freeway to the east. There are few interchanges that provide direct access to the station. There is a parking garage adjacent to the Westlake Center and there is limited on-street parking within the station area.

The one-way network of Downtown Seattle allows for efficient operation for motor vehicles, but the station area lacks on-street bicycle facilities that directly serve the station. Bicycle parking is available at the station. Dockless bikeshare companies Ofo, LimeBike, and Spin operate within Seattle, but there is no docked bikeshare program.

Situated in an urban setting, there is a connected pedestrian network that serves the station. There are enhanced pedestrian facilities, such as high-visibility crosswalks, within the station area.

Population Densities
The population density around the station is greater within the ¼-mile radius of the station than within the ½-mile radius. In both radii, the jobs population comprises a greater proportion of the total. The ratio of jobs to residents within the ¼-mile radius is 20:1 which is representative of a dense regional center. This ratio reduces in the ½-mile radius to 4:1.

	1/4-mile	1/2-mile
Residents/sqmi	14,309	26,399
Jobs/sqmi	286,329	97,384
Total	**300,637**	**123,784**

Denver Union Station

Context

Denver's Union Station is located just outside the downtown business district in Denver's LoDo neighborhood. The neighborhood is a historic district that has seen significant reinvestment and the station is a destination for the district, offering food and beverage options, retail, and hotel. LoDo is known for nightlife, galleries, access to Coors Field and the Pepsi Center, and new residential developments. New development is required to go through an architectural design review with strict guidelines for rehabilitation and new construction with the intent to maintain existing pedestrian scale and historic character.

Union Station offers insights into development within a historic context, adjacent to a central business district.

Access and Mobility

Union Station is served by Amtrak, Regional Transportation District (RTD), and Bustang. RTD, which is Denver's public transportation agency, serves eight counties throughout the Denver area and provides light-rail and bus service to the station via three light-rail lines, two heavy-rail lines, and multiple bus routes. A fourth light-rail alignment, Route G, is currently under construction that will serve the station. The Flatiron Flyer, which is a bus rapid transit (BRT) line operated by RTD, connects Union Station and Downtown Boulder. RTD operates a free downtown bus called MetroRide which serves Union Station, Civic Center Station, and Downtown Denver. Bustang is a bus service that is managed by the Colorado Department of Transportation (CDOT) and provides regional public transportation. Bus operates underground, heavy rail is at-grade adjacent to the station house, and the LRT connection is a block to the west. Union Station is served by the roadway network of Downtown Denver and regionally via I-25 to the west of the station. Interchanges are provided at Speer Boulevard and 20th St. Valet parking is available within the Union Station area, but no designated parking exists for the station. Most adjacent streets have on-street parking available. A trail system along the South Platte River to the west of the station and along Cherry Creek to the south provides regional bicycle connections to Downtown. A Class II on-street bicycle facility exists along Wynkoop St to the east of the station, and along 18th St to the north. Bicycle parking is available at the station. B-Cycle is Denver's bike sharing system and has multiple docking stations in the vicinity of Union Station. No dockless bikeshare programs currently operate in the station area.

Situated in an urban setting, there is a connected pedestrian network that serves the station. The surrounding roadway network is generally pedestrian friendly regarding crossing distances and amenities. The 16th St Pedestrian Mall is to the southeast of Union Station.

Population Densities

The population density around the station is greater within the ¼-mile radius of the station than within the ½-mile radius. In both radii, the jobs population comprises a greater proportion of the total. The ratio of jobs to residents is about 5:1 across the entire area.

	1/4-mile	1/2-mile
Residents/sqmi	11,512	5,821
Jobs/sqmi	56,069	29,786
Total	**67,581**	**35,696**

The area of this analysis is outside of Denver's downtown core. Therefore, the data presented in this study may not be fully representative of the population served by Denver Union Station.

Oakland Fruitvale Station

Context
Oakland's Fruitvale BART Station is located in the Fruitvale District and is part of the mixed-use Fruitvale Transit Village. The village prioritizes locally-owned retail spaces at the ground floor and office space for important community resources and organizations at the second floor.[1] Housing aims to provide a mix of affordable and market rate units. The transit-village has been recognized as a model of equitable, community-driven, transit oriented development. However, several factors, including zoning regulations, have limited the speed with which much of the development has unfolded.

Fruitvale Station offers insights into affordable and community-centric TOD.

Access and Mobility
Fruitvale station is served by three BART lines. The station provides bus service via Alameda-Contra Consta Transit District (AC Transit). A bus loop is provided at the station. There are no light-rail connections.

I-880 is the major north-south freeway that serves the station. There is an interchange at 42nd Avenue (about a half mile away) that provides vehicular access to the station. Parking is available at the station. On-street parking is available on the minor streets of the station area.

Bicycle access to the station is provided by Fruitvale Avenue, San Leandro St, and E 14th St. A Class II bicycle facility exists on Fruitvale Avenue, but there are limited on-street bicycle facilities that directly serve the station. A bike station and bike racks are available at the station. There is a Ford GoBike docking station at Fruitvale Station and several more within the station area. LimeBike, a dockless bikeshare program, operates in Oakland and also provides electric scooters.

There is a connected pedestrian network that allows direct pedestrian access to the station. Some high-speed vehicular geometries exist within the station area, such as right-turn slip lanes, which detract from pedestrian convenience.

I-880 acts as a major barrier for bicycle and pedestrian station access to the west.

Population Densities
The residential population density around the station is greater within the ¼-mile radius of the station than within the ½-mile radius. However, the jobs population density is similar in both radii. In both radii, the residential population comprises a greater proportion of the total. The ratio of jobs to residents within the ¼-mile radius is 1:2.5 and 1:2 within the ½-mile radius.

	1/4-mile	1/2-mile
Residents/sqmi	12,175	8,557
Jobs/sqmi	4,845	4,507
Total	**17,020**	**13,064**

1 https://unitycouncil.org/property/fruitvale-village/

Vancouver Marine Drive Station

Context
Vancouver's Marine Drive Station is located within the Marine Gateway complex. The mixed-use development is situated within a low-density residential neighborhood in South Vancouver and introduces new condos, rental units, office space, community and regional retail. Pedestrian plazas and a "high-street" seamlessly connect to rail and bus transit services, offering convenient access for residents, workers, and visitors. The success of Marine Gateway has attracted additional development to the area.

Marine Drive Station offers insights into sustainable, high-density development within a low-density neighborhood.

Access and Mobility
Marine Gateway is served by Translink which is Metro Vancouver's public transit service. Translink provides one Sky Train rail line and multiple bus routes that serve the station. The station operates as an important bus loop and terminus for multiple bus routes.

Marine Gateway is served by SW Marine Drive, a 6-lane major arterial. Cambie St extends to the north of the station, but dead ends shortly south of the station near Fraser River. The surrounding roadway network is local 2-lane undivided roadways. A parking garage is located at the station and limited on-street parking is available in the immediate vicinity of the station.

Cambie St has a Class II bicycle facility, but SW Marine Drive does not have an on-street bicycle facility. Bicycle parking is available at the station. The Canada Sky Train Line connects to Cambie St south of the station and provides a bicycle and pedestrian connection across the Fraser River. SW Marine Drive acts as a major barrier to bicycle station access since there is no on-street bicycle facility. Mobi Bikeshare operates in Vancouver, but no stations exist near Marine Gateway.

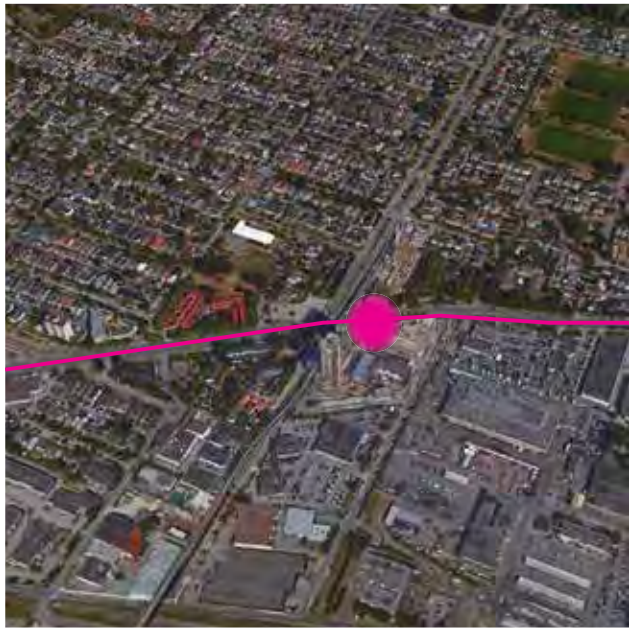
The Canada Line emerges from a below ground alignment just north of Marine Drive Station and continues south on elevated tracks to Vancouver International Airport.

A pedestrian network provides direct pedestrian access to the station. Standard crosswalks and high-speed suburban roadway geometries exist within the station area.

Population Densities
The population density around the station is greater within the ¼-mile radius of the station than within the ½-mile radius, with the notable exception that jobs data is not available for the ½-mile radius. The ratio of jobs to residents within the ¼-mile radius is 1:2.

	1/4-mile	1/2-mile
Residents/sqmi	6,819	8,930
Jobs/sqmi	3,366	*
Total	**10,185**	**8,930**

**Jobs data is not available for the area around Vancouver Marine Drive Station. 2,000 total jobs within the Marine Gateway development is used for comparative analysis purposes within the ¼-mile radius only.*



4.3 TOD Station Area Comparative Analysis

STATION AREA POPULATION

The selected case studies show greater total population densities relative to proximity to the stations. In the examples, total population densities are higher within ¼-mile radius of the stations compared to the ½-mile radius.

Santa Clara Station

Santa Clara Station shows the lowest total population density within the ¼-mile radius amongst VTA's BART Phase II station areas. By comparison, Oakland Fruitvale BART Station shows 230% more in total population density within the ¼-mile but 33% less in total population density within the ½-mile radius of the station.

Downtown San José Station

As compared to Downtown San José Station, Seattle Westlake Station shows 324% greater population density within the ¼-mile radius and nearly 300% more within the ½-mile radius of the station. On the other hand, Denver Union Station, which is positioned at the outskirts of the downtown, shows similar total population density as compared to Downtown San José both within the ¼-mile and ½-mile radius of the station.

28th Street Station

28th Street Station is 32% less dense than Oakland Fruitvale BART Station within the ¼-mile radius and 45% denser within the ½-mile radius.

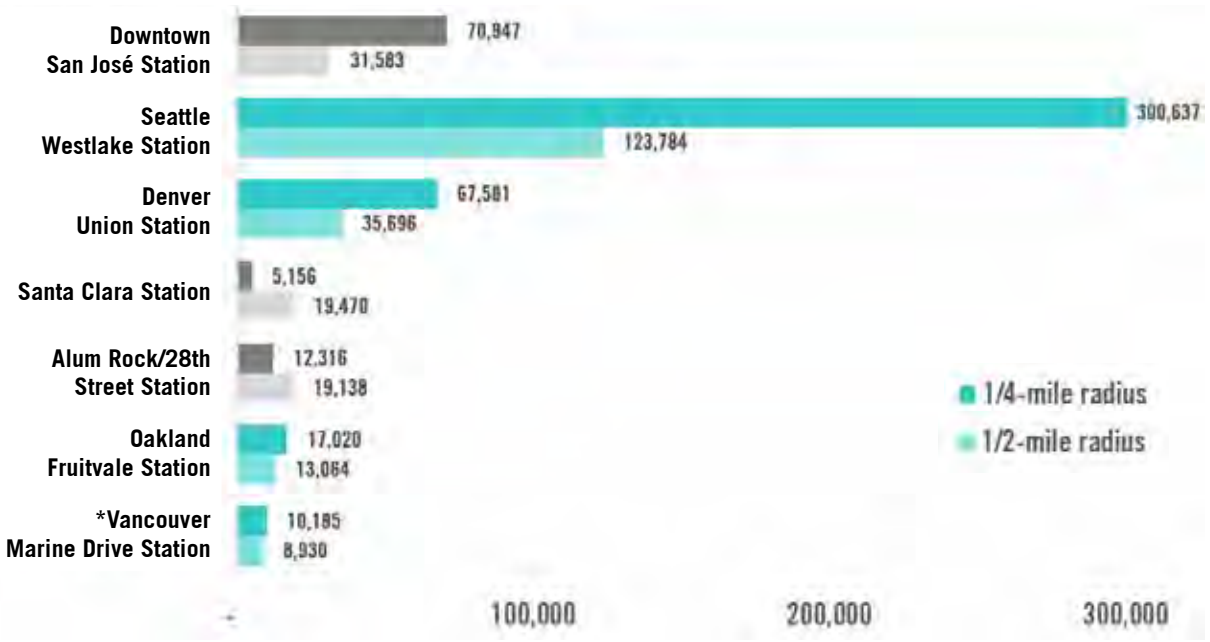


FIGURE 4.3.1 Comparative Analysis: Overall Population (people/sqmi)
**Jobs data is not available for the area around Vancouver Marine Drive Station. 2,000 total jobs within the Marine Gateway development is used for comparative analysis purposes within the ¼-mile radius only.*
Sources: 2015 US Census American Community Survey 5-year Estimates: B01003 Total Population http://factfinder2.census.gov 2016 Canada Census of population http://www.statcan.gc.ca; U.S.Census Bureau, Center for Economic Studies https://onthemap.ces.census.gov/

RESIDENTIAL POPULATION

Both Denver Union Station and Oakland Fruitvale BART Station show higher residential population density in close proximity to the stations. For the above-mentioned case studies, the data gathered shows that, compared to the ½-mile radius, residential population density is higher within the ¼-mile radius area of the stations than outside it. However, Seattle Westlake Station and Vancouver Marine Drive Station show a different model, with higher residential densities outside the ¼-mile radius of the stations. In Seattle, this may be due to the predominantly commercial character of the downtown. In Vancouver, this may be due to the large area of low-rise industrial land south of the station.

Santa Clara Station

Santa Clara Station shows the lowest residential population density amongst VTA's BART Phase II stations' areas. Within the ¼-mile radius of the stations, Oakland Fruitvale BART Station and Vancouver Marine Drive Station are approximately 860% and 440% (respectively) more dense in residential population than Santa Clara Station. Within the ½-mile radius of the station, the selected case studies both show approximately 40% less residential density compared to Santa Clara Station.

Downtown San José Station

Within the ¼-mile radius of the stations, Seattle-Westlake Station and Denver Union Station have residential densities approximately 60% and 30% (respectively) more than Downtown San José Station. This data is even more relevant considering that Denver station is on the outskirts of the city's urban core. Within the ½-mile radius of the station, Downtown San José Station shows similar residential density to Denver, while Seattle-Westlake Station shows 320% more residential density as compared to Downtown San José Station.

28th Street Station

Compared to 28th Street Station, Fruitvale BART Station is approximately 40% more dense in residential population, while Vancouver Marine Drive Station shows about 20% less residential density within the ¼-mile radius of the station. Within ½-mile of the station, Fruitvale BART Station and Vancouver Marine Drive Station are both approximately 45% less dense in residential population compared to 28th Street Station.

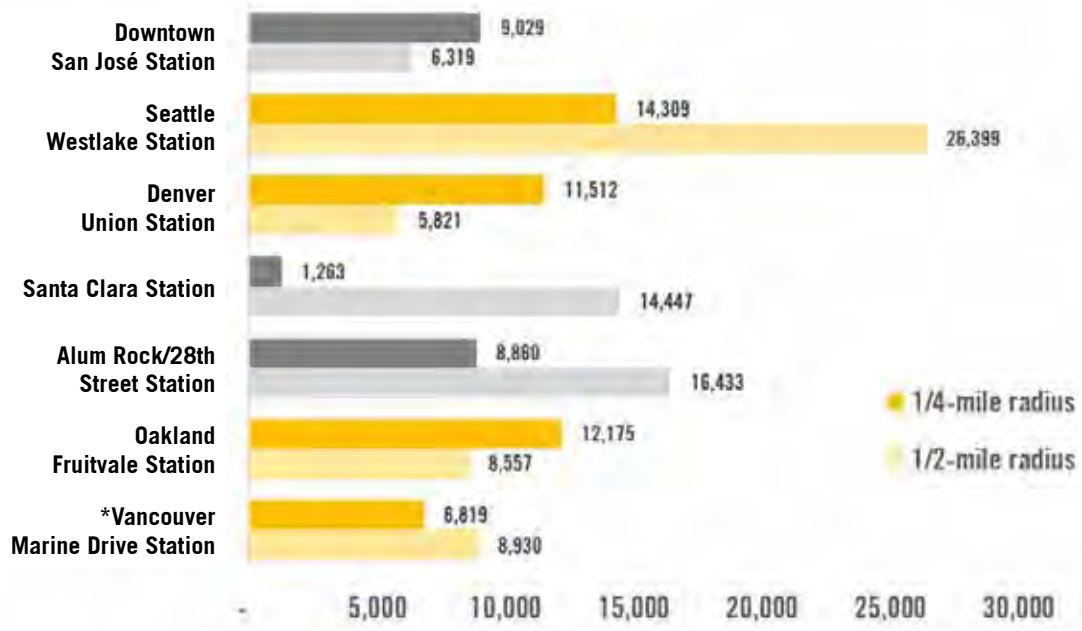


FIGURE 4.3.2 Comparative Analysis: Residential Population (residents/sqmi)
Sources: 2015 US Census American Community Survey 5-year Estimates: B01003 Total Population http://factfinder2.census.gov
2016 Canada Census of population http://www.statcan.gc.ca

EMPLOYMENT POPULATION

The selected case studies show increasing employment population density in proximity to the stations. The data gathered shows that, compared to the ½-mile radius, employment population density is higher within ¼-mile radius of the stations than outside it. This is particularly noticeable in Seattle-Westlake Station where the employment population density is more than twice that observed within the ½-mile radius.

Santa Clara Station

Compared to Santa Clara Station, Fruitvale BART Station is approximately 25% more dense in employment population within the ¼-mile radius and approximately 10% less dense within the ½-mile radius of the station.

Downtown San José Station

Within ¼-mile radius of the stations, Seattle-Westlake Station shows employment density approximately 360% more than Downtown San José Station, whereas Denver Union Station shows similar employment density. Within ½-mile radius from the station, Downtown San José Station shows similar residential density as compared to Denver, while Seattle-Westlake Station shows 285% higher employment density in comparison.

28th Street Station

28th Street Station shows the lowest employment population density amongst VTA's BART Phase II station areas. As compared to 28th Street Station, Fruitvale BART Station is 40% more dense in employment population within the ¼-mile radius and approximately 70% more dense within the ½-mile radius of the station.

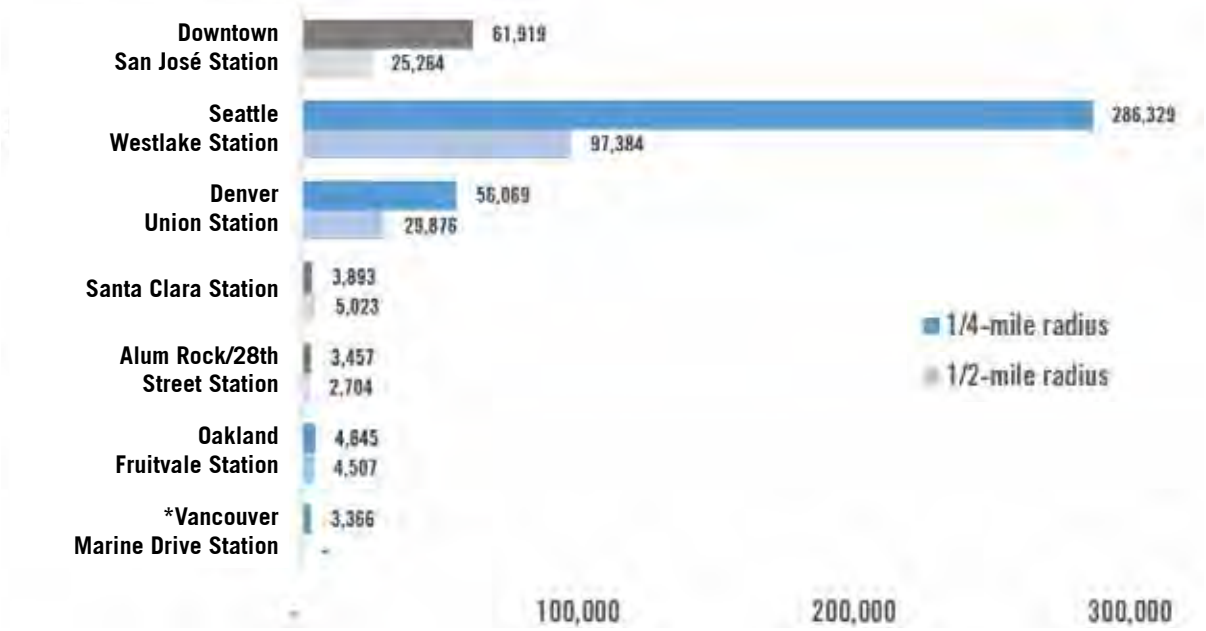


FIGURE 4.3.3 Comparative Analysis: Employment Population (jobs/sqmi)
**Jobs data is not available for the area around Vancouver Marine Drive Station. 2,000 total jobs within the Marine Gateway development is used for comparative analysis purposes within the ¼-mile radius only.*
Sources: 2015 US Census American Community Survey 5-year Estimates: B01003 Total Population http://factfinder2.census.gov 2016 Canada Census of population http://www.statcan.gc.ca; U.S.Census Bureau, Center for Economic Studies https://onthemap.ces.census.gov/

JOBS TO RESIDENTS RATIO

Seattle-Westlake Station shows the highest jobs to resident ratio and the highest proportion of jobs within the ¼-mile radius of the station. While Downtown San José Station and Denver Union Station ratios are similar, it is important to highlight that Denver Union Station is at the outskirts of downtown where it can be assumed that jobs to resident ratio is lower than might be the case in the central Denver downtown area.

In this analysis, Santa Clara Station stands out for its higher Jobs to Resident ratio compared to 28th Street Station and Fruitvale BART Station.

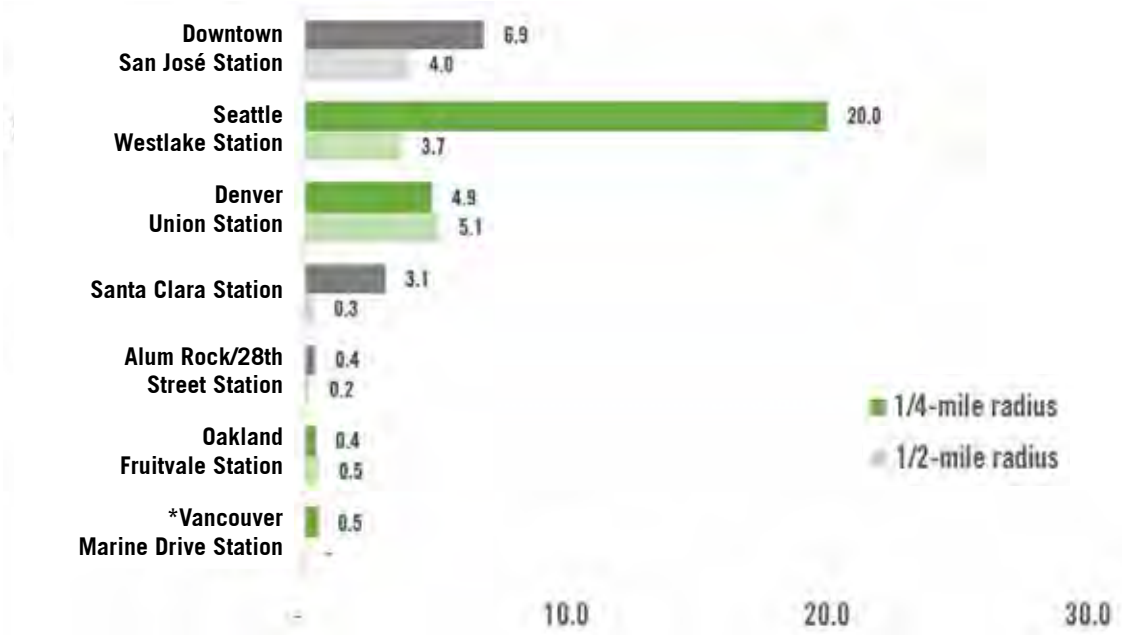


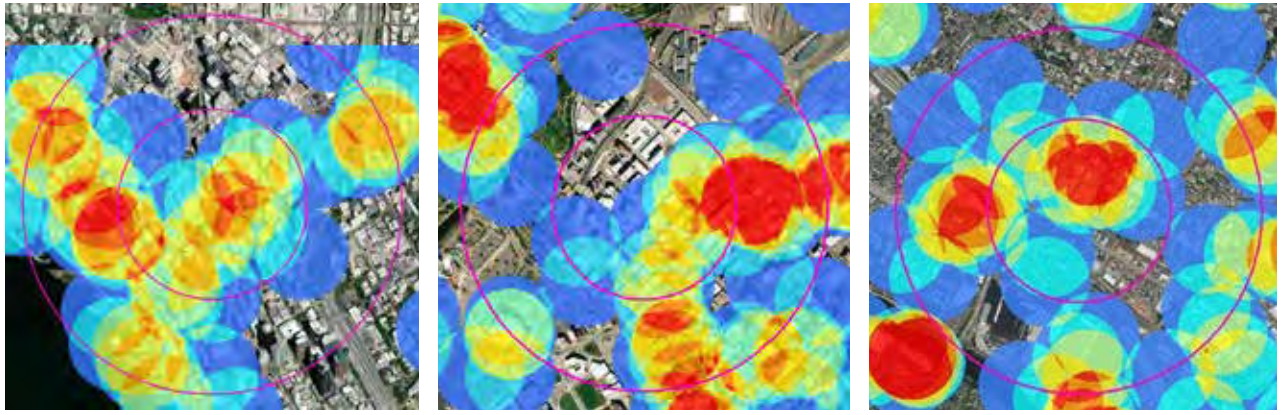
FIGURE 4.3.4 Comparative Analysis: Employment Population (jobs/sqmi)
**Jobs data is not available for the area around Vancouver Marine Drive Station. 2,000 total jobs within the Marine Gateway development is used for comparative analysis purposes within the ¼-mile radius only.*
Sources: 2015 US Census American Community Survey 5-year Estimates: B01003 Total Population http://factfinder2.census.gov 2016 Canada Census of population http://www.statcan.gc.ca; U.S.Census Bureau, Center for Economic Studies https://onthemap.ces.census.gov/

ACTIVE GROUND FLOOR USES

Active ground floors include uses that engage pedestrians in the public realm such as cafés, restaurants, and small-scale retail. Interestingly, amongst the selected case studies, there are fewer active ground floor uses within the ¼-mile than in the ½-mile radius. This can be attributed to the prioritization of access and mobility elements in immediate proximity to the station over active ground floor uses.

At this stage of the analysis it is difficult to define a correlation between the number of active ground floor uses and the total population density. For example, when comparing Seattle-Westlake Station and Fruitvale BART Station, despite a difference in the total population density of more the 283,000 people/sqmi with the ¼-mile radius, comparable densitites of active ground floor uses can be seen.

As more development occurs in the station areas, higher intensity of active ground floor uses will be needed in Santa Clara and 28th Street Stations. Existing densities of active ground floor uses in the Downtown San José station appear to be sufficient to support future TOD.



Seattle Westlake Station *Denver Union Station* *Oakland Fruitvale Station*

FIGURE 4.3.6 Active use heat maps

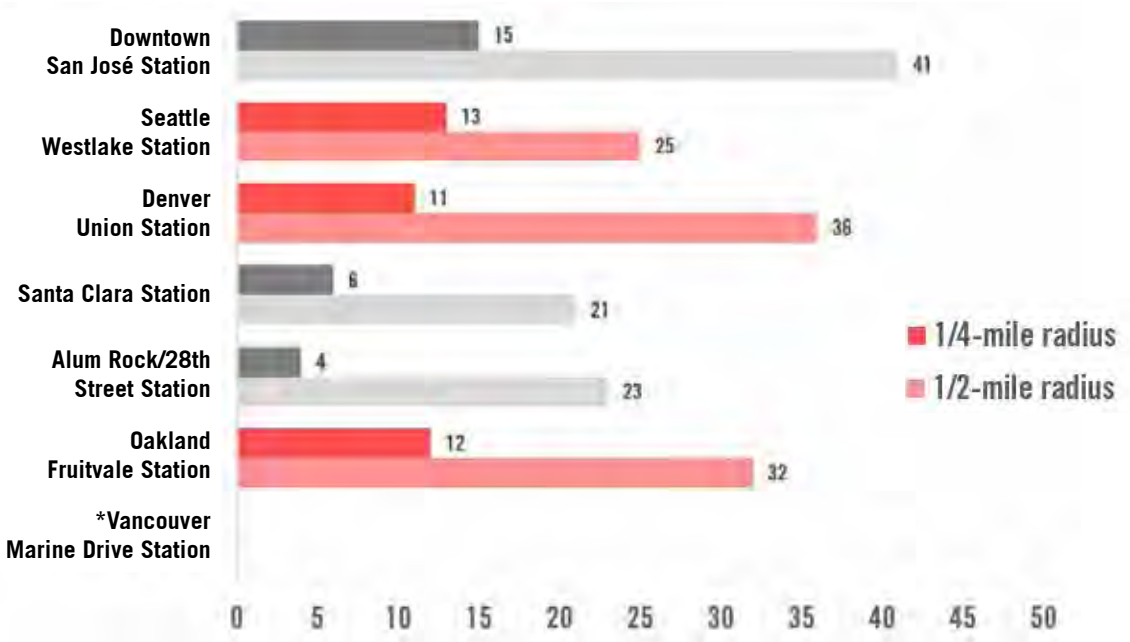


FIGURE 4.3.5 Comparative Analysis: Active Ground Floor Uses (# of uses)
**Active use data is not available for the area around Vancouver Marine Drive Station.*
Sources: Google map data, 2018

WALK SCORE

Walk Score is a walkability index that counts and measures distance to a range of categories of amenities from a particular place, and assigns points based on proximity and frequency, on a scale of 0 to 100. No points are awarded for amenities outside of a one mile radius. The number and proximity of nearby amenities is one predictor of whether people walk or prefer to use other mobility modes. Categories includes grocery stores, schools, parks, restaurants and other retail stores.

Santa Clara Station

Santa Clara Station has a significantly lower Walk Score than the comparables, Fruitvale and Marine Drive. The area lacks access to groceries, shopping, or schools but ranks well with access to parks and culture & entertainment.

Downtown San José Station

Downtown San José has a comparable Walk Score with the comparables, Seattle Westlake Station and Denver Union Station. The area ranks highest with access to dining & drinking, errands, parks, and culture & entertainment.

28th Street Station

28th Street Station has a lower Walk Score than Fruitvale and Marine Drive. The area ranks highest with access to groceries and lowest with access to errands, parks, and culture & entertainment.

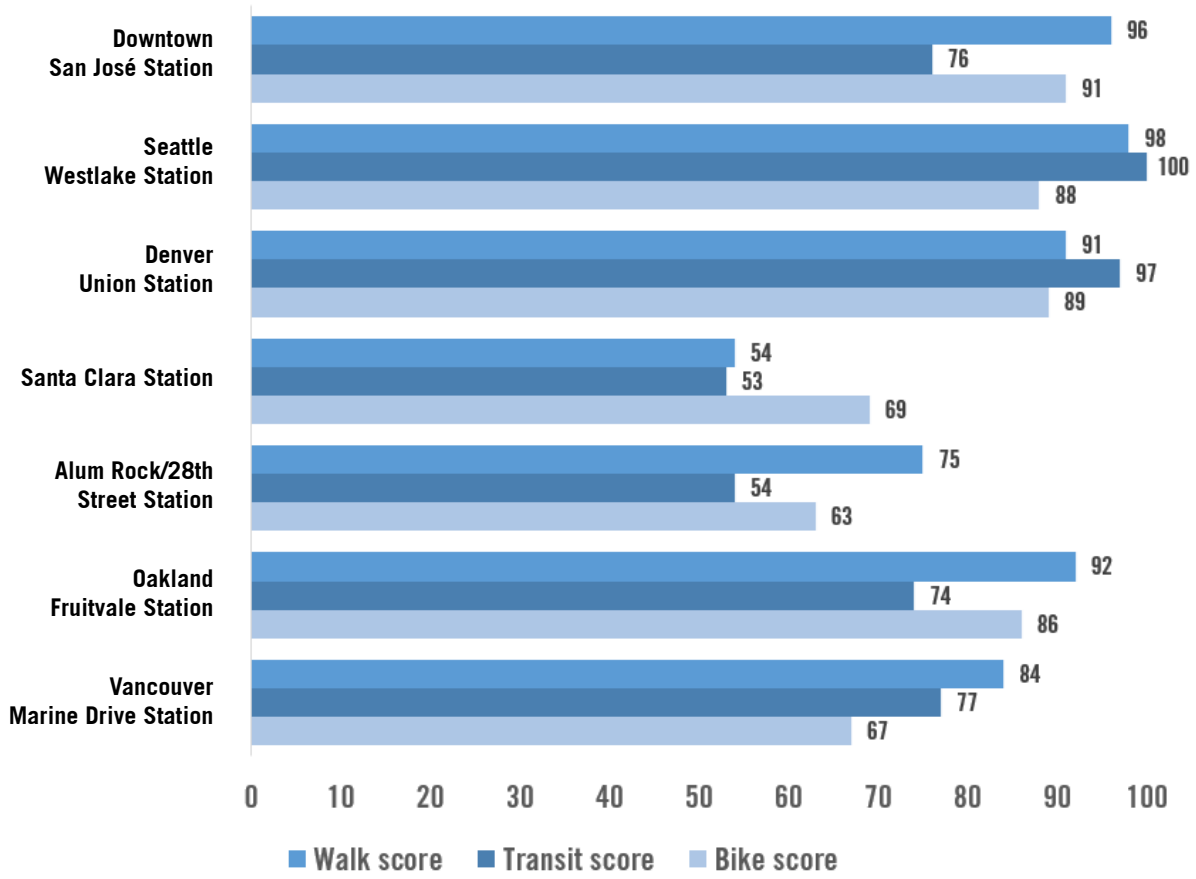


FIGURE 4.3.7 Comparative Analysis: Walk, Transit, Bike Score
Sources: Walk Score, 2018

4.4 TOD Corridor Case Studies

INTRODUCTION

TOD has become a prominent fixture in much of the Bay Area propelled in part by a tailwind of shifting consumer-housing preferences and business locational decisions in support of transit rich locations; supportive state, regional and local government plans; and favorable real estate market trends.

However, development next to transit alone does not make a TOD. When TOD is done well it seeks to align transit investments with a series of projects consistent with the community's vision for how it wants to grow. TOD is a collection of complementary things. TOD is a district, a community that has been shaped by transit in terms of greater density than the community average, with less parking, an active public realm, a mix of uses and housing choices, and a very walkable place where vehicles are not prioritized.

National best practice provides a fertile ground from which the VTA and its partners can borrow to help move TOD on and around BART Phase II stations to the next level.

This section provides an in depth look at the public policy framework and development program of TODs within the context of a corridor and how transit station design, access and delivery methods enabled or hindered good TOD outcomes.

The TOD's examined here were selected for their applicability to Phase II:

- Wilshire/Vermont in Los Angeles – a contemporary example of a transit agency led joint development project on subway air rights project over a station. The project has parallels to VTA land at the 28th Street and Santa Clara Stations.
- The Rosslyn Ballston Corridor in northern Virginia – America's best TOD example. The 40-year evolution of the corridor shows what can happen over the long term with planning transit for shaping development, continuously applying transit supportive plans and policies, along with a sustained strong development market and a unique situation where employers have favored transit locations.
- The Pearl District in Portland, Oregon – once a railyard is now Portland's largest and most successful mixed-use neighborhood. The product of a public-private collaboration, the Pearl is a guide for creating walkable, transit-oriented places.
- Tysons Corner, northern Virginia – with four new Metrorail stations, Tysons is starting the transformation from a suburban activity center into a dense TOD. The key parallel between San José and Tysons is the challenge of incrementally retrofitting an automobile-oriented center into a walkable mixed-use urban place.

SOME KEY TAKEAWAYS FOR PHASE II

Wilshire/Vermont stands out as an example of how a dense TOD and a public plaza can be developed over a subway station, achieve high transit use and significant reduction in car trips. Some basic takeaways with direct application to the Phase II stations:

- The project had a Mixed-Use Overlay District Ordinance that rewarded developers building affordable housing and mixed-use residential near transit with height and density bonuses and parking reductions.
- The inward design of the TOD does not present a welcoming face to the street as might be expected from a more contemporary project.

Rosslyn Ballston stands out as an example of the benefits of explicitly linking transit and land use as a long-term growth and economic development strategy. The basic fundamentals which Arlington County followed have direct application to the Phase II stations:

- Plan high density, high pedestrian amenity compact mixed-use TOD's and enter into an agreement not to disrupt existing single family neighborhoods and reinvest in preserving them.
- Approve development projects once they are found to be consistent with corridor wide urban design guidelines; TOD development standards (vision, desired public investments, location of retail, open space, street standards) and tight parking ratios. Then grant zoning incentives in exchange for public improvements.

The Pearl District's essential alchemy was using transit as a city shaping tool to create a new 100 square block transit-oriented high density neighborhood. The basic fundamentals which Portland followed have direct application to the Phase II stations:

- The Pearl District resulted from a six-year collaborative planning process initiated by the private sector to define the vision, development plan, urban design guidelines, zoning, tight parking, financing and the public and private responsibilities.
- The development framework assured that walkable streets, parks, affordable housing and the streetcar would be delivered as triggers for raising the minimum

density in steps from 16 units per acre to a minimum of 131 units per acre required today.

Tysons is notable as a work in progress as it reinvents itself from an auto-oriented center into walkable districts focused around four new Metrorail stations. The basic fundamentals which Tysons followed have direct application to the Phase II stations:

- Planning for transforming Tysons resulted from a public – private collaboration in response to a market preference for transit rich office locations.
- Increases in density with a new comprehensive plan, TOD zoning and tight parking ratios are granted in exchange for contributions toward key public improvements.

Wilshire/Vermont TOD - Los Angeles, California

DEVELOPMENT PROGRAM

The Wilshire/Vermont TOD is a $136 million transit agency joint development project located on air rights above a subway station within Koreatown, one of the highest density and ethnically diverse neighborhoods in Los Angeles. The TOD sits at Wilshire and Vermont, one of the city's premier transit corners, served by two subway lines and a number of bus lines. Above the station are 449 apartments and 36,500 square feet of retail space, 686 parking spaces underground in a two-floor garage. Twenty percent of the residential units (90) are set aside for low-income residents. There is no official transit parking located on-site. With a density of 140 units per acre, the TOD performs in a highly transit supportive manner – in 2016 just 26% of all trips were by car.

The inward design of the TOD does not present a welcoming face to the street as might be expected from a more contemporary project. That is explained in part by the busy streets and the pioneering nature of the project as a Los Angeles TOD in a low income neighborhood recovering from the 1992 civil disturbance.

RELEVANCE TO BART CORRIDOR

Wilshire/Vermont is a contemporary example of a transit agency lead joint development project on subway air rights project over a station. The station opened in 1993. Phase one of the TOD; the residential, retail, a new station entrance and a large plaza framed by the project; opened 14 years later in 2007. An early Los Angeles TOD, it's a fitting example for San José and Santa Clara.

Applicable Phase II Stations/Segments:
Santa Clara Station, 28th Street Station

Passengers leaving Station. The $136 million joint development project is built on air rights over a Los Angeles subway station and incorporates the station into its design.

WILSHIRE/VERMONT

The Wilshire/Vermont joint development project was completed in two phases. The first phase was completed in 2007 on a 3.24-acre site. The seven-story project includes 449 apartments, 36,500 SF of retail, a new subway entrance and a large plaza framed by the project site. The project includes a notable public art project, a brightly colored mural by April Greiman. There are 686 parking spaces underground in a two-floor garage. Residential is parked at 1.1 space per unit. An 800-student Los Angeles Unified School District middle school was completed in 2008 on a 2.5-acre site. The project includes a new subway portal and elevator access. A new 11 bay bus layover facility is on an adjacent 1.02-acre parcel.

The TOD sits at Wilshire and Vermont, one of the city's premier transit corners, served by a two subway lines and a number of bus lines. Station boardings in 2014 were 12,472. The Purple Line subway service on Wilshire is currently being extended to Century City and runs east and west of the station. Red Line subway service on Vermont runs north from Wilshire to North Hollywood. In addition, Metro Rapid buses stop along the curb on both Wilshire and Vermont. The Vermont bus line is said to be the second busiest in Los Angeles.

According to the Los Angeles Times, the project developer Dan Rosenfeld, a founder of Urban Partners, conceded the project was a challenge to finance. After Metro opened up the parcel for bids, only four developers threw their hats into the ring. Those who passed on the chance to build there worried about relatively low incomes in the surrounding area and the complications of working with Metro as a landlord.

As Rosenfeld pointed out, the building occupies not only a physical crossroads in the city but a crossroads in time. "It arrived at a point in the development of Los Angeles when we were still very much a car culture, a city that continues to celebrate and romanticize speed and freedom of movement. But as we struggle to put a comprehensive transit system in place, our guilt about those tendencies keeps growing. Everyone involved in Wilshire Vermont Station is very much aware of the gap between the city we live in and the one we hope -- in our more optimistic or naïve moments, take your pick -- to become."[1]

A major new mixed-use residential project was completed directly across Wilshire in 2014. The Vermont, a 980,000 sq. ft. development with 40,000 square-feet of retail and dining spaces and 900 parking spaces sit within a 7-storey podium (with 6 levels of parking), highlighted by two landmark 17-story residential towers rising above the public-private street anchor, offering a total of 464 for-rent apartment units.[2]

PLANNING & URBAN DESIGN

The project is located within the 1995 Wilshire Center/ Koreatown Redevelopment Project Area. In 1998, the City Council provided further guidance for communities near transit, adopting a Mixed-Use Overlay District Ordinance that rewarded developers building affordable housing and mixed-use residential near transit with height and density bonuses and parking reductions. The Redevelopment Agency invested $10 million in the Wilshire/Vermont TOD.[3]

1 http://articles.latimes.com/2007/oct/03/entertainment/et-wilshire3/2

2 https://www.architectmagazine.com/project-gallery/the-vermont-6524

3 http://www.reconnectingamerica.org/assets/Uploads/htai_koreatown.pdf

Looking in toward the station from Wilshire. The TOD sits at the intersection of two of Los Angeles' premier transit corridors. Two subway lines serve the station together with numerous bus lines.

Gross Acres	Density - Units per Gross Acre	Gross FAR Commercial	% reduction in ITE trips for vehicles	Share of All Trips					
				Walk %	Bike %	Bus %	Rail %	Auto %	Other %
3.2	140	0.27	57	27.4	2.2	21.1	20.1	25.9	3.4

TABLE 4.4.1 Wilshire / Vermont TOD Travel & Density Characteristics
https://www.sciencedirect.com/science/article/pii/S0169204616302687

The design of the project gestures to the corner of Wilshire & Vermont with an opening to the plaza framed with ground floor retail. The outward face of the remainder of the project presents a hard edge of essentially blank walls to the streets. The project itself is oriented inwardly toward the plaza and the station entrance.

This six-minute video provides a visual sense of the context for the TOD, the station, the plaza and the surrounding environment without any narrative. https://www.youtube.com/watch?v=0QV2kVAJtwM

SIGNIFICANT REDUCTION IN AUTOMOBILE USE

Recent research demonstrates the Wilshire/Vermont TOD is an excellent example of how well-designed TOD's in a dense urban setting can result in a significant reduction in automobile trips and the need for peak parking compared to guidance by the Institute for Traffic Engineers (ITE). The TOD's performance reflects the location of the project in a dense, transit rich urban setting. Bike share, while low, is above the US average. The location at the intersection of two major bus corridors helps explain the nearly identical rail and bus mode share. Commercial parking in the TOD is separate from residential. Actual commercial parking supply relative to ITE is 140.7% of supply. Wilshire/Vermont was able to exceed the actual supply of parking spaces by using tandem, valet parking.

THE WILSHIRE CORRIDOR

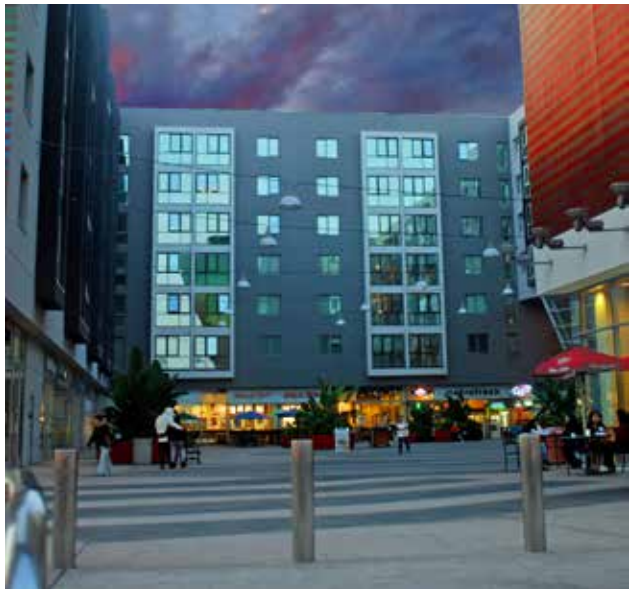
Wilshire Boulevard is unique in the United States in that it is essentially a 15+ mile long narrow high-density linear strip of towers. Much of the corridor backs onto single family neighborhoods. Wilshire connects five major business districts. The corridor includes key designations such the Financial District in downtown, MacArthur Park, the "Miracle Mile," Mid-Wilshire, the Los Angeles County Museum of Modern Art, Rodeo Drive and Beverly Hills. Koreatown and Mid-Wilshire are two of Los Angeles' most densely populated districts.[4]

Subway stations along the corridor include Westlake/MacArthur Park, Wilshire/Vermont, Wilshire/Normandie and Wilshire/Western. Construction is underway on a nearly 4-mile extension. Initial construction on the segment through Beverly Hills and Century City has started with opening slated in early 2028.

APPLICATION TO BART PHASE II

Wilshire/Vermont stands out as an example of how a dense TOD and a public plaza can be developed over a subway station, achieve high transit use and significant reduction in car trips. Some basic takeaways with direct application to the Phase II stations:

- The project had a Mixed-Use Overlay District Ordinance that rewarded developers building affordable housing and mixed-use residential near transit with height and density bonuses and parking reductions.
- The inward design of the TOD does not present a welcoming face to the street as one might expect from a more contemporary project.



Station Plaza. Six stories of residential above 38,000 SF of retail frame the transit plaza. The Los Angeles Redevelopment Agency invested $10 million in the pioneering TOD.

4 https://en.wikipedia.org/wiki/Wilshire_Boulevard

Rosslyn Ballston- Arlington County, Virginia

Market Center, Clarendon. The Rosslyn Ballston is one of the strongest real estate markets in the Capital Region. In a corridor where the median income is more than $90,000, 40% of residents take transit to work.

OVERVIEW

Virginia's Rosslyn Ballston (RB) corridor is arguably the best example of TOD in the country. Planning for TOD started with the county's advocating for five closely spaced subway stations away from a planned freeway corridor. The result is a vibrant pedestrian corridor. Between 1970 and 2011 the corridor has seen impressive transit-oriented growth: +74,000 jobs, +22,400 residents and +16.4 million SF of office. Only 30% of residents in the corridor drive to work.[1]

RB's 40-year evolution shows what can happen over the long term with planning transit for shaping development, continuously applying transit supportive plans and policies, a sustained strong development market and a unique situation where employers favor transit.

RELEVANCE TO BART CORRIDOR

Rosslyn Ballston is an example of introducing high density TOD within "Bulls eyes" around a tight corridor of stations and entering into a compact with the surrounding neighborhoods to preserve them as single family.

Applicable Phase II Stations/Segments:
Santa Clara Station, 28th Street Station to Diridon Station

1 https://projects.arlingtonva.us/wp-content/uploads/sites/31/2014/03/40_Years_Smart_Growth.pdf

ROSSLYN BALLSTON

Rosslyn Ballston is a corridor of five closely spaced Washington, DC Metro stations (Rosslyn, Courthouse, Clarendon, Virginia Square and Ballston) immediately across the Potomac River in Arlington County, Virginia. The county's 40+ year endeavor of creating high quality dense walkable transit-oriented development has been the recipient of numerous national awards. With the expansion of Metro into additional corridors, the county has become a place shaped by transit. Countywide, $27.5 billion of a total $57.5 billion in assessed land and improvements value in the county is in two metro corridors (11% of total land). In 2012 Arlington had more office space than downtown – Dallas, Los Angeles, Denver, or Boston.

The corridor is one of the region's strongest real estate markets[2]. According to the Washington Post in 2012 there were more than 5,500 high-end apartments in the corridor. Rent in the corridor averaged $2.69 a square foot, by far the highest in Northern Virginia and vacancies were the lowest. As an office market, there are few areas that can match the Rosslyn-Ballston corridor. On average during the past 15 years, Rosslyn-Ballston corridor tenants occupy 411,000 more square feet annually than they vacate and in September 2012 the spread was 162,000 square feet.

Development in the RB corridor is balanced fairly evenly between the five stations with dense residential being the predominate use at each station. Rosslyn and Ballston stations have the most office (over 40%) and other stations are more than 20% office. Clarendon is the only station where slightly more than 10% of the uses are retail. The Post article notes: "Each area has its own specialty: Rosslyn contains the tallest commercial buildings and is most visible from the District, while Courthouse serves as the government center for Arlington County. Clarendon is the center of night life. Virginia Square has residential buildings and is home to the Federal Deposit Insurance Corp. and the Arlington campus of George Mason University. Ballston contains the Ballston Common Mall, along with a mix of residential and commercial buildings."

The demographics and transit performance within the RB Corridor paint the picture of an affluent, young, well-educated population which walks and uses transit at a high level:

- Home to 21% of county residents
- 82% residents had a bachelors degree or higher
- Highest percent of 25 to 30-year old's in US (2010)
- The median annual salary was $90 to $98k per year (2010)
- 66% own one car or less
- 40% residents take transit to work
- 76.7% of Metro access is by walking
- Just 10.9% of access to Metro is by car (including drop-off)

EARLY PLANNING

Arlington County strongly advocated for closely spaced stations (½-mile apart) under their old declining commercial corridor rather than in middle of a forthcoming freeway. Their advocacy was backed up with the county paying $100 million (1974 $) to pay for the difference in costs. The planning strategy was two-pronged: 1) a "Bulls eye" development plan of high density mixed use at stations, a high amenity pedestrian environment and scale down to existing neighborhoods; 2) a commitment not to disrupt existing neighborhoods and reinvest in preserving them.

An adopted corridor strategy (GLUP), based on agreed upon development goals, was followed up with sector plans for ¼-mile around stations (vision, desired public investments, location of retail, design guidelines, open space, street standards). The GLUP acknowledged desired

Rosslyn Ballston looking toward Washington, DC. The corridor is characterized by dense development clustered around five closely spaced stations and intact single-family neighborhoods. Source: Arlington County

2 https://www.washingtonpost.com/business/capitalbusiness/rosslyn-ballston-corridor-remains-one-of-washington-areas-strongest/2012/09/07/4d303df4-f6a8-11e1-8398-0327ab83ab91_story.html?

high density but did not up-zone. Incentive zoning based on development proposals granted up-zoning in exchange for public improvements, consistent with GLUP & zoning.

Initial TOD planning was completed in 1974, Metro service first started in 1979. Early results did not work from a placemaking perspective. For example, many of the transitions from 1980's towers to single family neighborhoods were harsh. Recent development projects such as McCaffery Interests' Market Common (the redevelopment of a former Sears site into a mixed-use lifestyle center) in Clarendon with 240,000 SF of retail, 100,000 SF of office, 300 apartments and 87 townhomes were hailed for the close collaboration with surrounding neighbors.

The county made a "Mid Course Review" in 1989 and instituted a corridor wide urban design strategy with sector plans. "The critical lesson was that it's not about the density, it's about the form, and what place we were trying to create."

BEFORE & AFTER

Arlington County has given considerable attention to tracking the results of its transit-oriented growth management strategy. The most recent iteration includes a comparison before rail service in 1970 and after rail service in 2011:

	Jobs	Office SQ Feet	Housing Units
1970	22,000	5.5 million	7,000
2011	96,200	21.9 million	29,400

APPLICATION TO BART PHASE II

Rosslyn Ballston stands out as an example of the benefits of explicitly linking transit and land use as a long-term growth and economic development strategy. The basic fundamentals which Arlington County followed have direct application to the Phase II stations:

- Plan high density, high pedestrian amenity compact mixed-use TOD's and enter into an agreement not to disrupt existing single family neighborhoods and reinvest in preserving them.
- Approve development projects once they are found to be consistent with corridor wide urban design guidelines; TOD development standards (vision, desired public investments, location of retail, open space, street standards) and tight parking ratios. Then grant zoning incentives in exchange for public improvements.

Ballston Pocket Park. The planning strategy for the corridor put an emphasis on a high-amenity walkable environment.

Ballston Station. An early example of high density air rights development over the Metro Station.

Pearl District - Portland, Oregon

Jamison Square. The first of three public parks in the Pearl District, a large-scale high density walkable mixed-use urban redevelopment project shaped by a new streetcar line.

DEVELOPMENT PROGRAM

Portland's Pearl District is a shining example of the transformative power of transportation, supportive public policy, sustained public private partnerships and market demand for walkable urban places. In 2008, 58 percent of residents reported using modes other than driving to get to work.[1] Once a railyard and an "incubator" for start-up businesses in abandoned warehouses, and home to a large artist community, the Pearl District is now Portland's largest and arguably most successful mixed-use neighborhood. Today, the Pearl District is one of Portland's highest density neighborhoods with nearly 17,000 persons per square mile.

RELEVANCE TO BART CORRIDOR

The Pearl District is a contemporary example of creating a large-scale high density walkable mixed-use transit-oriented district immediately adjacent to downtown Portland shaped by the Portland Streetcar and the approximately two miles of streets that it transverses. Redevelopment has followed the streetcar along the corridor.

Applicable Phase II Stations/Segments:
28th Street Station to Diridon Station

1 Pearl District Access and Circulation Plan Existing Conditions Report. Portland Bureau of Transportation 2009. http://www.portlandoregon.gov/transportation/article/306707 -

PEARL DISTRICT

"The Pearl" is a transit-oriented district spanning approximately 100 city blocks bounded by I-405 to the west, West Burnside St to the south, NW Broadway St to the east, and the Willamette River to the north (it is north of and adjacent to Portland's CBD). In a series of complementary public and private actions the Pearl was purposefully designed around transit, walkability and a mix-of-uses.

A major catalyst to the transformation of the Pearl District was the construction of the Portland Streetcar, the first modern streetcar system to be built in the United States. Service started in 2001; today three streetcar lines serve the Pearl and carry more than 15,000 daily riders. The streetcar corridor runs along two streets North / South and two East / West with a total of 10 stops in the Pearl District. The streetcar stops are close enough together to create a continuous corridor.

Part of the essential alchemy of the Pearl District was understanding that contemporary transit is part people moving and part community building – and depending on the situation, the design of the transit project needs to reflect the balance point between the two. From the beginning the Portland Streetcar has always been more about community building than people moving. Simply having a streetcar was not enough to complement the lifestyle, image and the "pedestrian accelerator" the developers of the Pearl were seeking. To play its part as a real estate catalyst, the streetcar needed to be conceptualized, designed, constructed and operated with development very much in mind. That perspective shaped key decisions on the streetcars operations plan, route selection, station design and location to optimize community fit, urban design and economic development.

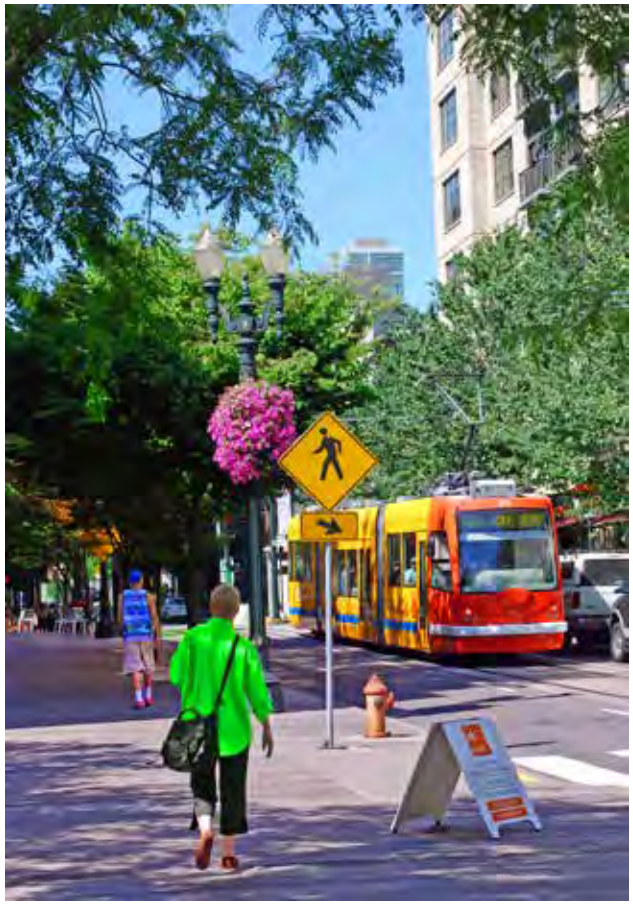
PUBLIC & PRIVATE INITIATIVES SHAPED THE PEARL

The Pearl District had only a handful of residents in 1990 and 1,300 in 2000. By 2010 there were 6000 residents.[2] The future build out of the Pearl District is expected to result in about 12,500 residents and 21,000 jobs.[3] As much as anything the Pearl District is the result of a long-term public-private partnership. Some key milestones included:

- River District Vision Plan 1992 - Portland acknowledged the privately led plan for what now is the Pearl District
- River District Development Plan 1994 - development and public finance framework for the area
- River District Design Guidelines 1996 - regulations and guidelines adopted
- Master Development Agreement 1997 – 50-year agreement between the city and Hoyt Street Properties (HSP), the owners of a 34-acre brownfield (now the heart of the Pearl). The agreement covered roles, funding and donations relative to housing, three parks and infrastructure including the streetcar and affordable housing.
- River District Urban Renewal Plan 1998 – district formed to fund the city's obligations from tax-increment financing. In the first 5 years of its existence,

2 http://en.wikipedia.org/wiki/Pearl_District,_Portland,_Oregon

3 http://www.pdc.us/Libraries/River_District/Pearl_District_Development_Plan_pdf.sflb.ashx



Pearl District Streetcar. Active ground floor uses paralleling the streetcar create vital streets as intended in urban design requirements and a new network of 200 X 200 ft blocks.

over $70 million was spent on the removal of the Lovejoy Viaduct, construction of the Portland Streetcar, construction of affordable housing, and the development of Jamison Park and other amenities.

DEVELOPMENT OF THE PEARL

Rather quickly, the Pearl District evolved into a trendy, urban area replete with restaurants, bookstores, art galleries, boutiques, and other specialty shops with attractive street presence. The area has "gentle" walking blocks (e.g., short distances, street furniture, plantings, and awnings) that make it easy to get around and an inviting place to linger.

The Master Development Agreement set-up a series of public and private triggers which translated into increases in minimum density increases:[4]

Housing
Proposed housing densities were significantly higher than anything built previously. HSP agreed to increase the minimum density from 15 to 87 units per acre when the city commenced removal of the Lovejoy Viaduct that crossed the abandoned rail yards. Also, on completion of the Portland Streetcar, minimum densities would increase to 109 units per acre. Finally, when construction commenced on the Pearl District's first park, the minimum density would rise further, to 131 units per acre.

In addition to meeting density requirements, HSP also agreed to help meet the city's housing-affordability goals. HSP's commitment was predicated on the availability of public financial assistance, recognizing that these units typically require public subsidies. If HSP did not build affordable housing, the city was able to purchase up to three 1⁄2 blocks of property for that purpose. Today 23%[5] of the housing in the Pearl District is affordable, something that would not have been possible without the agreement and a substantial investment of public funds by the City. That said, it should be noted that the affordability goals laid out in the agreement have not been fully met. The minimum density requirements are being exceeded.

Parks
HSP agreed to donate 1.5 acres of land for three new parks each consisting of 40,000 square feet in exchange for the city's commitment to build them. In addition, the city had the option to acquire up to 4 acres for public open space. Three major parks have been built in the Pearl. The first public park, Jamison Square, opened in 2002, Tanner Springs followed in 2005 and The Fields opened in 2013.

Infrastructure
Transportation improvements were essential to develop the area. The agreement stipulated that HSP would donate the right-of-way for all local streets, sidewalks, and utilities (6 acres) at no cost. HSP would also pay $121,000 to remove the Lovejoy Viaduct and $700,000 towards the Portland Streetcar. The Lovejoy ramp was removed in 1999 and a network of new streets mimicking the historic 200 x 200 foot downtown Portland grid have been constructed. In 1995 the City issued a Request for Proposal to design, build, operate and maintain the Streetcar. In 2001 the Streetcar opened for service.

The first notable amenity was Jamison Park (with a programmable fountain). Early development included several

Tanner Creek Park. One of three major parks developed in the Pearl District as a result of the Master Development Agreement.

4 http://www.pdc.us/Libraries/Document_Library/Hoyt_St_Property_Agreement_pdf.sflb.ashx

5 http://www.politifact.com/oregon/statements/2011/nov/18/tom-hughes/20-percent-housing-portlands-pearl-district-really/

small pocket parks, a community center, and space for a public market. Following Jamison, two other parks were completed. Indicative of the evolution of the Pearl the district is home to the Cosmopolitan — which, at 28 stories and 340 feet high, is the city's tallest residential building.

APPLICATION TO BART PHASE II

The essential alchemy of the Pearl District was using transit as a city shaping tool to create a new 100 square block transit-oriented high density neighborhood. The basic fundamentals which Portland followed have direct application to the Phase II stations:

- The Pearl resulted from a six-year collaborative planning process initiated by the private sector to define the vision, development plan, urban design guidelines, zoning, tight parking, financing and the public and private responsibilities.
- The development framework assured walkable streets, parks, affordable housing and the streetcar would be delivered as triggers for raising the minimum density in steps from 16 units per acre to a minimum of 131 units per acre today.

Fields Park Pearl District. An incentive based 50-year development agreement raised minimum densities from 16 to 131 units per acre in exchange for housing, parks and infrastructure.

Tysons Corner - Fairfax County, Virginia

Tysons Corner Station. The premier example of retrofitting a suburban activity center in a TOD focused around four Metro stations. Image: Joel Gray

DEVELOPMENT PROGRAM

Like San José, Tysons Corner (rebranded as Tysons) Virginia grew-up around the automobile; it is now being transformed and transported into the future around its four new Metrorail stations which opened in 2014. The stations on average are spaced 4,000 ft apart. The 2008 plan Transforming Tysons charted the course for the redevelopment of the nation's 12th largest employment center into America's largest TOD. Tysons' 1,700 acres are evolving from 46 million sf of development and 40 million sf of parking into a 21st century city of 160 million sf of livable, walkable, mixed-use, transit connected, green urbanism. Two assessment districts totaling $650 million have been established to help fund Tysons implementation.

The private sector embraced transforming Tysons because they saw their regional market share of office declining as tenants increasingly chose transit rich locations across the Washington capital region.

RELEVANCE TO BART CORRIDOR

Tysons is an in-progress example of retrofitting an intense suburban activity center into a transit-oriented high density walkable mixed-use new downtown around four new Metrorail stations. Three of the four stations are envisioned to grow together as an urban corridor. The key parallels between the BART Corridor and Tysons are: a) the need to pivot in the face of market preference for transit served office locations; b) the challenge of incrementally retrofitting automobile-oriented suburban centers into walkable mixed-use urban places; and, c) the difficulty of overcoming physical barriers such as those at Santa Clara and Diridon stations.

Applicable Phase II Stations/Segments:
Downtown San José to Diridon

TYSONS

Four key drivers underpin the Tysons transformation strategy: first, substantially increasing the housing in Tysons to get a better housing jobs balance; second, focusing growth around Tyson's four metro rail stations; third, creating a tight grid of interconnected streets; and, fourth, greening Tysons with a multifunctional green network. Rezoning for TOD has been completed; under Virginia's system of proffers (extractions) developers of major projects must also secure development approval including contributions toward key public improvements.

Since 2011 more than 5.4 million sf of development has been built or is under construction, an additional 42.2 million sf has been approved consistent with the TOD plan. Capital One's new 470-foot tall headquarters next to the Tysons East Station is the tallest building in Metropolitan Washington. Recent development approvals for the Tysons West station are indicative of the scale of what's coming: 13.3 million sf of redevelopment across five projects adjacent to station, 20% of the housing would be affordable/workforce and 5.62 acres park land. Tysons-wide, the mix of uses has evolved consistent with the plan - the jobs to household ratio within Tysons has improved significantly from 12.4/1 in 2005, to 7.2/1 in 2017.

Developers supported the limits on parking, tiered to distance from transit, in part based on real world experience with transit-oriented parking ratios nearby in the Rosslyn Ballston Corridor.

THE TYSONS PARTNERSHIP

The transformation of Tysons is a public-private partnership. The Tysons Partnership, formed in 2011, works with its members and County staff on issues related to the development of Tysons. The Tysons Partnership Council Program, launched in 2016, is the driving force behind the Partnership's effort "to accelerate the transformation of Tysons into a great American city." The Partnership convenes councils around six core areas of focus: environmental sustainability, corporate social responsibility, transportation, land use, marketing, and emerging leadership.

https://www.fairfaxcounty.gov/tysons/annual-report

APPLICATION TO BART PHASE II

Tysons is notable as a work in progress as it reinvents itself from an auto-oriented center into walkable districts focused around four new Metrorail stations. The basic fundamentals Tysons followed have direct application to the Phase II stations:

- Planning for transforming Tysons resulted from a public – private collaboration in response to a market preference for transit rich office locations.
- Increases in density with a new comprehensive plan, TOD zoning and tight parking ratios are granted in exchange for contributions toward key public improvements.

Capital One HQ from McLean Station. The 470-foot tower is the tallest in the region. An additional 4.5 million SF of mixed-use have been approved for the 24.6 acre campus.

	< 1/8th mile from Metro		1/8 to ¼-mile from Metro		¼ to ½-mile from Metro	
	Minimum	Maximum	Minimum	Maximum	Minimum	Maximum
Hotel	None	1	None	1	None	1.05
Office	None	1.6	None	2	None	2.2

TABLE 4.4.2 Tysons Adopted Transit Oriented Zoning: Parking Spaces Allowed Per 1,000 SF of Gross Leasable Area


N San Pedro St
W Santa Clara St
San Pedro St

5

TDM AND RIDERSHIP POTENTIAL

Santa Clara and San Pedro Avenues. Photo Credit: SPUR, Sergio Ruiz

5.1 Parking and TDM: Barriers and Opportunities

This section outlines the existing parking and TDM conditions at the three study stations, and identifies opportunities to tailor each to support active land uses and the transit stations. In effect, the parking and TDM opportunities support 'good TOD'.

While there are many ways to access a transit station and its surrounding land uses, driving and parking a private vehicle is often the most common method. The parking supply itself does not generate the trips, it only accommodates the trips destined for the station or the land uses.

While driving and parking are one way to access transit, there are others. Walking, biking, taxis/TNC's, and connecting transit services are all other ways to access the station. Surrounding transit stations with active land uses allows these others modes to become much more feasible (the closer to the station, the more reasonable it is to walk and bike; the more dense the corridor, the more efficient the connecting transit). The land uses and the transit station becoming symbiotic in their transportation relationship: each generating or accommodating trips.

Access options to these station areas, therefore, are different from locations without both land uses and transit stations. With different access options, the amount of vehicle parking demanded and effective transportation demand management (TDM) techniques will also vary.

Location	Multi-Family Residential	Office	Ground-Floor Retail	Source
Santa Clara	1 to 2 spaces per dwelling unit (depending on zoning)	1 space per 300 square feet of gross floor area	1 space per 200 square feet of gross floor area	City of Santa Clara Zoning Code[1]
Downtown San José	1 space per unit	2.5 spaces per 1,000 square feet	No parking required	City of San José Downtown Zoning Code[2]
28th Street	1.25 to 2 spaces per unit[3]	1 space per 200-300 square feet of gross floor area (exempt if use is street-level)[4]	Exempt from requirements unless demand for use under code would generate 2 spaces per 200 square feet of gross floor area[5]	City of San José Pedestrian-Oriented District[6] and Alum Rock Village Parking Management Zoning Code[7]

FIGURE 5.1.1 Existing Parking Requirements
[1] Santa Clara Municipal Code 18.74 and 18.12-18.22
[2] San José Municipal Code 20.70.320
[3] As a pedestrian-oriented district, this may be reduced contingent on the development unbundling spaces, including car share spaces, and/or eliminates curb cuts onto "the Main Street" (San José Municipal Code 20.90.220)
[4] Non-residential uses must provide a certain amount of clean air vehicle spaces (San José Municipal Code 20.90.060, Table 20-215)
[5] San José Municipal Code 20.90.810
[6] San José Municipal Code 20.90.060
[7] The Alum Rock Village Parking Management Zone exempts changed uses from providing additional off-street parking, exempts street-level uses from all parking requirements (unless parking demand would be double that of a retail use requirement), restricting the reduction of all existing off-street parking

PARKING

Existing Parking Requirements

Many cities require new development and redevelopment to provide a certain amount of dedicated off-street parking. This parking requirement is usually expressed as the number of off-street parking spaces in relation to either

Location	Multi-Family Residential	Office	Ground-Floor Retail	All Uses
Santa Clara	0.8 spaces per unit; additional reductions for affordable and senior housing	1 space per 530 to 1,000 square feet of gross floor area (depending on TDM plan)	1 space per 530 to 1,000 square feet of gross floor area (depending on TDM plan)	No parking required for uses within 1,000 feet of station entrance
Downtown San José	No parking required	No parking required	No parking required	No parking required for uses within 1,000 feet of station entrance
28th Street	0.8 spaces per unit; additional reductions for affordable and senior housing	1 space per 530 to 1,000 square feet of gross floor area (depending on TDM plan)	1 space per 530 to 1,000 square feet of gross floor area (depending on TDM plan)	No parking required for uses within 1,000 feet of station entrance

FIGURE 5.1.2 Proposed Parking Requirements

the size of development in thousands of square feet or another metric (e.g. per theater seat) determined by the specific land use. While originally intended to help parking supply meet anticipated levels of demand, parking requirements can be wasteful and costly for developers, especially those building within a walking distance of transit.

Many minimum parking requirements are designed to address "peak period" parking demand (such as the busiest shopping day of the year), and not the regular average parking demand across various times of day. Additionally, the Institute of Transportation Engineers' (ITE) Parking Generation manual -- the best-known and most widely used estimate of parking demand generation rates and requirements -- is based on a nationwide sample of primarily suburban data points dating to the 1990s, and may not reflect conditions at project sites which will have robust transit service and employ TDM measures. As a result of enacting minimum requirements without regards to the urban context, many mixed-use or transit-oriented developments that are not primarily designed to attract drivers may be forced to construct parking supplies that grossly exceed demand. Building excessive parking leads to increased automobile use, contributing to more vehicle trips, increased traffic congestion, higher housing costs, and greater greenhouse gas emissions.

San José and Santa Clara have developed tailored minimum parking standards in central transit-oriented locations compared to other areas of their respective cities; these minimum standards are applicable to Phase II BART station areas (see Figure 5.1.1). However, these requirements still exceed various observed levels of parking demand throughout the Bay Area's transit-oriented neighborhoods.

Proposed Parking Requirements

Parking requirements should be as flexible as possible to best match context-sensitive parking demand rates. To maximize the potential for station area development, without constraints from excess parking, requirements in Phase II station areas are recommended to be either significantly reduced from their current levels to meet actual observed demand in similar contexts, or eliminated entirely (see Figure 5.1.2 followed by precedent examples).

For downtown areas, the City of Sacramento sets a precedent in which "no minimum vehicle parking is required for the Central Business District/Arts & Entertainment District."[1]

For residential uses, the GreenTRIP parking database of Bay Area residential TODs is an invaluable resource for understanding observed parking demand in transit-oriented contexts similar to BART Phase II.[2] Among the 27 observed developments with residential units within a ½-mile of a BART station in the database, an average of 0.89 parking spaces per dwelling unit were found to be constructed, but only 0.62 parking spaces per dwelling unit were found to be occupied. This results in an average 30% of parking spaces going unused within these BART station areas. Maintaining minimum parking requirements of 1 space per unit within a BART station area would far exceed this observed demand level. Therefore, an off-street requirement which can meet the observed demand

1 https://www.cityofsacramento.org/-/media/Corporate/Files/CDD/Planning/Zoning/SummarySheetforNewZoningRequirementsforParking1.pdf?la=en

2 http://database.greentrip.org

in BART station areas (0.62 per unit) while accounting for a "sufficient supply" for turnover (a vacancy rate of 15%[3]) would result in a parking requirement of approximately 0.8 spaces per dwelling unit.

For commercial uses, there are many precedents throughout the country in successful TOD corridors for parking requirements. In Arlington, VA, one of the most successful implementations of multiple transit-oriented station areas in a suburban context, all uses within 1,000 feet of a Metro station entrance are entirely waived from parking requirements.[4] Additionally, office and retail parking requirements within mixed-use zones surrounding the Rosslyn Metro station are set at one space per anywhere between 530 and 1,000 square feet. The final square footage number is "depending on the adequacy of the Transportation Demand Management plan in addressing the need for parking."[5]

TRANSPORTATION DEMAND MANAGEMENT

Transportation Demand Management (TDM) is a series of programs and policies – or measures – taken upon by a government, landowner, or property manager to ultimately reduce the impact of peak period single occupancy vehicle (SOV) travel to a given jurisdiction or site. This transportation demand directly relates to the amount of traffic congestion and the demand for vehicular parking at that site (which also has ramifications for the supply of parking). Essentially, if demand for SOV trips is reduced, the demand for SOV parking is reduced.

	TDM Program	Description	Range of demand reduction (source)	Residential Applicability		Office Applicability	
				S	M/L	S	M/L
1	Subsidized Transit Pass	Provide contributions or incentives towards the equivalent cost of a transit pass for employees and/or residents.	As much as 40% in parking (GreenTRIP)	X	X	-	X
2	Unbundle Parking	Parking costs are detached from residential rents or commercial leases. Residents and employees would have to pay separately for parking space access.	As much as 30% in parking (VTPI)	X	X	-	X
3	Cash-Out Parking	Where free parking is provided, give employees the option to receive the cash value of free parking in lieu of a parking space.	0.6 to 7.7% in VMT (CAPCOA)			-	X
4	Price Parking	Charge for parking. This may include explicitly charging employees for parking, implementing market or dynamic rate pricing, and validating for invited guests only.	0.1 to 19.7% in VMT (CAPCOA)			-	X
5	Car Share Vehicles	Designated parking for car share vehicles (accessible 24/7).	0.4 to 0.7% in VMT (CAPCOA) when paired with #6		X	-	X
6	Car Share Memberships	Subsidized car share membership fees for development residents, tenants, and employees.	0.4 to 0.7% in VMT (CAPCOA) when paired with #5	X	X	-	X
7	Commuter Benefits Program	Employers with at least 50 employees required to enact 1) allowed pre-tax transit/vanpool expenses, 2) subsidies to employees to use transit/vanpool, 3) directly-provided transit services, or 4) an alternative benefit approved by MTC	4.2 to 21.0% in VMT (CAPCOA) if monitoring required; 1.0 to 6.2% if not.			-	X

FIGURE 5.1.3 Proposed TDM Programs and Impacts

3 http://www.nelsonnygaard.com/wp-content/uploads/2014/03/Oversupplied-Parking_RW_JKR.pdf

4 Arlington Zoning Ordinance 14.3.6

5 Arlington Zoning Ordinance 7.15.7

	TDM Program	Description	Range of demand reduction (source)	Residential Applicability		Office Applicability	
				S	M/L	S	M/L
8	Carpool and Vanpool Preferential Parking	Designate the most desirable parking spaces for employees who carpool or vanpool.	1.0 to 6.2% in VMT (CAPCOA) if part of a large group of commute strategies			-	X
9	End-of-Trip Bicycle Facilities	Provide secure storage for bikes, along with showers, lockers, and changing rooms.	1.0 to 5.0% in VMT for overall use of bicycles (CCAP)	X	X	-	X
10	TDM Marketing	Provide employees, residents, and/or guests with information on available travel options.	0.8 to 4.0% in VMT (CAPCOA)	X	X	-	X
11	Flexible Work Arrangement Programs	Provide work from home (aka telecommuting) and flexible schedule options.	0.1 to 5.5% in VMT (CAPCOA)			-	X
12	Guaranteed Ride Home	Offer non-single occupancy commuters with free rides home in event of an emergency.	1.0 to 6.2% in VMT (CAPCOA) if part of a large group of commute strategies			-	X
13	Enhanced Walking Conditions	Providing streetscape improvements and a connected pedestrian access network that internally links areas of a project site to encourage people to walk (including walk to transit) instead of drive.	0.0 to 2.0% in VMT (CAPCOA)	X	X	-	X
14	Carpool/Vanpool Matching	Facilitate carpooling and vanpooling by matching potential riders.	1.0 to 6.2% in VMT (CAPCOA)	X	X	-	X
15	Affordable Housing	Provide affordable housing units on-site, which correlates to reduced vehicle ownership.	0.04 to 4.0% in VMT (CAPCOA)	X	X	-	

FIGURE 5.1.3 Proposed TDM Programs and Impacts (continued)

TDM measures work together to reduce SOV trips by expanding mobility options and incentivizing the use of spatially and environmentally efficient modes. Targeted programs create awareness of the range of options people have for reaching the site, breaking down barriers to incorporating them in travel routines and incentivizing habitual use. Figure 3 presents the TDM programs, their range of impacts on transportation demand to support the proposed reduced parking supplies, and which are applicable to each proposed prototype land uses and sizes.

Note: According to California Air Pollution Control Officers Associateion (CAPCOA), "When more and more measures are implemented to mitigate a particular source of emissions, the benefit of each additional measure diminishes." This means that one cannot simply add up all the demand reduction percentages when calculating the aggregate impact of all TDM programs.[6]

6 http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf, p. 56

5.2 Ridership Potential

This section summarizes the potential for Transit Oriented Development (TOD) in terms of daily weekday ridership generated from the three BART Phase II stations, when comparing the development of different land use scenarios. Two scenarios were analyzed at each of the three stations, for a total of six analyses. The analyses included those listed in Table 5.2.1.

Station	Scenario 1A (All Residential)	Scenario 1B (All Office)
28th Street	22,297 units	37,602,298 sf
Downtown San José	7,468 units	17,052,083 sf
Santa Clara	10,413 units	24,529,472 sf

TABLE 5.2.1 Results of development "bookend" scenarios

Analysis for each scenario included projection of daily ridership generated by the development "bookend" scenarios. The following inputs were included in the analyses:

- Park-and-ride access to station mode share: 36% (28th Street), 0% (Downtown San José), 16% (Santa Clara) (source: VTA's BART Silicon Valley Phase II Extension Project, Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report and Section 4(f) Evaluation, February 2018)
- Dedicated station parking: 1,200 spaces (28th Street), 0 spaces (Downtown San José), 500 spaces (Santa Clara) (source: VTA's BART Silicon Valley Phase II Extension Project, Final Supplemental Environmental Impact Statement/Subsequent Environmental Impact Report and Section 4(f) Evaluation, February 2018)
- Total developable parcel size (for Scenarios 1A and 1B) = 57 acres (28th Street), 51 acres (Downtown San José), 132 acres (Santa Clara)
- Trip generation rates and transit trip share:
  - The available literature on trip generation at TOD developments primarily identifies peak hour trip rates. To accommodate daily trip generation rates, an estimated daily rate was developed based on the ratio between daily weekday and PM peak rates in the ITE Trip Generation Manual:

    Residential trip generation = 3.18 per unit

    Office trip generation = 5.48 per 1,000 sf
- No other access improvements/programs are assumed (i.e., no new/improved bus or bike routes that would be attributed to this project).

TOD is encouraged in many ways, including: developing multiple land uses, locating those land uses close together, providing a walk- and bike-able environment so those land uses can be accessed easily, and serving the area with frequent and reliable transit. Combined, these components generate the most important factor in TOD: people. People to live, work, and play nearby, create a safe and active space, and people who ultimately take ownership of the community.

Transit agencies support TOD by providing the transit service, serving ridership generated from those multiple land uses. Therefore, providing transit service that connects to the region, while creating a station area with access to all, results in successful TOD's.

Figure 5.2.1 presents the first analysis of the development scenarios, using extreme examples of the transit ridership generated by all-residential and all-office buildouts. Similar to most urban areas, the same footprint filled with office uses supports more people than space for residents. With more people traveling, all-office buildouts generate between four and six times more daily weekday transit ridership than all-residential buildouts, as seen at all three station areas.

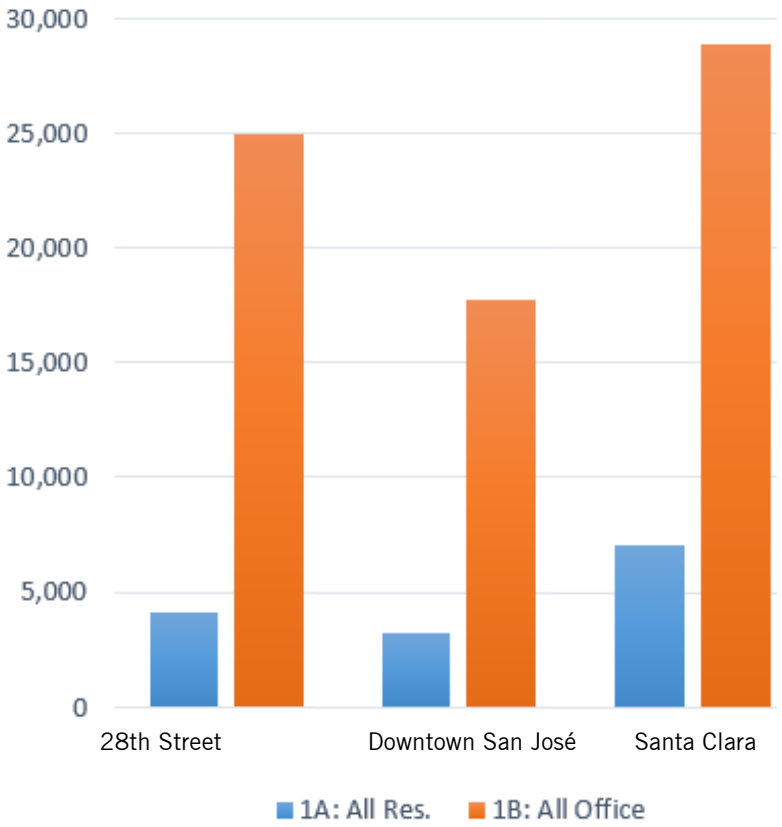


FIGURE 5.2.1 Comparison of TOD Potential in Terms of Projected Daily Weekday Transit Ridership

6

AFFORDABLE HOUSING & DISPLACEMENT RISK

Laurel Grove Lane. Photo Credit: SPUR, Sergio Ruiz

6.1 Key Findings

INTRODUCTION

This section evaluates the opportunities and constraints for preserving existing affordable housing, producing new affordable housing, and protecting existing residents from displacement in VTA's BART Phase II station areas.

Transit investments and transit-oriented development can provide many benefits and opportunities for households at a range of incomes. To maximize these potential benefits for lower income households, strategies must be in place that accomplish the three goals on the following page.[1]

Anti-displacement strategies address the first two goals, while the development of new affordable housing focuses on the third goal. This section summarizes key data findings from this report, and synthesizes the opportunities and constraints for anti-displacement and affordable housing production in VTA's BART Phase II station areas.

The key findings, opportunities, and constraints are included on the following pages. The full report is included as Appendix C.

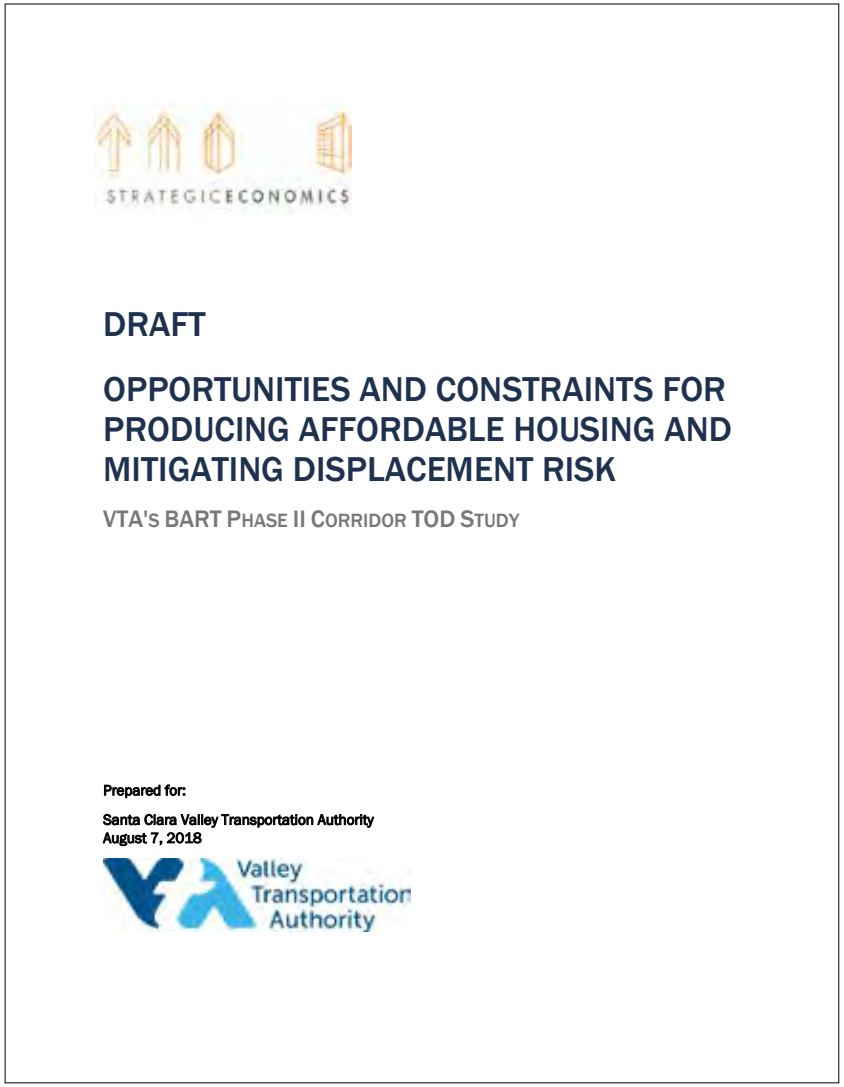
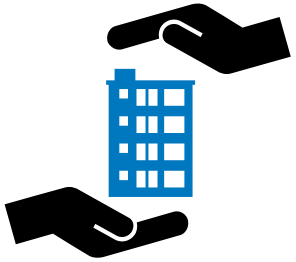


FIGURE 6.1.1 Affordable Housing Strategy Draft Report, Strategic Economics, 2018

1 ChangeLab Solutions, 2015. Preserving, Protecting, and Expanding Affordable Housing. https://www.changelabsolutions.org/publications/affordable_housing_toolkit

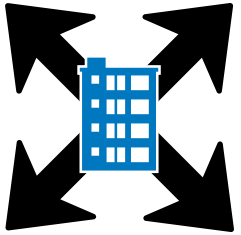
PROTECT

Protect and support tenants and homeowners who wish to stay in the neighborhood



PRESERVE

Preserve existing housing that is affordable



PRODUCE

Expand the stock of affordable housing through the production of new housing units

KEY FINDINGS

The following is a summary of the key findings from the data analysis of gentrification, displacement, and affordable housing development in the station areas.

Gentrification and Displacement

- VTA's BART Phase II station areas contain many households that are vulnerable to displacement – including severely cost-burdened households[1] -- especially in the Downtown San José and 28th Street station areas (see Table 6.1.1). The data for the Santa Clara station area are insufficient to conclude whether households are at high risk of displacement.
- The Downtown San José and 28th Street station areas also have a substantial supply of affordable housing stock that is at-risk of conversion to market-rate housing, as summarized in Table 6.1.1.

Affordable Housing Production

- Based on area plans and affordable housing targets, the cities of San José and Santa Clara are planning for about 4,000 affordable housing units in VTA's BART Phase II station areas. After accounting for recently built projects and projects in the development pipeline,[2] the station areas would need to add 3,085 new affordable units by 2040 to reach the affordable housing targets (Table 6.1.2).

	Santa Clara Study Area	Downtown San José Study Area	Alum Rock/28th Street Study Area
Neighborhood Change 1990-2015			
Urban Displacement Project Typology (a)	Unavailable (Classified as College Town)	Ongoing Gentrification/ Displacement	At-Risk of Gentrification/ Displacement
Existing Households Potentially At Risk of Displacement			
Number of Severely Housing Cost Burdened Renter Households (b)	338	1,284	1,207
Number of Severely Housing Cost Burdened Homeowner Households (with a mortgage) (b)	43	173	405
Existing Housing Stock Potentially At Risk of Conversion to Market Rate			
Deed-Restricted Units Expiring Before 2029 (c)	20	256	0
Rent-stabilized Units (c)	0	2,900	992
Mobilehome Park Units (c)	0	0	427
Naturally Occurring Affordable Housing (NOAH) Units (d)	221	2,282	1,194
Pre-World War II Housing Units (e)	420	1,884	1,778

Note: The Affordable Housing Study Areas ("study areas") were defined by aggregating Census Block Groups located within approximately a half-mile radius from the stations. The study areas are used to assess the potential risk of gentrification and displacement in the residential neighborhoods surrounding VTA's future BART Phase II stations. They are shown in Figure I-1.
(a) The Urban Displacement Project typology is available at: http://www.urbandisplacement.org/map/sf. This project is led by Miriam Zuk and Karen Chapple at the Center for Community Innovation, University of California, Berkeley.
(b) The U.S. Housing and Urban Development (HUD) defines a household as severely cost-burdened if more than 50 percent of household income is spent on housing costs. These numbers are based on U.S. Census ACS 5-year estimates, 2012-2016.
(c) Based on data provided by the cities of San José and Santa Clara. Santa Clara does not have a rent stabilization ordinance.
(d) CoStar, Q1 2018. One- and two-star rated multifamily rental properties as tracked by the Costar Group is used as a proxy for NOAH.
(e) Based on U.S. Census ACS 5-year estimates, 2012-2016.
Sources: Urban Displacement Project, 2016; U.S. Census ACS 5-year estimates, 2012-2016; City of San José, 2018; City of Santa Clara, 2018; CoStar, 2018; Strategic Economics, 2018.

TABLE 6.1.1 Summary of vulnerability to displacement indicators

1 The U.S. Housing and Urban Development (HUD) defines a household as severely housing cost-burdened if more than 50 percent of household income is spent on housing costs.

2 The development pipeline data used for this calculation did not include affordable housing units that may be provided in planned market-rate housing projects as a result of the cities' inclusionary housing ordinances, because there is uncertainty about how many units may be provided on-site.

- The cost of developing one affordable housing unit is estimated at between $600,000 to $800,000. Local funding (city, county, and land donation contributions) is typically 30 percent of total funding, or $173,000 per unit.
- The total local funding gap needed to meet the affordable housing goals for the Santa Clara, Downtown San José, and 28th Street station areas is approximately $530 million by 2040.

	Affordable Housing Units	Local Funding Gap
Per Unit Local Funding Gap (City, County, Land Donation)		$172,702
Affordable Housing Targets (2011-2040)		
Santa Clara Station	350	$60,417,077
Downtown San José Station	2,463	$425,364,758
Alum Rock/28th Street Station	273	$47,061,265
Total VTA BART Phase II Station Areas	**3,085**	**$532,843,100**

Source: California Tax Credit Allocation Committee Staff Reports, 2016-2018; Santa Clara County Office of Supportive Housing, 2017-2018; City of San José, 2018; City of Santa Clara, 2018; Strategic Economics, 2018.

TABLE 6.1.2 Local funding cap in VTA's BART phase II station areas

6.2 Opportunities

This section describes the opportunities for preventing displacement and encouraging affordable housing development in the station areas.

- New transit – accompanied by supportive policies – has the potential to provide benefits to low and moderate-income households in the station areas. VTA's BART Phase II extension will provide high-quality transit connections to existing employment areas across the region. Since the new transit service is not expected to begin operations until 2026 at the earliest, the cities and VTA have time to implement appropriate strategies to ensure that lower-income households can realize the benefits of transit.
- VTA's BART Phase II TOD Study can build from many ongoing efforts to prevent displacement. Efforts include the regional Committee to House the Bay Area (CASA), as well as the City of San José's involvement in PolicyLink's All-In Cities Initiative focused on implementing anti-displacement strategies at the local level. In addition, the Diridon Station Area Advisory Group (SAAG) is currently in the process of developing affordable housing and anti-displacement strategies for the Diridon station area.
- The City of San José recently implemented new policies to enhance tenant protections. Recent changes strengthened San José's tenant protections and rent stabilization ordinances.
- Based on stakeholder interviews, there are a number of ways that the cities could consider strengthening their existing policies to prevent displacement. For example, these could include developing a proactive plan for acquisition/preservation of expiring deed-restricted projects and naturally occuring affordable housing (NOAH) properties, and addressing gaps in existing tenant protections and mobilehome conversion controls.
- The TOD Study presents an opportunity to maximize densities in the station areas, increasing the number of both affordable and market-rate housing units that can be developed. Higher development densities can also help affordable housing developers create more efficiencies of scale; larger projects are typically easier to finance and more cost-effective to operate.
- There is a commitment to add new affordable units in the station areas, demonstrated by local affordability targets already implemented by the City of San José, the City of Santa Clara, and VTA. The cities have set affordable housing targets of between 15 and 25 percent that apply to the corridor. VTA's Joint Development Policy establishes a target of 35 percent lower income units portfolio-wide for its development sites; individual joint development projects must include 20 percent lower income units. These targets demonstrate the commitment of local governments to ensure the production of new affordable housing as development activity increases around the station areas.
- The City of San José has made a commitment to provide funding at a level of $125,000 per affordable unit. The City estimates that total funding capacity will be $335 million over the next five years. To help meet its housing goals, the City of San José has placed a General Obligation Bond (Measure V) on the ballot for November 2018, which could generate approximately $450 million for the acquisition, construction, and completion of affordable housing.
- The City of Santa Clara has implemented new funding sources and policies to help meet its affordable housing goals. The City's new commercial linkage fee and in-lieu fees for inclusionary units will provide new funding sources for affordable housing production. Furthermore, Santa Clara expects that on-site inclusionary housing requirements will provide new affordable housing units in the Santa Clara station area.
- Santa Clara County's Measure A funds are an important new local funding source for affordable housing development, especially for extremely low-income households, homeless, and special needs groups. According to affordable housing developers, Measure A is now the primary local funding source for affordable housing development in the county. Measure A funds give preference to sites near transit and publicly-owned properties.
- There are a number of major opportunity sites in the station areas, including several large publicly-owned sites. The station areas contain several large opportunity sites owned by public agencies, including VTA, the City of Santa Clara, and the Santa Clara County Housing Authority. Given the difficulties of acquiring new sites near transit for affordable housing development, publicly-owned sites can offer a unique opportunity to help facilitate production of affordable units near transit. Furthermore, if public agencies are able to discount the cost of the land, it can be a very effective tool for facilitating affordable housing development.

- To meet the need for the production of more moderate-income housing, the City of San José is exploring strategies to encourage the production of units that are affordable to households at 80 percent to 120 percent of AMI. In addition, the City of San José recently updated its code to encourage the development of accessory dwelling units (ADUs), which may create further housing development opportunities, especially in the single-family neighborhoods adjacent to the 28th Street station.
- New state funding will soon be available to subsidize affordable housing programs at the local level. In 2017, the California Legislature passed a comprehensive housing package, including two bills to create new statewide funding sources for affordable housing. SB 2 is expected to raise $250 million annually through a $75 real estate transaction fee on refinancing and other real estate transactions (excluding new home and commercial property sales). SB 3 authorizes a $4 billion bond measure for low-income housing, which was approved by voters in November 2018. SB 3 will provide $3 billion to finance existing housing programs and state matching grants for infrastructure and affordable housing, with another $1 billion designated to provide assistance to veterans.

6.3 Constraints

This section identifies known constraints for addressing displacement and developing new affordable housing units in the station areas.

- The processes of gentrification and displacement are already underway in some station areas. Downtown San José and 28th Street in particular present high vulnerability to displacement, even without the introduction of new BART stations.
- There is limited funding available for policies and programs to prevent displacement and preserve existing affordable housing. Like most cities, San José and Santa Clara are unable to fully cover the costs of legal counseling and representation for lower income tenants at risk of eviction. There is also limited funding available to acquire and preserve naturally occurring affordable housing units, or assist lower income homeowners (e.g., in avoiding foreclosure, home repairs, etc.).
- Rising construction costs and land costs are a challenge to new affordable housing production. Affordable housing developers face a growing financing gap as costs escalate, and land in the station areas is difficult to acquire. High land and construction costs also make it increasingly challenging for market-rate developers to deliver new housing projects that include affordable units.
- Stakeholders have identified uncertainties and challenges around Measure A funding. Measure A is one of the main local funding sources currently available for affordable housing in Santa Clara County. Because it serves extremely low income households, the program relies in part on Section 8 vouchers, which are allocated by HUD to the Santa Clara County Housing Authority. Due to uncertainty about the federal budget, stakeholders have expressed concern about the availability of Section 8 vouchers. Furthermore, because Measure A specifically targets extremely low income, homeless, and special needs populations, it is not available for other types of low income housing projects.
- There are limited funding resources for affordable housing production, and especially for moderate income housing. Major federal, state, and county funding sources are primarily targeting households earning 80 percent or below the area median income. Households earning between 80 percent and 120 percent of area median income are often priced out of the housing market, but have few public subsidies available.
- Small affordable housing projects in lower density suburban settings reportedly have not been competitive in obtaining state funding through the Affordable Housing for Sustainable Communities (AHSC) grant program.[1] Typically, smaller density projects do not score as well as larger scale, high-density urban projects because they do not have as great of an impact on reducing greenhouse gas emissions.
- Regulatory constraints and entitlement processes reportedly present a challenge for affordable housing development. According to affordable housing developers, the ground floor retail requirements in Urban Villages impose an additional cost burden on development projects. The cost of building the commercial component of a mixed-use affordable project is rarely eligible for subsidy, and the retail space also increases the project's operating costs. These requirements – as well as other requirements that apply to market-rate housing, such as the Urban Villages Implementation Framework, which requires market-rate residential development to contribute up to two percent of project value in public improvements – also make it more challenging for market-rate developers to deliver new housing products that include affordable housing units.

1 Enterprise Community Partners, AHSC Round 4 Guideline Recommendations, September 17, 2018.

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7

TOD CHALLENGES

Guadalupe River. Photo Credit: Branden Frederick

7.1 Land Use Designation Challenges

This section reviews existing land use designations as stated in Santa Clara's General Plan and San José's 2040 General Plan. The building prototypes used in the development capacity analysis are scored on their compliance with the existing designation. An assessment has been made on the barriers that the existing designation poses to the proposed transit-oriented development as envisioned in the building prototypes, Section 4 of this report.

It is important to note that good TOD is not an outright permitted use at any of the stations. Developers seeking to do a TOD project face a number of hurdles and uncertanties beyond those assessed in this section. These hurdles include but are not limited to:

- Current parking ratios are auto-oriented
- Discretionary approval needs to be requested
- Minimum densities are not required or transit supportive
- Auto-oriented uses are not prohibited

OVERVIEW

In Santa Clara, the land use, height, and density limitations constrain application of the building prototypes. Recommendations will include increasing density and height limitations to allow for greater flexibility. It should be noted that the City of Santa Clara is in the process of updating their General Plan to accommodate the introduction of a "Transit Neighborhood" land use category in anticipation of other higher density project entitlements elsewhere in the city. This designation will be compatible with all of the prototypes included in this study.

San José has more existing land use designations which are compatible with TOD. Most notably, the Downtown, Urban Village, and Transit Residential land uses allow for the most flexibility when applying the building prototypes to the identified opportunity sites. For other land uses, recommendations include increasing density and height limitations as well as rezoning.

SANTA CLARA GENERAL PLAN LAND USE DESIGNATION: NEIGHBORHOOD MIXED USE

Description of Land Use Designation	FAR	DU/Acre	Stories
This classification is intended for pedestrian-oriented development, with a focus on ground-level neighborhood-serving retail along street frontages and residential development on upper floors.	0.10 minimum	20-36	NA*

This designation is only compatible with the lowest density building prototype

*Santa Clara General Plan does not indicate minimum or maximum stories as part of its land use designations

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

TABLE 7.1.1 Prototype compliance with Santa Clara General Plan's land use designation: Neighborhood Mixed Use

SANTA CLARA GENERAL PLAN LAND USE DESIGNATION: COMMUNITY MIXED USE

Description of Land Use Designation	FAR	DU/Acre	Stories
This classification is a combination of the Community Commercial and Medium Density Residential designations and is intended to encourage a mix of residential and commercial uses along major streets.	0.10 minimum	20-36	NA*

This designation is only compatible with the lowest density building prototype.

*Santa Clara General Plan does not indicate minimum or maximum stories as part of its land use designations

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

TABLE 7.1.2 Prototype compliance with Santa Clara General Plan's land use designation: Community Mixed Use

SANTA CLARA GENERAL PLAN LAND USE DESIGNATION: SANTA CLARA STATION FOCUS AREA

Description of Land Use Designation	FAR	DU/Acre	Stories
Low Density Residential		8-18	NA*
Medium Density Residential		19-36	NA*
High Density Residential		37-50	NA*
Very High Density Residential		51-90	NA*
Regional Commercial	Up to 3.0		NA*
Regional Mixed Use	Up to 3.0	37-50	NA*
Community Mixed Use	Up to 0.45	19-36	NA*
Light Industrial	Up to 0.6		NA*

These land use designations are located within the Santa Clara Station Focus Area. All designations except for High and Very High Density Residential restrict development of any of the building prototypes.

*Santa Clara General Plan does not indicate minimum or maximum stories as part of its land use designations

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.3 Prototype compliance with Santa Clara General Plan's land use designation: Santa Clara Station Focus Area

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: DOWNTOWN

Description of Land Use Designation	FAR	DU/Acre	Stories
This designation includes office, retail, service, residential, and entertainment uses in the Downtown.	Up to 30.0	Up to 800	3-30

This designation is currently applied to many of the opportunity sites within the Downtown San José Station area. It allows the development of all of the building prototypes, offering maximum flexibility.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.4 Prototype compliance with San José General Plan's land use designation: Downtown

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: URBAN VILLAGE

Description of Land Use Designation	FAR	DU/Acre	Stories
The Urban Village designation is applied within the Urban Village areas that are planned in the current Horizon to accommodate higher density housing growth along with a significant amount of job growth.	Up to 10.0	250	

From a land use perspective, the Urban Village designation allows for a variety of developments to occur in close proximity to the station. However, the highest density prototypes are restricted in this designation. This may prove to be a barrier because much of the Urban Village designation falls along critical corridors such as Santa Clara St and Julian St where these higher densities are targeted.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.5 Prototype compliance with San José General Plan's land use designation: Urban Village

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: MIXED USE COMMERCIAL

Description of Land Use Designation	FAR	DU/Acre	Stories
This designation is intended to accommodate a mix of commercial and residential uses with an emphasis on commercial activity as the primary use and residential activity allowed in a secondary role.	0.5-4.5	Up to 50	1-6

Opportunity sites that fall within existing Mixed Use Commercial areas are mostly small with some medium size parcels. This land use designation limits proposed prototypes to either residential on small parcels or office on medium parcels and only allows for the lowest density. While most of the opportunity sites that are currently in this designation are outside of the ½-mile radius, this low density and height limitation will prove to be a barrier for development of the desired densities within the ½-mile radius of the station areas.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.6 Prototype compliance with San José General Plan's land use designation: Mixed Use Commercial

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: NEIGHBORHOOD/COMMUNITY COMMERCIAL

Description of Land Use Designation	FAR	DU/Acre	Stories
This designation supports a very broad range of commercial activity, including commercial uses that serve the communities in neighboring areas, such as neighborhood serving retail and services and commercial/professional office development.	Up to 3.5	NA	1-5

Opportunity sites with this designation currently exists along major corridors, especially near the 28th Street Station. While the intent of the designation is aligned with the desire for the 28th Street Station area, as expressed by community working group members, the density and height limits will not allow any of the building prototypes.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.7 Prototype compliance with San José General Plan's land use designation: Neighborhood/Community Commercial

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: COMBINED INDUSTRIAL/COMMERCIAL

Description of Land Use Designation	FAR	DU/Acre	Stories
This category allows a significant amount of flexibility for the development of a varied mixture of compatible commercial and industrial uses, including hospitals and private community gathering facilities.	Up to 12.0	NA	1-24

This designation is applied to a small number of opportunity sites and allows most of the building prototypes. Some light industrial uses may be appropriate within the station areas, however, this designation may not be recommended for wide-spread application.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.8 Prototype compliance with San José General Plan's land use designation: Combined Industrial/Commercial

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: LIGHT INDUSTRIAL

Description of Land Use Designation	FAR	DU/Acre	Stories
This designation is intended for a wide variety of industrial uses and excludes uses with unmitigated hazardous or nuisance effects.	Up to 1.5	NA	1-3

The opportunity sites which are designated with Light Industrial uses are located within the 28th Street Station area. None of the building prototypes being tested in the development capacity analysis include industrial uses.

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

TABLE 7.1.9 Prototype compliance with San José General Plan's land use designation: Light Industrial

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: TRANSIT RESIDENTIAL

Description of Land Use Designation	FAR	DU/Acre	Stories
This is the primary designation for new high-density, mixed-use residential development sites that are located in close proximity to transit, jobs, amenities, and services.	2.0-12.0	50-250	5-25

All of the opportunity sites in this designation are small parcels, therefore none of the assigned prototypes are constrained. The intent of this designation is already aligned with the transit-oriented goals of VTA's BART Phase II Corridor and has the opportunity to be applied more broadly within the station areas.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.10 Prototype compliance with San José General Plan's land use designation: Transit Residential

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: URBAN RESIDENTIAL

Description of Land Use Designation	FAR	DU/Acre	Stories
This designation allows for medium density residential development and a fairly broad range of commercial uses, including retail, offices, hospitals, and private community gathering facilities.	1.0-4.0	30-90	3-12

This designation is compatible with the lower density building prototypes.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.11 Prototype compliance with San José General Plan's land use designation: Urban Residential

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: MIXED USE NEIGHBORHOOD

Description of Land Use Designation	FAR	DU/Acre	Stories
This designation is applied to areas intended for development primarily with either townhouse or small lot single-family residences and also to existing neighborhoods that were historically developed with a wide variety of housing types, including a mix of residential densities and forms.	0.25-2.0	30	1-3.5

This designation poses a great barrier to TOD development. While it is important to preserve the existing residential neighborhood character, there are areas within close proximity to the stations which are currently limited by this designation.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.12 Prototype compliance with San José General Plan's land use designation: Mixed Use Neighborhood

SAN JOSÉ GENERAL PLAN LAND USE DESIGNATION: RESIDENTIAL NEIGHBORHOOD

Description of Land Use Designation	FAR	DU/Acre	Stories
This designation is applied broadly throughout the City to encompass most of the established, single-family residential neighborhoods, including both the suburban and traditional residential neighborhood areas which comprise the majority of its developed land.	0.7	8	1-2.5

This designation poses a great barrier to TOD development. While it is important to preserve the existing residential neighborhood character, there are areas within close proximity to the stations which are currently limited by this designation.

COMPLIANCE WITH LAND USE

- Does not comply
- Complies
- NA

Prototype	FAR	DU/Acre	Stories
S_A_Resi(40'x125')		35	4
S_B_Resi_Low(80'x125')		137	6
S_B_Resi_High(80'x125')		182	8
M_A_Resi_Low(150'x150')		166	8
M_A_Resi_High(150'x150')		255	15
M_A_Office_Low(150'x150')	4.5		6
M_A_Office_High(150'x150')	7.5		10
M_B_Resi_Low(125'x250')		139	8
M_B_Resi_Med(125'x250')		318	23
M_B_Resi_High(125'x250')		387	29
M_B_Office_Low(125'x250')	5.8		6
M_B_Office_Med(125'x250')	15.4		16
M_B_Office_High(125'x250')	19.2		20
L_A_Resi_Med(275'x280')		161	8
L_A_Resi_High(275'x280')		262	29
L_A_Office_Low(275'x280')	4.4		6
L_A_Office_High(275'x280')	8.7		20
L_B_Resi_Med(300'x300')		145	8
L_B_Resi_High(300'x300')		182	15
L_B_Office_Low(300'x300')	4.3		6
L_B_Office_High(300'x300')	5.3		10
L_C_Resi_Med(280'x550')		146	8
L_C_Resi_High(280'x550')		243	20
L_C_Office_Low(280'x550')	3.8		6
L_C_Office_High(280'x550')	6.4		29

TABLE 7.1.13 Prototype compliance with San José General Plan's land use designation: Residential Neighborhood

7.2 Market and Affordable Housing Barriers

Rapidly rising construction costs are one of the most significant barriers preventing high-density, market-rate development projects from breaking ground. High construction and land costs also make it increasingly challenging for affordable housing developers to finance their projects, and for market-rate developers to deliver new housing projects that also include affordable units. At the same time, the amount of federal funding available for affordable housing has been drastically reduced, and rising rents are placing pressure on existing households, potentially increasing the risk of displacement.

Further detail is included in Section 6 and Appendix C.

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APPENDIX

A. Building Prototypes

SMALL BUILDING PROTOTYPES

The typical small parcels comprise sites of 150' x 40'-60' for Santa Clara Station, 140' x 40'-60' for Downtown San José Station, and 125' x 40'-60' for 28th Street Station. Only residential prototypes for these smaller parcels have been developed due to the reduced viability for commercial office development at such a small scale.

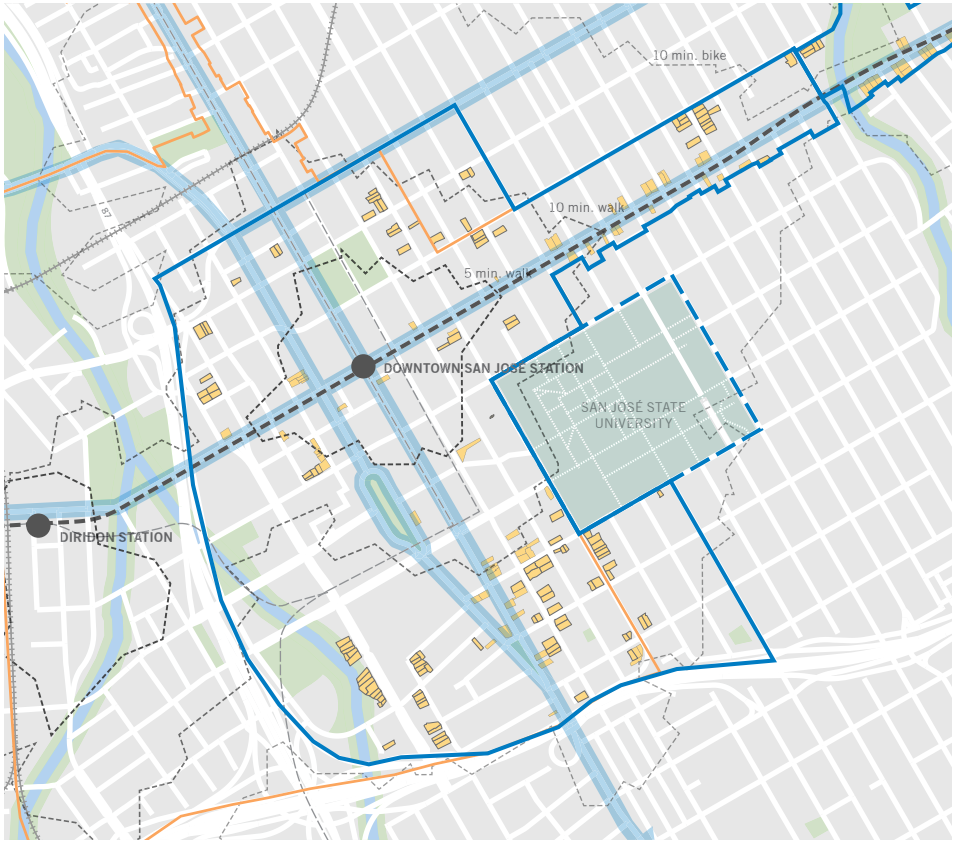
	SMALL	
	A	**B**
Parcel Size	40’ x 125’	80’ x 125’
Program	Residential	Residential
Building Construction	Type V over I	Type V over I, Type III over I
Number of Floors	≤ 4	≤ 6, ≤ 8
Ground Floor	Active (recomm.)	Active (recomm.)
Parking	1 Level Podium	1 Level Podium

TABLE 7.2.1 Small building prototypes

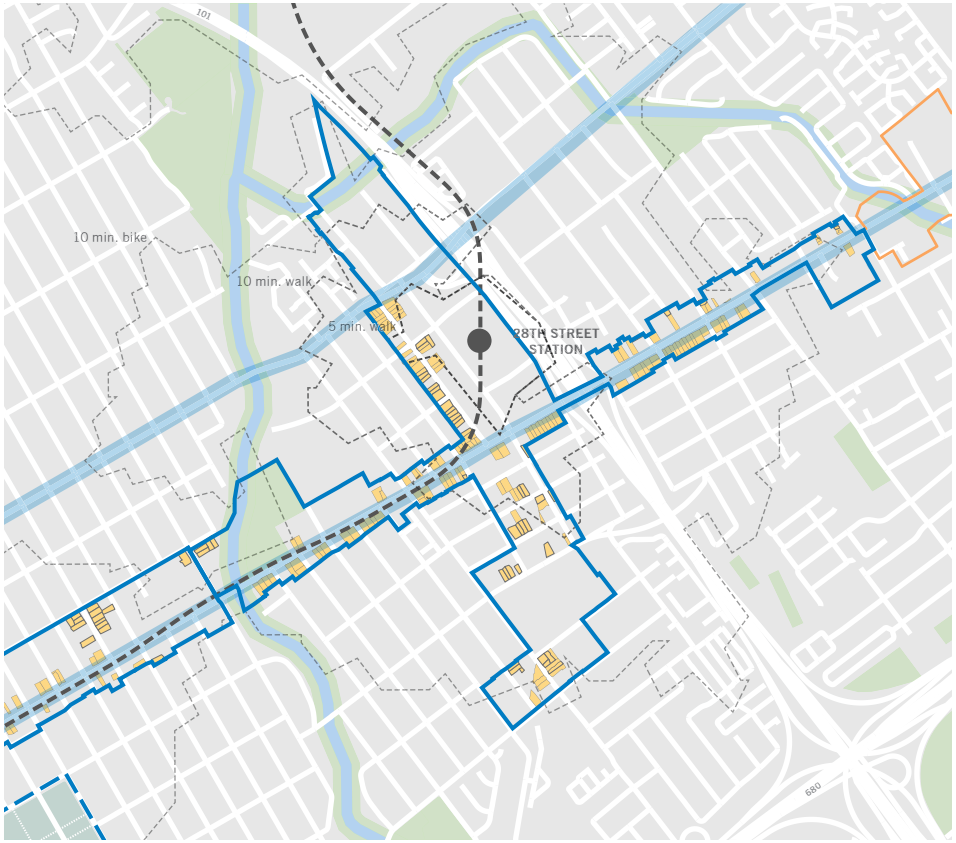
STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
SANTA CLARA	S	77	12 acres

FIGURE 7.2.1 Small Opportunity Sites at each station area

STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
DOWNTOWN SAN JOSÉ	S	230	32 acres

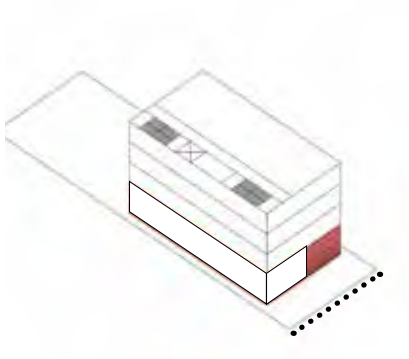


STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
ALUM ROCK/ 28TH STREET	S	175	24 acres



0 1000’ 2000’ N

SMALL / Residential Multifamily (single-loaded corridor)



S_A_RESI(40'X125')

LOCATION	Santa Clara, Downtown San José, 28th Street
LOT AREA	5,000 SF (40' x 125')*
PROGRAM	Residential

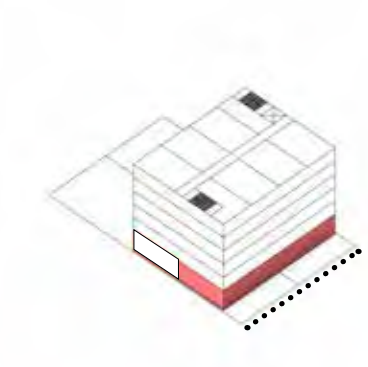
S_A_RESI(40'x125'): This is a single loaded corridor building up to four floors (45') with one-level podium parking. This prototype assumes a building construction of Type V over I, with active commercial ground floor uses fronting the street. See figure for more detail.

Building Construction	Type V over I	**Height**	≤ 4 floors, ≤ 65'
Building Area	10,800 SF *(2,700 SF x 4 floors)*	**Units**	3-4
Density	35 du/acre		
Retail	800 SF		
Parking Spaces	6 *(1 level podium)* or up to 15 stackers *(~6' pit + 15' podium)*		
Parking Ratio	1.50 spaces / dwelling unit		

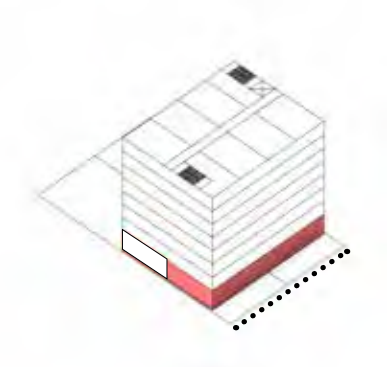
** Surface parking if ground floor is retail*
** Smallest single parcel for Santa Clara, Downtown San José, and 28th Street*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail / Parking
Street-facing edge

SMALL / Residential Multifamily (double-loaded corridor)



S_B_RESI_LOW(80'X125')



S_B_RESI_HIGH(80'X125')

LOCATION	Santa Clara, Downtown San José, 28th Street
LOT AREA	10,000 SF (80' x 125')*
PROGRAM	Residential

S_B_RESI_LOW(80'x125'): This is a double-loaded corridor building up to six floors (65') with one-level podium parking. This prototype assumes a building construction of Type V over I, with active commercial ground floor uses fronting the street. See figure for more detail.

Building Construction	Type V over I	**Height**	≤ 6 floors, ≤ 65'
Building Area	37,000 SF *(6,160 SF x 6 floors)*	**Units**	31
Density	137 du/acre		
Retail	2,400 SF		
Parking Spaces	14 *(1 level podium)* or up to 42 stackers *(~6' pit + 15' podium)*		
Parking Ratio	0.4 spaces / dwelling unit		

S_B_RESI_HIGH(80'x125'): This is a double-loaded corridor building up to eight floors (85') with one-level podium parking. This prototype assumes a building construction of Type III over I, with active commercial ground floor uses fronting the street. See figure for more detail.

Building Construction	Type V over I	**Height**	≤ 8 floors, ≤ 85'
Building Area	49,500 SF *(6,160 SF x 8 floors)*	**Units**	42
Density	182 du/acre		
Retail	2,400 SF		
Parking Spaces	14 *(1 level podium)* or up to 42 stackers *(~6' pit + 15' podium)*		
Parking Ratio	0.3 spaces / dwelling unit		

**Dimension of two smallest single parcel combined in Santa Clara, Downtown San José, and 28th Street*
**Surface parking if ground floor is retail*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail / Parking
Street-facing edge

MEDIUM BUILDING PROTOTYPES

The typical medium parcels comprise sites of 150' x 150' for Santa Clara Station, 140' x 275' for Downtown San José Station, and 125' x 250' for 28th Street Station. While only residential prototypes were developed for the small parcel category, both commercial and residential prototypes have been developed for medium parcels due to the greater viability for development.

	MEDIUM			
	A		B	
Parcel Size	150' x 150'		125' x 250'*	
Program	Residential	Office	Residential	Office
Building Construction	Type III over I, Type I	Type I	Type III over I, Type I	Type I
Number of Floors	≤ 8, ≤ 15**	≤ 6, ≤ 10**	≤ 8, ≤ 23, ≤ 29	≤ 6, ≤ 16, ≤ 20
Ground Floor	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active
Parking	Multi-Level (Podium, Basement)	Multi-Level (Basement)	Multi-Level (Podium, Basement)	Multi-Level (Basement)

TABLE 7.2.1 Medium building prototypes

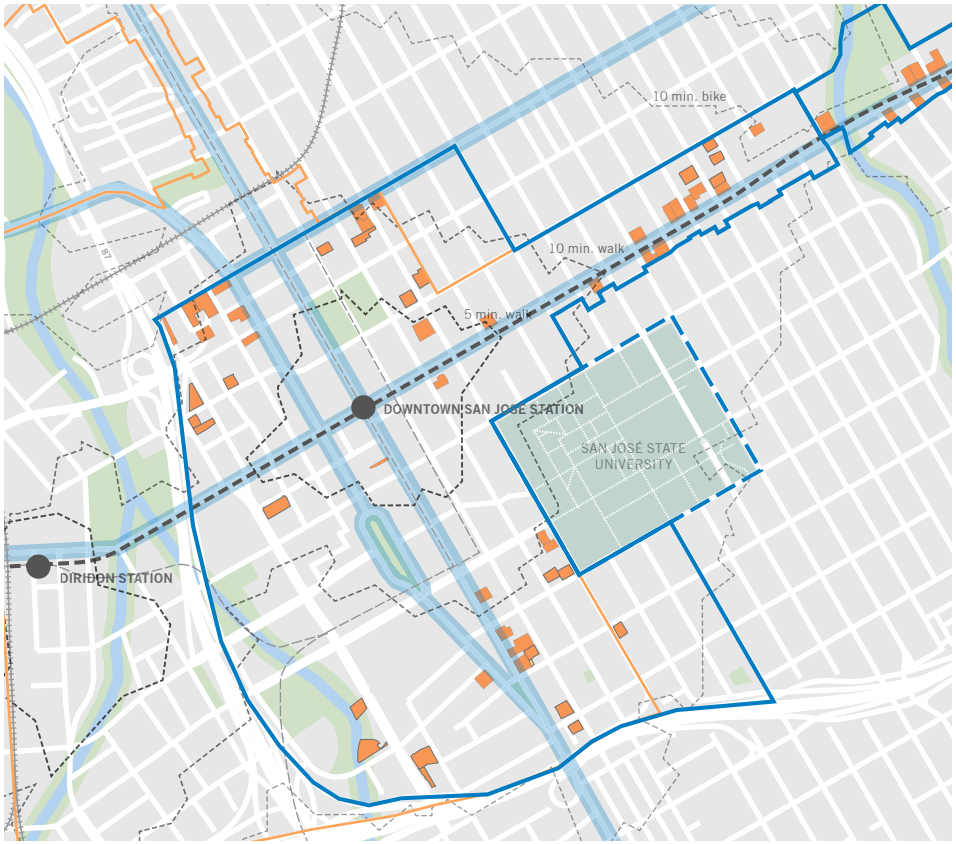
** Typical Opportunity Sites for Downtown San José of 140'X275" have similar development potential*

*** Santa Clara approx. height limit range = 55' to 155'*

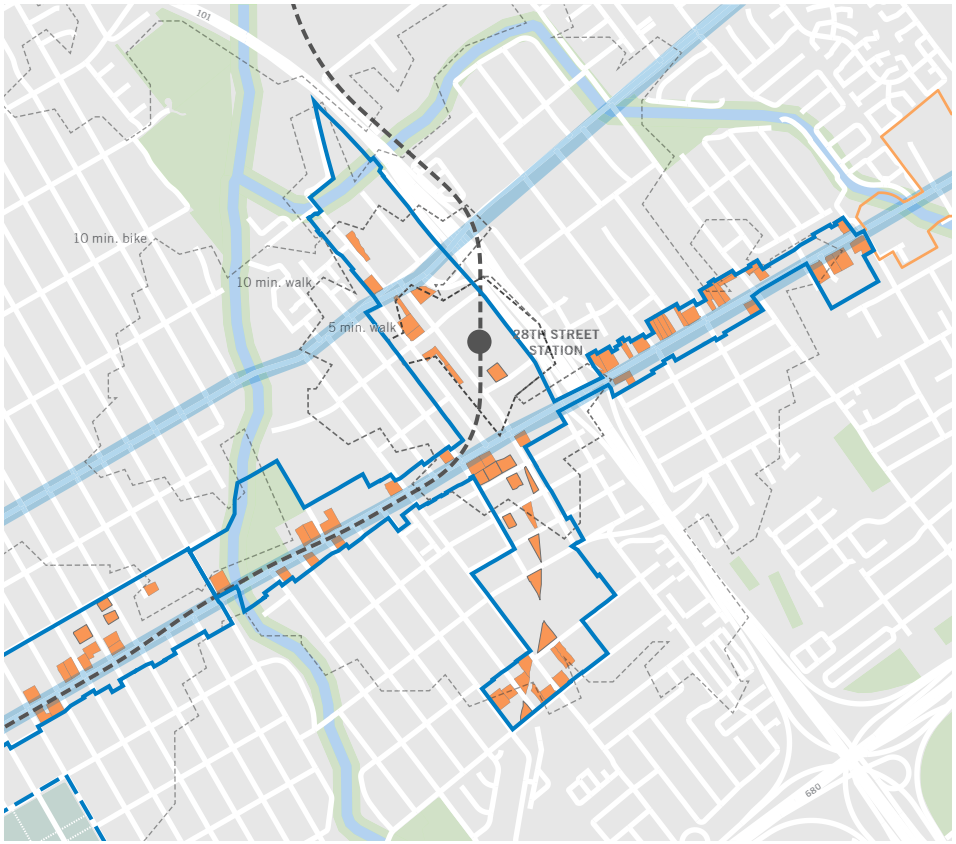
STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
SANTA CLARA	M	48	30 acres

FIGURE 7.2.2 Medium Opportunity Sites at each station area

STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
DOWNTOWN SAN JOSÉ	M	58	25 acres

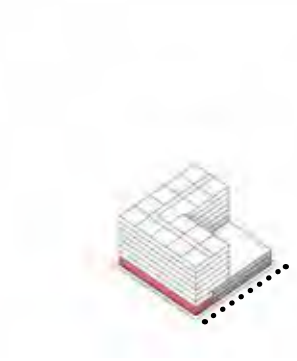


STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
ALUM ROCK/ 28TH STREET	M	65	27 acres



0 1000’ 2000’ N

MEDIUM / Residential Multifamily (central core)



M_A_RESI_LOW(150'X150')

M_A_RESI_HIGH(150'X150')

LOCATION	Santa Clara
LOT AREA	22,500 SF (150' x 150')
PROGRAM	Residential

M_A_RESI_LOW(150'x150'): This is a double-loaded corridor building up to eight floors (85') with multi-level podium parking. This prototype assumes a building construction of Type III over I, with active commercial ground floor uses fronting the street.

Building Construction	Type III over I	**Height**	≤ 8 floors, ≤ 85'
Building Area	103,680 *(12,960 SF x 8 floors)**	**Units**	86
Density	166 du/acre		
Retail	4,140 SF		
Parking Spaces	87 *(29 x 3 floors multi-level podium)*		
Parking Ratio	1.2 spaces / dwelling unit		

M_A_RESI_HIGH(150'x150'): This is a central core building up to 15 floors (155') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 15 floors, ≤ 155'
Building Area	144,000 SF *(9,600 SF x 15 floors) Tower** 10,800 SF *(5,400 SF x 2 floors) Low-rise*	**Units**	132
Density	255 du/acre		
Retail	7,200 SF		
Parking Spaces	113 *(56 x 1 floor basement) (57 multi-level podium)*		
Parking Ratio	1.1 spaces / dwelling unit		

** Single loaded 30' deep units for the first two floors to accommodate parking podium*
*** Santa Clara approx. height limit range = 55' to 155'*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

MEDIUM / Professional Office

M_A_OFFICE_LOW(150'X150')

M_A_OFFICE_HIGH(150'X150')

LOCATION	Santa Clara
LOT AREA	22,500 SF (150' x 150')
PROGRAM	Office

M_A_OFFICE_LOW(150'x150'): This is a central core building up to six floors (90') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 6 floors, ≤ 90'
Building Area	100,800 SF *(16,800 SF x 6 floors)*		
Density	4.5 FAR		
Retail	8,400 SF		
Parking Spaces	168 *(56 x 3 floors multi-level basement)*		
Parking Ratio	1.8 spaces / 1,000 SF of office		

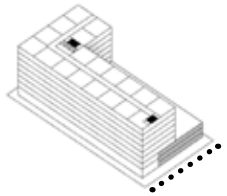
M_A_OFFICE_HIGH(150'x150'): This is a central core building up to 10 floors (155') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 10 floors, ≤ 155'
Building Area	168,000 SF *(16,800 SF x 10 floors)**		
Density	7.5 FAR		
Retail	8,400 SF		
Parking Spaces	168 *(56 x 3 floors multi-level basement)*		
Parking Ratio	1.0 spaces / 1,000 SF of office		

** Santa Clara approx. height limit range = 55' to 155'*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

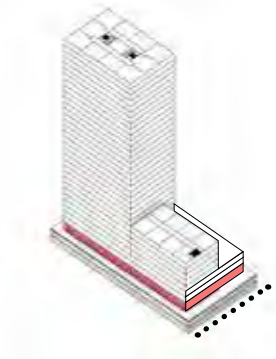
10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

MEDIUM / Residential Multifamily (central core + double-loaded corridor)



M_B_RESI_LOW(125'X250')

M_B_RESI_MED(125'X250')



M_B_RESI_HIGH(125'X250')

* Selected for feasibility analysis

10 ft Residential floor to floor height

15 ft Office floor to floor height

15 ft Ground level floor to floor height

Retail

Parking

Street-facing edge

LOCATION	Downtown San José, 28th Street
LOT AREA	31,250 SF (125' x 250')
PROGRAM	Residential

M_B_RESI_LOW(125'x250'): This is a double-loaded corridor building up to eight floors (85') with multi-level podium parking. This prototype assumes a building construction of Type III over I, with active commercial ground floor uses fronting the street.

Building Construction	Type III over I	**Height**	≤ 8 floors, ≤ 85'
Building Area	117,470 SF *(19,600 SF x 8 floors)**	**Units**	100
Density	139 du/acre		
Parking Spaces	117 *(39 x 3 floors multi-level podium)*		
Parking Ratio	1 space / dwelling unit		

M_B_RESI_MED(125'x250'): This is a central core building up to 23 floors (240') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 23 floors, ≤ 240'
Building Area	220,800 SF *(9,600 SF x 23 floors) Tower* 48,000 SF *(6,000 SF x 8 floors) Mid-rise*	**Units**	228
Density	317 du/acre		
Retail	13,200 SF		
Parking Spaces	222 *(78 x 2 floors multi-level basement) (22 x 3 floors podium)*		
Parking Ratio	1 space / dwelling unit		

M_B_RESI_HIGH(125'x250'): This is a central core building up to 29 floors (300') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 29 floors, ≤ 300'
Building Area	278,400 SF *(9,600 SF x 29 floors) Tower* 48,000 SF *(6,000 SF x 8 floors) Mid-rise*	**Units**	277
Density	387 du/acre		
Retail	13,200 SF		
Parking Spaces	222 *(78 x 2 floors multi-level basement) (22 x 3 floors podium)*		
Parking Ratio	0.85 spaces / dwelling unit		

** Single loaded 30' deep units for the first two floors to accommodate parking podium*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross. No parking assumed for ground floor retail.

MEDIUM / Class A Office (central core)

M_B_OFFICE_LOW(125'X250')

M_B_OFFICE_MED(125'X250')

M_B_OFFICE_HIGH(125'X250')

* Selected for feasibility analysis
10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

LOCATION	Downtown San José, 28th Street
LOT AREA	31,250 SF (125' x 250')
PROGRAM	Residential

M_B_OFFICE_LOW(125'x250'): This is a double-loaded corridor building up to eight floors (85') with multi-level podium parking. This prototype assumes a building construction of Type III over I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 6 floors, ≤ 90'
Building Area	156,800 SF *(19,600 SF x 6 floors)**		
Density	5.0 FAR		
Retail	15,000 SF		
Parking Spaces	156 *(78 x 2 floors multi-level basement)*		
Parking Ratio	0.9 spaces / 1,000 SF of office		

M_B_OFFICE_MED(125'x250'): This is a central core building up to 23 floors (240') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 16 floors, ≤ 240'
Building Area	480,000 SF *(30,000 SF x 16 floors)*		
Density	15.4 FAR		
Retail	15,000 SF		
Parking Spaces	156 *(78 x 2 floors multi-level basement)*		
Parking Ratio	0.3 spaces / 1,000 SF of office		

M_B_OFFICE_HIGH(125'x250'): This is a central core building up to 29 floors (300') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 20 floors, ≤ 300'
Building Area	600,000 SF *(30,000 SF x 20 floors)*		
Density	19.2 FAR		
Retail	15,000 SF		
Parking Spaces	156 *(78 x 2 floors multi-level basement)*		
Parking Ratio	0.25 spaces / 1,000 SF of office		

Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

LARGE BUILDING PROTOTYPES

The typical large parcels comprise sites of 300' x 300' for Santa Clara Station, 280' x 275' for Downtown San José Station, and 280' x 550' for 28th Street Station. These prototypes can be applied to large and extra large parcel sizes. Both commercial and residential prototypes have been developed for these parcels.

	LARGE					
	A		B		C	
Parcel Size	275' x 280'		300' x 300'		280' x 550'	
Program	Residential	Office	Residential	Office	Residential	Office
Building Construction	Type III over I, Type I	Type I	Type III over I, Type I	Type I	Type III over I, Type I	Type I
Number of Floors	≤ 8, ≤ 29	≤ 6, ≤ 20	≤ 8, ≤ 15	≤ 6, ≤ 10	≤ 8, ≤ 29	≤ 6, ≤ 20
Ground Floor	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active	Active / Non Active
Parking	Multi-Level (Podium)	Multi-Level (Basement)	Multi-Level (Podium)	Multi-Level (Basement)	Multi-Level (Podium)	Multi-Level (Basement)

TABLE 7.2.1 Large building prototypes

** Typical Opportunity Sites for Downtown San José of 140'X275" have similar development potential*

*** Santa Clara approx. height limit range = 55' to 155'*

STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
SANTA CLARA	L	26	41 acres
	XL	9	9 acres

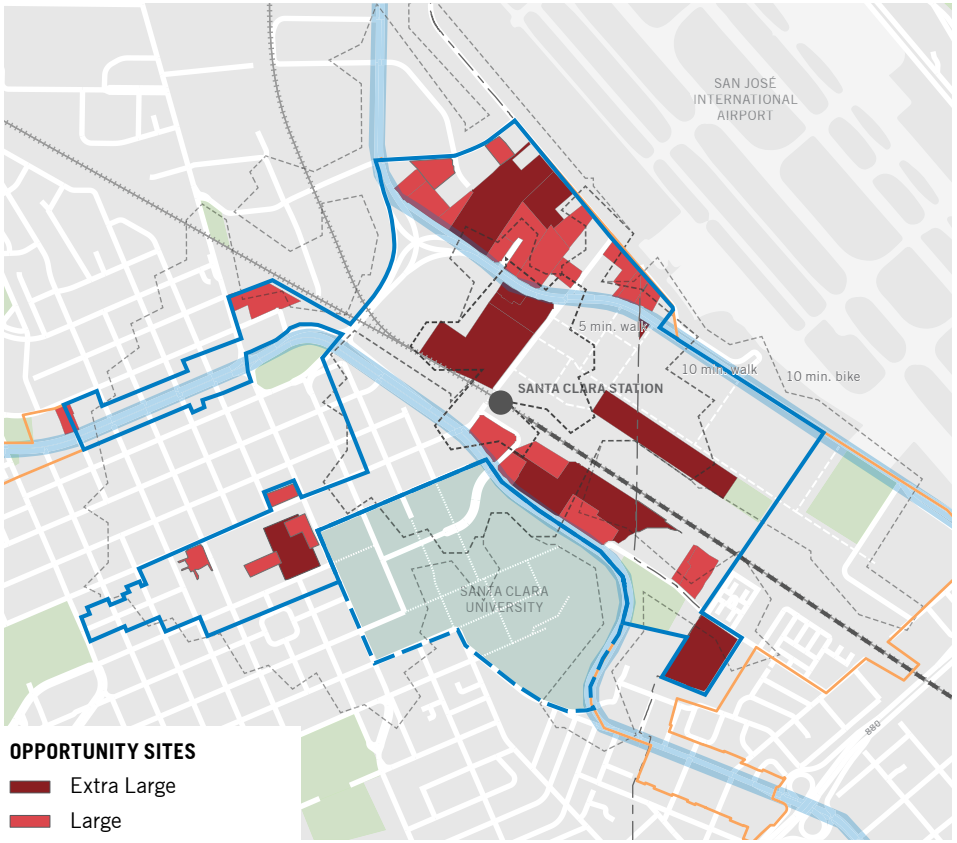
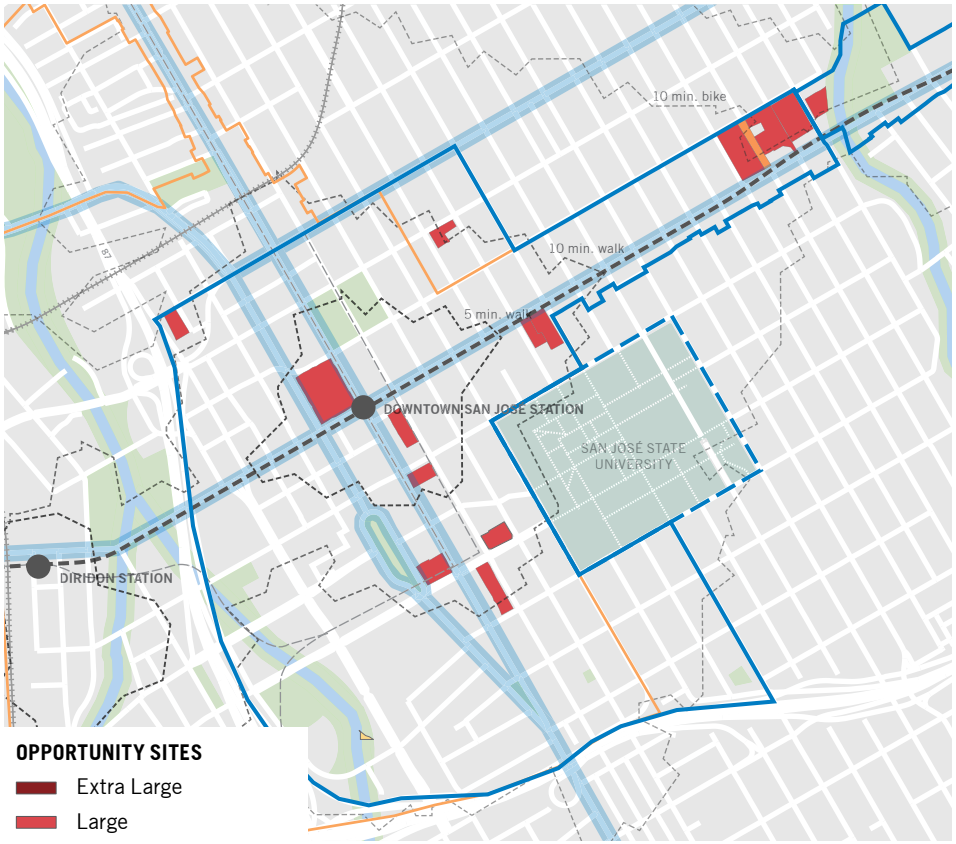
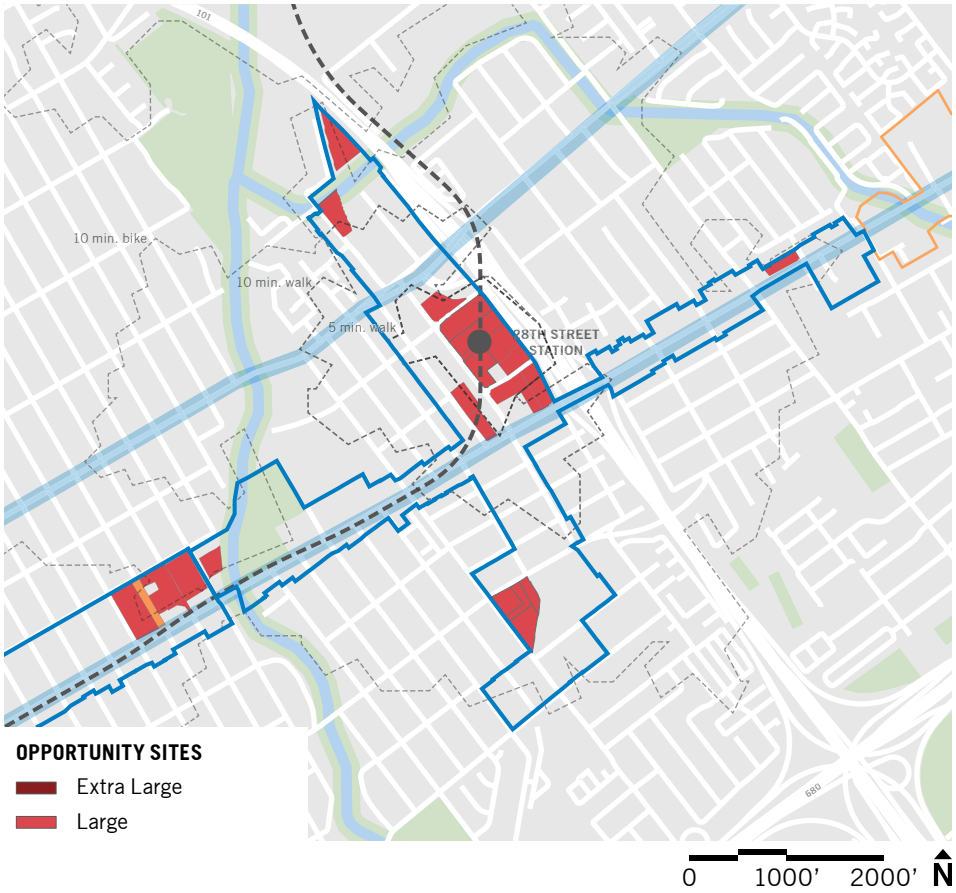


FIGURE 7.2.3 Large Opportunity Sites at each station area

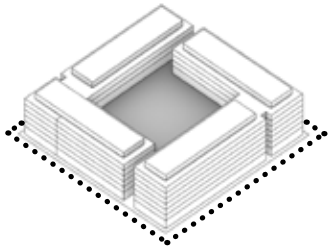
STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
DOWNTOWN SAN JOSÉ	L	14	26 acres
	XL	0	0 acres



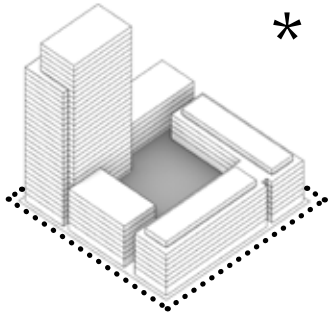
STUDY AREA	PARCEL TYPE	PARCEL COUNT	TOTAL PARCEL AREA
ALUM ROCK/ 28TH STREET	L	20	30 acres
	XL	0	0 acres



LARGE / Residential Multifamily (central core + double-loaded corridor)



L_A_RESI_ LOW(275'X280')



L_A_RESI_HIGH(275'X280')

LOCATION	Downtown San José
LOT AREA	77,000 SF (275' x 280')
PROGRAM	Residential

L_A_RESI_LOW(275'x280'): This is a double-loaded corridor building up to eight floors (85') with multi-level podium parking and two-floor "residential wrap." This prototype assumes a building construction of Type III over I, with active commercial ground floor uses fronting the street.

Building Construction	Type III over I	**Height**	≤ 8 floors, ≤ 85'
Building Area	334,000 SF *(46,700 SF x 8 floors)*	**Units**	284
Density	161 du/acre		
Parking Spaces	316 *(106 x 2 floors multi-level podium)*		
Parking Ratio	1.16 spaces / dwelling unit		

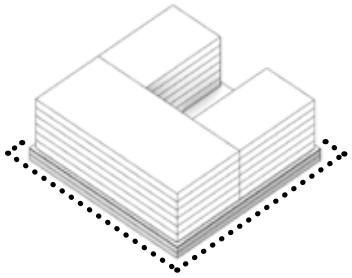
L_A_RESI_HIGH(275'x280'): This is a double-loaded corridor buildings up to eight floors (85') combined with a central core building up to 29 floors (300') with multi-level podium parking with two-floor "residential wrap." This prototype assumes a mix of building constructions of Type III over I and Type I, with active commercial ground floor uses fronting the street. Maximum building height, which is determined by the FAA height limitation within the Downtown San José Station study area, ranges from 170' to 320' feet above ground.

Building Construction	Type III over I Type I	**Height**	≤ 8 floors, ≤ 85' ≤ 29 floors, ≤ 300'
Building Area	270,600 SF *(9,700 SF x 29 floors) Tower* 274,200 SF *(38,400 SF x 8 floors) Mid-rise*	**Units**	463
Density	262 du/acre		
Parking Spaces	316 *(106 x 3 floors multi-level podium)*		
Parking Ratio	0.7 spaces / dwelling unit		

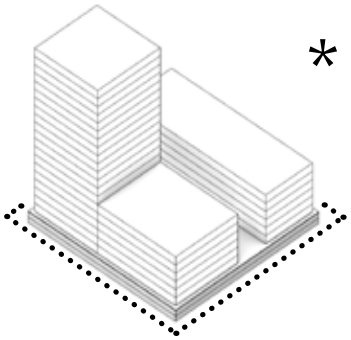
** Single loaded 30' deep units for the first two floors to accommodate parking podium*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

* Selected for feasibility analysis
10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

LARGE / Class A Office (central core + non high-rise)



L_A_OFFICE_LOW(275'X280')



L_A_OFFICE_HIGH(275'X280')

LOCATION	Downtown San José
LOT AREA	77,000 SF (275' x 280')
PROGRAM	Office

L_A_OFFICE_LOW(275'x280'): This is a central core building up to six floors (90') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 6 floors, ≤ 90'
Building Area	335,000 SF *(55,800 SF x 6 floors)*		
Density	4.4 FAR		
Parking Spaces	385 *(193 x 2 floors multi-level basement)*		
Parking Ratio	1.15 spaces / 1,000 SF of office		

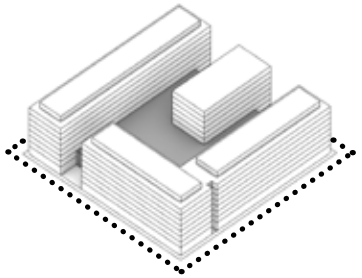
L_A_OFFICE_HIGH(275'x280'): This is a central core building up to six floors (90') combined with a central core building up to 20 floors (300') and multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street. Maximum building height, which is determined by the FAA height limitation within the Downtown San José Station study area, ranges from 170' to 320' feet above ground.

Building Construction	Type I	**Height**	≤ 20 floors, ≤ 300'
Building Area	480,000 SF *(24,000 SF x 20 floors) Tower* 190,000 SF *(31,650 SF x 6 floors) Mid-rise*		
Density	8.7 FAR		
Parking Spaces	385 *(193 x 2 floors multi-level basement)*		
Parking Ratio	0.6 spaces / 1,000 SF of office		

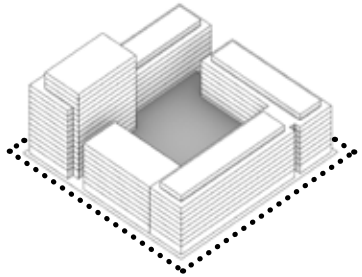
Notes: Parking spaces are calculated at 400 SF/space.

* Selected for feasibility analysis
10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

LARGE / Residential Multifamily (central core + double-loaded corridor)



L_B_RESI_LOW(300'X300')



L_B_RESI_HIGH(300'X300')

LOCATION	Santa Clara
LOT AREA	90,000 SF (300' x 300')
PROGRAM	Residential

L_B_RESI_LOW(300'x300'): : This is a double-loaded corridor building up to eight floors (85') with multi-level podium parking and two-floor "residential wrap." This prototype assumes a building construction of Type III over I, with active commercial ground floor uses fronting the street.

Building Construction	Type III over I	**Height**	≤ 8 floors, ≤ 85'
Building Area	351,700 SF *(49,800 SF x 8 floors)**	**Units**	299
Density	145 du/acre		
Retail	18,000 SF		
Parking Spaces	432 *(144 x 3 floors multi-level podium)*		
Parking Ratio	1.5 spaces / dwelling unit		

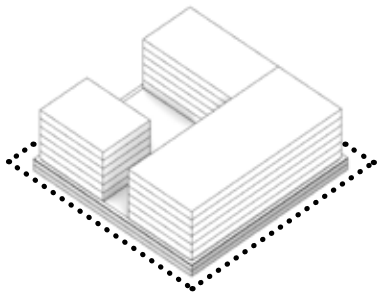
L_B_RESI_HIGH(300'x300'): This is a double loaded corridor building up to eight floors (85') combined with a central core building up to 15 floors (155') with multi-level podium parking and two-floor "residential wrap." This prototype assumes a mix of building construction of Type III over I and Type I, with active commercial ground floor uses fronting the street. Maximum building height, which is determined by the FAA height limitation within the Santa Clara Station study area, ranges from 55' to 155' feet above ground.

Building Construction	Type III over I Type I	**Height**	≤ 8 floors, ≤ 85' ≤ 15 floors, ≤ 155'
Building Area	135,500 SF *(9,700 SF x 15 floors) Tower** 306,500 SF *(43,000 SF x 8 floors) Mid-rise**	**Units**	376
Density	182 du/acre		
Parking Spaces	432 *(144 x 3 floors multi-level podium)*		
Parking Ratio	1 space / dwelling unit		

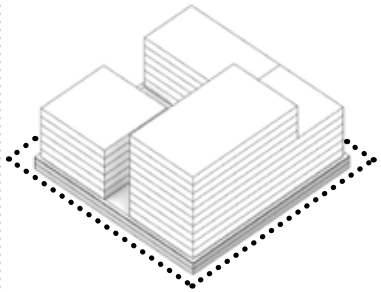
** Single loaded 30' deep units for the first two floors to accommodate parking podium*
** Santa Clara approx. height limit range = 55' to 155'*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

LARGE / Class A Office (central core + non high-rise)



L_B_OFFICE_LOW(300'X300')



L_B_OFFICE_HIGH(300'X300')

LOCATION	Santa Clara
LOT AREA	90,000 SF (300' x 300')
PROGRAM	Office

L_B_OFFICE_LOW(300'x300'): This is a central core building up to six floors (90') with multi-level parking in the basement. This prototype assumes a building construction Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type I	**Height**	≤ 6 floors, ≤ 90'
Building Area	384,000 SF *(64,000 SF x 6 floors)*		
Density	4.3 FAR		
Parking Spaces	450 *(225 x 2 floors multi-level basement)*		
Parking Ratio	1.2 spaces / 1,000 SF of office		

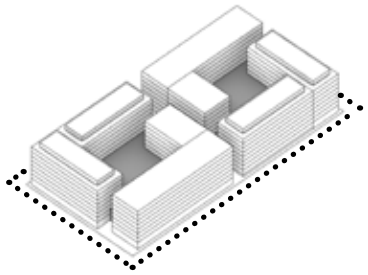
L_B_OFFICE_HIGH(300'x300'): This is a central core building up to six floors (90') combined with a central core building up to 10 floors (150') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street. Maximum building height, which is determined by the FAA height limitation within the Santa Clara Station study area, ranges from 55' to 155' feet above ground.

Building Construction	Type I	**Height**	≤ 10 floors, ≤ 155'
Building Area	240,000 SF *(24,000 SF x 10 floors) Tower** 240,000 SF *(40,000 SF x 6 floors) Mid-rise*		
Density	5.3 FAR		
Parking Spaces	450 *(225 x 2 floors multi-level basement)*		
Parking Ratio	0.9 spaces / 1,000 SF of office		

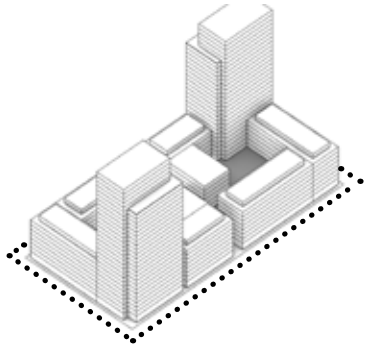
** Santa Clara Approx. Height limit range = 55' to 155'*
Notes: Parking spaces are calculated at 400 SF/space.

10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

LARGE / Residential Multifamily (central core + double-loaded corridor)



L_C_RESI_LOW(280'X550')



L_C_RESI_HIGH(280'X550')

LOCATION	28th Street
LOT AREA	154,000 SF (280' x 550')
PROGRAM	Residential

L_C_RESI_LOW(280'x550'): This is a double-loaded corridor building up to eight floors (85') with multi-level podium parking and two-floor "residential wrap." This prototype assumes a building construction Type III over I, with active commercial ground floor uses fronting the street.

Building Construction	Type III over I	**Height**	≤ 8 floors, ≤ 85'
Building Area	608,800 SF *(76,100 SF x 8 floors)**	**Units**	517
Density	146 du/acre		
Parking Spaces	475 *(158 x 3 floors multi-level podium)*		
Parking Ratio	0.9 spaces / dwelling unit		

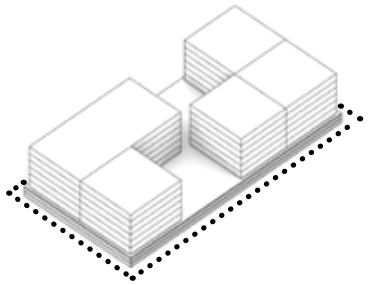
L_C_RESI_HIGH(280'x550'): This is a double-loaded corridor building up to eight floors (85') combined with two central core buildings up to 29 floors (300') with multi-level podium parking and two-floor "residential wrap." This prototype assumes a mix of building construction Type III over I and Type I, with active commercial ground floor uses fronting the street. Maximum building height, which is determined by the FAA height limitation within the 28th Street Station study area, ranges from 220' feet above ground to unlimited.

Building Construction	Type III over I Type I	**Height**	≤ 8 floors, ≤ 85' ≤ 29 floors, ≤300'
Building Area	384,000 SF *(9,600 SF x 20 floors x 2) Tower** 455,200 SF *(56,900 SF x 8 floors) Mid-rise**	**Units**	713
Density	202 du/acre		
Parking Spaces	475 *(158 x 3 floors multi-level podium)*		
Parking Ratio	0.7 spaces / dwelling unit		

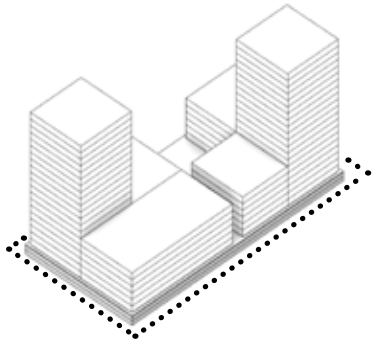
** Single loaded 30' deep units for the first two floors to accommodate parking podium*
Notes: Parking spaces are calculated at 400 SF/space. Unit sizes are calculated at 1,200 SF gross.

10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge

LARGE / Class A Office (central core + non high-rise)



L_C_OFFICE_LOW(280'X550')



L_C_OFFICE_HIGH(280'X550')

LOCATION	28th Street
LOT AREA	154,000 SF (280' x 550')
PROGRAM	Office

L_C_OFFICE_LOW(280'X550'): : This is two central core buildings up to six floors (90') with multi-level parking in the basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street.

Building Construction	Type III over I	**Height**	≤ 6 floors, ≤ 90'
Building Area	587,400 SF *(97,900 SF x 6 floors)*		
Density	3.8 FAR		
Parking Spaces	770 *(385 x 2 floors multi-level basement)*		
Parking Ratio	1.3 spaces / 1,000 SF of office		

L_C_OFFICE_HIGH(280'x550'): This is two central core buildings up to six floors (90') combined with two central core buildings up to 20 floors (300') with multi-level parking in basement. This prototype assumes a building construction of Type I, with active commercial ground floor uses fronting the street. Maximum building height, which is determined by the FAA height limitation within the 28th Street Station study area, ranges from 220' feet above ground to unlimited. See figure for more detail.

Building Construction	Type I	**Height**	≤ 20 floors, ≤300'
Building Area	568,000 SF *(14,200 SF x 20 floors x 2) Tower* 417,600 SF *(69,600 SF x 6 floors) Mid-rise*		
Density	6.4 FAR		
Parking Spaces	770 *(385 x 2 floors multi-level basement)*		
Parking Ratio	0.8 spaces / 1,000 SF of office		

Notes: Parking spaces are calculated at 400 SF/space.

10 ft Residential floor to floor height
15 ft Office floor to floor height
15 ft Ground level floor to floor height
Retail
Parking
Street-facing edge