3.10 Hydrology and Water Quality

This section describes the potential hydrology and water quality impacts associated with the proposed changes to the approved project.

Environmental Setting

This section describes the changes to the existing hydrology and water quality conditions and applicable regulations subsequent to the certification of the 2014 Subsequent IS/MND.

The existing hydrological area is generally unchanged from that described in the 2005 Final EIR. As with the approved project, the proposed changes to the approved project are located within the Coyote Creek watershed, which eventually drains to the South San Francisco Bay. Surface waters in the vicinity of the project corridor include Silver Creek and Thompson Creek.

Several documents and projects pertaining to hydrology and water quality were not considered in the 2014 Subsequent IS/MND, or have been updated, or are in the process of being completed subsequent to the certification of the 2014 Subsequent IS/MND. The 2012 *California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report)* (State Water Resources Control Board 2015) did not list Silver Creek or Thompson Creek as impaired. The report did list South San Francisco Bay as impaired for chlordane, dichlorodiphenyltrichloroethane (DDT), dieldrin, dioxins, furan compounds, invasive species, mercury, polychlorinated biphenyls (PCBs), and selenium.

In the 2014 and 2016 *California Integrated Report (Clean Water Act Section 303(d) List/305(b) Report)* (State Water Resources Control Board 2018), no change to the listing for the South San Francisco Bay occurred and Thompson Creek continued to not be listed as impaired. The report did newly list Silver Creek as impaired for trash.

Since the 2014 Subsequent IS/MND, the Federal Emergency Management Agency (FEMA) has updated one of the Flood Insurance Rate Maps (FIRMs) for the area that includes the project corridor. FIRM Map Number 06085C0252J, which depicts the area between the existing Alum Rock Station and north of Ocala Avenue, was updated in February 2014 (Federal Emergency Management Agency 2014). As with the approved project, the proposed changes to the approved project would be located within the 100-year flood hazard zone of Silver Creek. As discussed in Chapter 2, *Changes to the Approved Project, Changes in Circumstances, and Introduction of New Information*, the Lower Silver Creek Flood Protection Project, underway and anticipated to be completed in 2019, would provide protection from flood damage and reduction in channel bank failures along Lower Silver Creek between the Cunningham Reservoir and Interstate 680. Improvements to the 100-year flood hazard zone of Silver Creek as a result of the Lower Silver Creek Flood Protection Project may not be reflected in FEMA FIRMs until 2019.

Several applicable stormwater regulations have been updated since the 2014 Subsequent IS/MND, including the reissuance of the Phase 1 Municipal Regional Stormwater

NPDES Permit (MRP), Order No. R2-2015-0049), overseen by the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). In addition, VTA was newly regulated as a Non-traditional MS4 under the Phase II General Permit for Stormwater Discharge from Small Municipal Separate Storm Sewer Systems (MS4), Order No. 2013-0001-DWQ, effective July 30, 2013. Chapter 2, *Changes to the Approved Project, Changes in Circumstances, and Introduction of New Information*, provides a detailed discussion of these updated stormwater regulations.

Land development can adversely affect the runoff hydrograph (flow pattern) from a site by increasing the impervious area, decreasing natural vegetation, changing grading or soil compaction, and creating new drainage facilities. As discussed in Chapter 2, *Changes to the Approved Project, Changes in Circumstances, and Introduction of New Information*, the VTA is regulated as a Phase 2 Non-traditional MS4. The stormwater treatment regulations under this MS4 require new road projects (including sidewalks and bicycle lanes) that create 5,000 square feet or more of newly constructed or replaced and contiguous impervious surface to comply with post-construction stormwater treatment requirements. These types of treatment measures, including avoiding impervious surfaces, providing site controls to manage pollutant sources, and Low Impact Development features such as bioretention basins and vegetated swales will comply with the EPA's Greenstreets guidelines (EPA's *Managing Wet Weather with Green Infrastructure Municipal Handbook Green Streets*) (Lukes & Kloss 2008).

Lastly, 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 flooding 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 flooding hazards and, thus, would not exacerbate certain existing hazards. Therefore, the flooding impact discussion is provided below for informational purposes only.

Environmental Impacts and Mitigation

The impact discussion in this section primarily focuses on the proposed changes to the approved project that could result in new or more significant hydrology and water quality impacts compared to the impacts previously identified and analyzed for the approved project.

Similar to the approved project, construction activities associated with the proposed changes to the approved project involving soil disturbance, excavation, cutting/filling, stockpiling, and grading activities could result in increased erosion and sedimentation to surface waters. In addition, construction of the concrete foundation for TSP No. 53A, TSP No. 54, and TSP No. 55 may require temporary closure of the Thompson Creek

Trail for safety during drilling, and foundation work. Hazardous materials associated with construction equipment (such as fuels and lubricants) could also adversely affect water quality if spilled or stored improperly.

In addition, construction of the proposed changes to the approved project would in some cases require dewatering and the associated discharge of groundwater or dewatering effluent. This is an impact that was not analyzed in the 2005 Final EIR. Construction of the proposed changes to the approved project would require additional dewatering activities associated with installation of the concrete columns for the proposed aerial guideway. When temporary and limited groundwater dewatering would be required for construction activities, dewatering effluent would be treated and discharged (in accordance with provisions of the Construction General Permit) back to the nearby surface water, if possible, providing an opportunity for groundwater recharge. Thus, the discharged effluent would have the opportunity to recharge the aquifer.

Furthermore, construction activities associated with the proposed changes could also result in a temporary increase in water demand. However, the increase in water demand during construction would not be substantial. The proposed changes to the approved project would not substantially increase hydrology impacts during construction beyond what was previously identified and analyzed for the approved project.

The proposed changes to the approved project would not alter approved project operations, which would entail operating light rail trains within the median of the Capitol Expressway, light rail stations, and park-and-ride lots. The proposed changes to the approved project would not introduce new or more significant impacts regarding violations of water quality standards or waste discharge requirements.

The majority of proposed changes to the approved project (including the modifications to the Eastridge Station platforms and tracks; reduction in parking spaces at the Eastridge Park-and-Ride lot; minor shift in the location and straightening of the 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 would substantially impact hydrology or water quality. Thus, these proposed changes would not increase the potential for hydrology and water quality impacts beyond the impacts previously identified and analyzed for the approved project.

According to the *Preliminary Engineering Drainage Report* (Rajappan & Meyer Consulting Engineering, Inc. 2005) prepared for the approved project, the approved project would result in cumulative flows that would be less than the existing flows because of the removal of hard surface pavement. However, the majority of existing drainage systems would be unable to contain a 10-year storm event. As with the approved project, only the portions of the stormwater drainage system that are in conflict with the proposed changes to the approved project would be replaced at the same capacity. Therefore, the existing stormwater drainage system would continue to be deficient until the capacity of pipes is increased and inadequate slopes are improved. The change in impervious areas resulting from the proposed changes to the approved project would not

exacerbate the existing stormwater drainage system issues beyond what was previously identified and analyzed for the approved project.

Several proposed changes to the approved project (including the extension of the aerial guideway to grade-separate the Ocala Avenue and Cunningham Avenue intersections and revisions to Capitol Expressway roadway lane configurations) would result in additional impervious and rework area[3] beyond the amount of rework area identified for the approved project. The replacement of the at-grade track alignment with an aerial guideway between south of Story Road and north of Tully Road would result in approximately 8.5 acres of impervious elevated surface above a pervious median. Revisions to the Capitol Expressway roadway configuration would require roadway widening which could create minor additional impervious or rework areas. At this preliminary stage of design, the exact increase in impervious area from the approved project is unknown and an assessment of the amount of existing permeable area being replaced has not yet been completed. However, it is not anticipated that the proposed changes to the approved project would result in a substantial increase in the amount of impervious area compared to the approved project. Post-construction runoff from new pavement would be managed in accordance with National Pollutant Discharge Elimination System permit requirements for VTA's MS4 permit. Although there is supporting work on City and County roadways subject to the MRP, stormwater would be treated under VTA's permit in coordination between the three agencies. Proposed stormwater treatment measures within VTA's right-of-way would comply with the stormwater guidelines presented in VTA's *Stormwater and Landscaping Design Criteria Manual*, and the proposed stormwater treatment measures for roadway improvements within Santa Clara County.

In addition, the proposed aerial guideway would consist of a new structure that could be subject to flood hazards. The replacement of the at-grade track alignment with an aerial guideway between south of Story Road and north of Tully Road would be beneficial with respect to potential flooding impacts. Transit users would be elevated above the roadway, thereby reduce the potential for exposing people or structures to significant risk of loss, injury, or death involving flooding. As part of the proposed changes, the Capitol Expressway corridor would be crowned from the middle of the roadway. The majority of floodwaters during a flood event would likely accumulate on the outer pavement edges of the Capitol Expressway, away from the proposed aerial guideway. In addition, deck drains on the aerial structures would reduce accumulated storm and flood water by conveying runoff to outfalls near the base of each support and would connect to the City's storm drain. Furthermore, an underdrain system would be constructed underneath the at-grade sections of the guideway extension (Rajappan & Meyer Consulting Engineering, Inc. 2005).

[3] A rework area is an area that is currently impervious and would undergo a change in use as a result of the proposed changes to the approved project. The size of the rework area, even if currently impervious, is included in the calculation of the proposed changes to the approved project's total treatment area due to the change in usage.

The proposed changes would not increase the potential for hydrology and water quality impacts 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 hydrology and water quality.

The following impacts from the 2005 Final EIR would still apply to the proposed changes to the approved project: HYD (CON)-1 (Impair Water Quality), HYD (CON)-2 (Depletion of Groundwater Supplies), HYD-11 (Violation of Water Quality Standards or Waste Discharge Requirements), HYD-12 (Creation of Additional Runoff), HYD-13 (Alterations in Existing Drainage Patterns), and HYD-14 (Exposure to Flood Hazards).

Mitigation: Operation. The following mitigation measures identified in the 2005 Final EIR would still apply to the proposed changes to the approved project: HYD-11 (Comply with All Applicable Regulations and Subsequent Permit Programs Related to Water Quality Control), HYD-12 (Maintain Operational Water Quality), and HYD-14 (Construct Facilities to Minimize Flood Impacts). Inclusion of these mitigation measures would reduce this impact to "Less than Significant."

Construction. The following mitigation measures identified in the 2005 Final EIR would still apply to the proposed changes to the approved project: HYD (CON)-1 (Implement Water Quality Control Measures), HYD (CON)-2 (Use Non-Potable Water). Inclusion of these mitigation measures would reduce this impact to "Less than Significant."

Less-than-significant operational and construction impacts with mitigation.

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