3.8 Geology, Soils, and Seismicity

This section describes the potential geology, soils, and seismicity impacts associated with the proposed changes to the approved project.

Environmental Setting

The existing geology, soils, and seismicity conditions remain unchanged subsequent to the certification of the 2014 Subsequent IS/MND. Previously, the Uniform Building Code was used as a standard reference in California for earthquake and seismic design measures. Since the certification of the 2014 Subsequent IS/MND, the City of San Jose has updated this standard reference to the current California Building Standards Code (San Jose Municipal Code 24.01.120) (City of San Jose 2018).

As discussed in Chapter 2, *Changes to the Approved Project, Changes in Circumstances, and Introduction of New Information*, the California Supreme Court concluded in its *California Building Industry Association v. Bay Area Air Quality Management District* decision that "the California Environmental Quality Act (CEQA) generally does not require an analysis of how existing environmental conditions will impact a project's future users or residents." With this ruling, CEQA no longer considers the impact of the environment on a project (such as the impact of existing seismic hazards on new project receptors) to be an impact requiring consideration under CEQA, unless the project could exacerbate an existing environmental hazard. The proposed changes to the approved project would not change existing seismic hazards and, thus, would not exacerbate certain existing hazards. Therefore, the seismic hazards impact discussion is provided below for informational purposes only.

Environmental Impacts and Mitigation

This impact discussion primarily focuses on the proposed changes to the approved project that could result in new or more significant geology, soils, and seismicity impacts compared to the impacts previously identified and analyzed for the approved project.

As with the approved project, the proposed changes to the approved project would be located approximately 2 miles east of the active Hayward fault. The location of the proposed changes to the approved project would not traverse the fault.

The majority of proposed changes to the approved project (including the revisions to Capitol Expressway roadway lane configurations; modifications to the Eastridge Station platforms and tracks; reduction in parking spaces at the Eastridge Park-and-Ride lot; shifting and straightening of Story Station pedestrian overcrossing; modification to Story Station pedestrian access; and relocation of a construction staging area) would not introduce new facilities or structures that could be subject to geologic hazards. Thus, these proposed changes would not increase the potential for human injury or loss resulting from geologic hazards beyond the impacts previously identified and analyzed for the approved project.

Two proposed changes to the approved project (the extension of the aerial guideway to grade-separate the Ocala Avenue and Cunningham Avenue intersections and the proposed relocation of PG&E electrical transmission facilities) would include new structures that could be subject to geological hazards. Similar to the approved project, these proposed changes would be located in an area of strong seismic ground shaking; areas that are highly susceptible to liquefaction; areas that may be susceptible to lateral spread, subsidence, and collapse; and areas that may be on expansive soils. However, the proposed aerial structure and the Tubular Steel Poles (TSPs) would not increase the potential for human injury or loss resulting from geological hazards or structural failures during strong seismic ground shaking occurrences compared to the impacts previously identified and analyzed for the proposed project.

Impact: Based on the analysis above, the proposed changes to the approved project would not result in new significant impacts or a substantial increase in the severity of previously identified significant impacts related to geology, soils, and seismicity.

The following impacts from the 2005 Final EIR would still apply to the proposed changes to the approved project: GEO-4 (Risk Caused by Strong Seismic Ground Shaking), GEO-5 (Risk Caused by Seismic-Related Ground Failure, Including Liquefaction), GEO-6 (Risks from Lateral Spreading, Subsidence, and Collapse), and GEO-7 (Risk Caused by Expansive Soil).

Mitigation: The following mitigation measures identified in the 2005 Final EIR would still apply to the proposed changes to the approved project: GEO-4 (Incorporate Caltrans Seismic Design Criteria), GEO-5 (Incorporate Liquefaction Minimization Methods to Prevent Localized Liquefaction), GEO-6 (Implement Proper Construction Methods to Minimize Risk of Lateral Spreading, Subsidence, and Collapse Hazards), and GEO-7 (Reinforce Foundations or Excavate Expansive Soils to Minimize Risk of Soil Expansivity).

Inclusion of these mitigation measures would reduce this impact to "Less than Significant."

Less-than-significant impact with mitigation.