

# Permanente Creek Flood Protection Project

Volume I

Final Subsequent Environmental Impact Report

November 2012

SCH # 2007052074



Prepared by:



Prepared for:





**Permanente Creek  
Flood Protection Project:  
Final Subsequent  
Environmental Impact Report**

**SCH # 2007052074**

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# SUMMARY

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This document is a ~~draft~~ Final Subsequent Environmental Impact Report (Final SEIR) analyzing the environmental effects of the Santa Clara Valley Water District's (District's) modified proposed Permanente Creek Flood Protection Project (proposed project, Project). The proposed project would provide flood protection along an approximately 11-mile stretch of Permanente Creek from Foothill Expressway to San Francisco Bay pursuant to the District's Clean, Safe Creeks and Natural Flood Protection Plan. This document is an SEIR to the District's June 2010 Final Environmental Impact Report (FEIR) for the Project. Subsequent to certification of the FEIR (June 2010), it was determined during design development that modifications to the Project would be necessary. Environmental impacts that would result from changes to the Project are analyzed in this Final SEIR.

This Final SEIR has been prepared in compliance with the California Environmental Quality Act (CEQA) to provide an objective analysis to be used by the lead agency (the Santa Clara Valley Water District), as well as other agencies and the public, in their considerations regarding the implementation, rejection, or modification of the Project as proposed. The Final SEIR itself does not determine whether the Project will be implemented or not, but only serves as an informational document in the local planning and decision-making process. Additionally, the California Department of Fish and Game (DFG), the San Francisco Bay Regional Water Quality Control Board (RWQCB), and other responsible agencies will use the Final SEIR analyses in assessing whether to grant permits necessary for the Project to proceed.

~~The Draft SEIR will~~ was be circulated for public review ~~with~~ and comment period of 45 days. Following public review of ~~this~~ the Draft SEIR, the District's Board of Directors will use the information it contains, together with comments submitted by other agencies and the public, to evaluate how the Project should proceed. ~~The California Department of Fish and Game and the San Francisco Bay Regional Water Quality Control Board will use the SEIR analyses in assessing whether to grant permits necessary for the Project to proceed.~~ Based on the Draft SEIR comments, the proposed project has been changed to the Draft SEIR Environmentally Superior Alternative (Alternative AA), which does not include the Cuesta Annex. Thus, any text and analysis associated with the Cuesta Annex Flood Detention Facility in this Final SEIR has been removed.

## PROPOSED PROJECT

Implementation of the proposed project would provide 1% flood protection for residents, businesses, and infrastructure along the Permanente Creek corridor in the cities of Mountain View, Los Altos, and Cupertino. The proposed project would consist of the following elements (see Figure S-1 for locations).

- A 15-acre flood detention basin at Rancho San Antonio County Park.
- ~~A 4.5-acre flood detention basin in the northern portion of Cuesta Annex and underground culverts connecting the basin to Permanente Creek.~~
- A 5-acre flood detention basin occupying McKelvey Park.
- A new diversion structure to improve the "flow split" at the Permanente Creek Diversion Channel.

- Floodwalls and levees along Permanente Creek from U.S. Highway 101 (US-101) to just north of Amphitheatre Parkway.
- Replacement of selected concrete portions of Permanente and Hale Creeks with wider and deeper concrete channels.

Construction of individual elements would last between 6 months and 2 years. The Project could be completed in as little as 2 years, assuming concurrent construction of several elements during each construction year, but a total construction window of as much as 5 or 6 years is probably more realistic.

A more detailed description of the proposed project is provided in Chapter 2 (*Project Description*).

## PROJECT’S ANTICIPATED ENVIRONMENTAL IMPACTS

### SIGNIFICANT IMPACTS AND PROPOSED MITIGATION

Table S-1 summarizes the Project’s potential for significant impacts on the environment, along with the mitigation measures identified to reduce the level of impacts. For a complete description of potential impacts and recommended mitigation measures, please refer to the specific discussions in Chapters 3 through 13.

**Table S-1. Significant Project Impacts with Mitigation Measures**

Impact	Project Element	Proposed Mitigation Measures
GEO6—Soil Erosion and Loss of Topsoil (p. 3-9)	Rancho San Antonio County Park, <del>Cuesta Annex</del> , and McKelvey Park flood detention facilities (topsoil loss) during construction	<p><u>For Rancho San Antonio County Park and McKelvey Park Flood Detention Facilities:</u></p> <ul style="list-style-type: none"> <li>● GEO6.1—Stockpile Topsoil and Reuse Onsite (<del>Rancho San Antonio County Park and Cuesta Annex flood detention sites</del>)</li> </ul> <p><u>For McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li>● GEO6.2—Provide Appropriate Topsoil Materials for Site Finishing (<del>McKelvey Park flood detention site</del>)</li> </ul>
HWR2—Effects on Groundwater Supply and Recharge (p. 4-7)	Rancho San Antonio County Park Flood Detention Facility (Septic System/Drain Fields) during construction	<ul style="list-style-type: none"> <li>● HWR2.1—Provide Alternate Water Supply during Construction</li> <li>● HWR2.2—Replace Groundwater Supply Well Decommissioned to Accommodate Construction</li> </ul>
HWR3—Temporary Degradation of Water Quality (p. 4-10)	Rancho San Antonio County Park (Septic System/Drain Fields) and McKelvey Park (Artificial Turf) flood detention facilities during construction and operation/maintenance	<p><u>For Rancho San Antonio County Park and McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li>● <b><i>HWR2.3—Septic System and Drain Field Design</i></b></li> </ul> <p><u>For McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li>● <b><i>HWR2.4—Provide Detailed Material Specific Information for Ensure that Artificial Turf Infill Composition Meets Water Quality Objectives and Agency Requirements</i></b></li> </ul>
BIO2—Disturbance, Injury or Mortality to California Red-Legged	Rancho San Antonio County Park Flood Detention Facility during	<ul style="list-style-type: none"> <li>● BIO2.1—Avoid Work during Active Breeding and Dispersal Period for Special-Status Frogs</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
Frogs and Foothill Yellow-Legged Frogs (p. 5-16)	construction and operation/maintenance	<ul style="list-style-type: none"> <li>• BIO2.2—Conduct Preconstruction Surveys at Work Sites in and near Frog-Sensitive Areas; Relocate Individuals as Needed</li> <li>• BIO2.3—Provide Construction Worker Awareness Training for Special-Status Frogs</li> <li>• BIO2.4—Install Exclusion Fencing and Conduct Construction Monitoring for Special-Status Frogs</li> <li>• <b>BIO2.5—Restore Areas of Impact at the Rancho San Antonio County Park <del>to</del> and Provide Suitable Habitat for California Red-Legged Frog</b></li> </ul>
BIO4—Disturbance, Injury, or Mortality of Western Pond Turtles (p. 5-21)	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance; and <del>Cuesta Annex Flood Detention Facility</del> and Floodwalls and Levees downstream of US-101 during operation/maintenance	<ul style="list-style-type: none"> <li>• BIO4.1—Implement Survey and Avoidance Measures to Decrease Disturbance to Western Pond Turtles</li> </ul>
BIO5—Disturbance of Nesting Migratory Birds and Raptors (p. 5- <del>222</del> 23)	All project elements during construction; and Rancho San Antonio County Park, <del>Cuesta Annex</del> , and McKelvey Park flood detention facilities and Floodwalls and Levees downstream of US-101 during operation/maintenance	<ul style="list-style-type: none"> <li>• BIO5.1—Establish Buffer Zones for Nesting Raptors and Migratory Birds</li> </ul>
BIO6—Disturbance of Western Burrowing Owls and Their Habitat (p. 5- <del>242</del> 25)	Floodwalls and Levees downstream of US-101 during construction and operation/maintenance	<ul style="list-style-type: none"> <li>• BIO6.1—Implement Survey and Avoidance Measures for Western Burrowing Owls Prior to Construction Activities</li> </ul>
BIO9—Disturbance of Special-Status Bats and Effects on Bat Habitat (p. 5-27)	Rancho San Antonio County Park and <del>Cuesta Annex flood detention facilities</del> Flood Detention Facility, New Permanente Diversion Structure, and Channel Improvements (both creeks) during construction and operation/maintenance	<ul style="list-style-type: none"> <li>• BIO9.1—Implement Survey and Avoidance Measures for Special-Status Bats</li> </ul>
BIO10—Disturbance of Dusky-Footed Woodrats and Their Habitat (p. 5- <del>298</del> )	Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance	<ul style="list-style-type: none"> <li>• BIO10.1—Conduct Surveys for San Francisco Dusky-Footed Woodrat and Protect Nests with Young</li> </ul>
BIO13—Disturbance or Loss of Riparian Habitat (p. 5- <del>310</del> )	Rancho San Antonio County Park Flood Detention Facility and Channel Improvements	<ul style="list-style-type: none"> <li>• BIO13.1—Survey, Identify, and Protect Riparian Habitats</li> <li>• BIO13.2—Restore Riparian Habitat in Areas of Impact</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
	<del>(both creeks)</del> during construction	
<p>BIO14—Disturbance or Loss of State- or Federally Protected Wetlands and Other Waters (p. 5-332)</p>	<p>Rancho San Antonio County Park Flood Detention Facility and Floodwalls and Levees downstream of US-101 during construction</p>	<ul style="list-style-type: none"> <li>• BIO14.1—Avoid and Protect Jurisdictional Wetlands during Construction</li> <li>• BIO14.2—Compensate for Temporary Loss of Existing Wetlands and Other Waters, Consistent with State and Federal Agency Requirements</li> </ul>
<p>BIO15—Loss of, or Damage to, Protected Trees (p. 5-354)</p>	<p>Rancho San Antonio County Park, <del>Cuesta Annex</del>, and McKelvey Park flood detention facilities and Channel Improvements (both creeks) during construction</p>	<ul style="list-style-type: none"> <li>• BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations</li> <li>• BIO15.2—Protect Remaining Trees from Construction Impacts</li> </ul>
<p>PALEO1—Damage to Significant Paleontological Resources (p. 6-4514)</p>	<p>All project elements during construction</p>	<p>For project elements on Pleistocene substrate (Rancho San Antonio County Park Flood Detention Facility, Hale Creek Channel Improvements, part of Permanente Creek Channel Improvements, <del>and a portion of Cuesta Annex Flood Detention Facility (Inlet/Outlet Culvert)</del>):</p> <ul style="list-style-type: none"> <li>• PALEO1.1—Provide Preconstruction Worker Awareness Training</li> <li>• PALEO1.2—Conduct Preconstruction Survey, with Salvage if Needed</li> <li>• PALEO1.3—Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities</li> <li>• PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate</li> </ul> <p>For project elements on Holocene substrate but requiring substantial excavation to construct (<del>Cuesta Annex and McKelvey Park Flood Detention Facilities</del>):</p> <ul style="list-style-type: none"> <li>• PALEO1.1—Provide Preconstruction Worker Awareness Training</li> <li>• PALEO1.3—Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities</li> <li>• PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate</li> <li>• PALEO1.5—Assess Potential for Project Excavation to Disturb Pleistocene Strata</li> </ul> <p>For project elements on Holocene substrate requiring less extensive excavation (remainder of Permanente Creek Channel Improvements, New Permanente Diversion Structure, <del>and a portion of Cuesta Annex Flood Detention Facility (Inlet/Outlet Culvert)</del>):</p> <ul style="list-style-type: none"> <li>• PALEO1.1—Provide Preconstruction Worker Awareness Training</li> <li>• PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct</li> </ul>



Impact	Project Element	Proposed Mitigation Measures
<p>AES1—Alteration in Existing Visual Character or Quality or Scenic Vistas of the Site and Its Surroundings (p. 7-815)</p>	<p>Rancho San Antonio County Park Flood Detention Facility and McKelvey Park flood detention facilities during construction and operation/maintenance; Cuesta Annex and McKelvey Park flood detention facilities during construction; and Channel Improvements and Floodwalls and Levees downstream of US-101 during operation/maintenance</p>	<p>Treatment and Curation as Appropriate</p> <p>For Rancho San Antonio County Park Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• AES1.1—Provide Visual Screening for Affected Construction Area</li> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures to the Extent Feasible</i></b></li> <li>• BIO13.2—Restore Riparian Habitat in Areas of Impact</li> <li>• BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations</li> </ul> <p>For Cuesta Annex Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• <del>AES1.1—Provide Visual Screening for Affected Construction Area</del></li> <li>• <del>BIO13.2—Restore Riparian Habitat in Areas of Impact</del></li> <li>• <del>BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees</del></li> </ul> <p>For McKelvey Park Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• AES1.1—Provide Visual Screening for Affected Construction Area</li> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures</i></b></li> <li>• BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations</li> </ul> <p>For Channel Improvements:</p> <ul style="list-style-type: none"> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures to the Extent Feasible</i></b></li> </ul> <p>For Floodwalls and Levees downstream of US-101:</p> <ul style="list-style-type: none"> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures</i></b></li> <li>• AES1.3—Work With Key Viewer Groups to Design Aesthetic Modifications to Floodwall Design</li> </ul>
<p>AES2—Creation of a New Source of Light or Glare (p. 7-4625)</p>	<p>Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park flood detention facilities, Channel Improvements (both creeks), and Floodwalls and Levees downstream of US-101 during operation/maintenance (glare only)</p>	<ul style="list-style-type: none"> <li>• <b><i>AES1.2—Apply Aesthetic Design Treatments to Visible Structures to the Extent Feasible</i></b></li> </ul>
<p>TT1—Potential to Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of</p>	<p>All project elements during construction</p>	<p>For all project elements:</p> <ul style="list-style-type: none"> <li>• TT1.1—Require a Site-Specific Traffic Control Plan</li> </ul> <p>For Channel Improvements (Permanente Creek):</p> <ul style="list-style-type: none"> <li>• TT1.2—Require All Construction Traffic to Avoid</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
<p>Effectiveness for the Performance of the Circulation System (p. 8-4316)</p>		<p>Springer Road/El Monte Avenue and Springer Road/Fremont Avenue Intersections at Peak Traffic Hours</p> <p>For Channel Improvements (Hale Creek):</p> <ul style="list-style-type: none"> <li>• TT1.2—Require All Construction Traffic to Avoid Springer Road/El Monte Avenue and Springer Road/Fremont Avenue Intersections at Peak Traffic Hours</li> <li>• TT1.3—Provide Detour Plan to Reroute Traffic, <u>Bicyclists, and Pedestrians</u> on Existing Bridges during Construction of Creek Crossings</li> </ul> <p>For Cuesta Annex Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• <del>TT1.4—Require All Construction Traffic to Avoid Grant Road at Peak Traffic Hours</del></li> <li>• <del>TT1.5—Require All Construction Traffic to Avoid Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours</del></li> <li>• <del>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</del></li> </ul> <p>For Cuesta Annex Flood Detention Facility (Inlet/Outlet Pipes):</p> <ul style="list-style-type: none"> <li>• <del>TT1.4—Require All Construction Traffic to Avoid Grant Road at Peak Traffic Hours</del></li> <li>• <del>TT1.5—Require All Construction Traffic to Avoid Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours</del></li> <li>• <del>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</del></li> </ul> <p>For McKelvey Park Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• <del>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</del></li> </ul> <p>For McKelvey Park Flood Detention Facility (Outlet Pipe):</p> <ul style="list-style-type: none"> <li>• <del>TT1.4—Require All Construction Traffic to Avoid Grant Road at Peak Traffic Hours</del></li> <li>• <del>TT1.5—Require All Construction Traffic to Avoid Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours</del></li> </ul> <p><del>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</del></p>
<p>TT3—Potential to Create Traffic Safety Hazards (p. 8-2426)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>• TT1.1—Require a Site-Specific Traffic Control Plan</li> </ul>
<p>TT4—Potential to Obstruct Emergency Access (p. 8-2427)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>• TT1.1—Require a Site-Specific Traffic Control Plan</li> <li>• TT1.3—Provide Detour Plan to Reroute Traffic, <u>Bicyclists, and Pedestrians</u> on Existing Bridges during Construction of Creek Crossings</li> </ul>
<p>TT5—Potential to Conflict with Alternative</p>	<p>All project elements during</p>	<ul style="list-style-type: none"> <li>• TT1.1—Require a Site-Specific Traffic Control Plan</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
Transportation (p. 8-2228)	construction	<ul style="list-style-type: none"> <li>• TT1.3—Provide Detour Plan to Reroute Traffic, Bicyclists, and Pedestrians on Existing Bridges during Construction of Creek Crossings</li> </ul>
NV1—Noise Levels in Excess of Applicable Standards (p. 9-8)	<p><del>Cuesta Annex and McKelvey Park Flood Detention facilities, New Permanente Diversion Structure, and Channel Improvements (both creeks) during construction</del></p>	<p><del>For Cuesta Annex and McKelvey Park flood detention facilities, and New Permanente Diversion Structure:</del></p> <ul style="list-style-type: none"> <li>• NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>• NV1.2—Implement Work Site Noise Control Measures</li> <li>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> <li>• NV1.4—Install Temporary Noise Barriers (<u>selected project elements; where feasible only</u>)</li> </ul> <p><del>For Channel Improvements (both creeks):</del></p> <ul style="list-style-type: none"> <li>• <del>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li>• <del>NV1.2—Implement Work Site Noise Control Measures</del></li> <li>• <del>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</del></li> </ul> <p><del>For Cuesta Annex Flood Detention Facility (Inlet/Outlet Pipes):</del></p> <ul style="list-style-type: none"> <li>• <del>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li>• <del>NV1.2—Implement Work Site Noise Control Measures</del></li> <li>• <del>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</del></li> </ul> <p><del>For McKelvey Park Flood Detention Facility (Outlet Pipe):</del></p> <ul style="list-style-type: none"> <li>• <del>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li>• <del>NV1.2—Implement Work Site Noise Control Measures</del></li> <li>• <del>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</del></li> </ul> <p><del>For Channel Improvements (Hale Creek Bridge Replacements):</del></p> <ul style="list-style-type: none"> <li>• <del>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li>• <del>NV1.2—Implement Work Site Noise Control Measures</del></li> <li>• <del>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</del></li> </ul>
NV2—Excessive Groundborne Vibration Levels (p. 9-19)	Channel Improvements (both creeks) during construction	<ul style="list-style-type: none"> <li>• NV2.3—Conduct Construction Vibration Assessment and Implement Recommended Vibration Control Approach(es) for Shoring Installation</li> <li>• NV2.4—Conduct Construction Vibration Monitoring for Shoring Installation</li> </ul>
NV4—Substantial Temporary Increase in	<p><del>Cuesta Annex and McKelvey Park Flood Detention Facilities, and</del></p>	<ul style="list-style-type: none"> <li>• NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
Ambient Noise (p. 9-22)	New Permanente Diversion Structure, and Channel Improvements (both creeks) during construction	<ul style="list-style-type: none"> <li>NV1.2—Implement Work Site Noise Control Measures</li> <li>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> <li>NV1.4—Install Temporary Noise Barriers (selected project elements; where feasible only)</li> </ul>
AQ2—Violation of Any Air Quality Standard or Substantial Contribution to Existing or Projected Air Quality Violation (p. 10-14)	All project elements during construction	<ul style="list-style-type: none"> <li>AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li><b>AQ2.2—Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust</b></li> <li>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>
AQ3—Exposure of Sensitive Receptors to Substantial Pollutant Concentrations (p.10-4817)	All project elements during construction	<ul style="list-style-type: none"> <li>AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li><b>AQ2.2—Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust</b></li> <li>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>
AQ4—Creation of Objectionable Odors (p. 10-21)	All project elements during construction	<ul style="list-style-type: none"> <li>AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>
AQ5—Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is a Non-Attainment Area under NAAQS and CAAQS (p. 10-22)	All project elements during construction	<ul style="list-style-type: none"> <li>AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>
PHS2—Exposure of Workers or the Public to Existing Hazardous Materials Contamination (p. 11-8)	All project elements during construction and operation/maintenance	<p><u>For all project elements:</u></p> <ul style="list-style-type: none"> <li>PHS2.1—Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event that Unknown Hazardous Materials Are Encountered</li> </ul> <p><u>For New Permanente Diversion Structure and Floodwalls and Levees downstream of US-101:</u></p> <ul style="list-style-type: none"> <li>PHS2.2—Implement Recommended Phase II Hazardous Materials Investigation and Any Required Follow-Up (Remediation)</li> </ul>
PHS4—Interference with Emergency Response or Evacuation Plan (p. 11-11)	All project elements during construction	<ul style="list-style-type: none"> <li>TT1.1—Require a Site-Specific Traffic Control Plan</li> <li>TT1.3—Provide Detour Plan to Reroute Traffic, <u>Bicyclists, and Pedestrians</u> on Existing Bridges during Construction of Creek Crossings</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
PHS5—Breeding or Harborage of Disease Vector Organisms (p. 11-12)	Rancho San Antonio County Park Flood Detention Facility during operation/maintenance	<ul style="list-style-type: none"> <li>PHS5.1—Prepare and Implement a Mosquito and Vector Control Plan</li> </ul>
PHS6—Exposure of People or Structure to Risk of Wildland Fires (p.11-14)	Rancho San Antonio County Park <del>and Cuesta Annex</del> Flood Detention Facilities during construction and operation/maintenance	<ul style="list-style-type: none"> <li>PHS6.1—Implement Wildland Fire Safety Measures</li> </ul>
REC3—Reduced Availability of Existing Recreational Facilities or Uses (p. 12-7)	<del>Cuesta Annex and Rancho San Antonio County Park</del> <u>and McKelvey Park</u> flood detention facilities during construction	<p><u>For McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li>REC3.1—Provide Advance Notice for Limited Access or Closure of Recreation Facilities</li> <li>REC3.2—Provide Alternate Site for McKelvey Park Sports Activities during Construction</li> </ul> <p><u>For Rancho San Antonio County Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li><b><i>REC3.3—Minimize Disruption or Loss of Flying Recreational Activity</i></b></li> </ul>

Note: Mitigation measures HWR2.3, HWR2.4, BIO2.5, AES1.2, ~~and~~ AQ2.2, and REC3.3 (in bold and italicized text) were not previously provided in the 2010 FEIR.

The Project would also contribute to cumulative regional impacts on traffic and transportation, air quality, and climate change-related effects. In addition to the mitigation measures shown in Table S-1, the following additional measures have been identified to address the Project’s contribution to regional cumulative impacts.

**Mitigation Measure CU1—Coordinate Haul Traffic with Local Jurisdictions**

The District will coordinate construction haul and delivery traffic with the affected cities to identify overlap with other area construction and roadway improvement projects. As appropriate, and per agreement with the affected jurisdictions, the District will limit construction haul and delivery trips to off-peak hours and may also require contractors to avoid particular roadways or intersections.

**Mitigation Measure CU2—Implement BMPs to Reduce GHG Emissions**

- Using local building materials.
- Recycling or reusing construction waste or demolition materials.

With these additional measures in place, the Project would not make a considerable contribution to a cumulative traffic and transportation and climate change-related impacts. However, even with implementation of the applicable mitigation measures to reduce air quality impacts during construction, see Chapter 15, the Project’s contribution to a cumulative air quality impact would still be considered significant and unavoidable.

## ***SIGNIFICANT AND UNAVOIDABLE IMPACTS***

~~As discussed in Chapter 8 (*Transportation and Traffic*), implementation of the proposed project could result in a significant and unavoidable impact on traffic flow in proximity to the Cuesta Annex site. Construction traffic at this site would result in a temporary but potentially substantial impairment of traffic flow on Grant Road, which is already considered to operate in exceedance of City of Mountain View's level of service (LOS) standard. The addition of construction traffic, particularly heavy trucks, could result in further substantial impairment of traffic flow on Grant Road. The District has committed to mitigation requiring development and implementation of a traffic control plan to reduce the impact of construction traffic, but impacts on Grant Road traffic flow are likely to be significant even with this mitigation in place. Because no additional feasible mitigation has been identified for this impact, it is considered unavoidable.~~

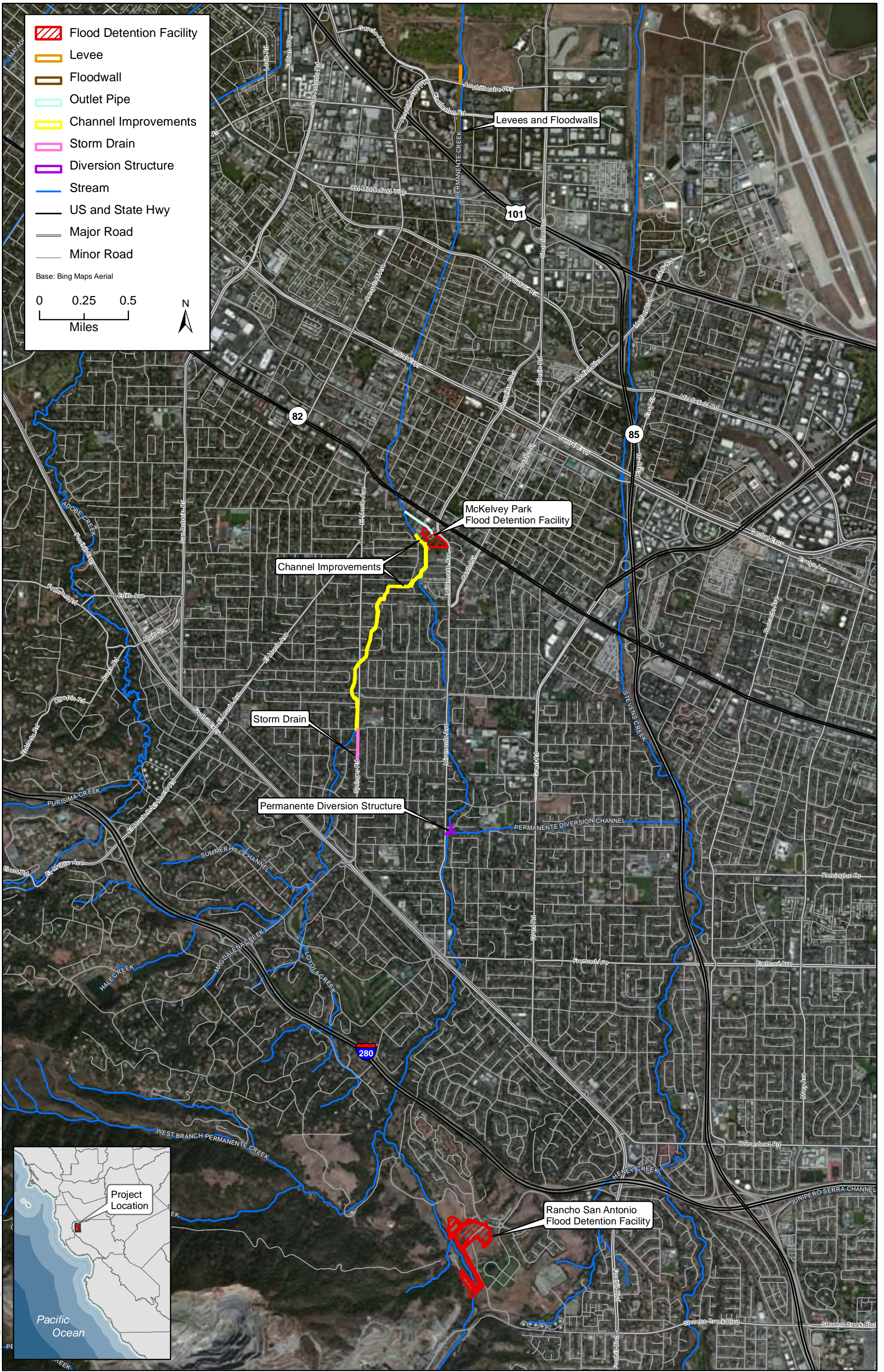
As discussed in Chapter 9 (*Noise and Vibration*), implementation of the proposed project could result in significant and unavoidable impacts related to violation of applicable noise standards during construction of certain project elements. The District will implement mitigation to reduce noise impacts, but construction noise levels could still exceed applicable standards at residences closest to the Cuesta Annex inlet and outlet culvert alignment, McKelvey Park outlet pipe alignment, and channel improvement alignments. Because no additional feasible mitigation has been identified to further reduce noise levels at these sites, this impact is considered unavoidable.

As discussed in Chapter 10 (*Air Quality*), project-level criteria pollutant thresholds are used to address both project-level and cumulative impacts. The Project's construction emissions were estimated to exceed the daily emissions threshold for NO<sub>x</sub>.

With the implementation of Mitigation Measures, NO<sub>x</sub> emissions would still exceed the threshold. Therefore, the Project's contribution during construction on cumulative air quality impact is considered considerable, therefore resulting in a significant and unavoidable cumulative impact for NO<sub>x</sub>.

## ***IMPACT COMPARISON BETWEEN FEIR (JUNE 2010) AND THIS FINAL SEIR***

Table S-2 compares the level of impact significance identified for the original project, as analyzed by the FEIR (June 2010), with the impact significance determined for the modified project, as evaluated by this Final SEIR.



K:\Projects\_2\SCVWD\_Permit03516\_03\arcmap\Cultural\Full\_StudyArea\_NOP2\_ByElementType\_A12.mxd hw 9/28/2012

Note: This figure was revised in the Final SEIR to remove the Cuesta Annex project element.



**Figure S-1**  
Project Location

**Table S-2. Comparison of Revised Project Impacts**

<b>Resource</b>	<b><u>2010 FEIR</u> Impact Level</b>	<b><u>Final SEIR</u> Impact Level</b>
Geology, Soils, and Mineral Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Hydrology and Water Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Biological Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Paleontological Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Aesthetics	Less than Significant with Mitigation	Less than Significant with Mitigation
Transportation and Traffic	Significant and Unavoidable	<del>Significant and Unavoidable</del> <u>Less than Significant with Mitigation</u>
Noise and Vibration	Significant and Unavoidable	Significant and Unavoidable
Air Quality	Less than Significant with Mitigation	Significant and Unavoidable
Hazardous Materials and Public Health	Less than Significant with Mitigation	Less than Significant with Mitigation
Recreation	Less than Significant with Mitigation	Less than Significant with Mitigation
Utilities and Services Systems	Not Applicable (This section was added to the SEIR and was not included in the <u>2010 FEIR</u> analysis)	Less than Significant

## ALTERNATIVES TO THE PROPOSED PROJECT

CEQA requires that a draft EIR evaluate a “reasonable range” of alternatives to a proposed project. An EIR is not required to consider every conceivable alternative to a project; consideration should focus on alternatives that appear to be feasible, would meet the project objectives, and would avoid or substantially lessen at least one of the proposed project’s significant environmental effects. In addition, although the No Project Alternative is not the baseline for determining whether the impacts of the proposed activities would be significant,<sup>1</sup> an EIR must evaluate the impacts of the No Project Alternative to allow decision makers to compare the impacts of approving the project with the impacts of not approving it.

~~This SEIR analyzes four alternatives to the Project as proposed, summarized in Table S-3. Subsequent to circulation of the Draft SEIR for 45-day public review, the District decided to designate the Draft SEIR’s Environmentally Superior Alternative (Alternative AA) as the proposed project. The proposed project in the Draft SEIR is now shown as Alternative AB in Table S-3, which summarizes the alternatives.~~

<sup>1</sup> The *baseline* for impact analysis is defined as environmental conditions at the time the notice of preparation (NOP) was published.



**Table S-3. Alternatives to Proposed Project**

Alternative	Elements
G	<ul style="list-style-type: none"> <li>• Instream detention (concrete arch dam) at Lehigh Southwest Cement Company Permanente Quarry</li> <li>• Offstream detention at Rancho San Antonio County Park and McKelvey Park</li> <li>• New Permanente Diversion Structure</li> <li>• Channel Improvements in selected areas</li> <li>• Floodwalls and Levees north of US-101</li> </ul>
X	<ul style="list-style-type: none"> <li>• Instream detention (concrete arch dam) at Lehigh Southwest Cement Company Permanente Quarry</li> <li>• Extended Hale Creek Bypass</li> <li>• Offstream detention at <del>Rancho San Antonio County Park and Cuesta Annex</del></li> <li>• Channel Improvements in selected areas</li> <li>• Floodwalls and Levees north of US-101</li> </ul>
<del>AA</del>	<ul style="list-style-type: none"> <li>• <del>Offstream detention at Rancho San Antonio County Park and McKelvey Park</del></li> <li>• <del>New Permanente Diversion Structure</del></li> <li>• <del>Channel Improvements: Permanente and Hale Creeks</del></li> <li>• <del>Floodwalls and Levees downstream of US-101</del></li> </ul>
<u>AB (The previously proposed project in the Draft SEIR)</u>	<ul style="list-style-type: none"> <li>• <u>Offstream detention at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park</u></li> <li>• <u>New Permanente Diversion Structure</u></li> <li>• <u>Channel improvements in selected areas</u></li> <li>• <u>Floodwalls and levees north of US-101</u></li> </ul>
No Project	<ul style="list-style-type: none"> <li>• No new flood protection infrastructure in Permanente or Hale Creek</li> <li>• Channels remain in their present condition; short-term operations and maintenance (i.e., sediment removal and vegetation management) similar to current practice</li> <li>• Longer-term replacement of aging facilities would be required under individual separate projects, but details are not foreseeable</li> </ul>

As discussed in Chapter 17, the No Project Alternative was identified as environmentally superior for most resources because it would not change baseline conditions in the project corridor. However, the No Project Alternative would not satisfy project goals and objectives. As stated in the State CEQA Guidelines (Sec. 15126.6 [e][2]), if the No Project Alternative is identified as the environmentally superior alternative, the EIR must also identify an environmentally superior alternative among the other alternatives. Therefore, of the alternatives that would implement a project, ~~Alternative AA~~ Alternative X would be superior because it would reduce impacts for more resource areas than the other project alternatives. Therefore, ~~Alternative AA~~ Alternative X is identified as the environmentally superior alternative among the identified feasible alternatives.

By comparison with the proposed project, Alternative X would avoid all impacts associated with the use of the Rancho San Antonio County Park and McKelvey Park sites but would increase several key impacts associated with the construction and use of the South Branch Dam. Consequently, although Alternative X would accomplish project goals and objectives, reduce impacts on several resources, and be considered the environmentally superior alternative

among the three project alternatives, it is not considered environmentally superior to the Project as proposed in this Final SEIR.

~~A comparison of the proposed project with Alternative AA shows that all impacts identified for the proposed project would either be similar or reduced with implementation of Alternative AA. Therefore, Alternative AA was identified as the environmentally superior alternative. However, although Alternative AA was identified as the environmentally superior alternative, the District will be proceeding with the proposed project because it provides flood protection to 500 more parcels (i.e., protection from a 100-year [1%] flood event). The proposed project would also provide flood protection to El Camino Hospital, a critical local facility that would not be protected under Alternative AA. Alternative AA would provide less flood control protection compared with the proposed project and therefore would not meet the objectives of the project to the same degree as the project.~~

## POTENTIAL AREAS OF CONTROVERSY

During the Draft SEIR scoping process, a number of issues were raised that could be considered controversial. Key concerns included the following.

- Long-term impacts on recreational uses, including effects on the amount and quality of public access to existing trails and potential incompatibility of flood detention with some existing recreational uses.
- Effects on views of the natural landscape, markedly the surrounding mountains, from modified topography due to soil excavation.
- Possible exposure of toxic substances such as mercury with disturbance of soil.
- Potential effects on noise, air pollution, lighting, and traffic congestion due to hauling out large volumes of soil from Cuesta Annex and McKelvey Park.
- Construction effects associated with noise and traffic.
- Effects of project elements on biological resources, most notably the onsite mature trees.

A complete list of concerns raised by agencies and the public can be found in Appendix A.

Eight agencies, two organizations, and 23 members of the public commented on the Draft SEIR during the public review period. The main issues raised in the comments were:

- Clarification of historical flooding data related to Purpose and Need.
- Opposition to Cuesta Annex Detention Facility project element. Potential effects on noise, air pollution, and traffic congestion due to construction and hauling out large volumes of soil from Cuesta Annex.
- Disruption of park usage for Rancho San Antonio County Park, most notably park trails and parking during construction and areas used by model airplane flyers in the long term.
- Effects resulting from realigned ball fields and lighting on surrounding properties at McKelvey Park.

## ISSUES TO BE RESOLVED

Prior to implementation of the proposed project, the District will need to obtain significant easements and permits from the cities of Mountain View and Los Altos, and the County of Santa Clara. If any of the easements or permits cannot be obtained, that portion of the project will not be built. Until project approval, the District will also continue to work with stakeholders of affected facilities to refine proposed mitigation measures or develop suitable alternative measures to address identified potential significant impacts. A key component of stakeholder collaboration will be development of detention basin designs that ensure the new facilities offer a community benefit as well as providing needed flood protection.

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# ACRONYMS AND ABBREVIATIONS

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μ inch	microinch
AADT	average annual daily traffic
AB	Assembly Bill
ARB	California Air Resources Board
ASCA	American Society of Consulting Arborists
ATHS	Air Toxics Hot Spots
Bay	San Francisco Bay
BMPs	best management practices
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
Cal-OSHA	California Division of Occupational Safety and Health
CBC	California Building Code
CCAA	California Clean Air Acts
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CIWMB	California Integrated Waste Management Board
Clean, Safe Creeks Plan	Clean, Safe Creeks and Natural Flood Protection Plan
CMP	Congestion Management Program
CNPS	California Native Plant Society
CO	carbon monoxide
CO <sub>2</sub> e	carbon dioxide equivalent
County	County of Santa Clara
CRHR	California Register of Historical Resources
CWA	Clean Water Act
cy	cubic yards
dB	decibel
dBA	A-weighted decibel
DFG	California Department of Fish and Game
DP	diesel particulate matter
DTSC	California Department of Toxic Substances Control
DWR	California State Department of Water Resources
ESA	Endangered Species Act
FEIR	Final Environmental Impact Report
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GHG	greenhouse gas
GWP	global warming potential
HCD	Housing and Community Development
HI	hazard index
HLUET	Housing, Land Use, Environment, & Transportation

HRA	health risk assessment
in/sec	inches per second
ISA	International Society of Arboriculture
LARWQCB	Los Angeles Regional Water Quality Control Board
Ldn	day-night level
Leq	equivalent sound level
Leq 1h	1-hour A-weighted equivalent sound level
LOS	level of service
MCE	maximum credible earthquake
MMP	mitigation and monitoring plan
MROSD	Mid-Peninsula Regional Open Space District
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act
NO2	nitrogen dioxide
NOC	Notice of Completion
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination
NPL	National Priority List
NRHP	National Register of Historical Places
NSR	New Source Review
O3	ozone
PG	professional geologist
PM	particulate matter
PM10	PM less than 10 microns in diameter
PM2.5	PM less than 2.5 microns in diameter
ppb	parts per billion
PPV	peak particle velocity
PRC	California Public Resources Code
Project, proposed project	Permanente Creek Flood Protection Project
ROW	right-of-way
RWQCB	San Francisco Bay Regional Water Quality Control Board
RWQCP	Regional Water Quality Control Plant
SCCVCD	Santa Clara County Vector Control District
SCVURPPP	Santa Clara Valley Urban Runoff Pollution Prevention Program
SEIR	Subsequent Environmental Impact Report
SIL	Significant Impact Level
SLE	St. Louis Encephalitis Virus
SMARA	Surface Mining and Reclamation Act of 1975
SMP	Stream Maintenance Program
SO2	sulfur dioxide
SR	State Route
Superfund Act	Comprehensive Environmental Response, Compensation, and Liability Act

SVP	Society of Vertebrate Paleontology
SWPPP	stormwater pollution prevention plan
TAC	toxic air contaminant
TCE	trichloroethene
TNM	Traffic Noise Model
USACE	U.S. Army Corps of Engineers
UWMP	Urban Water Management Plan
V/C	volume-to-capacity ratio
VdB	vibration decibel level
VOC	volatile organic chemical
VTA	Santa Clara Valley Transportation Authority
WEE	Western Equine Encephalomyelitis Virus
WNV	West Nile Virus

**VOLUME II. PERMANENTE CREEK FLOOD PROTECTION PROJECT FINAL  
SUBSEQUENT ENVIRONMENTAL IMPACT REPORT—  
APPENDICES**

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**Appendix G: Bay Area Air Quality Management District (BAAQMD) CEQA  
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# CHAPTER 1. INTRODUCTION

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This document is the ~~Final draft~~ Subsequent Environmental Impact Report (SEIR). It analyzing analyzes the environmental effects of the Santa Clara Valley Water District's (District's) modified proposed Permanente Creek Flood Protection Project (Project, proposed project). The Draft SEIR was circulated for a 45-day state agency review period from July 18, 2012, through September 3, 2012. All comments received during the review period appear in Appendix E, along with lead agency responses. Changes and updates made in the text of this SEIR as a result of comments received appear in underline (insertions) and strikeout (deletions). This document is an SEIR to the District's June 2010 Final Environmental Impact Report (FEIR) for the Permanente Creek Flood Protection Project (District 2010). Subsequent to certification of the FEIR (June 2010), it was determined during design development that modifications to the Project would be necessary. Environmental impacts that would result with changes to the Project are analyzed in this SEIR. The proposed project would provide flood protection along Permanente Creek from Foothill Expressway to San Francisco Bay (Bay) pursuant to the District's Clean, Safe Creeks and Natural Flood Protection Plan (Clean, Safe Creeks Plan).

According to Section 15162 of the California Environmental Quality Act (CEQA) Guidelines, when an EIR has been certified or a negative declaration adopted for a project, an SEIR shall be prepared for that project if the lead agency determines, based on substantial evidence in the light of the whole record, one or more of the following:

- Substantial changes are proposed in the project which will require major revisions of the previous EIR or Negative Declaration (ND) due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
- Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR or ND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
- New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the ND was adopted, shows any of the following:
  - The project will have one or more significant effects not discussed in the previous EIR or ND;
  - Significant effects previously examined will be substantially more severe than shown in the previous EIR;
  - Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
  - Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.



Consistent with Section 15150 of the CEQA Guidelines, the following document was used in the preparation of this document and is incorporated herein by reference:

- ICF International, *Final Environmental Impact Report, including Technical Studies*, prepared for the Santa Clara Valley Water District, June 2010.

This SEIR has been prepared in compliance with CEQA to provide an objective analysis to be used by the lead agency (the Santa Clara Valley Water District), as well as other agencies and the public, in their considerations regarding the implementation, rejection, or modification of the Project as proposed. The SEIR itself does not determine whether the Project will be implemented or not; it serves only as an informational document in the local planning and decision-making process. Following public review of this SEIR, the District's Board of Directors will use the information it contains, together with comments submitted by other agencies and the public during the SEIR review period, to evaluate if and how the Project should proceed. The cities of Mountain View and Los Altos, and the ~~Santa Clara County (County)~~ ~~County of Santa Clara~~ Board of Supervisors will use information in this SEIR in deciding whether to allow the Project to construct facilities on city- or County-owned properties, and resource agencies such as the California Department of Fish and Game (DFG) and the San Francisco Bay Regional Water Quality Control Board (RWQCB) will use SEIR analyses in assessing whether to grant permits necessary for the Project to proceed.

## BACKGROUND

Recurrent flooding along Permanente Creek represents a long-term hazard to public safety, property values, and economic stability in the cities of Mountain View, Los Altos, and Cupertino. The Permanente Creek watershed has a history of recurring floods that have adversely affected the safety and economic stability of residences and businesses within the floodplain. Flooding in the Permanente Creek watershed has been documented as far back as 1868, with additional events in 1911, 1940, 1950, 1952, 1955, 1958, 1963, 1968, 1983, 1995, and 1998. Figure 4-1 shows the locations of the most recent flooding. Over the years, the District and other local agencies have undertaken a number of projects to improve flood protection for land uses adjacent to Permanente Creek, including construction in 1959 of the Permanente Creek Diversion, designed to convey the majority of flood flows from the upper Permanente watershed to Stevens Creek upstream of Levin Avenue. In recent decades, however, economic and public safety risks have continued to worsen as the area's primary economic base has shifted from agriculture to light industry/high technology and development has become increasingly dense. Hydraulic models for Permanente and Hale Creeks now identify some 3,170 parcels at risk of flooding in a 1% ("100-year") event.<sup>1</sup> Additional improvements are necessary to ensure an adequate level of protection, and aging infrastructure—much of it installed in the 1960s—needs repair or replacement.

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<sup>1</sup> The 1% flood refers to the level of flooding that has a 1% chance of occurring in any given year. It is sometimes also called the 100-year flood because this level of event is expected to occur at least once every 100 years on average. However, because the 1% probability of occurrence remains constant from year to year, such flooding may actually occur more or less frequently. That is, a 1% flood event occurring in one year does not preclude a similar event in any of the next 99 years; alternatively, the actual interval between so-called 100-year floods may be much greater than 100 years. Nonetheless, this magnitude of event—large, severe, and fairly infrequent, but still expected to occur within the lifespan of many projects—provides a widely accepted standard for flood protection planning.

The proposed project was initiated under the District's Clean, Safe Creeks Plan, which was developed to ensure that the District meets its flood protection responsibilities in a way that is consistent with its overall mission to provide environmentally sensitive water resources management. The Clean, Safe Creeks Plan also reflects the idea that a properly managed stream or river corridor can and should support multiple objectives that benefit the community and the natural environment.

## RELATIONSHIP WITH OTHER PROJECTS

To provide effective flood protection, the Project must function as part of an integrated whole with other projects proposed for the segment of Permanente Creek and Mountain View Slough downstream from the project corridor. As a result, although it is a completely separate effort, the Project is being developed to coordinate with the South Bay Salt Ponds Restoration Project and the South San Francisco Bay Shoreline Study.

The South Bay Salt Ponds Restoration Project will restore tidal connectivity to some 15,000 acres of former salt evaporation ponds recently acquired from Cargill Inc. by a coalition of federal and state resource agencies and private foundations. Additional goals include providing opportunities for public access and recreational use and improving South San Francisco Bay flood management. For more information on the South Bay Salt Ponds Restoration Project, see the project web page at <http://www.southbayrestoration.org/index.html>.

The South San Francisco Bay Shoreline Study is a joint undertaking by the U.S. Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service, California Coastal Conservancy, and local sponsors, including the District, and is aimed at identifying one or more projects for flood damage reduction and ecosystem restoration to be recommended for federal funding. For more information on the South San Francisco Bay Shoreline Study, see the project web page at <http://www.southbayshoreline.org/index.html>.

## LEAD, RESPONSIBLE, AND TRUSTEE AGENCIES FOR THIS SEIR

The District is the lead agency for CEQA compliance for the proposed project. The following agencies have been identified as responsible agencies (i.e., additional public agencies that have discretionary approval authority over the Project, per Section 15381 of the CEQA Guidelines) and/or trustee agencies (i.e., those that have jurisdiction by law over natural resources affected by a project and held in trust for the people of California, per CEQA Guidelines Section 15386).

- USACE (responsible).
- DFG (responsible and trustee).
- San Francisco Bay RWQCB (responsible).
- County of Santa Clara (responsible).
- County of Santa Clara Parks and Recreation Department (responsible)

- City of Mountain View (responsible).
- City of Los Altos (responsible).
- City of Cupertino (responsible).

## **PUBLIC AND AGENCY INVOLVEMENT IN SEIR PROCESS**

CEQA mandates specific periods during the compliance process when public and agency comments on the proposed activities and ~~draft~~Final SEIR are solicited: during the scoping comment period, during the review period for the draft document, and prior to the lead agency's certification of the Final SEIR. Lead agencies are also encouraged to hold public meetings or hearings during review of the ~~draft~~Final SEIR. Brief descriptions of these milestones are provided below, because they apply to this document.

### ***SCOPING COMMENT PERIOD***

*Scoping* refers to the public outreach process used under CEQA to determine the coverage and content of an EIR. Scoping is initiated when the lead agency issues a formal Notice of Preparation (NOP) announcing the beginning of the EIR process. The District submitted the NOP for the proposed project to the State Clearinghouse on July 1, 2011. As required by CEQA Guidelines Section 15082, the NOP provided information on the background, goals, and objectives of the proposed project; announced preparation of and requested public and agency comment on the SEIR; and provided information on the public scoping meetings to be held in support of the SEIR.

A public scoping meeting was held on July 13, 2011, at the Santa Clara Valley Water District headquarters at 5700 Almaden Expressway, San Jose. At the meeting, District staff welcomed the meeting attendees and provided the meeting's agenda. The meeting consisted of a presentation of the revised Project by the District, an overview of the environmental review process and schedule by the District's environmental planner, and a comment session to give attendees an opportunity to present their comments or questions on the Project verbally. To accurately document the verbal comments, speaker cards were provided for presenters, and a court reporter was also present to record all comments. Additionally, comment cards were distributed for attendees that preferred to write down their comments rather than speak publicly. Attendees were given the option of completing the form at the meeting or mailing it to the District prior to the close of the scoping period (August 3, 2011). Attendees were also recommended to visit the District's website where they could review additional information on the Project.

Appendix A provides a scoping summary report that further describes the scoping process undertaken by District staff. It also summarizes agency and public comments received during the scoping process. All comments are provided in their entirety in the scoping report including a transcript of the public scoping meeting, which includes all verbal comments.

### ***PUBLIC AND AGENCY REVIEW OF DRAFT SEIR***

Once the Draft SEIR ~~is~~was completed, the lead agency ~~must notify~~notified agencies and the public that it ~~is~~was available for review. The official notification, referred to as a Notice of Completion (NOC), ~~is~~was sent to the State Clearinghouse; CEQA also requires that the lead

agency provide written notice of the draft document's availability to the County Clerk's office for posting and to any other parties who have requested it. The NOC must also be published in a general-circulation newspaper, posted on and off the project site, or mailed to residents of properties adjacent to the project site. Issuance of the NOC ~~initiates~~initiated a public review period during which the lead agency ~~receives~~received and ~~collates~~collated public and agency comments on the proposed project and the document.

The District ~~circulated~~is now circulating ~~this~~ the Draft SEIR for a 45-day public review and comment period, which ~~will started~~started July 18, 2012, and ~~concluded on~~concluded September 3, 2012. The purpose of public circulation ~~is was~~ to provide agencies and interested individuals with opportunities to comment on or express concerns regarding the contents of the Draft SEIR.

~~Please submit any comments regarding this~~Comments regarding the Draft SEIR were submitted by September 3, 2012, to:

Kurt Lueneburger  
Santa Clara Valley Water District  
5750 Almaden Expressway  
San Jose, CA 95118-3686  
email: KLueneburger@valleywater.org

## ***PREPARATION OF THIS FINAL SEIR***

Following public review of ~~this~~the Draft SEIR, the District's Board of Directors will use the information it contains, together with comments submitted by other agencies and the public, to evaluate how the Project should proceed. Before the lead agency can approve a project, it must prepare a Final SEIR that addresses the comments received on the draft document. This Final SEIR includes a revision of the Draft SEIR, public comments received on the Draft SEIR, responses to Draft SEIR comments, and appendices. The Final SEIR is required to include a list of all individuals, organizations, and agencies that provided comments and must contain the comments received during the public review period, along with the lead agency's responses. Please see Appendix E for these materials. In addition, as indicated above, some changes have been made in the text of the Draft SEIR to address points raised in the comments. These appear in underline (insertions) and strikeout (deletions).

## **PUBLIC AND AGENCY CONCERNS AND AREAS OF KNOWN CONTROVERSY**

Public, interest group, and agency comments on the proposed project during the scoping period are discussed further in the scoping summary in Appendix A. The scoping summary also includes all written and verbal comments. The following is a brief overview.

The majority of comments received from the public during scoping can be separated into the following basic areas of concern:

- Long-term impacts on recreational uses (Cuesta Annex and McKelvey Park baseball fields), including effects on the amount and quality of public access to existing trails and potential incompatibility of flood detention with some existing recreational uses.

- Disruption of park usage for Rancho San Antonio County Park, most notably park trails during construction.
- Possible exposure of toxic substances such as mercury and radon to water and soil with disturbance of soil.
- Effects of Project implementation on biological resources with request for additional information on the existing on-site vegetation, most notably onsite mature trees.
- Effects of Project elements on visual quality of the natural landscape, markedly the surrounding mountains with excavation of Cuesta Annex.
- Necessity of the Project in an area with a flood potential classified by the Federal Emergency Management Agency (FEMA) as having 1% chance of a 12-inch flood in 100 years.
- Potential effects on noise, air pollution, and traffic congestion due to construction and hauling out large volumes of soil from McKelvey Park.
- Identifying the placement location of excavated soil from Cuesta Annex and McKelvey Park and the resulting traffic impacts due to transporting soil.

Agency comments on the Project were received by three agencies, including the City of Mountain View Public Works Department (Mountain View Public Works), the Midpeninsula Regional Open Space District (MROSD), and the California Department of Transportation (Caltrans). These comments are summarized below.

The Mountain View Public Works Department's concerns about the Project included the following: (1) the SEIR should specifically state that only the westerly floodwall would be adjusted since the easterly floodwall has already been constructed; and (2) the NOP did not discuss the loss of the Blach Intermediate School flood detention area and the proposed modification that would result in several dozen Mountain View residences between Blach Intermediate School and Cuesta Drive no longer being protected from the 100-year flood. The department also comments that according to its understanding, these homes would eventually be protected when the District is able to fund its Phase II effort.

MROSD's concerns about the Project include the potential effects on recreation, traffic (including parking), aesthetics, biological resources, public safety, water quality, noise, and dust. In addition to these concerns, MROSD suggested a number of approaches to help mitigate these effects, including constructing the proposed new parking area ahead of removing any existing parking and establishing alternative trails if any trail connection is severed and limiting temporary closures to weekdays.

The key concern from Caltrans is for the Project's traffic impact study to identify impacts on all affected State Highway facilities instead of conforming strictly to the County's Congestion Management Program. Caltrans encourages the District and the County to coordinate preparation of the study with Caltrans to help sharpen the focus of the Project's scope of work. Caltrans also provided a list of traffic issue areas that should be identified by the traffic study including providing Project impacts in terms of trip generation, distribution, and assignment including assumptions and methodologies used; and providing average daily traffic (ADT) and peak hour volumes on all significantly affected roadways.

Eight agencies, two organizations, and 23 members of the public commented on the Draft SEIR during the public review period. The main issues raised in the comments were:

- Clarification of historical flooding data related to Purpose and Need.
- Opposition to Cuesta Annex Detention Facility project element. Potential effects on noise, air pollution, and traffic congestion due to construction and hauling out large volumes of soil from Cuesta Annex.
- Disruption of park usage for Rancho San Antonio County Park, most notably park trails and parking during construction and areas used by model airplane flyers in the long term.
- Effects resulting from realigned ball fields and lighting on surrounding properties at McKelvey Park.

## ISSUES TO BE RESOLVED

Prior to implementation of the proposed project, the District will need to obtain easements and permits from the City of Mountain View and County of Santa Clara. If any of the easements or permits cannot be obtained, that portion of the project would not be built. Until Project approval, the District will also continue to work with stakeholders of affected facilities to refine proposed mitigation measures or develop suitable alternative measures to address identified potential significant impacts. A key component of stakeholder collaboration will be development of detention basin designs that ensure the new facilities offer a community benefit as well as providing needed flood protection.

## CONTENTS OF THIS ~~DRAFT~~ FINAL SEIR

### ***SEIR ORGANIZATION AND TOPICS COVERED***

In addition to this introduction, this ~~draft~~ Final SEIR contains chapters that describe the proposed project, discuss the proposed project's likely impacts on the project area's environmental resources, and evaluate its potential to contribute to cumulative (longer term and/or regional) impacts and induce growth. It also includes a list of key staff involved in preparing the document. This ~~draft~~ Final SEIR is organized into several sections by topic, as shown in Table 1-1.

**Table 1-1. ~~Draft~~ Final SEIR Organization**

<b>Section 1—Project Overview</b>	
Chapter 1	Introduction
Chapter 2	Project Description
<b>Section 2—Natural and Historical Resources</b>	
Chapter 3	Geology, Soils, and Mineral Resources
Chapter 4	Hydrology and Water Resources
Chapter 5	Biological Resources
Chapter 6	Cultural and Paleontological Resources
<b>Section 3—Infrastructure and Built Environment</b>	
Chapter 7	Aesthetics
Chapter 8	Transportation and Traffic

Chapter 9	Noise and Vibration
Chapter 10	Air Quality
Chapter 11	Hazardous Materials and Public Health
Chapter 12	Recreation
Chapter 13	Utilities and Service Systems and Energy

#### **Section 4—Impacts Summary and Other Required Analyses**

Chapter 14	Summary of Project Impacts
Chapter 15	Cumulative Impacts
Chapter 16	Growth Inducement and Related Impacts
Chapter 17	Alternatives to the Proposed Project
Chapter 18	List of EIR Preparers

#### **Appendices**

Appendix A	Scoping Summary
Appendix B	Relevant Regulations
Appendix C	Construction Noise Levels Calculation
Appendix D	Air Quality and Greenhouse Gas Emissions Calculations
<u>Appendix E</u>	<u>Public and Agency Comments and Lead Agency Responses</u>
<u>Appendix F</u>	<u>Mitigation, Monitoring, and Reporting Program</u>
<u>Appendix G</u>	<u>Bay Area Air Quality Management District (BAAQMD) CEQA Air Quality Guidelines</u>
<u>Appendix H</u>	<u>Traffic Calculations</u>

## ***TOPICS NOT COVERED IN DETAIL IN THIS SEIR***

The following topics commonly included in EIRs have been omitted from this document because they involve resources that would not be affected by the proposed project:

- Land use planning.
- Agricultural resources.
- Population and housing.
- Public services.

The paragraphs below briefly explain the reasons why detailed analysis of these topics is not needed in this ~~draft~~ Final SEIR.

### **Land Use Planning**

A project is typically considered to result in a significant impact on land use planning when it conflicts with applicable land use plans, regulations, policies, or zoning or results in physical division of an established community. The proposed project is intended to support local jurisdictions' land use planning by improving flood safety for existing and planned land uses in Los Altos, Cupertino, and Mountain View. Portions of the Project (floodwalls, channel improvements, New Permanente Diversion Structure) would be constructed within the District's

existing flood protection rights-of-way or easements. A temporary construction easement would be required for a small portion of privately owned property located at 935 Mountain View Avenue in the City of Mountain View (assessor’s parcel number [APN] 18903041); however, no structures would be removed, and no impacts would occur for the established community. Other project elements (flood detention facilities) proposed for park sites are consistent or conditionally consistent with existing land use designations and zoning at the proposed sites; moreover, these facilities would be constructed only with landowner consent.

Table 1-2, below, provides a consistency analysis of applicable land use and zoning designations of the project area. As shown, all project elements would be consistent with the applicable local land use plans and zoning ordinances. Additionally, All project elements and facilities would be designed to harmonize as much as possible with their surroundings (see Table 1-3) and, thus, would not create new physical barriers disrupting or dividing the established communities in the project area. Because the Project is intended to support local jurisdiction land use planning and is being designed for consistency with existing and planned land uses, the Project would not conflict with existing land use planning or divide existing communities, and impacts on land use planning are not discussed further in this SEIR.

**Table 1-2. Land Use and Zoning Consistency**

<u>Project Element</u>	<u>Land Use and Zoning Designation per Applicable Local Plan</u>	<u>Consistency Discussion</u>	<u>Consistency Determination</u>
<b>County of Santa Clara</b>			
<u>Rancho San Antonio County Park Flood Detention Facility</u>	<p><u>Land Use: Urban Service Area and Regional Parks [County of Santa Clara Land Use Plan, 2008]</u></p> <p><u>Zoning: Exclusive Agriculture (A Zone) [Santa Clara County Zoning Atlas, 2007]</u></p>	<p><u>This project element occurs on property owned by the County of Santa Clara, which falls within the boundaries of both unincorporated County land and the City of Cupertino. Although construction activities will occur entirely within the City of Cupertino, the County maintains some approval authority over the project because the property boundary also extends into County land. The County portion of the park property is within the Urban Service Area and Regional Parks land use designations of the Santa Clara County General Plan and the Exclusive Agriculture zone (A Zone) of the Santa Clara County Zoning Ordinance. The Urban Service Area includes areas of the County generally suited for urban development that cities are willing and able to provide with necessary urban services within the next 5 years. The Regional Parks land use designation provides for an adequate system of uncrowded regional parks and public open space lands for County residents and workers [County of Santa Clara General Plan (1995–2010)]. The intent of the Exclusive Agriculture zone is to reserve those lands most suitable for agricultural production for agriculture and appropriate related uses. Major utilities and public facilities (i.e., flood control or drainage facilities) are allowed with approval of a Conditional Use Permit granted by the County Planning Commission [County of Santa Clara Zoning Ordinance, 2010].</u></p> <p><u>Implementation of this project element would involve development of a new flood detention</u></p>	<u>Consistent ✓</u>



<b><u>Project Element</u></b>	<b><u>Land Use and Zoning Designation per Applicable Local Plan</u></b>	<b><u>Consistency Discussion</u></b>	<b><u>Consistency Determination</u></b>
		<p>basin in an area that currently consists of ruderal fields in two undeveloped portions of Rancho San Antonio County Park. The District would be required to obtain an easement for detention use and maintenance activities. Other project features of this element, including a new spill structure, and underground pipes are within areas owned by the District. With approval of the required Conditional Use Permit and easements for the proposed basin, this project element would not conflict with the County's applicable land use and zoning designations.</p>	
<b>City of Los Altos</b>			
<p><u>New Permanente Diversion Structure</u></p>	<p><u>Land Use: Public and Institutional [City of Los Altos Land Use Policy Map, 2010]</u> <u>Zoning: District Right-of-Way within Public and Community Facilities [City of Los Altos Zoning Map, 2010]</u></p>	<p>The City of Los Altos' Public and Institutional land use designation provides for uses that include governmental facilities, community services, institutional facilities, utilities easements, and designated rights-of way [City of Los Altos General Plan, 2002–2020]. Zoning in the area consists of Public and Community Facilities (PCF). With approval of a Conditional Use Permit, public utility and public service structures and installations are allowed [City of Los Altos Code of Ordinances, Title 14 – Zoning, 2012]. This project element would replace the existing diversion structure and culvert along the current alignment entirely within the District's existing right-of-way (ROW); therefore, there would be no land use change and no long-term land use impacts. With approval of a Conditional Use Permit, this project element is consistent with the City's applicable land use and zoning designations.</p>	<p><u>Consistent ✓</u></p>
<p><u>Channel Improvements</u></p>	<p><u>Land Use: Open Space (Creeks) [City of Los Altos General Plan, 2002–2020]</u> <u>Zoning: Predominantly within a District ROW within a Residential Single-Family zone (R1-10 Zone) [City of Los Altos Zoning Map, 2010]</u></p>	<p>The Open Space land use designation of the Los Altos General Plan provides for managed production of resources and the protection of health and public safety. Areas designated Open Space include waterways, public and private open space, and open space easements [City of Los Altos General Plan, 2002–2020]. This project element traverses through the City's Single-Family Residential zone, which conditionally allows pre-existing community facilities, including public utility service structures and installations, to remain, expand, and/or renovate within the site area and physical parcel boundaries that currently exist [City of Los Altos Code of Ordinances, Title 14 – Zoning, 2012]. The project element involves improvements to the existing channel that would occur predominantly within the District's existing ROW; therefore, there would be no land use change and no long-term land use impacts. Areas outside the District's existing ROW would require easements from the City and private entities, and some sections of channel work may also require temporary construction easements. Additionally,</p>	<p><u>Consistent ✓</u></p>

<b><u>Project Element</u></b>	<b><u>Land Use and Zoning Designation per Applicable Local Plan</u></b>	<b><u>Consistency Discussion</u></b>	<b><u>Consistency Determination</u></b>
		<p>replacement of creek culverts would occur within existing road rights-of way, which would require the District to apply for City encroachment permits. With approval of all required permits, this project element would be consistent with the applicable City land use and zoning designations.</p>	
<b><u>City of Mountain View</u></b>			
<p><u>McKelvey Park Flood Detention Facility</u></p>	<p><u>Land Use: Public and Institutional (parks, schools, and city facilities) and Medium-Density Residential [City of Mountain View General Land Use Map, 2012]</u> <u>Zoning: Special Purpose, Public Facility (PF Zone) and Residential Districts, Single-Family (R1 Zone) and Multiple-Family (R3 Zone) [City of Mountain View Zoning Map, 2012]</u></p>	<p>The Public and Institutional land use designation supports uses related to government facilities such as schools, parks, and other facilities owned and operated by the City of Mountain View [Mountain View 2030 General Plan]. A portion of the project element also occurs within the Medium-Density Residential land use designation, which allows primarily multi-family housing such as apartments and condominiums, with shared open space provided for common use [Mountain View 2030 General Plan]. The park is zoned Public Facility, and a portion of the project element occurs within residential districts (R1 and R3 zones), as designated by the City of Mountain View Zoning Ordinance. Principal permitted uses of the Public Facility zoning designation include parks, such as currently provided on site, and allowed conditional uses include utility structures and uses with approval of a Conditional Use Permit granted by the City of Mountain View Zoning Administration. Similarly, the R1 and R2 zoning designations would allow public utility or safety facilities with the city's approval of a Conditional Use Permit [Mountain View City Code, Title 36 – Zoning Ordinance, 2012].</p> <p>The project proposes construction of an offstream flood detention basin at the park. Existing recreation uses at the park, including baseball fields, would be redesigned to accommodate the new basin by lowering the fields to a new ground level. All existing recreational use would be entirely restored after implementation of the basin. The District would seek an easement and applicable permits for detention use and maintenance activities for the basin, plus a small easement would be purchased from a private parcel for inlet construction. With approval of all required easements and permits, this project element would be consistent with the applicable city land use and zoning designations.</p>	<p><u>Consistent ✓</u></p>
<p><u>Channel Improvements</u></p>	<p><u>Land Use: Low- and Medium-Density Residential (Creeks) [City of Mountain View General Plan 2030]</u> <u>Zoning: Residential Districts, Single-Family (R1 Zone) and One-</u></p>	<p>This project element traverses through Low- and Medium-Density Residential land use designations of the City of Mountain View General Plan. Primary land uses within this designation include both single-family housing and a mix of single- and multi-family housing [Mountain View 2030 General Plan]. Zoning in this area includes residential districts (R1 and R2 zones), which</p>	<p><u>Consistent ✓</u></p>

<b><u>Project Element</u></b>	<b><u>Land Use and Zoning Designation per Applicable Local Plan</u></b>	<b><u>Consistency Discussion</u></b>	<b><u>Consistency Determination</u></b>
	<p>and Two-Family (R2 Zone) [<i>City of Mountain View Zoning Map, 2012</i>]</p>	<p>include primarily single- and multiple-family housing, and public utility or safety facilities are allowed with the city's approval of a Conditional Use Permit [<i>Mountain View City Code, Title 36 – Zoning Ordinance, 2012</i>].</p> <p>Improvements to the existing channel, as proposed by this project element, would occur mainly within the District's existing ROW, with easements needed from City and private entities; therefore, there would be no land use change and no long-term land use impacts. Some sections of channel work may require temporary construction easements. Replacement of creek culverts would occur within existing road rights-of-way, and the District would need to apply for city encroachment permits. With approval of all required permits, this project element would be consistent with the city's applicable land use and zoning designations.</p>	
<p><u>Floodwalls and Levees Downstream of US-101</u></p>	<p><u>Land Use: High-Intensity Office and Regional Park (Creeks) [<i>City of Mountain View General Plan 2030</i>]</u></p> <p><u>Zoning: Special Purpose, Planned Community/Precise Plan (P Zone) [<i>City of Mountain View Zoning Map, 2012</i>]</u></p>	<p>This project element occurs within existing levees along Permanente Creek and crosses two land use designations of the City of Mountain View General Plan. The northern portion of this project element is within the Regional Park designation, and the southern section is within the High-Intensity Office designation. Regional Park includes land for larger open space and recreational facilities and allows utility uses. High-Intensity Office areas support technological advancement and research and development and allow uses such as office and ancillary commercial, light industrial, and light manufacturing [<i>Mountain View 2030 General Plan</i>]. The zoning designation for this project element is Planned Community/Precise Plan under the Special Purpose zoning of the City of Mountain View Zoning Ordinance. This zone is designed to provide for those uses or combinations of uses that may be appropriately developed as a planned area development. A planned community permit is required prior to the development of any use (other than crop and tree farming) within a P Zone [<i>Mountain View City Code, Title 36 – Zoning Ordinance, 2012</i>].</p> <p>Implementation of this project element would entail installation of new floodwalls and improvements to the existing levees along the western side of Permanente Creek. Most work would occur within the District's existing ROW, and new easements, including temporary construction easements, would be needed from the City of Mountain View. Additionally, some flood-proofing activities would require an easement from a private owner. With approval of the required easements and permits, this project element would be consistent with the city's</p>	<p>Consistent ✓</p>

<u>Project Element</u>	<u>Land Use and Zoning Designation per Applicable Local Plan</u>	<u>Consistency Discussion</u>	<u>Consistency Determination</u>
		applicable land use and zoning designations.	
<b>City of Cupertino</b>			
<u>Rancho San Antonio County Park Flood Detention Facility</u>	<p><u>Land Use: Parks and Open Space (Creeks) [City of Cupertino General Plan, 2000–2020]</u></p> <p><u>Zoning: Open Space/Public Park/Recreational Zone [City of Cupertino Zoning Map, 2012]</u></p>	<p>As stated previously, this project element occurs on property owned by the County of Santa Clara, which falls within the boundaries of both unincorporated County land and the City of Cupertino. The detention facility and other proposed improvements would be located within the City of Cupertino city limits. The site for this project element is located within the Parks and Open Space land use designation of the City of Cupertino General Plan and includes areas owned by the Santa Clara County Parks Department. This site is also within the city's Open Space/Public Park/Recreational Zone. Implementation of this project element would involve development of a new flood detention basin in an area that now consists of ruderal fields in two undeveloped portions of the park and is permitted by the City's land use and zoning regulations. However, as stated above, the District would be required to obtain Conditional Use Permit approval and an easement for detention use and maintenance activities from the County of Santa Clara. Other project features of this element, including a new spill structure and underground pipes, would be within areas owned by the District on adjacent properties. The District will seek a tree removal permit from the City of Cupertino.</p>	<p><u>Consistent ✓</u></p>

**Table 1-3. Compatibility with Surrounding Land Uses:**

<b>Project Element</b>	<b>Surrounding Land Use</b>	<b>Compatibility Discussion</b>	<b>Compatibility Determination</b>
<b>County of Santa Clara</b>			
<u>Rancho San Antonio County Park Flood Detention Facility</u>	<u>The site for this proposed project element is surrounded by park uses. Adjacent to the park are very low-density single-family residential uses and a 50-acre cemetery.</u>	<u>Implementation of this project element would involve development of a new flood detention basin in an area that currently consists of ruderal fields in two undeveloped portions of the Rancho San Antonio County Park. Park uses surround this element; farther from the project site and adjacent to the park are very low-density single-family residential uses. The Gate of Heaven, a 50-acre cemetery and funeral home, is located in the immediate vicinity. Development of a detention facility would be compatible with surrounding park uses because the detention facility would be a natural feature and would not detract from the character and use of the park. The detention facility would blend into the surrounding landscape and support the same vegetation as what exists currently. The planned restrooms would be a park utility that would be designed similar to other utility buildings at the park. Therefore, the proposed elements at Rancho San Antonio County Park would be compatible with surrounding land uses.</u>	<u>Compatible ✓</u>
<b>City of Los Altos</b>			
<u>New Permanente Diversion Structure</u>	<u>Adjacent to this project element are single-family/small-lot uses on all sides of the site. Farther from the site, the surrounding neighborhood includes a few public and institutional uses.</u>	<u>This project element would replace the existing diversion structure and culvert along the current alignment, entirely within the District's existing ROW. Use of the site would remain the same after implementation of the proposed improvements. Additionally, the site for this element is not readily available to the public because of the District's ROW and residential fencing and landscaping. Therefore, this project element would be compatible with its surrounding land uses.</u>	<u>Compatible ✓</u>
<u>Channel Improvements</u>	<u>This project element would occur along a channel alignment that is completely surrounded by single-family residential development.</u>	<u>Proposed improvements to the existing channel, as proposed in this project element, involve replacing the existing concrete channel with a new U-shaped concrete channel. Surrounding residential uses are currently separated from the creek by fences and landscaping, and there is no pedestrian access to the channel alignment. Implementation of this project element would not change the current use of the site. Therefore, no new compatibility issues between the site and surrounding land uses with implementation of this project element would occur.</u>	<u>Compatible ✓</u>
<b>City of Mountain View</b>			
<u>McKelvey Park Flood Detention Facility</u>	<u>The site for this project element includes McKelvey Park, which is surrounded by low-to medium-high-density residential</u>	<u>Implementation of this project element would involve construction of an offstream flood detention basin at McKelvey Park. Existing recreation uses at the park, including baseball fields, would be redesigned to accommodate the new basin by lowering the fields to a new ground level. All existing recreational use would be entirely restored after implementation of</u>	<u>Compatible ✓</u>

<b><u>Project Element</u></b>	<b><u>Surrounding Land Use</u></b>	<b><u>Compatibility Discussion</u></b>	<b><u>Compatibility Determination</u></b>
	<u>uses. Farther from the site, development includes mixed-use and office uses.</u>	<u>the basin, and new facilities added would be designed in collaboration with the City of Mountain View and other stakeholders to ensure that the park continues to offer long-term benefits to recreational users. Because implementation of this project element would not change the existing use of the site and the site would continue to be used as a park, this project element would be compatible with surrounding uses.</u>	
<u>Channel Improvements</u>	<u>This project element would occur along a channel alignment that is completely surrounded by single-family residential development.</u>	<u>The project proposes improvements to the existing channel involving the replacement of the existing concrete channel with a new U-shaped concrete channel. Surrounding residential uses are currently separated from the creek by fences and landscaping, and there is no pedestrian access to the channel alignment. Implementation of this project element would not change the current use of the site. Therefore, the improvements would be compatible with the surroundings.</u>	<u>Compatible ✓</u>
<u>Floodwalls and Levees downstream of US-101</u>	<u>The southern portion of this project element would be surrounded by high-intensity office uses, and the northern section would be within Regional Park land uses.</u>	<u>This project element would entail installation of new floodwalls and improvements to the existing levees along the western side of Permanente Creek. Implementation of this project element would not change the current use of the site. Pedestrian access would remain available throughout construction, and the pedestrian trail on the western bank would be restored to full use. Therefore, this project element would be compatible with surrounding uses.</u>	<u>Compatible ✓</u>
<b><u>City of Cupertino</u></b>			
<u>Rancho San Antonio County Park Flood Detention Facility</u>	<u>The site for this proposed project element is surrounded by park uses. Adjacent to the park are very low-density single-family residential uses and a 50-acre cemetery.</u>	<u>Implementation of this project element would involve development of a new flood detention basin in an area that currently consists of ruderal fields in two undeveloped portions of Rancho San Antonio County Park. Park uses surround this element; farther from the project site and adjacent to the park are very low-density single-family residential uses. The Gate of Heaven, a 50-acre cemetery and funeral home, is located in the immediate vicinity. Development of a detention facility would be compatible with surrounding park uses because the detention facility would be a natural feature that would not detract from the character and use of the park. The detention facility would blend into the surrounding landscape and support the same vegetation as what exists currently. The planned restrooms would be a park utility that would be designed similar to other utility buildings at the park. Therefore, the proposed elements at Rancho San Antonio County Park would be compatible with surrounding land uses.</u>	<u>Compatible ✓</u>

## Agricultural Resources

Changes in the status of agricultural lands may constitute significant impacts under CEQA; examples include direct conversion of state-designated Important Farmlands to nonagricultural use, conflict with Williamson Act (California Land Conservation Act) contracts, and various other types of environmental changes that have the potential to result indirectly in conversion of farmland to nonagricultural use. However, agriculture is a minimal land use in the project area; none of the project sites are agricultural and there are no agricultural lands in the project corridor. Moreover, the Project would not alter land use planning or the overall mosaic of land uses in the project area. Consequently, the District has concluded that the Project does not have the potential to contribute directly or indirectly to conversion of farmland to nonagricultural use, and agricultural resources are not discussed further.

## Population and Housing

A project is typically considered to have a significant impact on population or housing if it displaces a substantial number of people or a substantial number of existing housing units. The proposed project would include components constructed within existing District rights-of-way and/or easements, as well as components proposed for construction on public lands. Additionally, construction of the McKelvey Park Flood Detention Facility would require a permanent easement along the existing channel, and a temporary construction easement for an existing single-family residential unit located at 935 Mountain View Avenue in the City of Mountain View (APN 18903041). However, no structures would be removed. Since there is no displacement of residences, implementation of the Project would not necessitate construction of replacement housing elsewhere; therefore, there would be no impact. If anything, the increased flood protection offered by the Project is expected to make existing residential areas along the Permanente Creek corridor even more stable and desirable over the long term. No adverse impacts on population or housing are anticipated, and these issues are not discussed further.

## Public Services

A project is typically considered to have a significant impact on public services if it would create a need for new police or fire stations, schools, or other public facilities. Because the Project would not increase population, it would not increase demand for public services including police, fire, and schools; therefore, these issues are not discussed further.

## THRESHOLDS OF SIGNIFICANCE AND LEVEL OF EFFECT

CEQA requires an EIR to identify “significant” impacts—that is, impacts that exceed an adopted threshold of severity and thus require *mitigation* (i.e., measures or activities adopted to avoid the impact, reduce its severity, or compensate for it). Each chapter in this SEIR identifies the criteria used to assess the potential severity of the proposed project’s effects on the resource discussed in that chapter. To provide the degree of specificity required by CEQA and the CEQA Guidelines, the following terminology is used to evaluate the level of significance of impacts:;

- A finding of *no impact* is made when the analysis concludes that a proposed project would not affect the particular environmental resource.
- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.
- An impact is considered *less than significant with mitigation* if the analysis concludes that there would be no substantial adverse change in the environment with the inclusion of the mitigation measure(s) described.
- An impact is considered *significant* or *potentially significant* if the analysis concludes that there could be a substantial adverse effect on the environment.
- An impact is considered *significant and unavoidable* if the analysis concludes that there could be a substantial adverse effect on the environment and no feasible mitigation measures are available to reduce the impact to a less-than-significant level.
- An impact is considered *beneficial* if the analysis concludes that there would be a positive change in the environment.



## REFERENCES

Santa Clara Valley Water District (District). 2010. *Permanente Creek Flood Protection Project Final Environmental Impact Report*. June. San Jose, CA.

## CHAPTER 2. PROJECT DESCRIPTION

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This chapter describes the initial flood projection project, as analyzed in the 2010 Final Environmental Impact Report (FEIR) and the subsequently proposed project analyzed in this Subsequent Environmental Impact Report (SEIR). The project information outlined below is separated into the following topics:

- Location,
- Project Goal and Objectives,
- Permit Approvals (required to implement the project),
- Project Elements,
- Construction Process,
- Design Commitments,
- Project Maintenance, and
- Best Management Practices (BMPs) (implemented to avoid or reduce adverse effects of construction and maintenance).

### PERMANENTE CREEK AND PROJECT LOCATION

Permanente Creek is a perennial stream that originates approximately 2,800 feet above sea level in the Santa Cruz Mountains and drains a 28-square-mile watershed, traversing 13 linear miles through the town of Los Altos Hills and the cities of Los Altos, Cupertino, and Mountain View before discharging into South San Francisco Bay via Mountain View Slough. Hale Creek, a principal tributary, joins Permanente Creek approximately 0.5 mile upstream of El Camino Real in the City of Mountain View. The last 2.5 miles of Permanente Creek upstream of the Bay are tidally influenced.

Existing land uses adjacent to Permanente Creek range from open space in the creek's upper reaches to residential development in the cities of Mountain View and Los Altos and commercial and light industrial uses approaching Mountain View's Bay margin. Immediately upstream of Permanente Creek's point of discharge into Mountain View Slough it crosses through Shoreline Park in Mountain View.

Much of Permanente Creek's urban length has been channelized or otherwise improved for flood protection. However, portions remain unlined or only minimally altered and continue to provide important habitat for wildlife. For example, upstream of the confluence of Hale Creek, Permanente Creek supports a well-developed riparian corridor, and marsh habitat is present downstream of the Bayshore Freeway crossing. A variety of common and special-status fish, wildlife, and bird species are known to use Permanente Creek and Mountain View Slough.

Figure 2-1 shows the location of the proposed project. Project improvements would be constructed in several places along Permanente Creek, from Foothill Expressway to north of Amphitheatre Parkway and along Hale Creek from Foothill Expressway to the confluence with Permanente Creek. The proposed project would also construct offstream flood detention facilities at Rancho San Antonio County Park in and adjacent to the City of Cupertino and at the ~~Cuesta Annex~~ and McKelvey Park in the City of Mountain View.

## PROJECT GOAL AND OBJECTIVES

The goal of the proposed project is to provide 1% flood protection<sup>1</sup> for residents and businesses along the Permanente Creek corridor.

Consistent with the District's Clean, Safe Creeks Plan and Ends Policies, the Project's specific objectives include the following:

- Providing flood protection to the citizens of Mountain View and Los Altos, including at least 1,664 parcels (1,378 homes, 160 businesses, and four schools/institutions), in Mountain View north of El Camino Real from a 100-year (1%) flood.
- Preventing flooding of Middlefield Road and Central Expressway.
- Providing natural flood protection through a multiple-objective approach that addresses environmental quality, community benefit, and flood protection in a cost-effective manner based on integrated planning and management in light of Permanente Creek's physical, hydrologic, and ecologic functions and processes within the community setting.
- Addressing the deterioration of aging facilities of the existing flood-control channel along Permanente Creek and Hale Creek.
- Identifying opportunities for environmental enhancements such as stream restoration, trails, parks, and open space for consideration by the District's Board.
- Minimizing long-term maintenance costs.

## REQUIRED PERMITS AND APPROVALS

The proposed project would be subject to the numerous federal, state, and local regulations that protect various aspects of environmental quality. More detailed information on regulatory requirements is provided in Chapters 3 through 13 and Appendix B. Table 2-1 presents a summary of permit requirements organized by the agency with jurisdiction.

## 2010 FEIR ELEMENTS AND RELATION TO THIS SEIR

The 2010 FEIR prepared for this Project was certified by the District's board on June 17, 2010. Initially, the proposed project, as analyzed in the 2010 FEIR, consisted of a flood protection project that included elements such as new flood detention facilities and channel widening activities. During design development for the project, it was determined that to meet the project objectives several of the project elements would need to be redesigned, some omitted, and some added. The major elements of the initial project and their modifications with incorporation of the new project are listed below. Also listed are the initial project elements that were completely eliminated and, therefore, not analyzed in this SEIR.

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<sup>1</sup> See Background section in Chapter 1 for a definition of the 1% flood event.

**Table 2-1. Permit Requirements Potentially Applicable to the Proposed Project**

<b>Agency with Jurisdiction</b>	<b>Regulation(s)</b>	<b>Required Authorization</b>
San Francisco Bay Regional Water Quality Control Board	Federal Clean Water Act, Sections 401 and 402 California Porter-Cologne Water Quality Control Act	Water quality certification; National Pollutant Discharge Elimination (NPDES) permitting ( <u>Permit Order No. R2-2009-0074</u> ) for discharge of stormwater from construction sites
U.S. Army Corps of Engineers	Federal Clean Water Act, Section 404 National Environmental Policy Act (NEPA)	Permit for activities below ordinary high-water mark in waters of the United States; federal action will require NEPA compliance
U.S. Fish and Wildlife Service	Federal Endangered Species Act	Potential need for “take” authorization under Section 7 of the federal Endangered Species Act will be determined through USACE consultation with U.S. Fish and Wildlife Service
California Department of Fish and Game	California Endangered Species Act California Fish and Game Code Section 2081 California Fish and Game Code Section 1602	Potential need for “take” authorization under Section 2081 <i>ff.</i> of the California Fish and Game Code will be determined through consultation with California Department of Fish and Game Streambed Alteration Agreement for activities affecting bed/banks of a jurisdictional stream
State Office of Historic Preservation	National Historic Preservation Act State Office of Historic Preservation requirements California Public Resources Code	Authorization under Section 106 of the National Historic Preservation Act
City of Mountain View	Local plans and regulations	Permitting entity for work on city land or public right-of-way ( <u>ROW</u> )
City of Los Altos	Local plans and regulations	Permitting entity for work on city land or public <del>right-of-way</del> <u>ROW</u>
City of Cupertino	Local plans and regulations	Permitting entity for work on city land or public <del>right-of-way</del> <u>ROW</u> as well as tree removal (at Rancho San Antonio County Park)
County of Santa Clara	Local plans and regulations	Permitting entity for work on County land or public <del>right-of-way</del> <u>ROW</u>

The proposed project analyzed in the 2010 FEIR consisted of the following major elements:

- Off-stream flood detention facilities at Rancho San Antonio County Park, Blach Intermediate School, Cuesta Annex, and McKelvey Park.
- Underground culverts to convey flow to and from the new detention facilities at Blach School and the Cuesta Annex.
- A ~~new~~New Permanente Diversion Structure to replace the existing structure, which no longer functions properly, and a new outlet pipe from the diversion to downstream Permanente Creek.
- Channel widening in selected portions of Permanente Creek and Hale Creek.
- Floodwalls along Permanente Creek north (downstream) of US-101.

The following 2010 FEIR elements have been eliminated from consideration and are not included in the proposed project and, therefore, are not analyzed in ~~the~~is SEIR impact analysis:

- Approximately 860 linear feet of concrete channel replacement on Permanente Creek downstream of Mountain View Avenue.
- Replacement of the Mountain View Avenue bridge on Permanente Creek.
- All previously proposed work in Permanente Creek between the diversion and Cuesta Drive.
- Off-stream flood detention facility at Blach Intermediate School.
- Floodwalls on eastern bank of Permanente Creek.
- All previously proposed work at Cuesta Annex, including the flood detention facility and underground culverts.

## THE PROPOSED PROJECT ANALYZED IN THIS SEIR

As discussed previously, subsequent to the certification of the 2010 FEIR the District determined that it was necessary to redesign several of the initial project elements. All modifications are listed below and depicted in Figure 2-1.

Based on Draft SEIR comments (in the Final SEIR), the proposed project has been changed to the environmentally superior alternative (Alternative AA), which does not include work at Cuesta Annex. Therefore, all text referring to project elements proposed at Cuesta Annex has been removed.

- In lieu of floodwalls downstream of Amphitheatre Parkway, the existing west bank levee would be raised. An additional easement would be needed.
- In lieu of floodwalls along both banks between Amphitheatre Parkway and Charleston Road, three walls would be constructed against the building on the west bank of Permanente Creek to flood-proof openings in the structure that are susceptible to flooding (i.e., parking garage). An additional easement would be needed on the property.

- The floodwall alignment along the west bank of the channel between Charleston Road and US-101 would be moved from inboard to the outboard side of the levee. An Additional easement would be needed.
- The irregular concrete channel bottom of the furthest upstream 80 linear feet of Permanente Creek north of Mountain View Avenue would be smoothed out.
- A 200-linear-foot side channel would be constructed along the property (935 Mountain View Avenue, Mountain View) adjacent to McKelvey Park. A permanent easement on the property, as well as a temporary construction easement, would be required. Concrete channel walls would be extended above the existing top of the channel over a distance of approximately 1,200 linear feet along ~~on~~ Permanente Creek from Mountain View Avenue to just downstream of the confluence with Hale Creek. These walls would range in height from 7 feet above adjacent ground at the downstream end to 2 feet at the upstream end.
- About 300 linear feet of concrete channel replacement on Hale Creek would be added from the confluence with Permanente Creek to Mountain View Avenue. Also, approximately 4,600 linear feet of concrete channel replacement on Hale Creek would be added from Arroyo Road to downstream of Rosita Avenue (making the total length of work for Hale Creek approximately 5,800 feet). This includes the replacement of all bridges and culverts along the affected creek length. This may also include the replacement of all utilities affected by the project, along with any City of Mountain View or Los Altos sewer or water utilities and outlets.
- A storm drain would be constructed under Springer Road from Rosita Avenue to Riverside Drive.
- The footprint at the Rancho San Antonio flood detention area would be enlarged. A portion of the equestrian parking area of the park would be removed and new parking would be built. A secondary detention basin would be located in an upstream area at the cemetery maintenance bridge. The inlet structure would be built into the new bridge structure at the existing low-flow crossing.
- The detention basin outlet pipes for Rancho San Antonio County Park and McKelvey Park would be larger in size and longer in length than the pipes ~~as~~ described in the FEIR.
- ~~A flood detention facility located in Cuesta Annex would be implemented with inlet and outlet pipes as described in the FEIR.~~

Table 2-2 summarizes land ownership and access rights for the proposed project element sites.

**Table 2-2: Land Ownership and Access Rights for Permanente Creek Flood Protection Project Element Sites**

Project Element	Site Ownership and Access
Rancho San Antonio County Park Flood Detention Facility	Detention facility site is owned by the Santa Clara County Parks Department; the District will seek an easement <u>and Conditional Use Permit</u> for detention use and maintenance activities. <u>Additionally, the District will obtain access/easements from Pacific Gas &amp; Electric (PG&amp;E) and/or the Union Pacific Railroad.</u>
New Permanente Diversion Structure	Facilities would be entirely within the District's existing ROW; the outlet culvert would replace the existing outlet culvert along the current alignment. <u>The District will seek a Conditional Use Permit</u>

Project Element	Site Ownership and Access
Guesta Annex Flood Detention Facility (includes Guesta Annex Inlet/Outlet Pipes)	<p><u>for use and maintenance activities.</u></p> <p>Detention facility site is owned by City of Mountain View; the District will seek an <u>easement for detention use and maintenance activities.</u> Guesta Annex Inlet alignment is within existing District and road ROWs; the District will need to apply for city encroachment permits.</p>
Channel Improvements: Permanente and Hale Creeks (includes Hale Creek bridge replacements)	<p>Channel improvements would occur mostly within the District's existing ROW, with easements needed from the city and private entities and <u>Conditional Use Permits from the cities of Mountain View and Los Altos.</u> <u>Easements may also be required for maintenance of offstream storm drain improvements.</u> Some sections of channel work may require temporary construction easements. Replacement of culverts for Permanente and Hale Creeks would occur within existing road ROWs; the District will need to apply for city encroachment permits.</p>
McKelvey Park Flood Detention Facility (includes McKelvey Park outlet pipe)	<p>Inlet/outlet area is owned by the District, but the detention facility site is on City of Mountain View property; the District will seek an <u>easement and Conditional Use Permit</u> for detention use and maintenance activities. A small easement would be purchased from the private parcel for inlet construction.</p>
Floodwalls and Levees downstream of US-101 (includes flood-proofing between Charleston Road and Amphitheatre Parkway)	<p>Floodwalls and levees would occur mostly within the District's existing ROW, with new easements <u>and a planned community permit</u> needed from the City of Mountain View and private owners. Some sections of work may require temporary construction easements. For flood-proofing activities between Charleston Road and Amphitheatre Parkway on a property owned by a private party, an easement will be needed.</p>

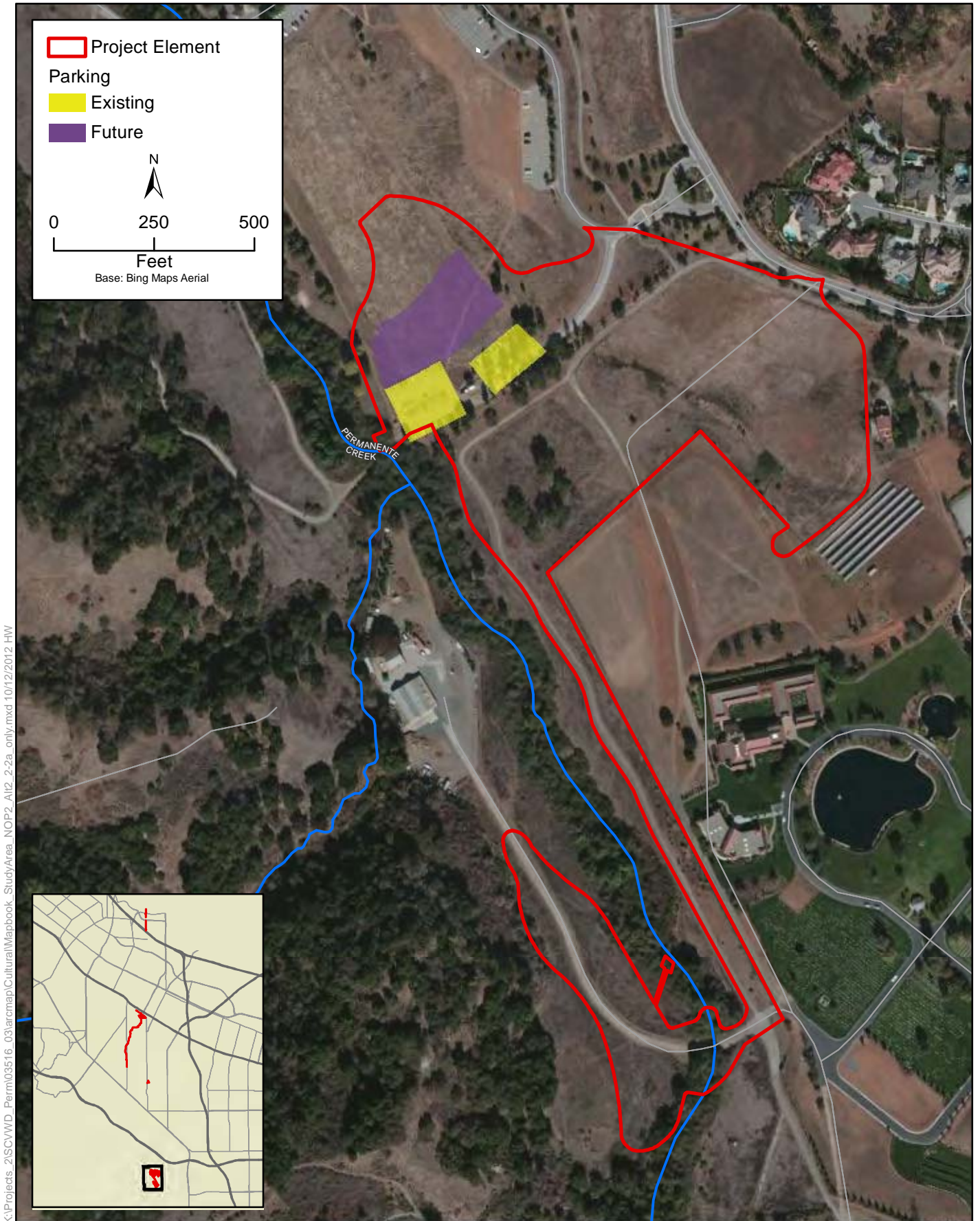
The following sections describe each of the project elements, moving from upstream to downstream. Figures 2-2a through 2-2fg show the location, footprint, and approximate areal extent of each of the project elements.

## **DESCRIPTION OF COMMON AND UNIQUE PROJECT ELEMENTS OF THE PROPOSED PROJECT**

### **Rancho San Antonio County Park Flood Detention Facility**

Flood detention facilities reduce downstream flows in flood-prone areas by temporarily storing ~~the~~ peak floodflows until the mainstem creek drops back to a safe level and the stored waters can be safely released back into the creek channel. The Rancho San Antonio County Park detention element would provide offstream flood storage ~~located~~ at the upstream end of the Project corridor.

As shown in Figure 2-1, Permanente Creek flows along the southwest edge of Rancho San Antonio County Park. The Rancho San Antonio project element would create an approximately 15-acre detention basin in an area that now consists of ruderal fields in two undeveloped portions of the park (Figure 2-2a). The new basin would be approximately 8 to 15 feet deep, with gently sloped sides contoured for a natural appearance. Short berms up to 5 feet high with similarly natural slopes would fill in the low areas around the basins. The bottom of the basin would be graded to create swales. The swales, which would collect surface runoff and retain water, would saturate soils and create conditions appropriate for



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Note: This figure was revised in the Final SEIR to show existing and proposed parking.

**Figure 2-2a**  
**Rancho San Antonio Flood Detention Facility**



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**Figure 2-2b**  
**Permanente Diversion Structure**



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Figure 2-2d<sub>c</sub>  
Storm Drain/Channel Improvements



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Figure 2-2ed  
Channel Improvements



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**Figure 2-2f**  
**McKelvey Flood Detention Facility/Channel Improvements**



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Figure 2-2g  
Floodwalls and Levees Downstream of US-101

wetland vegetation. Appropriate native wetland, riparian, and upland vegetation would be planted on the side slopes and the bottom within and adjacent of to the detention area. The basin would also be seeded and temporary erosion control measures such as fiber rolls would be installed to control erosion and prevent sediment from entering the creek.

The new detention areas would be connected to the Permanente Creek channel via inlets consisting of a spill structure and pipes placed approximately 2 to 10 feet underground. Flows higher than approximately the 10-year event would overflow the channel via the spill structure and ~~would~~ be controlled and diverted to the detention basins by the pipes. Floodwaters would then be stored in the detention area. Once the flood peak passes, the stored floodwaters would drain back into Permanente Creek by gravity flow. The existing low-flow crossing would be replaced by a culverted crossing, with the inlet structure built into the upstream side of the crossing. During construction of this crossing, a temporary bridge would be constructed to maintain access to the cemetery. The existing maintenance road would also be realigned.

The detention area would typically empty in 1 to ~~2~~ 4 days, depending on the magnitude of the flood event. The central swale in the bottom of the basin may retain water for longer periods because the detention area would continue to receive runoff from the adjacent neighborhood, which is currently drained to Permanente Creek via the proposed detention site. However, because the basin would be flooded infrequently (approximately once every 10 years), the entire 15-acre area would remain available to the public the majority of the time.

The existing parking lot design would be modified to accommodate the demand for parking. Currently, the parking lot includes passenger car spaces and ~~an equestrian gravel~~ a gravel equestrian parking area. However, passenger car parking often spills into the gravel equestrian parking area. Therefore, the parking lot would be redesigned to provide the required number of passenger car spaces, based on current parking demand; the expansion would occur in the equestrian parking area. Replacement parking would be constructed in advance of disrupting/demolishing the existing parking area. A new restroom with a leach field and septic tank would also be constructed near the parking area.

During construction of this element, a portion of the Hammond-Snyder Loop Trail would be temporarily unavailable as well as the Coyote Trail pedestrian/equestrian bridge, which would be taken out of service for up to 1 month to allow construction of basin outlet features without risk to trail users. A new trail spur would be installed from the Hammond Snyder Loop Trail along Cristo Rey Drive, down the slope between the Gate of Heaven Cemetery and the new basin, connecting back to the Hammond-Snyder Loop Trail adjacent to the creek. Portions of the Hammond-Snyder Loop Trail not directly affected by construction and staging would remain in use, with fencing and signage provided to ensure that recreational traffic remains safely outside the construction area. Also, this trail and adjacent grassland and riparian areas would be restored to full pre-Project usability following construction of the new detention facility.

## **New Permanente Diversion Structure**

This project element would replace the existing Permanente Diversion Structure with a new, more reliable structure (Figure 2-2b). The existing structure was designed to allow low flows to continue downstream in Permanente Creek while routing higher floodflows via the Permanente

Diversion Channel into Stevens Creek. However, the existing diversion structure fills with sediment and no longer functions reliably, so at the present time, all of Permanente Creek's flow is diverted to Stevens Creek, depriving the mainstem channel of the year-round flows it should support.

The new diversion structure would consist of a screened opening at the bottom of the rebuilt trapezoidal concrete channel that would allow low flows to enter a concrete vault via a pipe connection to lower Permanente Creek. There would also be a high-flow weir built into the new diversion structure vault to direct flows higher than the downstream capacity into the vault. The existing 48-inch pipe connection to lower Permanente Creek would be removed and replaced with a larger pipe. No channel lining would occur at the outfall.

All improvements implemented by this project element would occur within the existing concrete channel, with the exception of the replacement of the existing 48-inch pipe connection. However, since there is a pipe already in place at this location, removal and replacement of the pipe would take place entirely within the existing facilities footprint on the District's easement. Temporary construction easements may be needed.

## **Cuesta Annex Flood Detention Facility**

~~This project element would construct a flood detention facility at Mountain View's Cuesta Annex, just east of the intersection of Cuesta Drive and Miramonte Avenue (Figure 2-2c). The Cuesta Annex detention facility is proposed to occupy the north portion of the Annex site and would be approximately 8 to 12 feet deep at its deepest points. Designs were developed in cooperation with park users, resulting in a proposal for an irregular basin with gentle, variable side slopes contoured to resemble natural topography and planted with appropriate vegetation.~~

~~The Cuesta Annex facility would be designed to receive floodflows from Permanente Creek via an underground inlet pipe running east along Cuesta Drive to the northwest corner of the Annex. The inlet pipe would be approximately 700 feet long, up to 6 feet in diameter, and placed approximately 2 to 5 feet underground. The underground inlet structure would be built in an existing District easement on the northeast corner of the Cuesta/Miramonte intersection. The outlet would be along a similar path back to Permanente Creek at Miramonte Avenue. During construction of the detention facility, it is estimated that approximately half of the Cuesta Annex would be temporarily unavailable.~~

~~Depending on the magnitude of the flood event, the detention area is expected to empty within 1 to 2 days. It would then be cleaned as necessary and restored to an attractive and usable condition.~~

## **Permanente Creek Channel Improvements**

Permanente Creek channel improvements would involve deepening and enlarging the existing U-shaped concrete channel from just upstream of Mountain View Avenue to the confluence with Hale Creek (Figure 2-2cd), substantially increasing the channel's cross-section and flood conveyance capacity. The depth and width along the improved channel would vary estimated between 0 to 5 feet deeper and 0 to 10 feet wider than the existing channel. All work would take place within the District's existing ROW, though temporary construction easements would be necessary.

The irregular concrete channel bottom of the farthest upstream 80 linear feet of Permanente Creek, just downstream of Mountain View Avenue, would be smoothed out by jack hammers and other tools, and then a smooth concrete finish would be applied. Additionally, concrete channel walls, which could be up to 7 feet high, would extend above the existing top of the channel over a distance of approximately 1,200 linear feet along Permanente Creek, from Mountain View Avenue to just downstream of confluence with Hale Creek. In addition, a 7-foot-high headwall would be constructed along the upstream side of the Mountain View Avenue bridge. Construction easements would be required for these improvements.

## Hale Creek Channel Improvements

Hale Creek channel improvements would involve replacing the existing concrete channel, from the confluence of Permanente Creek upstream to Rosita Avenue, with a vertical-walled concrete channel that would be steeper and approximately 0 to 5 feet deeper (Figure 2-2de). Various existing drop structures would be removed, steepening the channel gradient, and several of the existing bridges (among them Mountain View Avenue, North and South Sunshine Drive, Springer Road, Cuesta Drive, Arboleda Drive, and several privately owned bridges) would be replaced with new bridges that would match the profile of the new channels. Only one bridge would be closed for construction at any time. Most work would take place within the District's existing ROW, though temporary construction easements may be needed in some sections. Bridge replacements would include replacement of all utilities affected by the construction, as needed, including any under-bridge sanitary sewer lines or existing storm sewers. An 800-linear-foot storm drain would be built along and under Springer Road, from Rosita Avenue to south of Riverside Drive. This pipe would capture flood flows escaping from Hale Creek upstream and convey the flows to the improved Hale Creek facility at Rosita Avenue.

## McKelvey Park Flood Detention Facility

This project element would construct an offstream flood detention basin at the City of Mountain View's McKelvey Park, a 5-acre baseball facility located at the corner of Park Drive and Miramonte Avenue (Figure 2-2ef). To construct the new detention basin, existing facilities would be taken out of use, the entire park would be excavated and lowered, and the playing fields would be restored at the new ground level. Designs for the restored fields and other amenities at the park are being developed cooperatively with park users and the City of Mountain View to ensure that the new facility offers a community benefit as well as needed flood protection.

Artificial turf may be installed in the fields. Because the final design for this project element has not been completed, it has not been determined if artificial turf will be used or, if it is, what type it will be. The infill material composition<sup>2</sup> would be selected to meet (i.e., be consistent with and not conflict with) the water quality objectives for groundwater and Permanente Creek established in the San Francisco Bay RWQCB Basin Plan.

As currently envisioned, the new detention basin would be about 15 feet deep and connected to the Permanente Creek channel. Flows higher than approximately the 50-year flood event would spill into a concrete-lined side channel, then into an energy dissipation area via a short underground pipe. The new concrete-lined side channel and energy dissipation area would be

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<sup>2</sup> This would be a crumb rubber material made from recycled rubber tires, silica sand, and other materials that have been embedded within the artificial turf for shock absorption, safety, durability, and longevity.



constructed on the privately owned parcel adjacent to McKelvey Park in an area comprised of turf and shrubs/trees. From there, floodwaters would spread into the detention area for temporary storage. Once the flood peak passes, the stored floodflows would drain back into the Permanente Creek by gravity flow and by pumping. The outlet storm drainpipe would run west along Park Drive from the park to Permanente Creek where there would be a new outlet. Low-flow pumps would be installed on the property adjacent to the northwestern corner of the park. The pumps would be housed below grade in a deep, wet well and continuously submerged in water. Depending on the magnitude of the flood event, the detention area would empty within 1 to 4 days; the fields would then be cleaned and returned to play-ready condition.

Construction activities would result in temporary unavailability of the recreational facilities at this site.

## **Floodwalls and Levees Downstream of US-101**

This project element would entail installation of new floodwalls and improvements to existing levees along the western side of Permanente Creek, from US-101 north (downstream) to Amphitheatre Parkway (Figure 2-2fg). Floodwalls would be constructed on the outboard (land) side of the levee top and would extend 2 to 4 feet above the existing top-of-bank elevation. Outboard floodwalls would also extend several feet below the levee top as a retaining wall and would be supported by an augmented fill prism at the outboard levee toe. To address the potential for long-term sea-level rise as a result of global climate change, there would be adequate 4 feet of freeboard built into the floodwalls, which would be enough to accommodate the potential sea-level rise.

In lieu of a floodwall downstream of Amphitheatre Parkway, the existing west bank levee would be raised 2 to 3 feet above the existing elevation. In lieu of floodwalls between Amphitheatre Parkway and Charleston Road, three walls would be constructed against the building on the west bank of Permanente Creek to flood-proof openings in the structure that are susceptible to flooding (i.e., parking garage). An additional easement would be required to construct these floodwalls and levees.

During construction of this element, pedestrian access would remain open on the east side of Permanente Creek. Once construction is completed, the pedestrian trail on the western bank would be restored to full use. Access would remain unchanged.

## **PROJECT CONSTRUCTION**

### ***CONSTRUCTION ACTIVITIES AND SCHEDULE***

Because of its extent and complexity, the proposed project would require various types of construction activities, including the following:

- Excavation to create detention basins, installation of inlet/outlet facilities, and construction of floodwall footings;
- Demolition of existing structures slated for replacement, including the existing Permanente Diversion Structure and outlet pipe, the bridges over Hale Creek, and the concrete channel sections slated for widening;

- Landscaping at detention facilities; and
- Road repaving following installation of the various underground inlet and outlet culverts.

Table 2-3 summarizes the construction process by project element. Construction of individual elements would last between 6 months and 3 years, and completion of all project elements could occur in as little as 3 years, assuming concurrent construction of several elements during each construction year. ~~although a total construction window of as much as 5 or 6 years may be more realistic; thus, the~~ The extent of construction activity in any given year could ~~likely be less than the extent shown in~~ Table 2-3 shows. However, this ~~SEIR's~~ SEIR's analysis of construction-related impacts is based on the schedule found in Table 2-3, which represents a conservative "worst-case" scenario for the effects of Project construction. Construction is likely to begin in spring 2013.

**Table 2-3. Construction Overview by Project Element**

Project Element	Starting Year	Activity	Duration (Months)	Area/Length
Rancho San Antonio County Park Flood Detention Facility	Year 1	Site excavation	6	15 acres
		Landscaping	3	
New Permanente Diversion Structure	Year 1	Demolition, excavation, construction	6	7,000 square feet (structure)
Cuesta Annex Flood Detention Facility	Year 2	Site excavation, construction, road paving	6	4.5 acres
		Landscaping	3	
Channel Improvements: —Permanente Creek	Year 1	Channel demolition, excavation, channel construction	12	Approximately 1,200 linear feet
—Hale Creek	Year 2	Channel demolition, excavation, channel construction	36	Approximately 4,000 linear feet
McKelvey Park Flood Detention Facility	Year 2	Site excavation, construction, road paving	8	5 acres
		Landscaping	4	
Floodwalls and Levees downstream of US-101	Year 1	Excavation, floodwall construction	24	1,600 linear feet

## **BUILDING CODES AND STANDARDS**

All of the building codes and standards identified in Appendix B of the FEIR would be followed. General facilities construction would conform to the following codes, as applicable.

- California Building Code (CBC).
- Uniform Fire Code.
- Uniform Plumbing Code.
- Uniform Mechanical Code.
- National Electrical Code.

For most of the District’s larger construction undertakings, such as the proposed project, the District typically requires preparation of a site-specific geotechnical investigation consistent with applicable regulations and standards of care for professional engineering geologic and geotechnical practice.

## **CONSTRUCTION BEST MANAGEMENT PRACTICES**

BMPs are practices that prevent, avoid, or minimize potentially adverse effects associated with construction or other activities. The District routinely incorporates a wide range of BMPs into project design, as described in detail in its *Best Management Practices (BMP) Handbook* (Santa Clara Valley Water District 2011). The proposed project would require many of the District’s standard BMPs, as summarized in Table 2-4. ~~Table 2-4 is intended to give an~~ overview provided in Table 2-4 focusing on the BMPs most relevant to the Project; additional measures from the District’s BMP handbook could also apply. Additional environmental measures have been developed to mitigate specific impacts associated with Project construction. Impacts that are not avoidable through standard construction BMPs are identified in Chapters 3 through 14.

All BMPs for project construction activities will be incorporated into the construction documents (plans and specifications) so contractors employed on the proposed project will be contractually required to adhere to them.

**Table 2-4. Best Management Practices for Construction Activities**

<b>General Construction Site Housekeeping</b>
<ul style="list-style-type: none"> <li>● The work site, areas adjacent to the work site, and access roads will be maintained in an orderly condition, free and clear from debris and discarded materials. Personnel will not sweep, grade, or flush surplus materials, rubbish, debris, or dust into storm drains or waterways. Upon completion of work, all building materials, debris, unused materials, concrete forms, and other construction-related materials will be removed from the work site. (Water Quality BMP 18)</li> <li>● To prevent mosquito breeding on construction sites, the District will ensure that surface water is gone within four days (96 hours). All outdoor grounds will be examined and unnecessary water that may stand longer than 96 hours will be drained. Construction personnel will properly dispose of unwanted or unused artificial containers and tires. If possible, any container or object that holds standing water that must remain outdoors will be covered, inverted, or have drainage holes drilled. (California Department of Public Health 2008)</li> </ul>

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### Water Quality Protection

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- Suitable erosion control, sediment control, source control, treatment control, material management, and non-stormwater management BMPs will be implemented consistent with the latest edition of the California Stormwater Quality Association “Stormwater Best Management Practices Handbook,” which is available at [www.cabmphandbooks.com](http://www.cabmphandbooks.com). (Water Quality BMP 41)
- Sediments will be stored and transported in a manner that minimizes water quality impacts.
  1. Wet sediments may be stockpiled outside of a live stream or may be stockpiled within a dewatered stream so water can drain or evaporate before removal.
  2. This measure applies to saturated, not damp, sediments and depends upon the availability of a stockpile site.
  3. For those stockpiles located outside the channel, water draining from them will not be allowed to flow back into the creek or into local storm drains that enter the creek, ~~unless water quality protection measures recommended by the RWQCB are implemented.~~
  4. Trucks may be lined with an impervious material (e.g., plastic), or the tail gate blocked with dry dirt or hay bales, for example, or trucks may drain excess water by slightly tilting their loads and allowing the water to drain out.
  5. Water will not drain directly into channels (outside of the work area) or onto public streets without providing water quality control measures.
  6. Streets will be cleared of mud and/or dirt by street sweeping (with a vacuum-powered street sweeper), as necessary, and not by hosing down the street. (Water Quality BMP 4)
- Oily, greasy, or sediment-laden substances or other material that originate from the project operations and may degrade the quality of surface water or adversely affect aquatic life, fish, or wildlife will not be allowed to enter, or be placed where they may later enter, any waterway.

The project will not increase the turbidity of any watercourse flowing past the construction site by taking all necessary precautions to limit the increase in turbidity as follows:

1. Where natural turbidity is between 0 and 50 Nephelometric Turbidity Units (NTU), increases will not exceed 5%;
2. Where natural turbidity is greater than 50 NTU, increases will not exceed 10%;
3. Where the receiving water body is a dry creek bed or storm drain, waters in excess of 50 NTU will not be discharged from the project.

Water turbidity changes will be monitored. The discharge water measurements will be made at the point where the discharge water exits the water control system for tidal sites and 100 feet downstream of the discharge point for non-tidal sites. Natural watercourse turbidity measurements will be made in the receiving water 100 feet upstream of the discharge site. Natural watercourse turbidity measurements will be made prior to initiation of project discharges, preferably at least 2 days prior to commencement of operations. (Water Quality BMP 40)

- Vehicles will be washed only at the approved area in the corporation yard. No washing of vehicles will occur at job sites. (Hazards & Hazardous Materials BMP 9)
  - No fueling will be done in a waterway or immediate flood plain, unless equipment stationed in these locations is not readily relocated (i.e., pumps, generators).
    1. For stationary equipment that must be fueled on-site, containment will be provided in such a manner that any accidental spill of fuel will not be able to enter the water or contaminate sediments that may come in contact with water.
    2. Any equipment that is readily moved out of the waterway will not be fueled in the waterway or immediate flood plain.
    3. All fueling done at the job site will provide containment to the degree that any spill will be unable to enter any waterway or damage riparian vegetation. (Hazards & Hazardous Materials BMP 10)
  - No equipment servicing will be done in a stream channel or immediate flood plain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps, generators).
    1. Any equipment that can be readily moved out of the channel will not be serviced in the channel or immediate flood plain.
    2. All servicing of equipment done at the job site will provide containment to the degree that any spill will be unable to enter any channel or damage stream vegetation.
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3. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be done in a channel or flood plain.
  4. If emergency repairs are required, containment will be provided equivalent to that done for fueling or servicing. (Hazards & Hazardous Materials BMP 11)
- Measures will be implemented to ensure that hazardous materials are properly handled and the quality of water resources is protected by all reasonable means.
    1. Prior to entering the work site, all field personnel will know how to respond when toxic materials are discovered.
    2. The discharge of any hazardous or non-hazardous waste as defined in Division 2, Subdivision 1, Chapter 2 of the California Code of Regulations will be conducted in accordance with applicable State and federal regulations.
    3. In the event of any hazardous material emergencies or spills, personnel will call the Chemical Emergencies/Spills Hotline at 1-800-510-5151. (Hazards & Hazardous Materials BMP 12)
  - Prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water.
    1. Field personnel will be appropriately trained in spill prevention, hazardous material control, and clean-up of accidental spills.
    2. No fueling, repair, cleaning, maintenance, or vehicle washing will be performed in a creek channel or in areas at the top of a channel bank that may flow into a creek channel. (Hazards & Hazardous Materials BMP 13)
  - Spill prevention kits appropriate to the hazard will always be in close proximity when using hazardous materials (e.g., crew trucks and other logical locations).
    1. Prior to entering the work site, all field personnel will know the location of spill kits on crew trucks and at other locations within District facilities.
    2. All field personnel will be advised of these locations and trained in their appropriate use. (Hazards & Hazardous Materials BMP 14)
  - When work in a flowing stream is unavoidable, the entire streamflow will be diverted around the work area by a barrier. Construction of the barrier will normally begin in the upstream area and continue in a downstream direction and the flow will be diverted only when construction of the diversion is completed. The water diversion plan will allow stream flows to gravity flow around or through the work site using temporary culverts or stream flow is pumped around the work site using pumps and screened intake hoses. Cofferdam construction will be adequate to prevent seepage into or from the work area. Cofferdams will be constructed of river run gravel with a fines content that is less than 15%. Fines are defined as material that is able to pass through a #20 sieve. Cofferdams may also be constructed of sheet piles, inflatable dams, or sand bags. Cofferdams will be installed both upstream and downstream not more than 100 feet from the extent of the work areas. In-channel berms that only deflect water to one side of the channel during sediment removal may be constructed of channel material. The enclosure and the supportive material will be removed when the work is completed and the removal will normally proceed from downstream in an upstream direction. Normal flows will be restored to the affected stream immediately upon completion of work at that location:
    1. All water will be discharged in a non-erosive manner (e.g., gravel or vegetated bars, on hay bales, on plastic, on concrete, or in storm drains when equipped with filtering devices, etc.).
    2. Sumps or basins may also be used to collect water, where appropriate (e.g., in channels with low flows).
    3. Where feasible and appropriate, diversion structures will be installed on concrete sections of the channels or constructed of materials specified above. Earth fill will not be used for cofferdams in ~~non-tidal~~ any areas.
    4. In conjunction with diversion structures, pumps or gravity-fed pipe systems are used to de-water sites.
    5. Depending on the channel configuration, sediment removal may occur where the flows are not bypassed around the work site; as long as during excavation activities, a berm of sediment is left between the work area and stream flows to minimize water quality impacts.
    6. Diversions will maintain ambient stream flows below the diversion, and waters discharged below the project site will not be diminished or degraded by the diversion. (Water Quality BMP 12)
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### Measures for Safe Use of Herbicides/Pesticides

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- Pesticides products are to be used only after an assessment has been made regarding environmental, economical, and public health aspects of each of the alternatives by the PCA. Refer to Q751D02, Control and Oversight of Pesticide Use. The following pesticides are used by the District:

#### Herbicides

- To control algae, weeds and undesirable vegetation;
- To minimize fire hazards;
- To maintain flood conveyance of waterways; and
- To maintain compliance with State and Federal requirements.

#### Insecticides

- Used only in and around District buildings, or in the case of a serious pest outbreak, on landscape and re-vegetation facilities;
- Used only after all other methods, such as prevention or natural nontoxic control methods, have proven ineffective; and
- Where required, the lowest toxicity will be used in accordance with the label and the details specified in Q751D02: Control and Oversight of Pesticide Use.

#### Rodenticides

- To control burrowing rodents, including ground squirrels, moles and gophers, in District flood control levees; and
- Alternatives such as trapping and smoke bombs are used wherever practical prior to rodenticide use. (Hazards & Hazardous Materials BMP 2)
- All pesticide use will be consistent with approved product specifications. Applications will be made by, or under the direct supervision of, State Certified applicators under the direction of, or in a manner approved by the District's Pest Control Advisor (PCA). Refer to Q751D02, *Control and Oversight of Pesticide Use*. (Hazards & Hazardous Materials BMP 1)
- Consistent with provisions of Q751D02: *Control and Oversight of Pesticide Use*, only herbicides and surfactants registered for aquatic use will be applied within the banks of channels within 20 feet of any water present. Furthermore, aquatic herbicide use will be limited to July 1<sup>st</sup> through October 15<sup>th</sup>, except on Guadalupe River, where applications within 20 feet of the low flow channel are limited to July 1<sup>st</sup> to August 15<sup>th</sup>. If rain is forecast then application of aquatic herbicide will be rescheduled. (Hazards & Hazardous Materials BMP 8)

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### Construction Noise Control

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- The District will implement practices that minimize disturbances to residential neighborhoods surrounding work sites.
  1. In general, work will be conducted during normal working hours. Extending weekday hours and working weekends may be necessary to complete some projects.
  2. Internal combustion engines will be equipped with adequate mufflers.
  3. Excessive idling of vehicles will be prohibited.
  4. All construction equipment will be equipped with manufacture's standard noise control devices.
  5. The arrival and departure of trucks hauling material will be limited to the hours of construction.
  6. The use of Jake brakes is prohibited in residential areas. (Noise BMP 2)

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### Biological Resources Protection

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- Existing access ramps and roads to waterways will be used where possible. If temporary access points are necessary, they will be constructed in a manner that minimizes impacts:
    1. Temporary project-access points will be created as close to the work area as possible to minimize running equipment in waterways and will be constructed so as to minimize adverse impacts.
    2. Any temporary fill used for access will be removed upon completion of the project. Site topography and geometry will be restored to pre-project conditions to the extent possible.
    3. Off-road vehicular access routes will be surveyed and flagged by a qualified biologist prior to use to avoid sensitive plants, animal burrows, wetlands and vernal pools, or other sensitive habitat. Whenever possible, routes should be not more than 15 feet wide. Personnel and vehicles are required to stay within
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marked access areas. (Biological Resources BMP 4)

- Nesting birds are protected by state and federal laws. The District will protect nesting birds and their nests from abandonment, loss, damage or destruction. Nesting bird surveys will be performed by a qualified individual (EMAP-30230) prior to any activity that could result in the abandonment, loss, damage or destruction of birds, bird nests, or nestling migratory birds. Inactive bird nests may be removed, with the exception of raptor nests. No birds, nests with eggs, or nests with hatchlings will be disturbed. (Biological Resources BMP 8)
- Nesting exclusion devices may be installed to prevent potential establishment or occurrence of nests in areas where construction activities would occur. All nesting exclusion devices will be maintained throughout the nesting season or until completion of work in an area makes the devices unnecessary. All exclusion devices will be removed and disposed of when work in the area is complete. (Biological Resources BMP 9)
- Project areas are to be presurveyed for special status plant species and sensitive natural communities, which have the potential to occur on District facilities. To avoid and/or minimize potential impacts on special status plants and natural communities, the following actions will be taken:
  1. Surveys of the project area for special status plant species and sensitive natural communities will be conducted by a qualified biologist prior to commencement of work; and,
  2. The qualified biologist will ensure avoidance of impacts to special status plant species and special status natural communities by implementing one, or more, of the following, as appropriate, per the biologist's recommendation:
    - a) Flag the population or natural community areas to be protected;
    - b) Allow adequate buffers; and/or,
    - c) Time construction or other activities during dormant and/or non-critical life cycle periods. (Biological Resources BMP 12).
- All pipes, hoses, or similar structures less than 12 inches diameter will be closed or covered to prevent animal entry. All construction pipes, culverts, or similar structures, greater than 2 inches diameter, stored at a construction site overnight, will be inspected thoroughly for wildlife by a qualified biologist or properly trained construction personnel before the pipe is buried, capped, used, or moved.  
If inspection indicates presence of sensitive or federally or state-listed species inside stored materials or equipment, work on those materials will cease until a qualified biologist determines the appropriate course of action.  
To prevent entrapment of animals, all excavations, steep-walled holes, or trenches more than 6 inches deep will be secured against animal entry at the close of each day. Any of the following measures may be employed, depending on the size of the hole and method feasibility:
  1. Holes will be securely covered (no gaps) with plywood, or similar materials, at the close of each working day, or any time the opening is to be left unattended for more than 1 hour;
  2. In the absence of covers, excavation will be provided with escape ramps constructed of earth or untreated wood, sloped no steeper than 2:1 and located no farther than 15 feet apart; or
  3. In situations where escape ramps are infeasible, the hole or trench will be surrounded by filter fabric fencing or a similar barrier with the bottom edge buried to prevent entry. (Biological Resources BMP 16)

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#### Cultural Resources Protection

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- Work in areas where archaeological artifacts are found will be restricted or stopped until proper protocols are met. Work at the location of the find will halt immediately within 30 feet of the find. A Consulting Archaeologist will visit the discovery site as soon as practicable for identification and evaluation pursuant to Section 21083.2 of the Public Resources Code and Section 15126.4 of the California Code of Regulations. If the archaeologist determines that the artifact is not significant, construction may resume. If the archaeologist determines that the artifact is significant, the archaeologist will determine if the artifact can be avoided and, if so, will detail avoidance procedures. If the artifact cannot be avoided, the archaeologist will develop within 48 hours an Action Plan which will include provisions to minimize impacts and, if required, a Data Recovery Plan for recovery of artifacts in accordance with Public Resources Code Section 21083.2 and Section 15126.4 of the CEQA Guidelines.(Cultural Resources BMP 2)
- Work in areas where any burial site is found will be restricted or stopped until proper protocols are met. Upon discovering any burial site as evidenced by human skeletal remains, the County Coroner will be immediately notified. No further excavation or disturbance within 30 feet of the site or any nearby area reasonably suspected to overlie adjacent remains may be made except as authorized by the County Coroner, California Native American Heritage Commission, and/or the County Coordinator of Indian Affairs.(Cultural Resources BMP 3)

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Source: Santa Clara Valley Water District 2011, unless otherwise noted.

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## DESIGN COMMITMENTS

The following design commitments committed to and described in this SEIR would be a part of the proposed project.

- The Project will be designed to accommodate existing stormwater and utility infrastructure.
- The project team will work closely with local jurisdictions, agencies, and utility providers during the design of the project elements, including the tie-ins between project elements and existing infrastructure.
- The design for each flood detention facility will be developed with the stakeholders. Designs will be developed in cooperation with the County, cities, and agencies, as follows: ~~for Rancho San Antonio—Santa Clara County Parks Department, Mid-Peninsula Regional Open Space District (MROSD), and the City of Cupertino for Rancho San Antonio; for Cuesta Annex and McKelvey Park—~~ the City of Mountain View for Cuesta Annex and McKelvey Park.
- All flood detention facilities will be designed to minimize the potential for damage during flooding, including the use of flow dissipation structures to ensure safe and gradual release of floodwaters from the flood detention facilities.
- Designs for the flood detention facilities will not substantially reduce available parking ~~by comparison compared~~ with existing site conditions. Additionally, parking for construction vehicles, equipment, and workers will be provided within the designated staging areas throughout the construction period. Construction workers' vehicles will not be allowed to park outside of designated work sites.
- At McKelvey Park, nighttime field lighting to replace the existing lighting will be designed consistent with current practices to control fugitive light and glare while maintaining safety and compliance with applicable ball field standards. In addition, parking lot and Mini Park lights will be used to light only on-site uses intended for illumination and installed at the lowest practical height and wattage amounts necessary to illuminate the sites adequately. This will be achieved by applying a minimum level of 0.5 footcandle along park pathways and 0.2 footcandle in background areas. Lights at the parking lot and Mini Park will employ shielding to minimize off-site light spill and glare even further. These lights will be screened and directed away from residences and adjacent uses to the highest degree possible. At a minimum, light fixtures will be made of galvanized steel that will naturally oxidize within a short time following installation and will not cause reflective daytime glare.
- At McKelvey Park, pumps will be housed below grade in a deep, wet well and continuously submerged in water. The pumps will be tested and balanced upon installation per specifications so as to be free of vibration or any other deleterious effects.
- At Rancho San Antonio, the District will coordinate with the Santa Clara County Parks Department; Santa Clara County Parks and Recreation Commission; Housing, Land Use, Environment, ~~and~~ Transportation (HLUET) Committee; MROSD; and the City of



Cupertino in developing a design that incorporates community input, providing natural open space values and continued recreational availability while ensuring public safety.

- The District will develop a revegetation plan that will be incorporated into the Mitigation and Monitoring Plan (MMP). The revegetation plan will include specifics related to plant palette, temporary irrigation approach, and maintenance requirements to ensure appropriate, natural integration at each project element.

The District will also designate a community outreach coordinator during the design and construction development process. The outreach coordinator will manage community input, provide the community with project updates, and respond to community concerns. Additionally, the community outreach coordinator will be responsible for implementing Mitigation Measure NV1.1 (Provide Advance Notification of Construction Schedule and 24-hour Hotline to Residents) and NV1.3 (Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns). One role of the community outreach coordinator will be to provide regular updates on Permanente Creek Flood Protection activities via the District website (<http://www.valleywater.org/services/PermanenteCreek.aspx>).

## PROJECT MAINTENANCE

Once constructed, the project elements would require maintenance, just as the District's existing facilities do, to continue to function effectively. ~~Once the project elements are constructed, they would require maintenance to continue to function effectively, much as the District's existing facilities do.~~ Maintenance for the new project elements would range from removing debris from channels, which would occur regularly throughout each flood season, to infrequent post-flood cleaning of the new detention facilities, which may be needed only after major flood events. In places where the Project is limited to replacing, expanding, or improving existing facilities (for instance, the widened and deepened channel segments), post-project maintenance would be very similar to what takes place now. New facilities, such as the detention basins and floodwalls, would create new maintenance needs. Additionally, all project maintenance activities, most notably within the levee reaches, would involve safe use of herbicides/pesticides, as described in Table 2-4, Best Management Practices for Construction Activities.

Routine post-Project maintenance within the Permanente and Hale Creek channel corridors would continue to be conducted consistent with the District's existing Stream Maintenance Program (SMP). The Project would construct the following new features, the maintenance of which would be covered under the existing SMP:

- Floodwalls and levees downstream of US-101,
- New Permanente Diversion Structure,
- Intakes to divert flows from Permanente Creek into the offstream detention facilities at ~~the Cuesta Annex and McKelvey Park,~~ and
- Discharge facilities to return flows to Permanente Creek from the offstream detention facilities at ~~the Cuesta Annex and McKelvey Park.~~

The Project would also replace and upgrade existing sections of concrete channel for the channel improvement element. Maintenance of the replaced concrete sections would be conducted consistent with the existing SMP. Additionally, although the inlet and outlet connecting to the Rancho San Antonio County Park detention facility are technically outside the SMP's geographic scope, maintenance of these features would be completed consistent with approved SMP practices and procedures. The impacts of these maintenance activities were evaluated in the SMP EIR and subsequent addenda (Santa Clara Valley Water District 2012).

The extent and nature of post-Project activities under the SMP would be very similar to what is currently taking place. No new or additional maintenance activities beyond the scope of the SMP would be required to maintain the SMP-covered Project features, and routine channel and bank maintenance would continue to incorporate all of the BMPs required under the SMP. Because there would be no material change in SMP activities as a result of the Project, SMP maintenance is not discussed further in this SEIR.

Maintenance of the following Project facilities would be outside the scope of the SMP and is therefore analyzed in this SEIR:

- Rancho San Antonio County Park, ~~Cuesta Annex,~~ and McKelvey Park detention facilities, and
- Flood-proofing between Charleston Road and Amphitheatre Parkway.

Maintenance of these facilities, which would represent a change from the current maintenance baseline, ~~and~~ is described briefly in the following paragraphs. All non-SMP activities would incorporate the District's standard BMPs, which are discussed in detail in its BMP handbook (Santa Clara Valley Water District 2011) and summarized ~~above~~ in Table 2-4. The same BMP modifications identified for Project construction would also apply to maintenance activities.

## **MAINTENANCE PLAN**

A Maintenance Plan would be prepared for all detention basin sites to address issues related to routine maintenance of on-site District facilities and maintenance following flood events, which may result in damage to the detention basins. A Maintenance Plan will be prepared for all detention basin sites to address routine maintenance of on-site District facilities and maintenance following flood events that may result in damages to the detention basins. The plan ~~will~~ would specify roles and responsibilities, methods, procedures, and timing requirements for maintenance activities over the life of the Project. The plan ~~will~~ would also identify the frequency and type of activities that would be required to restore the site to pre-flooding conditions (e.g., sediment removal, clearing of obstructed inlet and outlet facilities, vegetation/landscape maintenance, facility repair or replacement). The District ~~will~~ would coordinate development of the maintenance plan with the local jurisdictions.

## **FLOOD DETENTION BASIN MAINTENANCE**

Throughout the lifetime of the detention facilities, periodic vegetation maintenance would be required. Vegetation maintenance, including typical mowing practices and the use of hand equipment, would occur infrequently (probably on an annual basis) over a period of hours or days.

Following major flood events when the basins are in use (approximately once in 10 years at Rancho San Antonio County Park, ~~and Cuesta Annex~~, and less frequently [once in every 50 years] at the McKelvey Park), additional work would be required. Work within the basins would take place 1 or 2 days after a flood event. At ~~the~~ Rancho San Antonio County Park, facility ~~and Cuesta Annex~~ sediment would be left in place, analogous with natural floodplain processes, until or unless sediment accumulation exceeds an average depth of 1 foot. Also, sediment may accumulate in the inlet/out structures and may require removal. At McKelvey Park, sediment would be removed immediately following flood events, and any damage to landscaping or facilities would be repaired as soon as possible. A bobcat or similar equipment would be used to remove sediment, followed by cleaning with a self-propelled vacuum. If maintenance is limited to sediment removal, reopening of the facility for public use would be feasible within 2 weeks of basin draining. If artificial turf is implemented into the design of the basin, no treatment or maintenance of below-turf material would occur. Depending on the magnitude of the storm event and the age of the turf material, in some cases, the artificial turf, if installed, would be replaced following a flood event. If maintenance requires replacement of artificial turf, it is estimated that the site could be reopened in 1 or 2 months. The equipment used for all maintenance work would vary depending on the scale of the flood event.

## ***CULVERT MAINTENANCE***

Maintenance of the new bridges and culverts would include sediment control. These elements would be designed with a steep enough invert gradient to minimize sediment buildup. However, excessive sediment, woody vegetation, and any other flow impediments would be removed using appropriate hand equipment.

## ***FLOOD-PROOF WALLS MAINTENANCE***

Throughout the lifetime of the flood-proof walls, typical maintenance would involve graffiti control and repair of structural failure. Work would typically occur in the summer or early fall; however, any damage to flood-proof walls would be repaired as soon as possible.

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# CHAPTER 3. GEOLOGY, SOILS, AND MINERAL RESOURCES

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Geologic hazards and professional practice in geology are regulated at the state and local levels. The principal state regulations governing assessment and mitigation of risks related to geologic hazards are California's Alquist-Priolo Earthquake Fault Zoning Act and Seismic Hazards Mapping Act, which established statewide processes to identify hazard areas and assign local jurisdictions the responsibility of evaluation and mitigating hazards within designated hazard areas. Building codes, which provide important protection from seismic and other geologic hazards, are adopted at the local jurisdiction level. For additional information, see Appendix B of this SEIR.

### *EXISTING CONDITIONS*

#### **Topography and Geology**

The project area is located in the Santa Clara Valley, which is bounded by the Santa Cruz Mountains on the west and the Diablo Range on the east.

Figure 3-1 shows the geology of the Project alignment. Upstream of Foothill Expressway, the Santa Cruz Mountains range front is flanked by an apron of conglomerate, sandstone, and mudstone assigned to the Santa Clara Formation of late Pliocene–Pleistocene age (Brabb et al. 2000). Incised into and overlying the Santa Clara Formation are alluvial fan and fluvial deposits of Pleistocene age, consisting of variably sorted sand and gravel fining upward to sandy clay. These deposits are related to modern stream courses. They are in turn incised and overlain by Holocene alluvial (Qhaf on Figure 3-1) and basin (Qhab) strata. At the downstream end of the Project corridor, immediately upstream of Shoreline at Mountain View Park, are extensive areas of artificial fill placed over Bay mud deposits. Ribbons of artificial levee fill material border Mountain View Slough as it approaches the Bay margin (Brabb et al. 2000).

#### **Soils**

Figure 3-2 is a generalized soils map for the Project corridor. The Project corridor's soils are highly diverse, reflecting differences in topography, substrate, and hydrology between bedrock highland areas and the alluviated valley floor, and between the southern, inland portion of the valley floor and the tidally influenced Bay margin.

The upper watershed area is underlain by clay, silty clay, loam, and gravelly loam of the Azule, Cayucos, Edenvale, Los Gatos, Maymen, Soper, and Sorrento series (Soil Conservation Service 1958, 1968). All are soils of terrace and hilly areas, and in general they are slowly to very slowly permeable and highly erodible (Soil Conservation Service 1958, 1968). The central

portion of the project area is underlain by soils of the Pleasanton, Yolo, and Garretson series, which form on gentle (0%–2%) slopes and are typically well drained (Soil Conservation Service 1968). The downstream portion of the area is underlain by Pacheco, Sunnyvale, and Campbell series soils, which are developed on essentially flat topography and are poorly drained (Soil Conservation Service 1968). Erosion hazard is typically moderate in soils of the range front alluvial fans at the range front and slight to none in flat valley floor areas. The downstream soils are all classified as hydric by virtue of their geomorphic position on the low alluvial plain of the Santa Clara Valley (Soil Conservation Service 1992). Soils along the Bay margin in the farthest downstream portion of the Project corridor are identified as compressible by the County.

## Mineral Resources

Santa Clara County's principal mineral resources are construction aggregate materials, including sand, gravel, and crushed stone (County of Santa Clara 1994). Pursuant to the Surface Mining and Reclamation Act of 1975 (SMARA), the State has zoned the immediate Project corridor and surrounding valley floor area MRZ-1 for aggregate materials (Kohler-Antablin 1996), indicating that significant resources are not present. Areas in the Santa Cruz Mountains south and west of the Project corridor are zoned MRZ-2 and MRZ-3 for aggregate materials (Kohler-Antablin 1996).<sup>1</sup>

## Geologic Hazards

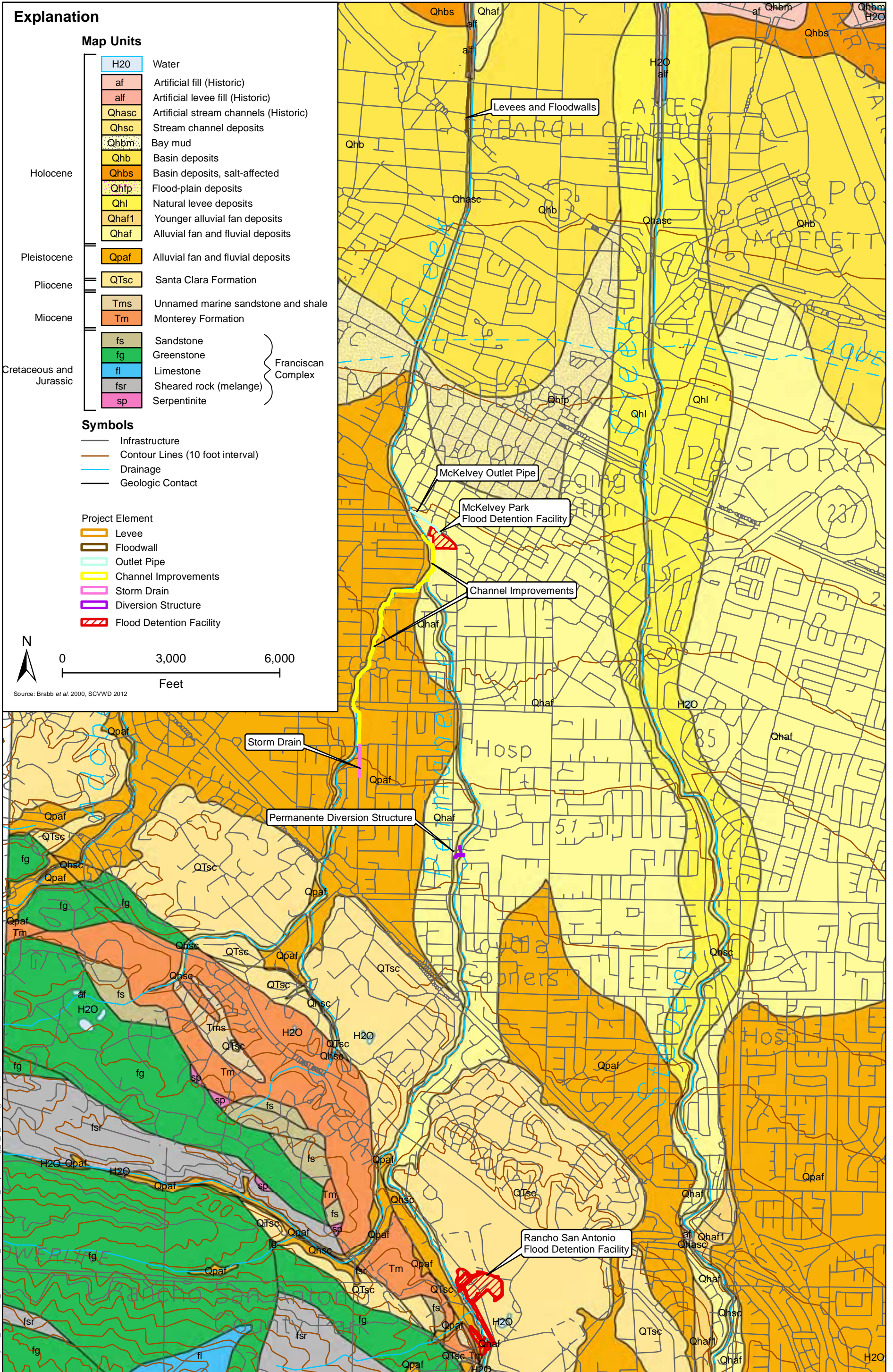
### Primary Seismic Hazards—Surface Fault Rupture and Ground Shaking

The project corridor is located in a seismically active region that is likely to experience earthquake effects during the lifespan of the proposed project—recent studies estimate a 62% probability of at least one earthquake with a magnitude of 6.7 or greater occurring on one of the faults of the greater San Francisco Bay Area in the next 30 years and a 10% probability of a magnitude 7.0 or greater event during the same time frame (U.S. Geological Survey Working Group on California Earthquake Probabilities 2003). Table 3-1 summarizes current information on earthquake recurrence intervals and maximum credible earthquake (MCE) for the principal active faults in the project vicinity.

No active faults have been mapped within the valley floor portions of the proposed project corridor; the risk of surface fault rupture in most of the project corridor is thus considered minimal. However, the Monte Vista, Shannon, and associated faults along the Santa Cruz Mountains range front are widely considered to be active; they are recognized as active seismic sources by the CBC and are treated as active faults by the County, although they are not zoned by the State (U.S. Geological Survey 2009; County of Santa Clara 2002). Much of Rancho San Antonio County Park, including the proposed detention basin site, is within the fault rupture hazard zone delineated by the County for the Monte Vista–Shannon fault system. This site is therefore considered to be subject to potential surface fault rupture.

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<sup>1</sup> Per the Surface Mining and Reclamation Act (SMARA), the MRZ-2 and -3 zones respectively indicate areas where significant mineral deposits are known or likely to be present (MRZ-2) and areas where mineral deposits are present, but their significance cannot be evaluated based on available information (MRZ-3). See Appendix B for additional information.

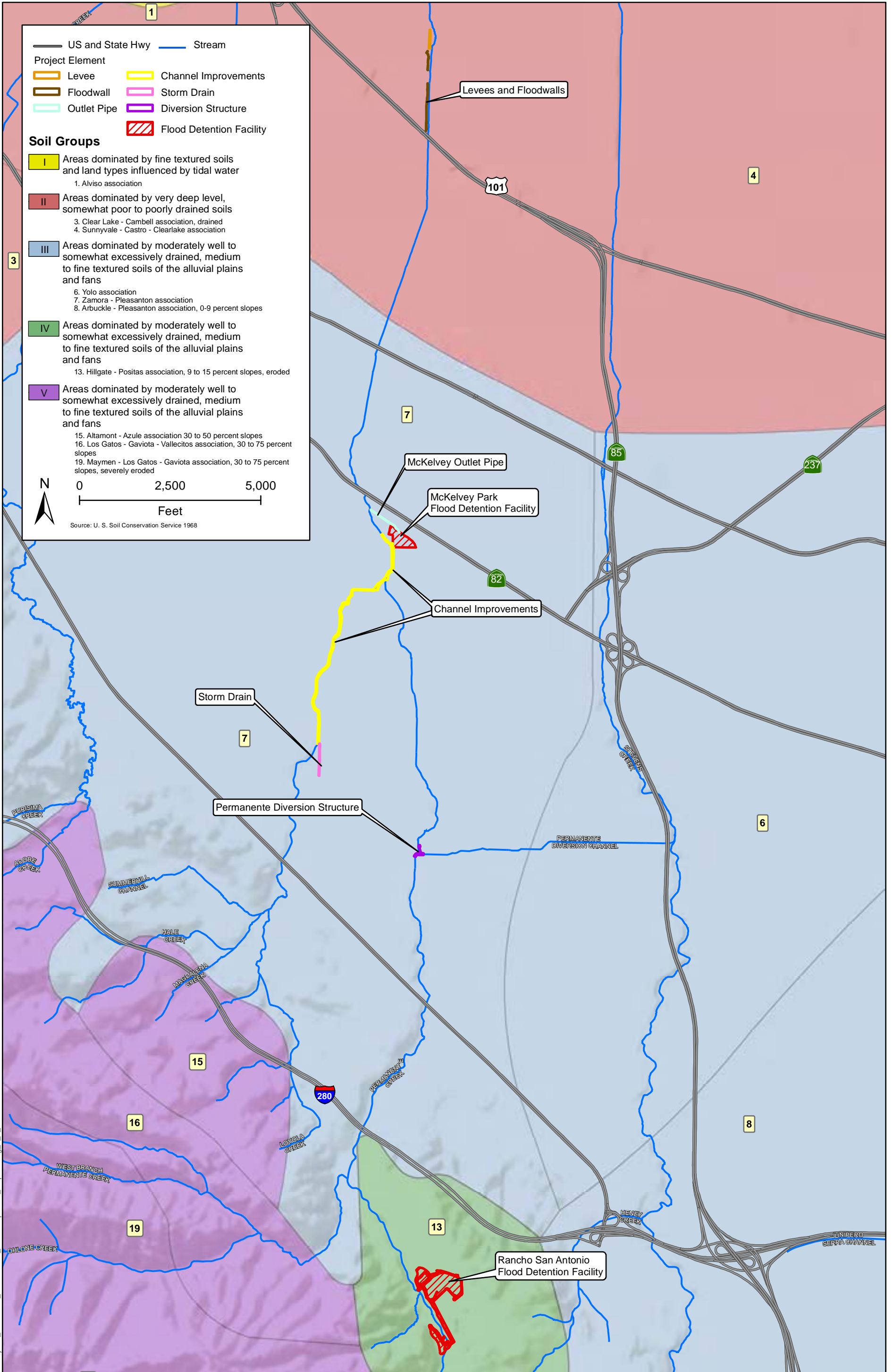


Note: This figure was revised in the Final SEIR to remove the Cuesta Annex project element.



**Figure 3-1**  
**Geologic Map of Project Corridor and Surrounding Area**





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Note: This figure was revised in the Final SEIR to remove the Cuesta Annex project element.



**Figure 3-2**  
**Generalized Soil Map of Project Area**

Other nearby faults known to be active and zoned by the State include the San Andreas, Hayward, and southern Calaveras. A moderate to large earthquake on any of these faults could produce strong ground shaking in the project area.

**Table 3-1. Maximum Credible Earthquake and Recurrence Interval for Principal Active Faults in Project Area**

Fault	Zoning Status	MCE Magnitude	MCE Recurrence Interval
San Andreas	Zoned by State	7.0–7.9 <sup>a</sup>	210–400 years <sup>a</sup>
Monte Vista–Shannon	Not zoned by State, but zoned by County	6.5 <sup>a</sup>	Not well known <sup>b</sup>
Hayward	Zoned by State	Entire fault: 7.1 <sup>a</sup> Southern segment: 6.5 <sup>a</sup> –6.9 <sup>c</sup>	Entire fault: 330 years <sup>a</sup> Southern segment: 161 <sup>c</sup> –167 <sup>d</sup> years
Calaveras (northern)	Zoned by State	6.8 <sup>a</sup>	187 years <sup>c</sup>
Calaveras (southern)	Zoned by State	6.2 <sup>a</sup>	75 years <sup>c</sup>

Sources:

<sup>a</sup> International Conference of Building Officials 1997.

<sup>b</sup> Wills et al. 2008.

<sup>c</sup> U.S. Geological Survey Working Group on California Earthquake Probabilities 2003.

<sup>d</sup> Anderson et al. 1982.

### Secondary Seismic Hazards—Liquefaction and Ground Failure

*Liquefaction* is a phenomenon in which unconsolidated soil or sediment materials lose cohesion and behave as a liquid, typically as a result of earthquake shaking. It usually occurs in sandy materials that are saturated with groundwater, at depths of no more than about 50 feet below ground surface. Liquefaction poses a hazard because liquefied materials lose their strength and may become unable to support structures built on them. This can result in severe structural damage, particularly in poorly designed or constructed structures.

Figure 3-3 shows areas of seismically induced liquefaction risk in and near the Project corridor, based on mapping compiled by the County pursuant to the State's Seismic Hazards Mapping Act.

### Landslide Hazards

Most of the project area is on flat or nearly flat valley floor topography, and thus, is not at risk of landslide. Steep slopes along the range front at Rancho San Antonio County Park are identified by the State as potentially subject to seismically induced landsliding (California Geological Survey 2002). Immediately adjacent valley floor areas may be in potential landslide runout zones.

# IMPACT ANALYSIS

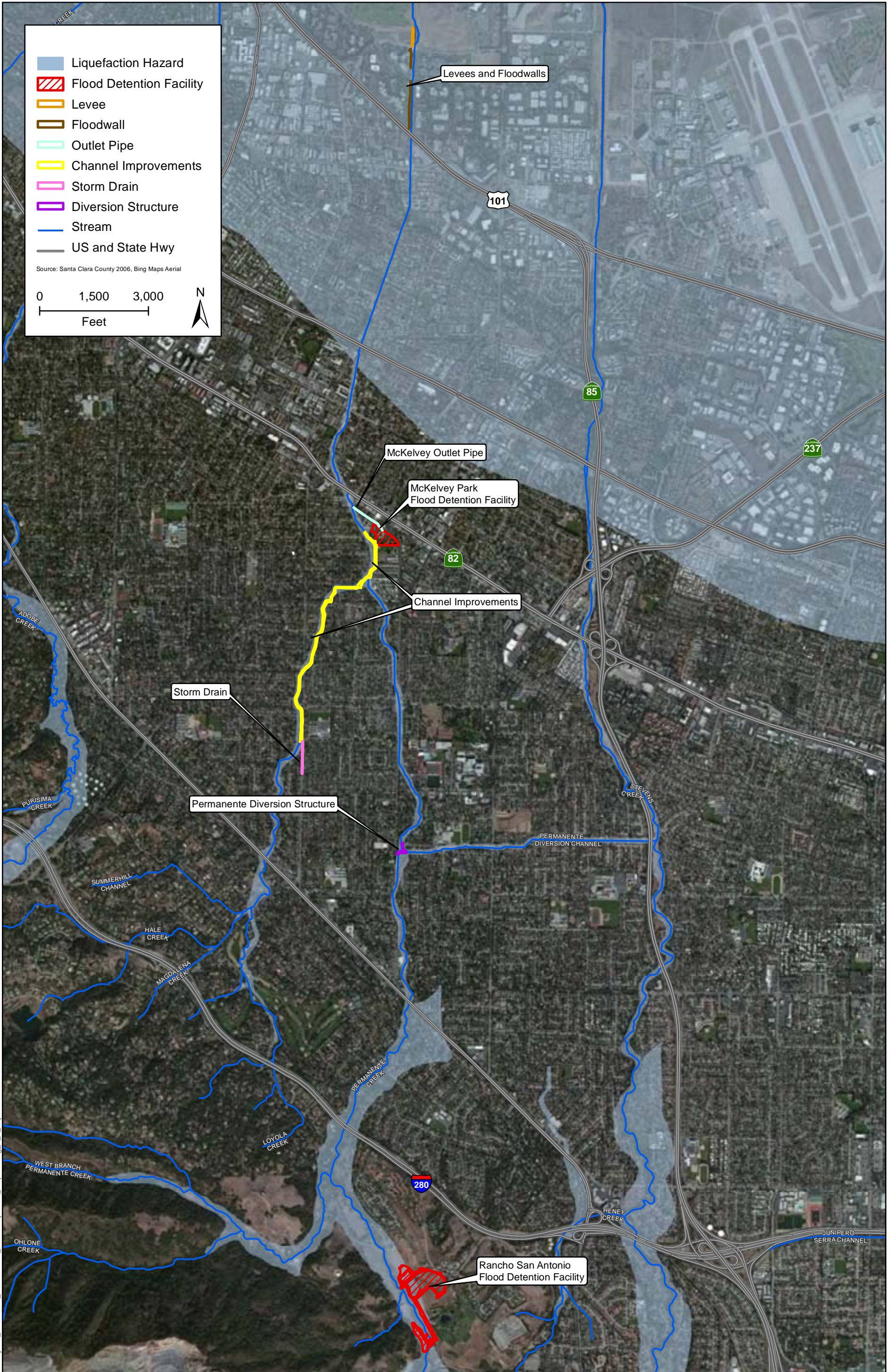
## ***METHODS AND SIGNIFICANCE CRITERIA***

Impacts related to geology, soils, and mineral resources were evaluated qualitatively, based on professional judgment in light of the current standards of care for engineering geology, geotechnical engineering, and mineral resources conservation and management. Impact analysis relied on information from the published geologic literature; no new field studies or other research were conducted for the preparation of this SEIR.

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Exposure of people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map or based on other substantial evidence of active faulting;
  - strong seismic ground shaking;
  - seismically induced ground failure, including but not limited to liquefaction; or
  - landslides, including seismically induced landslides.
- Location of structures on a geologic unit or soil that is unstable or that would become unstable as a result of construction, increasing the risk of onsite or offsite landslide or slope failure.
- Construction on expansive soil, creating substantial risks to life or property.
- Substantially accelerated soil erosion or substantial loss of topsoil.
- Loss or substantial reduction in availability of a known mineral resource of regional or statewide value.
- Loss or substantial reduction in availability of a locally important mineral resource recovery site.

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by analysis.



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Note: This figure was revised in the Final SEIR to remove the Cuesta Annex project element.



**Figure 3-3**  
**Areas of Liquefaction Hazard in**  
**Project Vicinity**

## IMPACTS AND MITIGATION MEASURES

### Impact GEO1—Exposure to Surface Fault Rupture Hazards

Summary by Project Element: Impact GEO1—Exposure to Surface Fault Rupture		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	No Impact	Less than Significant
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	No Impact	No Impact

Much of Rancho San Antonio County Park is within the County-identified fault rupture hazard zone for the Monte Vista–Shannon fault system. Project modifications at Rancho San Antonio County Park would not result in any new or more severe impacts related to Surface Fault Rupture Hazards. The proposed restroom would be designed and constructed to meet or exceed relevant standards of the current California Building Code (CBC) and Santa Clara County’s Geologic Ordinance. Moreover, damage to the basin and inlet/outlet facility would be repairable, so capacity could be restored fairly rapidly. Thus, impacts associated with potential surface fault rupture at Rancho San Antonio County Park detention basin site would remain less than significant as previously evaluated in the FEIR. No mitigation is required.

No active faults have been identified at or in the immediate vicinity of any of the other project element sites. Consequently, no impact associated with surface fault rupture is anticipated for any of the other project elements, and no mitigation is required.

### Impact GEO2—Exposure to Seismic Ground-Shaking Hazards

Summary by Project Element: Impact GEO2—Exposure to Seismic Ground-Shaking Hazards		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	No Impact	Less than Significant
New Permanente Diversion Structure	No Impact	Less than Significant
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>Less than Significant</del>
McKelvey Park Flood Detention Facility	No Impact	Less than Significant
Channel Improvements: Permanente and Hale Creeks	No Impact	Less than Significant/Beneficial
Floodwalls and Levees downstream of US-101	No Impact	Less than Significant/Beneficial

As described in the FEIR, seismic ground shaking could result in damage to the side slopes of the flood detention basins at Rancho San Antonio County Park, ~~Cuesta Annex,~~ and McKelvey Park, potentially reducing their capacity and impairing their function temporarily. Ground shaking could also damage the inlet/outlet facilities, impeding the diversion of floodwater into the basins. Floodwalls and ~~leaves~~ levees could also be affected by ground shaking. However, since all new structures would conform to applicable requirements of the CBC as well as recommendations of site-specific geotechnical investigations, the structures would meet current seismic safety standards. Project modifications would not result in any new significant impacts or more severe seismic ground shaking impacts than previously evaluated in the FEIR. Impacts related to seismic ground shaking damage would remain less than significant as identified in the FEIR for the flood detention project elements, and no mitigation is required.

The principal cause of earthquake damage to subsurface inlet/outlet facilities is often liquefaction or other ground failure rather than ground shaking alone. As discussed in more detail in Impact GEO3, which follows, ~~part of the Cuesta Annex Inlet/Outlet Culvert and part of the McKelvey Outlet Pipe would be within the zone of liquefaction hazard (Figure 3-3). All of~~ The new inlet/outlet facilities-outlet pipe would be constructed in accordance with applicable codes and the recommendations of site-specific geotechnical investigations performed for the Project, reducing ground-shaking-related risks to ~~these facilities~~ this facility. Failure and major damage are thus considered unlikely. If damage were to occur, it could result in local release of floodwaters into the subsurface, potentially increasing the localized risk of ground instability and/or seismically induced ground failure in the immediate vicinity of the break in subsequent aftershocks. However, the ~~inlet/outlet facilities-outlet pipe~~ outlet pipe would convey water infrequently (once in 10 years on average) for very short periods (hours or days). The likelihood of an earthquake large enough to cause substantial damage and subsurface release occurring while the ~~inlet/outlet facilities-outlet pipe~~ outlet pipe ~~are~~ is in use is low. Significant ground-shaking-related impacts are, therefore, not anticipated, and with code compliance and adherence to the recommendations of site-specific geotechnical investigations, the impact is less than significant, and no mitigation is required.

### Impact GEO3—Exposure to Seismically Induced Liquefaction Hazards

Summary by Project Element: Impact GEO3—Exposure to Seismically Induced Liquefaction Hazards		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	No Impact	Less than Significant

As shown in Figure 3-3, a portion of the Rancho San Antonio County Park site is subject to liquefaction hazards. The proposed restroom would be designed and constructed to meet or exceed relevant CBC and Santa Clara County’s Geologic Ordinance standards. Impacts related to liquefaction damage are thus considered less than significant (as evaluated in the FEIR) overall for this project element, and no mitigation is required.

As shown in Figure 3-3, the Permanente Diversion Structure site, the end of the flood catchment pipe/storm drain immediately adjacent to Hale Creek, the channel segments proposed for widening, the floodwall and levee alignment downstream of US-101, ~~the end of the Cuesta Annex Inlet/Outlet Culvert immediately adjacent to Permanente Creek,~~ and the end of the

McKelvey Outlet Pipe adjacent to Permanente Creek are all within areas of identified liquefaction hazard. However, design and construction of all of these elements would be guided by recommendations of a site-specific geotechnical investigation, which would include an assessment of liquefaction potential at the site and recommendations to reduce liquefaction-related damage, if appropriate. Floodwall and levee construction would also comply with requirements of the current CBC. With these standards and guidance in place, impacts related to liquefaction are expected to be less than significant, and no mitigation is required.

As shown in Figure 3-3 the ~~Cuesta Annex and McKelvey -Park sites are~~ is outside the area of identified liquefaction hazard, and thus, ~~are~~ is not expected to experience liquefaction-related impacts. No mitigation is required.

### Impact GEO4—Exposure to Landslide and Other Slope Failure Hazards

Summary by Project Element: Impact GEO4—Exposure to Landslide and Other Slope Failure Hazards		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	Less than Significant	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	Less than Significant	No Impact
Channel Improvements: Permanente and Hale Creeks	Less than Significant	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant	No Impact

#### Construction

Project modifications would not result in any new potential for exposure to landslide and other failure hazards, not previously identified in the FEIR.

The District routinely adheres to the most current CBC earthwork standards, and all Project earthwork would proceed in accordance with the recommendations of site-specific geotechnical investigations prepared for each project element by appropriately state-licensed engineering and geologic personnel. As stated in the FEIR, with code compliance and adherence to any additional site-specific recommendations identified in the Project geotechnical report(s), impacts related to stability of constructed slopes would be less than significant, and no mitigation is required.

Construction activities related to various pipes would consist of conventional “cut and cover” techniques in which a trench is excavated, culvert or pipe segments are placed in the trench, and the trench is then backfilled. As stated in the FEIR, the District routinely adheres to all California Division of Occupational Safety and Health (Cal-OSHA) excavation safety requirements and standards and would also implement any additional site-specific precautions

identified as appropriate by the Project geotechnical investigation. With these measures in place, impacts related to potential trench and pit wall instability for these project elements would be less than significant as identified in the FEIR, and no mitigation is required.

**Operation and Maintenance**

Steep slopes at Rancho San Antonio County Park are identified by the County as subject to seismically induced landslide hazard and may also be at some risk of nonseismic slope failure. Adjacent flat areas on the valley margin, including the proposed detention basin site, may be subject to landslide runout, potentially resulting in substantial alteration of existing topography. However, the proposed project would not require modification of slide-prone slopes and thus would not worsen existing landslide or landslide-runout risks. Moreover, even if substantial landslide-related damage were to reduce or eliminate flood detention function at the Rancho San Antonio County Park site, flood risks in neighboring and downstream areas would be no greater than they are at present, under existing conditions. The proposed restroom would be designed and constructed to meet or exceed relevant CBC and Santa Clara County’s Geologic Ordinance standards. Impacts related to landslide hazards are thus expected to be less than significant for the Rancho San Antonio County Park Flood Detention Facility, and no mitigation is required.

All of the other project elements would be sited on nearly level topography, at a considerable distance from hilly areas that may be subject to landslide hazard. Consequently, impacts related to landsliding are not expected for these project elements; no mitigation is required.

**Impact GEO5—Location on Unstable or Expansive Soil**

<b>Summary by Project Element: Impact GEO5—Location on Unstable or Expansive Soil</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	No Impact	Less than Significant

Soils in the project area have not been identified as compressible or otherwise unstable. Their expansion potential is not known at this time. However, construction of all project elements would be supported by a site-specific geotechnical investigation, which would include an evaluation of site soils and recommendations to ensure that cut and fill slopes and other aspects of the proposed facilities are appropriately designed and constructed, consistent with the current CBC earthwork standards and the prevailing engineering standard of care. With adherence to the current CBC and any additional recommendations of the site-specific geotechnical investigation, impacts associated with potential adverse soils conditions would be less than significant, and no mitigation is required.



## Impact GEO6—Soil Erosion and Loss of Topsoil

Summary by Project Element: Impact GEO6—Soil Erosion and Loss of Topsoil		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Soil Erosion: Less than Significant Topsoil Loss: Less than Significant with Mitigation	Soil Erosion: Less than Significant Topsoil Loss: No Impact
New Permanente Diversion Structure	Soil Erosion: Less than Significant Topsoil Loss: Less than Significant	Soil Erosion: Less than Significant Topsoil Loss: No Impact
Cuesta Annex Flood Detention Facility	Soil Erosion: Less than Significant Topsoil Loss: Less than Significant with Mitigation	Soil Erosion: Less than Significant Topsoil Loss: No Impact
Channel Improvements: Permanente and Hale Creeks	Soil Erosion: Less than Significant Topsoil Loss: Less than Significant	Soil Erosion: Less than Significant Topsoil Loss: No Impact
McKelvey Park Flood Detention Facility	Soil Erosion: Less than Significant Topsoil Loss: Less than Significant with Mitigation	Soil Erosion: Less than Significant Topsoil Loss: No Impact
Floodwalls and Levees downstream of US-101	Soil Erosion: Less than Significant Topsoil Loss: Less than Significant	Soil Erosion: Less than Significant Topsoil Loss: No Impact

### Soil Erosion

Site clearing, grading, and fill placement activities would have the potential to contribute to accelerated erosion. The same would be true for infrequent maintenance activities requiring ground disturbance. However, the District routinely implements extensive erosion and sediment control best management practices (BMPs), as discussed in Chapter 2 (*Project Description*). In addition, the work areas for several of the project elements would be large enough that a stormwater pollution prevention plan (SWPPP) will be required, providing an additional regulatory mechanism to ensure effective erosion control during construction. The District would be responsible for ensuring compliance with the requirements of its internal BMPs and any applicable SWPPPs. With erosion control BMPs, SWPPPs as required, and District oversight in place, impacts related to accelerated erosion during construction and ground-disturbing maintenance are expected to be less than significant, and no mitigation is required.

### Topsoil Loss

Construction earthwork would require removal of topsoil where it is present.

At Rancho San Antonio County Park, the loss of approximately 15 acres of topsoil from an open space area would represent a significant impact. ~~Removal of topsoil from the 4.5-acre project footprint at Cuesta Annex, which is planned for revegetation to restore its aesthetic and recreational value, would also constitute a significant impact.~~ Impact The impacts at these this sites would be reduced to a less-than-significant level by implementing Mitigation Measure GEO6.1.

#### **Mitigation Measure GEO6.1—Stockpile Topsoil and Reuse Onsite**

To minimize impacts on topsoil resources at Rancho San Antonio County Park ~~and Cuesta Annex~~, the District will require contractors to implement the following procedures.

- The area of disturbance will be limited to the minimum needed for construction, staging, and access.
- Where topsoil is removed, it will be sidecast and stockpiled in non-compacted windrows no taller than 6 feet for onsite reuse during site finishing. Site finishing will include topsoil replacement and revegetation with appropriate native species. Topsoil will be stockpiled separate from other excavated materials to facilitate effective reuse.

Although the McKelvey Park site has been disturbed as a result of constructing and maintaining its existing facilities, site soils have been amended to support the existing natural grass playing fields. The loss of 5 acres, which is the size of the construction footprint (Table 2-3), of this amended soil resource could represent a significant impact, depending on the ultimate design for post-construction replacement of the fields. Designs for the restored fields and other amenities at the park are being developed cooperatively with park users and the City of Mountain View to ensure that the new facility offers a community benefit as well as provides needed flood protection. Site preparation needs would be very different, depending on whether artificial or natural turf is required. Implementation of the following mitigation measure would ensure that impacts related to loss of existing amended soils at McKelvey Park are less than significant.

#### **Mitigation Measure GEO6.2—Provide Appropriate Topsoil Materials for Site Finishing**

The District will consult with the architects responsible for design and construction of the restored athletic fields to identify site finishing needs. If the architect identifies it as beneficial to stockpile existing site soils for reuse, where existing amended topsoil is removed, it will be sidecast and stockpiled for onsite reuse during restoration of the athletic fields. Topsoil will be stockpiled separate from other excavated materials to facilitate effective reuse.

Alternatively, if recommended by the architect, the District will provide suitable imported materials to ensure appropriate site finishing, consistent with the design for the restored fields and current applicable standards for playing fields.

Excavation required to construct the New Permanente Diversion Structure would take place within the District's existing ROW, which has been substantially disturbed to construct the existing engineered channels, and thus, are not expected to preserve intact topsoil. Similarly, earthwork for ~~the Cuesta Inlet/Outlet Culvert~~ and the flood catchment pipe/storm drain immediately adjacent to Hale Creek would take place within existing road ROWs, which have been disturbed for road construction and are also unlikely to preserve a substantial intact topsoil resource. Consequently, significant loss of topsoil is not anticipated as a result of these project elements, and no mitigation is required.

Maintenance activities are not expected to require removal of topsoil. No impact related to topsoil removal is anticipated for maintenance of any of the project elements, and no additional mitigation is required.

### Impact GEO7—Reduction in Availability of Mineral Resources

Summary by Project Element: Impact GEO7—Reduction in Availability of Mineral Resources		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	No Impact	No Impact

The proposed detention facility sites at Rancho San Antonio County Park, ~~Cuesta Annex~~, and McKelvey Park do not support significant identified mineral resources, and no such resources have been identified on neighboring parcels. Moreover, the Rancho San Antonio County Park site’s current open space use, ~~Cuesta Annex’s current recreational/open space uses~~, and McKelvey Park’s current recreational use, in addition to adjacent residential uses at all both of these sites, are incompatible with mineral resources extraction activities. Thus, even if resources were present, locating flood detention facilities at these sites would not reduce or eliminate mineral resources availability. There would be no impact, and no mitigation is required.

The New Permanente Diversion Structure and diversion channel would be entirely within the District’s existing ROWs, and the downstream Permanente Creek floodwalls and levees and widened channel segments would be mostly within the District’s existing ROWs. In addition, the new Cuesta Inlet/Outlet Culvert and the flood catchment pipe/storm drain immediately adjacent to Hale Creek would be within existing roadways. All of these project elements are bounded by developed uses. No significant mineral resources have been identified in the surrounding area, and even if any were present, existing residential, commercial, and high-tech land uses, all of which are incompatible with extractive activities, would preclude their extraction. Construction of these elements thus would not reduce or eliminate availability of mineral resources. There would be no impact, and no mitigation is required.

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# CHAPTER 4. HYDROLOGY AND WATER RESOURCES

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Water quality and hydrologic function are protected at the federal and state level by the federal Clean Water Act (CWA) and by California's Porter-Cologne Water Quality Control Act, and California Fish and Game Code Section 1602 (Lake- or Streambed Alteration Agreement Program), and the California Regional Water Quality Control Board (RWQCB) San Francisco Bay Regional Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) permit (Order No. R2-2009-0074). Additional protection is provided at the local level by the Santa Clara Valley Water Resources Protection Collaborative's Water Resources Protection Ordinance, which provides model guidelines for streamside land use planning and regulates access to the District's facilities and easements, and by the District's Well Ordinance, which regulates water supply wells and other deep excavations with the potential to affect aquifers. The general plans of Los Altos, Mountain View, and Cupertino also contain a number of goals, policies, and action items for water resources protection and management. For additional information on water resources regulations, see Appendix B of this SEIR.

### *EXISTING CONDITIONS*

#### **Climate and Precipitation**

The Permanente Creek watershed has a semiarid Mediterranean-type climate characterized by mild, wet winters, and warm, dry summers. Approximately 80% of the precipitation occurs between November and March, and net precipitation can vary significantly from year to year. The distribution of rainfall within the watershed is strongly influenced by topography. Precipitation is highest in the upper part of the watershed, ranging up to 36 inches per year in the Santa Cruz Mountains. In contrast, average annual rainfall near San Francisco Bay is only 13 inches (Santa Clara Valley Water District 2008).

#### **Hydrology**

##### **Surface Drainage**

Permanente Creek is a perennial stream that originates approximately 2,800 feet above sea level in the foothills of the Santa Cruz Mountains and drains a watershed of approximately 28 square miles. From its headwaters, the Creek flows in a generally northward direction through the town of Los Altos and the cities of Los Altos, Cupertino, and Mountain View before discharging into southern San Francisco Bay via Mountain View Slough (Figure 2-1). The main stem of Permanente Creek originates in the upper portion of the watershed at the confluence of North (Ohlone Creek) Branch and South Branch Permanente Creeks. Hale Creek, the primary tributary, joins Permanente Creek

approximately 0.5 mile upstream of El Camino Real in the city of Mountain View. Tributaries to Hale Creek include Magdalena Creek, Loyola Creek, and the Summerhill Channel (Santa Clara Valley Water District 2008). Approximately the last 2.5 miles of Permanente Creek upstream of the Bay is tidally influenced (Santa Clara Valley Water District 2008).

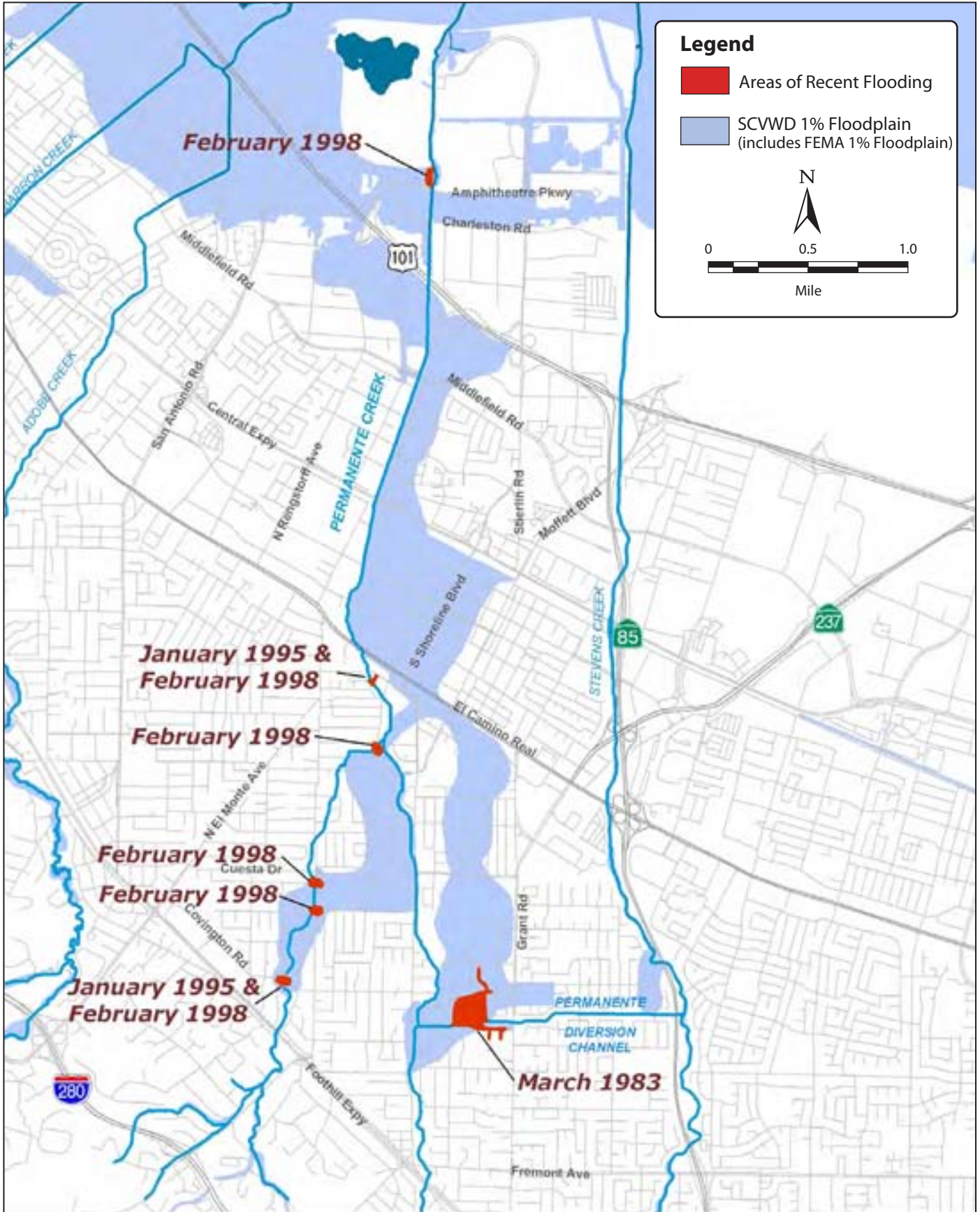
### **Flood Risks and Flood Protection**

The steep topography of the upper watershed results in short duration, high intensity runoff during storm events. Runoff in the lower, urbanized portion of the watershed is conveyed to the creeks by the municipal storm drain system, which tends to increase the magnitude of the more frequent events while slightly reducing the magnitude of very large events. The majority of flow from the upper Permanente Creek watershed is diverted to Stevens Creek through the Permanente Diversion Channel. The existing diversion structure was designed to allow low flows to continue downstream in Permanente Creek while routing higher floodflows via the Permanente Diversion Channel into Stevens Creek, but the existing diversion structure no longer functions reliably, so at the present time, the mainstem channel is deprived of the year-round flows it should support.

The Permanente Creek watershed has a history of recurring floods that have adversely impacted the safety and economic stability of residences and businesses within the floodplain. Flooding within the Permanente Creek watershed has been documented as far back as 1868, with additional events in 1911, 1940, 1950, 1952, 1955, 1958, 1963, 1968, 1983, 1995, and 1998. Figure 4-1 shows the locations of the most recent flooding.

In response to these recurring flood events, the District and other agencies have undertaken several projects within the Permanente Creek watershed to improve flood conveyance capacity and reduce the potential for flood damages to adjacent properties. These projects included construction in the early- to mid-1960s of a concrete-lined trapezoidal channel on Hale Creek (from the confluence with Permanente Creek upstream to Rosita Avenue); a trapezoidal channel on Permanente Creek (from Mountain View Slough upstream to US-101), portions of which were lined with concrete, with the majority of the channel remaining unlined); vertical-walled concrete channels on Permanente Creek (from US-101 to Villa Street, and El Camino Real to Hale Creek); two bridges and a concrete-lined connecting channel (Villa Street to California/El Camino); and the Permanente Diversion Channel. Additional reaches of Permanente Creek were lined with concrete (downstream of Portland Avenue) and/or sacked-concrete (upstream of Cuesta Drive and downstream of Marilyn Drive), and the eastern levee along Mountain View Slough was raised in the 1980s. Additionally, earthen mounds, floodwalls, and ramps were constructed around El Camino Hospital in 1981 to provide protection against the 1% ("100-year") flood. Because of these past improvements, channel type and flood conveyance capacity varies greatly within the project area.

Although it is difficult to accurately predict the exact location of future flooding within the project area, hydraulic modeling can be used to model the anticipated extent of flooding that could occur during large storm events. Figure 4-2 depicts the areas subject to flooding in a 1% flood, based on analyses conducted by the Federal Emergency Management Agency (FEMA) and the District. The primary difference between the two 1% inundation areas is that the District mapping includes areas that would experience flood depths of less than 1 foot whereas FEMA only shows areas subject to flood depths greater than 1 foot. Based on the

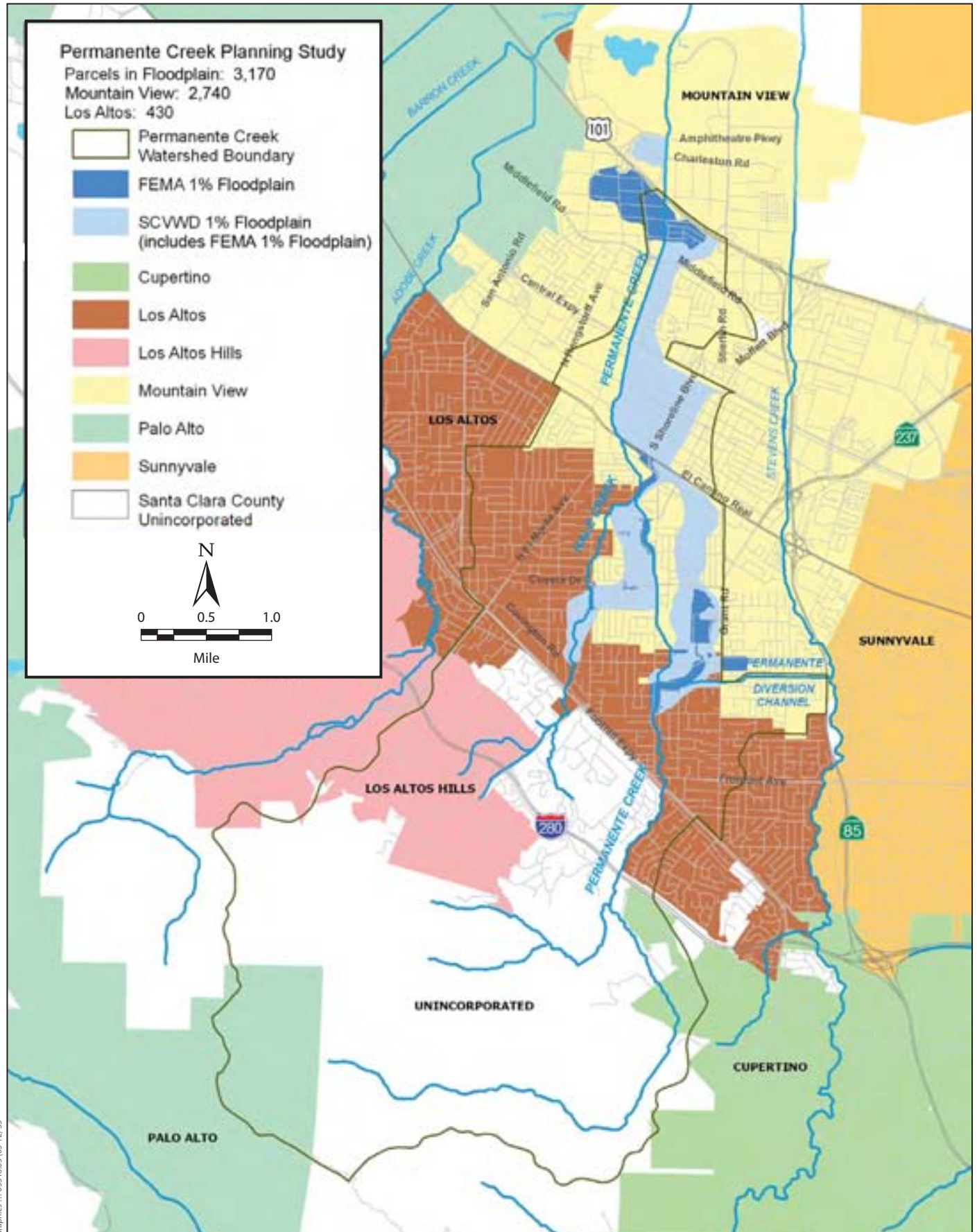


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**Figure 4-1**  
**Permanente Creek and Hale Creek 1% Flood Limits**  
**and Areas of Recent Flooding**





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**Figure 4-2**  
**Permanente Creek 1% Floodplain**

District's analysis, approximately 3,200 parcels within the project area are at risk of flooding in a 1% flood event.

## Groundwater Hydrology

The project area is located above a portion of the Santa Clara Valley groundwater basin, which spans four Bay Area counties. The principal aquifers in the basin are in alluvial and fluvial sand and gravel beds, so individual aquifers are typically lenticular. In most places, the basin's shallow groundwater is unconfined, but groundwater below depths of 150 to 200 feet is under confined or semiconfined conditions because discontinuous aquifers are isolated by impermeable clay and silt layers (Planert and Williams 1995). Recharge occurs primarily by infiltration through the beds of influent streams and infiltration of precipitation through permeable valley-floor deposits in the upper portions of the watershed (Planert and Williams 1995). ~~Within the Project corridor, this translates to the area upstream of the Cuesta Annex.~~

Groundwater levels recorded in the Santa Clara Valley groundwater basin range from 50 to 200 feet below the ground surface (Santa Clara Valley Water District 2005). However, groundwater depths likely vary in the project area as in other parts of the Santa Clara Valley, where impermeable layers in the alluvial deposits that floor the Santa Clara Valley can create locally perched groundwater conditions (Montgomery Watson 1999).

Groundwater monitoring wells were installed to support the detailed design of the Ranch San Antonio County Park Flood Detention Facility. Groundwater depths fall between 4 to 10 feet below surface elevations at the northeast portion of the site, and between 19 to 20 feet below surface elevation at the southwest portion of the site (Hatch Mott MacDonald 2010).

One existing irrigation supply well is located within the Project corridor. This well, which is operated by the Gate of Heaven Cemetery, is situated on the northwest side of the proposed Rancho San Antonio County Park Flood Detention Facility footprint. The existing well has a capacity of approximately 200 gallons per minute and is used to irrigate landscaping on the Gate of Heaven Cemetery.

## Water Quality

### Surface Water Quality

In general, water quality in streams depends on the mineral composition of the soils and associated parent material in the watershed, the hydrologic and hydraulic characteristics of the stream and its watershed, and the types of contaminant sources present in the watershed.

Because of the urbanized nature of the Permanente Creek watershed, surface water quality in the project area is directly affected by stormwater runoff from adjacent streets and properties delivering fertilizers, pesticides, metals, hydrocarbons, and other pollutants. Although the District does not monitor water quality in the Permanente Creek system or other creeks, it can be assumed that pollutant levels in the creeks are highest following the first storm flows of the season when constituents accumulated during the dry season are "flushed" into the creeks.

Due to the rugged topography and highly erodible soils in the upper watershed, surface water quality in Permanente and Hale Creeks is also affected by sediment. In the lower, tidally influenced portion of Permanente Creek, water quality may be affected by sediments entering the creek from South San Francisco Bay. In addition to these natural sources of sediment, surface water quality in the watershed is also affected by anthropogenic sediment sources. Mining associated with the Lehigh Southwest Cement Company Permanente Quarry generates large volumes of waste rock, sand particulates, and dust, which can be transported by surface water runoff to Permanente Creek during storm events. Additionally, urbanization has modified the hydrologic characteristics of the watershed, resulting in more rapid and greater peak storm flows, increased creek bed and bank erosion, and higher sediment loads (Santa Clara Valley Water District 2008).

### **Groundwater Quality**

In general, groundwater quality in the Santa Clara Valley is good; water from public supply wells meets state and federal drinking water standards without treatment (Santa Clara Valley Water District 2001). However, there are some known concerns. Near the Bay margin, historic groundwater overdraft has created areas of saltwater intrusion, where groundwater salinity is elevated by contact with seawater infiltrating into subsurface aquifers. Improperly abandoned wells have also conducted contamination from the surface into subsurface aquifers. In addition, as described in Chapter 11 (*Hazardous Materials and Public Health*), groundwater contamination resulting from past industrial uses has been identified in a number of areas. Groundwater quality in the portion of the project area north of Middlefield Road has been widely affected by regional volatile organic compound (VOC) plumes likely associated mainly with historic industrial uses. Soils and groundwater have also been affected by golf course lawn care chemicals; complex hydrocarbons and metals associated with the former Palo Alto/Los Altos Sewage Treatment Plant; and historic gasoline and petroleum hydrocarbon spills and runoff mainly associated with former gas station, dry cleaning, and painting businesses and the Jones Hall U.S. Army Reserve Center. Groundwater impacts from pesticides may be concentrated in the portion of the project area between Middlefield Road and Foothill Expressway where historic uses were largely agricultural. The area adjacent to the Permanente Diversion was formerly occupied by orchards, greenhouses, and packing plants, and the hazardous materials investigation identified impacts associated with possible historic spills at former greenhouses and/or packing plants in the areas adjoining the alignment (D&M Consulting Engineers 2002) (see additional discussion in Chapter 11).

### **Designated Beneficial Uses and Impairments**

Table 4-1 summarizes the designated beneficial uses identified for Permanente and Hale Creeks, downstream water bodies (South San Francisco Bay and Stevens Creek), and groundwater in the project area.

**Table 4-1. Designated Beneficial Uses**

<b>Water Body</b>	<b>Designated Beneficial Uses</b>
Permanente Creek	Cold Freshwater Habitat, Water Contact Recreation, Nonwater Contact Recreation, Fish Spawning, Wildlife Habitat, <u>Groundwater Recharge</u> , <u>Preservation of Rare and Endangered Species</u> , Warm Freshwater Habitat
Hale Creek	Cold Freshwater Habitat, Water Contact Recreation, Nonwater Contact Recreation, Fish Spawning, Wildlife Habitat, <u>Warm Freshwater Habitat</u>
South San Francisco Bay	Ocean, Commercial, and Sport Fishing; Estuarine Habitat; Industrial Service Supply; Fish Migration; Navigation; Preservation of Rare and Endangered Species; Water Contact Recreation; Nonwater Contact Recreation; Shell Fish Harvesting; Fish Spawning; Wildlife Habitat
Santa Clara Valley groundwater	Municipal and Domestic Supply, Industrial Process Supply, Industrial Service Supply, Agricultural Supply
Stevens Creek	Freshwater Replenishment, Cold Freshwater Habitat, Fish Migration, Fish Spawning, <sup>a</sup> Warm Freshwater Habitat, Wildlife Habitat, Water Contact Recreation, Nonwater Contact Recreation, <u>Groundwater Recharge</u> , <u>Preservation of Rare and Endangered Species</u>

<sup>a</sup> Potential Beneficial Use.

Source: San Francisco Bay Regional Water Quality Control Board 2006.

Table 4-2 shows water quality impairments identified in the current (2010) CWA Section 303(d) list of water quality-impaired systems, as well as approved Total Maximum Daily Load (TMDL) by the U.S. Environmental Protection Agency (EPA). The 2010 CWA Section 303(d) list has been reviewed and approved by EPA.

**Table 4-2. Overview of Water Quality Impairments in Project Area**

<b>Water Body</b>	<b>Listed Impairments Per 2010 303(d) List</b>	<b>Approved TMDL Pollutant</b>
Permanente Creek	Diazinon (urban runoff/storm sewers), Total Selenium, Water Toxicity, Trash	Diazinon
Hale Creek	None identified	None identified
South San Francisco Bay	Chlordane (nonpoint source), DDT (nonpoint source), Dieldrin (nonpoint source, Dioxin compounds (atmospheric deposition), Furan Compounds (atmospheric deposition), Invasive Species, Mercury (multiple sources), PCBs and Dioxin-Like PCBs (unknown nonpoint source), Selenium	Mercury
Santa Clara Valley groundwater	None identified	None identified
Stevens Creek	Diazinon (urban runoff/storm sewers), Water Temperature, Water Toxicity (unknown source), Trash	Diazinon

Sources: State Water Resources Control Board 2010, 2012.

# IMPACT ANALYSIS

## ***METHODS AND SIGNIFICANCE CRITERIA***

Impacts were analyzed qualitatively based on professional judgment in light of the hydrologic and hydraulic analyses prepared for Project design. Analysis focused on issues related to flood hazards, groundwater supply, and surface and groundwater quality. The Project would not include dam construction; new development protected by levees or floodwalls; or new construction placing persons or structures at significant risk due to mudflow, debris flow, tsunami, or seiche for both construction and operations. These issues are not discussed further in this SEIR.

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Increased flood risks.
- Substantial depletion of groundwater resources or interference with groundwater recharge; interruption of groundwater supply.
- Degradation of water quality potentially affecting beneficial uses, including degradation that would result in violation of any applicable water quality standard or waste discharge requirements.
- Increased runoff or new sources of pollutants.

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by text analysis.

## ***IMPACTS AND MITIGATION MEASURES***

### **Impact HWR1—Effects on Flood Hazards**

<b>Summary by Project Element: Impact HWR1—Effects on Flood Hazards</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Beneficial	Beneficial

The Project modifications would not result in new significant impacts or worsen a previously identified significant impact related to flood hazard. The beneficial impact finding in the FEIR for reducing flood hazard would remain valid in this SEIR.

As stated in the FEIR, although the detention basins would be constructed within the 100-year floodplain, they would be below-grade depressions and would not include extensive aboveground structures. Thus, these facilities would not impede flows on the floodplain or increase the 100-year base flood elevation. Overall, construction and operation of the new detention facilities and their inlet and outlet culverts would decrease flood hazards in the project area, representing a beneficial impact. No mitigation is required.

As stated in the FEIR, construction and maintenance of the new diversion structure would restore appropriate flows to the Permanente Creek mainstem, returning the Diversion Channel to its intended function as a bypass for higher floodflows. This would represent a beneficial impact on the overall function of the District’s flood protection infrastructure. By allowing year-round low flow to the natural section of Permanente Creek downstream of the Diversion Channel, the new diversion structure would also improve hydrologic function in the Permanente Creek mainstem, representing an additional beneficial impact. No mitigation is required.

The proposed project would also widen undersized segments of Permanente and Hale Creeks. Permanente Creek channel improvements would involve deepening and enlarging the existing U-shaped concrete channel from just upstream of Park Drive to upstream of the confluence with Hale Creek, substantially increasing the channel’s cross-section and flood conveyance capacity. The widening process would extend to Rosita Avenue. Construction of 2- to 4-foot-high floodwalls along the existing top of the levee bank on the western side of Permanente Creek from US-101 to Amphitheater Parkway would provide additional flood conveyance capacity in the downstream portion of the project area. In lieu of floodwalls downstream of Amphitheatre Parkway, the existing levee would be raised 2 to 3 feet above existing elevations. In lieu of floodwalls between Amphitheatre Parkway and Charleston Road, three walls would be constructed against the building on the west bank of Permanente Creek to flood proof openings in the structure that are susceptible to flooding (i.e., parking garage). Channel improvements and floodwall and levee construction, and the maintenance of these features once constructed, would result in a beneficial impact for flood safety. No mitigation is required.

## Impact HWR2—Effects on Groundwater Supply and Recharge

<b>Summary by Project Element: Impact HWR2—Effects on Groundwater Supply and Recharge</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility (including Septic System/Drain Fields)	Less than Significant with Mitigation	Less than Significant
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>Less than Significant</del>
McKelvey Park Flood Detention Facility (including Artificial Turf)	No Impact	Less than Significant
Channel Improvements: Permanente and Hale Creeks	No Impact	Less than Significant
Floodwalls and Levees downstream of US-101	No Impact	Less than Significant
	<del>No Impact</del>	<del>No Impact</del>

The Project modifications would not result in new significant impacts or worsen a previously identified significant impact related to groundwater recharge and supply. The mitigation measures identified in the FEIR would still be applicable under the SEIR.

Groundwater supply and recharge would increase at McKelvey Park, and Rancho San Antonio County Park, and Mountain View's Cuesta Annex. Inundation within each detention facility would vary based on type of rain event (i.e., 10-year or 50-year storm event). Construction of the flood detention facilities would vary in size from approximately 5 to 15 acres and in depth from approximately 8 to 15 feet. The McKelvey Park Flood Detention Facility would be inundated during a 50-year storm event; the Rancho San Antonio County Park ~~and Mountain View's Cuesta Annex Flood Detention Facilities~~ Flood Detention Facility would be inundated during a 10-year storm event. The detention basins would typically empty within 1 to 4 days, depending on the facility and magnitude of the flood event. Larger storm events would result in longer retention times and increased percolation into the groundwater.

Monitoring wells installed to support the detailed design of Rancho San Antonio show groundwater depths ranging from 4 to 10 feet in the northeastern portion of the project footprint and from 19 to 20 feet in the southern portion. Construction of the detention facility at Rancho San Antonio would lower the existing ground surface elevation by approximately 8 to 15 feet. As the monitoring data shows, groundwater elevations in the northeastern portion of the project area higher than the finished grade of the basin, construction may result in localized changes in the perched layer. Groundwater that may seep from the basin slope would be intercepted by native vegetation and would quickly percolate back into the soil or drain into Permanente Creek, so would not affect supply or recharge of the groundwater or water quality.

Once the flood peak passes, the stored floodwater in each detention facility would drain back into Permanente Creek. For the McKelvey Park Flood Detention Facility, flood flows would drain back into Permanente Creek via gravity flow and pumping. For the Rancho San Antonio County Park Flood Detention Facility, flood flows would drain back into Permanente Creek via gravity flow. ~~For Mountain View's Cuesta Annex Flood Detention Facility, flood flows would drain back into Permanente Creek via an outlet pipe.~~ None of the project elements would require the use of groundwater. Stormwater from the McKelvey Park ~~and Cuesta Annex Flood Detention Facilities~~ Flood Detention Facility that flows back into Permanente Creek would not affect supply or recharge of the groundwater. However, detention and temporary storage of floodwater at the Rancho San Antonio County Park Flood Detention Facility would have a minor localized effect on groundwater supply or recharge because seepage from the basin wall would drain into the creek along with flood flows as the basin drains. However, this effect on groundwater would occur only during a 10-year or greater storm event. There would be no long-term impact related to increased groundwater use or a reduction in supply, and no mitigation is required.

As stated in the FEIR, the existing water well operated by the Gate of Heaven Cemetery (located within the proposed footprint of the Rancho San Antonio County Park Flood Detention Facility) would be decommissioned during construction and replaced once the detention facility has been constructed. Consequently, groundwater supply to the cemetery would be interrupted for the duration of construction. Although temporary, this could represent a significant impact; impacts would be reduced to a less-than-significant level by implementation of the following mitigation measures.

#### **Mitigation Measure HWR2.1—Provide Alternate Water Supply during Construction**

If requested, the District will ensure that a temporary source of alternate water supply is provided for the Gate of Heaven Cemetery to replace supply from the well decommissioned for construction at Rancho San Antonio County Park.

**Mitigation Measure HWR2.2—Replace Groundwater Supply Well Decommissioned to Accommodate Construction**

As soon as feasible, the District will replace the water supply well decommissioned for construction at Rancho San Antonio County Park. The replacement well will be sited and constructed to provide supply equal to that provided by the decommissioned well.

The remainder of this discussion, therefore, concentrates on the Project's potential to affect groundwater resources and supply by reducing (or increasing) groundwater recharge, which is controlled by the increase or decrease in extent of impervious surfaces within the project area as a result of project facilities. Because increases and decreases in impervious surfaces relate to project design, any impacts would occur post construction. For the purposes of this analysis, impacts were evaluated to occur under operations and maintenance. Project operations and maintenance are not expected to require additional increase or decrease in impervious surfaces; additional impacts on groundwater resources during the Project's operational life are thus not anticipated, and the analysis below focuses on outcomes of constructing the proposed project facilities.

The proposed new flood detention basins would have earthen "floors" composed of native substrate materials, so these facilities would not increase the extent of impervious surface or reduce percolation and groundwater recharge. On the contrary, the temporary (1 to 4 days) storage of floodflows could result in a slight increase in localized percolation and recharge of the shallow aquifer. Overall, however, groundwater impacts associated with the flood detention basins are expected to be less than significant.

Similarly, levee construction would not increase the extent of impervious surfaces or reduce percolation and groundwater recharge. The existing levee would be raised and would have no impact on groundwater recharge.

The ~~Cuesta Inlet/Outlet Culvert~~, McKelvey Outlet Pipe, and Hale Creek storm drain are located within existing paved roadways and would not require an increase in impervious areas. Because they would not increase the area of impervious surface, these facilities would have no impact on groundwater recharge. Similarly, the New Permanente Diversion Structure would be located entirely within the existing hardscape footprint of the diversion channel and, therefore, would not increase the extent of impervious surface or alter percolation and groundwater recharge. There would be no impact on groundwater recharge as a result of any of these project elements.

Replacing existing undersized concrete channels in segments of Permanente and Hale Creeks would result in a slight increase in the extent of impervious surfaces by increasing channel widths; however, the added impervious area would be very small and would not affect groundwater recharge. The same would be true for construction of the proposed new floodwalls along lower Permanente Creek. The increase in impervious area would be very small, and the proposed floodwall alignments would be located outside the groundwater recharge zone. Consequently, impacts on groundwater as a result of these project elements would be less than significant.



## Impact HWR3—Temporary Degradation of Water Quality

Summary by Project Element: Impact HWR3—Temporary Degradation of Water Quality		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility (including Septic System/Drain Fields)	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	Less than Significant	Less than Significant
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant</del>	<del>Less than Significant</del>
Channel Improvements: Permanente and Hale Creeks	Less than Significant	Less than Significant
McKelvey Park Flood Detention Facility (including Artificial Turf)	Less than Significant with Mitigation	Less than Significant with Mitigation
Floodwalls and Levees downstream of US-101	Less than Significant	Less than Significant

The Project modifications would not result in significant impacts or worsen a previously identified significant impact related to temporary degradation of water quality.

Activities required to construct all project elements—including site clearing, excavation, and fill placement, as well as demolition of existing facilities, where required—would have the potential to contribute to erosion and subsequent increased input of fine sediments into Permanente Creek, Stevens Creek (from Rancho San Antonio County Park Flood Detention Facility or Permanente Diversion Structure via Permanente Diversion Channel), and Hale Creek (from channel improvements), potentially resulting in degraded water quality. Additionally, hazardous materials such as gasoline, oils, grease, and lubricants from construction equipment could be accidentally released during construction. Accidental discharge of these materials to Permanente Creek, Stevens Creek, or Hale Creek could adversely affect water quality, endanger aquatic life, and/or result in violation of water quality standards. However, the Rancho San Antonio County Park, ~~Cuesta Annex~~, and McKelvey Park work areas would all be large enough that a Stormwater Pollution Prevention Plan (SWPPP) will be required under the federal CWA (see Appendix B for details). Construction activity resulting in a land disturbance of 1 acre or more must obtain the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activity Construction Activities Stormwater General Permit (State Water Resources Control Board, Order No. 2009-0009 DWQ as amended by 2010-0014-DWQ (CQP)) and require the implementation of a SWPPP.

The SWPPP would include provisions to control erosion and sedimentation, as well as a Spill Prevention and Response Plan to avoid and, if necessary, clean up accidental releases of hazardous materials. The District will be responsible for ensuring compliance with the requirements of the SWPPP. With the SWPPP in place, impacts related to degradation of water quality during construction are expected to be less than significant, and no mitigation is required. The work areas for the new Permanente Diversion Structure and floodwalls installation would likely be too small to require an SWPPP. However, as discussed in Chapter 2 (*Project Description*), the District has committed to implement the same types of erosion and sediment control and spill prevention measures for all work sites, regardless of whether an SWPPP is

required under law. With these measures in place, impacts related to degradation of water quality during construction are expected to be less than significant, and no mitigation is required.

Proposed detention basins would not increase contamination to the groundwater. The proposed detention basin site at Rancho San Antonio currently resides in an active low-level floodplain area, and is already exposed to flooding by Permanente Creek and to any associated risk of elevated selenium or water toxicity levels. There would be no substantial change in selenium or water toxicity exposure at Rancho San Antonio. Additionally, the proposed detention facility would fill infrequently (in events greater than the 10-year recurrence interval flood) and would empty in 1 to 2 days. Creation of the flood-detention basin would not increase the extent or duration of inundation at the site, and could decrease its extent in larger events. Because the extent and duration of flooding would not increase, no significant impact associated with selenium contamination or water toxicity of groundwater is anticipated as a result of the proposed Rancho San Antonio County Park Flood Detention Facility.

The proposed detention basin at the ~~Cuesta Annex and McKelvey Park~~ sites, however, would increase the frequency of inundation in areas currently subject to flooding approximately every 100 years, with the potential to increase biological exposure of selenium or water toxicity contaminations. However, like the Rancho San Antonio site, impoundment at the ~~Cuesta and McKelvey~~ sites would be very short in duration (~~1 to 2 days anticipated for Cuesta and anticipated~~ 1 to 4 days ~~anticipated for McKelvey~~) and would occur very infrequently (approximately 1 to 2 times per 50 years ~~at McKelvey Park and 1 to 2 times within a decade at the Cuesta Annex~~) and, therefore, would not create sustained or repeated exposure to waterborne selenium or water toxicity for plants, invertebrates, or birds. The potential for increased selenium uptake would be extremely limited, and significant impacts are not anticipated. No mitigation is required.

The proposed detention basins would change the hydrology of the project site during storm events. During low storm events, stormflows within each detention basin would be confined within the detention basin. During high storm events, flows from Permanente Creek would spill over and be temporarily stored at each detention basin. The detention basins and project facilities would not result in a substantial increase in impervious surfaces and therefore would not increase storm runoff. No mitigation is required. The implementation of an SWPPP for the Project would prevent pollutants from significantly affecting the quality of Permanente Creek during construction. Pollutants such as selenium and water toxicity have been identified by the State Resource Control Board 303(d) list (State Resource Control Board 2010) to exist within Permanente and Stevens Creek, and therefore, exist within the entirety of the creeks. The Project would not contribute to existing selenium or water toxicity-related sources. There would be no Project-related impact on beneficial uses due to selenium or water toxicity and impacts on water quality are expected to be less than significant. Like construction, ongoing maintenance activities would also have some potential to degrade water quality through mechanisms very similar to those discussed for project construction—sediment mobilization, inadvertent spills and releases of fuels and lubricants, etc. However, as identified in Chapter 2, the District routinely implements a comprehensive suite of best management practices (BMPs) to protect water quality, and these will apply to all project maintenance activities. With these measures in place, maintenance-related impacts on water quality are expected to be less than significant. No mitigation is required.

The District will also require compliance with the Municipal Regional Stormwater Permit from the areas of new and replaced impervious surfaces from the Project. The Santa Clara Valley Urban Runoff Pollution Prevention Program's (SCVURPPP's) C.3 Guidance Manual is based upon the requirements of the Municipal Regional Stormwater Permit. Per information provided in SCVURPPP's C.3 Guidance Manual, "private or public projects that create and/or replace 10,000 square feet or more of impervious surface must comply with Provision C.3. If the project is located on a previously developed site and will result in the replacement of impervious surface, then it is considered a redevelopment project. Redevelopment projects that replace more than 50 percent of the existing impervious surface area are required to treat runoff from the entire site" (Santa Clara Valley Urban Runoff Pollution Prevention Program 2006).

Project areas that create and/or replace 10,000 square feet or more of impervious surfaces will be required to comply with Provision C.3. Provision C.3 of the NPDES permit addresses stormwater impacts associated with new development and redevelopment projects that trigger impervious surface disturbance. Because all Project areas are considered redevelopment projects, if the Project area replaces more than 50 percent of the existing impervious surface area, then stormwater runoff treatment is required for the entire site. Stormwater runoff from Project areas that comply with Provision C.3 will incorporate low-impact developments (LID) and BMPs. Therefore, impacts on water quality from stormwater runoff from impervious surfaces are expected to be less than significant.

Project areas that also create and/or replace 1 acre or more of impervious surface are required to comply with the SCVURPPP's Hydromodification Management Plan (HMP). Hydromodification (changes that affect the runoff hydrograph) can cause stream channel erosion and harm beneficial uses of the stream. Typically, this is caused by development that increases the peak flow, total volume, and flow duration of runoff. The HMP will delineate areas where such increases will be detrimental to channel health and maintain the pre-project discharge rate and durations after development. Project areas that must comply with the HMP are required to retain, detain, or infiltrate runoff to match pre-project flows and durations. Project areas that must comply with the HMP will implement any form of stormwater treatment control BMP to match pre-project flows and durations. Therefore, impacts on water quality from increases in stormwater runoff are expected to be less than significant.

In addition to implementation of a SWPPP, Provision C.3, and the Hydromodification Management Plan, an NPDES General Permit for the discharge of stormwater runoff from the municipal separate storm sewer system (MS4) would be required. As part of the Santa Clara County Municipal Stormwater NPDES Program (MS4 Phase II), the County's Stormwater Management Plan (SWMP) details requirements for new development and significant redevelopment BMPs. The General Permit requires a regulated MS4 Phase II SWMP to address six minimum control measures: (1) public education and outreach on stormwater impacts, (2) public involvement/participation, (3) illicit discharge detection and elimination, (4) construction site storm water runoff control, (5) post-construction stormwater management in new development and redevelopment, and (6) pollution prevention/good housekeeping for municipal operations.

Minimum control measures (1) and (2) would educate the public on the causes of stormwater pollution and the steps that can be taken to reduce pollutants in stormwater runoff, and involve the community in preventing stormwater pollution. Minimum control measure (3) will incorporate a combination of mapping and monitoring, regulatory controls, establish procedures for reporting, establish a public hotline and training for staff to reduce to the

maximum extent practical (MEP) for illicit discharge from direct and indirect connections. Establishment of a SWPPP will create BMPs to prevent illicit discharge during the construction of the project. The SWPPP will also create BMPs to prevent construction-related pollutants for minimum control measure (4). Minimum control measure (5) will prevent or reduce stormwater pollutants that may be discharged from the Project Site, manage runoff volume and flow rate due to an increase in impervious area, and establish treatment devices for the potential pollutants of concern. Post-construction stormwater management would be established at all detention basins and connecting outlets. Runoff flows will be altered by the construction of the detention basins; however, post-construction pollutants will not be increased in stormwater runoff. Although artificial turf at the McKelvey site could contain pollutants of concern, Mitigation Measure HWR 2.4 will ensure that turf material will not pose harm to the environment. The Project will not substantially increase impervious surfaces, and therefore, quantity of storm runoff will be unchanged. Minimum control measure (6) will improve and protect receiving water bodies from stormwater runoff pollutant derived from street and road surfaces, pavement, sidewalks, plazas, parking lots, parks and corporate yards, vehicle wear, atmospheric deposition and littering.

The development of a SWMP and establishment of the minimum control measures would reduce the discharge of pollutants from the MS4 to the MEP. With these measures in place, impacts on water quality related to stormwater discharges are expected to be less than significant. No mitigation is required.

The SWMP would prohibit discharges of pollutants and/or eliminate or reduce pollutant discharges to the MEP as well as protect water bodies from pollutants that may be transmitted by the local storm water system. The SWMP, however, would not control effluent pollutants that would be routed to the proposed on-site septic and drain field system. An on-site septic and drain field system would be installed to percolate effluents for land disposal via two drain fields (consisting of four drain lines each). The septic system/drain fields are located west of the equestrian parking area in Rancho San Antonio County Park. The septic system/drain fields are designed to treat a proposed restroom in the parking area.

According to preliminary plans, wastewater from the proposed restrooms would enter the septic system and separate effluent flows into two distribution boxes. The distribution boxes would further separate flows into four perforated pipes that would flow along the 80-foot drain lines. The Jensen septic system would have approximately 2,500 gallons of storage capacity.

Domestic wastewater from the proposed septic system may contact groundwater depending on groundwater levels. Perforated pipes containing effluent flows would be underground at a minimum of 20 inches from the surface. If a Piezometer test shows high groundwater levels in the area, the groundwater may be adversely affected. The degradation of water quality through the groundwater could represent a significant impact; impacts would be reduced to a less-than-significant level by implementation of Mitigation Measure HWR2.3.

McKelvey Park detention basin may be constructed using artificial turf. Artificial turf is a surface manufactured from synthetic fibers. The infill of artificial turf includes crumb rubber material produced from recycled tires. This infill layer can be composed of entirely styrene butadiene rubber (SBR) granules, produced by an ambient and/or cryogenic grinding process, or intermixed with quartz crystals (sand). SBR may contain a number of volatile organic compound (VOCs), semivolatiles organic compounds (SVOCs), and metals. VOCs in the SBR

originate from the use of carbon black and petroleum oils in the tire production process (Integrated Waste Management Board 2007).

Today, the production of SBR material from tires typically includes a step to remove 99% of the steel belting and bead material, which should result in lower levels of iron, manganese, and chromium in the SBR material relative to earlier products. The SBR material also contains carbon black, an industrial chemical used in the manufacturing of automobile tires and other plastic materials (Integrated Waste Management Board 2007). Studies on artificial turf have indicated levels of contaminants detected (i.e., iron, manganese, chromium, and zinc), but were not a significant health or environmental concern. Table 4.3 summarizes the effects from artificial turf used in different parts of the United States.

**Table 4-3. Summary of Artificial Turf Studies**

Name of Study	Summary of Conclusion
<b>2007 Integrated Waste Management Board Study</b>	<p>While concentrated leachate has been found to be toxic to a variety of aquatic organisms, and has been found to contain metal concentrations greater than drinking water standards, it is unlikely that leachate from tire shreds used in outdoor applications, such as playground surfaces, would yield such concentrated leachate with high enough concentrations to cause adverse effects.</p> <p>When installations of playfields are above the water table, risks to groundwater quality are low.</p>
<b>Environmental and Health Assessment of the Use of Elastomer Granulates as Filling in Third-Generation Artificial Turf</b>	<p>The concentrations of metals and organic chemicals detected in leachate samples from conditions that mimicked rainfall were generally lower than the applicable drinking water standards. The samples exhibited slight acute and chronic toxicity at 15 days after installation, but none of the samples showed toxicity 3 months after installation.</p>
<b>An Assessment of Chemical Leaching, Releases to Air, and Temperature at Curb-Rubber Infill Synthetic Turf Fields</b>	<p>Laboratory leaching methods indicated the potential for release of zinc, aniline, phenol, and benzothiazole from synthetic turf installations. However, laboratory leaching procedures are more aggressive than would occur due to rainfall, and these results are not necessarily representative of potential leachate quality from a synthetic turf installation.</p> <p>Zinc, chromium, copper, lead, and nickel were detected in one stormwater runoff sample. However, the concentrations were below New York surface water standards.</p> <p>Semivolatle organic compounds were not detected in groundwater samples collected down gradient of four synthetic turf installations.</p>
<b>2009 Study of Crumb Rubber Derived from Recycled Tires Final Report and Artificial Turf Study</b>	<p>Laboratory leaching methods indicate that there is a potential for synthetic turf to leach metals, especially copper and zinc. The tests also indicate the presence of benzothiazole in the leachate.</p> <p>Stormwater samples collected from four fields contained benzothiazole as well as the metals barium, copper, iron, vanadium, and zinc. Concentrations of aluminum, barium, and zinc all exceeded aquatic toxicity criteria at least once during sampling. Based on these findings, zinc was identified as a potential risk to surface waters. Implementation of stormwater BMPs to control stormwater runoff quality are recommended.</p>
<b>Beach Chalet Athletic Fields Renovation</b>	<p>Total iron and manganese concentrations in stormwater samples from two synthetic turf installations exceeded secondary drinking water standards. Dissolved copper concentrations exceeded the marine surface water environmental screening level in stormwater samples from both fields.</p>
<b>Ravensdale Park Improvements</b>	<p>Water quality of synthetic turf runoff had no effect on the test organisms and met all state and federal water quality standards.</p>

Leachate from the artificial turf field in McKelvey Park could potentially degrade groundwater quality if allowed to infiltrate to the groundwater. Leaching from the artificial turf would depend on several factors: frequency of inundation in the detention facility, composition of SBR infill material, and groundwater depth.

Substantial leaching from the artificial turf would occur during inundation of the detention basin. Because the detention basin would inundate during a 50-year storm event or higher, leaching from the artificial turf would rarely occur. The composition of SBR material is dependent on the tires used in the manufacturing process and can be variable. Additional material-specific information is needed to assess the specific levels of contaminants in leaching from the artificial turf and whether the detected levels could cause degradation of water quality.

Mobilization of the artificial turf material may also cause water quality impacts if the fill material is transported into Permanente Creek. Following storm events, a small percentage of infill may be mobilized and transported into the creek as the detention basin drains. Water quality effects from the turf infill will be determined by the material properties of the infill. As described above, the substantial amount of research suggests that leaching from the artificial turf would not cause adverse water quality effects. However, the degradation of water quality through Permanente Creek and/or the groundwater could represent a significant impact; impacts would be reduced to a less-than-significant level by implementation of Mitigation Measure HWR2.4.

#### **Mitigation Measure HWR2.3—Septic System and Drain Field Design**

The following measures will be completed prior to the General Permit issuance to ensure compliance with regulatory requirements and prevent significant water quality impacts:

- A Piezometer test to be conducted at the proposed drain field to identify groundwater levels.
- A percolation test shall be conducted at the site to determine expected percolation rates. Percolation rates are required to be within the range of 1 to 120 minutes per inch (mpi) (Sewage Disposal System Requirements 1982). Based on the results of the test, the contractor may be required to amend the soil and retest the percolation rate until required rate is achieved.
- The septic system design shall be submitted to the District for review and approval, demonstrating compliance with County and State (i.e., San Francisco Bay Regional Water Quality Control Board RWQCB, County of Santa Clara, and Uniform Plumbing Code) septic system requirements regarding location, sizing, installation and maintenance of facilities. The septic system design must be approved by the County prior to permit issuance.

#### **Mitigation Measure HWR2.4—Ensure that Provide Detailed Material-Specific Information for Artificial Turf Infill Composition Meets Water Quality Objectives and Agency Requirements**

The District shall review and approve infill material composition of the artificial turf to ensure that the material meets all applicable standards. The District will ensure that infill material composition will meet the water quality objectives for groundwater and Permanente Creek established in the San Francisco Water Quality Control Board's Basin Plan. The District will submit artificial turf material composition for approval by the City of Mountain View, RWQCB, and DFG. If a suitable material that meets City,

RWQCB, and DFG requirements cannot be found, then natural grass playing fields will be installed.

## Impact HWR4—Effects on Designated Beneficial Uses

Summary by Project Element: Impact HWR4—Effects on Designated Beneficial Uses		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant	Less than Significant

The proposed flood protection improvements are intended to improve flood safety and surface hydrologic function in Permanente and Hale Creeks and would not physically impede the abilities of these water bodies or downstream waters (South San Francisco Bay, Santa Clara Valley groundwater) to satisfy their designated beneficial uses. The Project modifications would not result in new significant impacts or worsen a previously identified significant impact related to designated beneficial uses.

Permanente and Hale Creeks have the following same-identified beneficial uses: Cold Freshwater Habitat, Warm Freshwater Habitat, Nonwater Contact Recreation, Fish Spawning, Groundwater Recharge, Preservation of Rare and Endangered Species, and Wildlife Habitat. All of these uses could be affected by degradation of water quality, but as discussed in the previous impact (HWR3) and in Chapter 5 (*Biological Resources*), construction- and maintenance-related impacts on water quality would be controlled to a less-than-significant level by BMPs. Project activities are therefore not expected to result in water quality degradation affecting beneficial uses for Permanente Creek, Hale Creek, or downstream waters. The Project is also considered unlikely to result in significant increases in water temperature in Permanente or Hale Creeks. Any trees removed for project construction would be replaced as required by local ordinances and the terms and conditions of Project permits (see discussion in Chapter 5), so long-term shading over the creek corridors would not be decreased. Impoundment of floodwaters in shallow detention basins could cause an increase in temperature if the water were to remain in the detention basins for a protracted period, allowing solar warming to take place, but as discussed in Chapter 2 (*Project Description*), the basins are expected to empty in no more than 1 to 2 days. Moreover, events large enough to bring the flood basins into use would be infrequent (and thus, not affect baseline conditions in the creeks) and would also be expected to occur during the cooler parts of the year. The Project would slightly modify the flow split between the Permanente Creek Diversion Channel and Permanente Creek in floods smaller than the 10-year event because a small percentage of incoming floodflow would be allowed to continue down the Permanente mainstem. For example, at an incoming flow of 1,000 cubic feet per second (cfs) (approximately equal to the 5-year floodflow in Permanente Creek immediately upstream of the diversion structure), the new diversion structure would pass approximately 50 cfs to downstream Permanente Creek but would still divert the majority of the flow (approximately 950 cfs) to Stevens Creek. The resulting decrease of 50 cfs would represent approximately 1.5% of the corresponding 5-year floodflow in Stevens Creek (3,400 cfs). This small percentage reduction is very small, and therefore, would not significantly affect Stevens Creek's beneficial uses. At very low flows, the post-project flow split would change substantially from existing conditions because the Project would be specifically designed to route summer low flows into the downstream Permanente mainstem. This is expected to result in about a 5-cfs increase in flows in the Permanente mainstem downstream of the diversion structure, with a

corresponding decrease of about 5 cfs in summer flows in Stevens Creek. This small change in summer flows in Stevens Creek would not result in an impact on Stevens Creek beneficial uses, and could enhance Cold Freshwater Habitat, as summer low flows from the Permanente Diversion Channel consist largely of nuisance flows from adjacent developed areas warmed by their passage along the unshaded concrete channel. Consequently, the Project is not expected to affect water temperatures in a manner that would significantly degrade Cold Freshwater Habitat or Warm Freshwater Habitat values; on the contrary, because year-round flow would be more effectively maintained in the reach downstream of the new diversion channel, there could be a minor benefit to coldwater habitat and other habitat values. In addition, the Project would not result in any significant changes in groundwater recharge. As discussed in Chapter 12 (*Recreation*), Pproject construction would result in temporary reduction in recreational access to some parts of the Permanente Creek corridor with established recreational uses (Rancho San Antonio County Park, trails along floodwalls alignment), but uses would be restored following construction. Thus, there would be no long-term impedance of Nonwater Contact Recreational Uses, and impacts are considered less than significant. Impacts on wildlife habitat values, including fisheries uses, and rare and endangered species, are discussed in detail in Chapter 5 (*Biological Resources*) and are similarly expected to be less than significant with incorporation of mitigation measures identified in Chapter 5. Overall, impacts on beneficial uses in Permanente and Hale Creeks are expected to be less than significant, and minor benefits may occur. No additional mitigation is required.

Designated beneficial uses in Stevens Creek include Freshwater Replenishment, Cold Freshwater Habitat, Fish Migration, Fish Spawning, Warm Freshwater Habitat, Groundwater Recharge, Preservation of Rare and Endangered Species, Wildlife Habitat, Water Contact Recreation, and Nonwater Contact Recreation. The Project would not modify Stevens Creek directly and therefore could only affect beneficial uses in Stevens Creek indirectly, via the quality of flows entering Stevens Creek from the diversion channel. Under existing conditions, water quality in Stevens Creek is primarily controlled by releases to the creek from Stevens Creek Dam. At low flows, when the Diversion channel contribution is typically at its warmest (and therefore most likely to degrade Stevens Creek flows and affect beneficial uses), the Permanente Diversion Channel presently contributes a relatively small percentage of Stevens Creek flow; this contribution would decrease post-project because the new diversion structure would more efficiently route year-round low-flow directly downstream in the Permanente mainstem. Thus, if anything, the impact on Stevens Creek water quality and uses during low-flow periods would be beneficial. At higher flows, the percentage of Stevens Creek flow contributed by the diversion channel increases, but the new diversion structure would provide a very similar flow split to that currently taking place at high flows and District modeling indicates that the percentage of flow contributed by the diversion channel would not change substantially post-project. As a result, the Project is not expected to result in material changes to the way diversion channel flows affect Stevens Creek beneficial uses. No significant impact on Stevens Creek beneficial uses is expected, although a limited benefit may occur during the dry season. No mitigation is required.



Designated beneficial uses for downstream waters are as follows:

- South San Francisco Bay—Ocean, Commercial, and Sport Fishing, Estuarine Habitat, Industrial Service Supply, Fish Migration, Navigation, Preservation of Rare and Endangered Species, Water Contact Recreation, Nonwater Contact Recreation, Shell Fish Harvesting, Fish Spawning, Wildlife Habitat.
- Santa Clara Valley Groundwater—Municipal and Domestic Supply, Industrial Process Supply, Industrial Service Supply, Agricultural Supply.

As analyzed in the FEIR, the Project would not modify, use, or replenish these waters directly and therefore, could only affect their beneficial uses indirectly, via the quality of flows entering the Bay from lower Permanente Creek/Mountain View Slough and of recharge waters entering the aquifer through pervious creekbed materials. Because the Project is not expected to affect water quality significantly or increase selenium/water toxicity pollutants to Permanente and Stevens Creek, impacts on downstream beneficial uses are also expected to be less than significant, and no mitigation is required.

## REFERENCES

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# CHAPTER 5. BIOLOGICAL RESOURCES

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Biological resources are protected by numerous federal and state regulations, including the federal Endangered Species Act (ESA), Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act, and the California Endangered Species Act (CESA), Native Plant Protection Act, Oak Woodland Conservation Act, as well as the California Fish and Game Code. Regulations for biological resources are also established at the local level by the County of Santa Clara and the Cities of Los Altos, Mountain View, and Cupertino. For additional information, see Appendix B of this SEIR.

### *EXISTING CONDITIONS*

Existing conditions for biological resources were identified through a combination of literature research and site reconnaissance. Field visits were conducted in 2003 (October 6, 9–10, 15–17, 23–24, 27, and 29) and in 2007 (April 3–4, 28, 30, and May 10–11). Additional visits to the project element sites were conducted on March 28 and 30, 2007; May 7, 2008; September 7, 2010; April 7, 2011; and March 16, 2012.

Searches of the California Natural Diversity Database (CNDDDB) (California Department of Fish and Game 2012), the U.S. Fish and Wildlife Service (USFWS) special-status species list (U.S. Fish and Wildlife Service 2012), and the California Native Plant Society (CNPS) *Inventory of Rare and Endangered Plants of California* (California Native Plant Society 2012) were conducted to identify all special-status plant and wildlife species that may occur in the project region. The likelihood of each species' occurrence at the project element sites was then assessed in more detail based on the species' known distribution (i.e., the locations and dates of known occurrences), and the types and quality of habitat present at each project element site.

### **Regional Setting**

The project area is located in the southwestern region of the San Francisco Bay Area, which is characterized by warm dry summers and mild wet winters, with most of the rainfall occurring between November and April. Vegetation is adapted to this Mediterranean-type climate regime, and the landscape is a mosaic of drought-adapted tree, shrub, and grassland communities.

Permanente Creek is a perennial stream that originates in the largely undeveloped eastern foothills of the Santa Cruz Mountains; the creek runs 13 linear miles through the town of Los Altos Hills and the cities of Los Altos, Cupertino, and Mountain View and discharges into South San Francisco Bay via Mountain View Slough. Hale Creek, a principal tributary, joins Permanente Creek approximately 0.5 mile upstream of El Camino Real in the city of Mountain View. The last 2.5 miles of the creek upstream of the bay are tidally influenced.

Immediately to the south and southwest of the project area, the Santa Cruz Mountains support a combination of protected open space and rural residential development. The project corridor itself is located on the Santa Clara Valley floor; lands to the east and west of the project corridor are largely developed except for urban parks. Existing land uses adjacent to the creek, thus, range from open space in the creek's upper reaches to residential development in the cities of Mountain View and Los Altos and commercial and light industrial uses approaching Mountain View's Bay margin. Immediately upstream from the creek's point of discharge into Mountain View Slough, it crosses through Shoreline at Mountain View Park. Consistent with its setting, much of the creek's urban length has been channelized or otherwise improved for flood protection, although portions remain unlined or only minimally altered.

## Biological Communities in the Project Corridor

Twelve habitat types occur in the project corridor:<sup>1</sup> annual grassland, ~~abandoned orchard~~, valley foothill riparian, ruderal, open water, tidal salt marsh, tidal brackish marsh, freshwater wetland, seasonal wetland, mixed chaparral, coastal oak woodland, and developed areas. The following sections provide brief descriptions of these habitat types.

### Annual Grassland

Annual grasslands are found at Rancho San Antonio County Park, where they commonly intergrade with oak woodland and willow-dominated riparian habitats; ~~at the Cuesta Annex~~; and along the banks and in the drier areas (e.g., terrace benches and bars above the summer water level) of the earthen channels in lower Permanente Creek. Annual grasslands in the Permanente Creek watershed are dominated by nonnative annual grasses and forbs. In lower Permanente Creek (downstream of Amphitheatre Parkway), the uplands along the levee banks consist of grasslands and intergraded ruderal habitat (discussed below) that are periodically mowed to reduce fire hazard.

### Valley Foothill Riparian

Riparian communities provide high-value habitat, offering escape cover, forage, and nesting opportunities for many wildlife species and creating shade that controls instream water temperatures. Riparian vegetation also plays a role in stream geomorphology by providing bank stabilization and erosion control. Riparian woodlands are important resources because of their scarcity in the region and their value to a large variety of wildlife species.

Although much of the watershed is urbanized, the more natural sections of Permanente and Hale Creeks support riparian habitat of varying qualities. Portions of Permanente Creek with a riparian corridor include the reaches from Rancho San Antonio County Park downstream to Foothill Expressway. Downstream of Foothill Expressway, riparian habitat continues intermittently as far downstream as the confluence with Hale Creek.

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<sup>1</sup> Upland habitat and land cover types were classified according to the nomenclature developed for the California Wildlife Habitat Relationship System (Meyer and Laudenslayer 1988). Descriptions of wetland habitat types below are based on initial site visits in 2003 and additional site visits in 2007 and 2008 for the wetland delineation conducted to support the Permanente Creek Planning Study (ICF Jones & Stokes in preparation). Information on common and special-status plant and wildlife species was obtained from *A Guide to Wildlife Habitats of California* (Meyer and Laudenslayer 1988), the *Santa Clara Basin Watershed Management Initiative Watershed Characteristics Report* (2000), the CNDDDB, and other sources identified below.

## **Ruderal**

*Ruderal* refers to plant species that colonize disturbed areas such as roadsides and is also used to describe disturbed areas where nonnative and/or invasive species are dominant. Because ruderal areas are typically disturbed on a regular basis by human activity, they generally provide low-quality wildlife habitat and primarily support species adapted to human presence. Within the project corridor, ruderal areas are commonly found adjacent to buildings, parking lots, and streets. Portions of the project corridor are dominated by weedy ruderal species, such as the banks of the lower reaches of Permanente Creek west of US-101. Farther upstream, the walking trail adjacent to the creek in Rancho San Antonio County Park also supports ruderal vegetation.

## **Open Water**

Open water habitat in the Permanente Creek watershed consists of unvegetated tidally influenced sections of Mountain View Slough and lower Permanente Creek (downstream of Amphitheatre Parkway), and unvegetated sections of Permanente and Hale Creeks that receive seasonal or perennial freshwater flows. Portions of these channels are concrete lined; however, some segments of both creeks have natural beds and banks that support riparian and instream aquatic habitat.

## **Tidal Salt Marsh**

Salt marsh vegetation is generally found immediately adjacent to the Bay and along the margins of associated slough channels where the water is relatively saline. Tidal salt marsh habitat occupies the intertidal zone in the lower, tidal reaches of Permanente Creek/Mountain View Slough, downstream of Shoreline Boulevard. Ruderal vegetation intergrades with salt marsh species along the levee banks bounding slough channels.

## **Tidal Brackish Marsh**

The transition from salt marsh to brackish marsh in Permanente Creek occurs between Shoreline Boulevard and Amphitheatre Parkway. The downstream portion of this reach, near Shoreline Boulevard, is more saline and is dominated by salt marsh species. At the upstream edge of tidal influence (approximately the downstream side of the Amphitheatre Parkway bridge) where freshwater inflow markedly reduces salinity, the channel supports brackish marsh vegetation.

## **Freshwater Wetland**

Freshwater wetland habitat is present in numerous locations within the Permanente Creek channel where accumulated sediment within the channel facilitates the growth of emergent wetland vegetation. These habitat patches are mobile; their extent and location may shift in response to flood scouring, the volume of summer low flows, and the balance between freshwater outflow and saline inflow. They include habitat in the following general locations as identified during the preliminary wetland delineation conducted for the Project.

- Between Amphitheatre Parkway and US-101, immediately upstream of the limit of tidal influence.
- In the trapezoidal and u-framed concrete sections of the middle reaches of Permanente Creek (from Amphitheatre Parkway to Central Expressway and El Camino Real to the Mountain View Avenue/Raymundo Avenue intersection), the lower reach of Hale Creek (just upstream of Mountain View Avenue/Raymundo Avenue intersection), and the Permanente Diversion Channel.
- Along upper Permanente Creek, in the narrow natural channel reach between the Diversion Channel and Covington Road.

### **Seasonal Wetland**

At Rancho San Antonio County Park, a small (approximately 0.4 acre) area of seasonal wetland is present on a floodplain terrace northeast of Permanente Creek, supported by a combination of direct precipitation, intermittent flooding, and stormwater runoff from residential developments to the east and northeast. The surrounding area is annual grassland.

### **Mixed Chaparral**

Mixed chaparral is a dense shrub community that typically occurs on shallow rocky soils along south-facing slopes. In the project area, it occurs in the foothills upstream of I-280 and is a conspicuous habitat type at Rancho San Antonio County Park.

### **Coastal Oak Woodland**

Coastal oak woodlands are found in the foothills of the upper Permanente Creek watershed (upstream of I-280), commonly in combination with mixed chaparral. They are widespread at Rancho San Antonio County Park.

### **Developed Areas**

Developed land uses in the Permanente Creek watershed include industrial, commercial, and residential development, interspersed with open space and recreational uses. Developed areas and associated landscape plantings are thus found to some extent throughout the project corridor, including Rancho San Antonio County Park.

Vegetation character and wildlife use in developed areas are heavily dependent on the level and type of development. At Rancho San Antonio County Park, development includes amenities such as parking, trailheads, and restroom and community bulletin board facilities. In the more developed portions of the creek corridor, landscaping is more widespread and includes street and private trees; shrubs; garden and lawn plantings; and natural turf recreational playing fields. In most cases, these require substantial human maintenance—watering, fertilization, trimming, and/or mowing. In McKelvey Park, developed land uses include natural turf playing fields, bleachers, and restrooms with landscape trees interspersed along the perimeter of the park.



## Special-Status Species

*Special-status species* include the following categories of plants and animals.

- Plants or animals that are listed, candidates, or proposed for listing as threatened or endangered under the ESA or CESA.
- Plants listed as rare under the California Native Plant Protection Act.
- Plants that meet the CEQA definition of rare or endangered, including those considered by the CNPS to be “rare, threatened, or endangered in California” (CNPS Lists 1B and 2).
- Oak trees protected under the Oak Woodland Conservation Act.
- Riparian vegetation protected under the California Fish and Game Code.
- Animals fully protected under the California Fish and Game Code.
- Animal species of special concern to California Department of Fish and Game (DFG).

Searches of the CNDDDB, CNPS database, and USFWS database were conducted to identify all special-status plant and wildlife species that may occur in the project region. The likelihood of each species' occurrence at the project element sites was then assessed in more detail based on the species' known distribution (i.e., the locations and recency of recorded occurrences) and the types and quality of habitat present at each project element site. The following sections focus on special-status plant and wildlife species evaluated as having the potential to be present at one or more of the project element sites. The location of CNDDDB records of special-status plants, special-status wildlife, and sensitive habitats are shown respectively in Figures 5-1a, 5-1b, and 5-1c.

### Special-Status Plants

A search of the CNDDDB (California Department of Fish and Game Natural Diversity Database 2012) and the CNPS database (California Native Plant Society 2012) identified 62 special-status plant species that may occur in the project region. Based on the habitats present at each of the proposed project element sites, and the locations and dates of the 62 species' documented occurrences, eight of the 62 species were identified as having the potential to be present at one or more of the proposed project element sites:

- alkali milk-vetch (*Astragalus tener* var. *tener*),
- San Joaquin spearscale (*Atriplex joaquiniana*),
- Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*),
- Point Reyes bird's-beak (*Cordylanthus maritimus* ssp. *palustris*),
- western leatherwood (*Dirca occidentalis*),
- hairless popcornflower (*Plagiobothrys glaber*),
- California seablite (*Suaeda californica*), and
- saline clover (*Trifolium depauperatum* var. *hydrophilum*).

Table 5-1 provides an overview of these eight species.

**Table 5-1. Special-Status Plants with Potential to Occur in the Project Footprint**

<b>Common and Scientific Name</b>	<b>Status<sup>a</sup> Federal/ State/ CNPS</b>	<b>Geographic Distribution</b>	<b>Habitat Requirements</b>	<b>Blooming Period</b>	<b>Potential to Occur in Project Footprint<sup>b,c</sup></b>
Alkali milk-vetch <i>Astragalus tener</i> var. <i>tener</i>	-/-/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay area	Grassy flats and vernal pool margins, on alkali soils, below 200 feet above MSL	Mar–Jun	Low (possibly extirpated); historic occurrences in Mayfield Slough in Palo Alto along margin of salt marsh; marginal habitat in saltmarsh and brackish marsh near Amphitheatre Parkway (FW)
San Joaquin spearscale <i>Atriplex joaquiniana</i>	-/-/1B.2	Southern Sacramento Valley, northern San Joaquin Valley, east San Francisco Bay area	Grassy flats and vernal pool margins, on alkali soils, below 200 feet above MSL	Mar–Jun	Low; marginal habitat in salt marsh and brackish marsh near Amphitheatre Parkway (FW)
Congdon's tarplant <i>Centromadia parryi</i> ssp. <i>congdonii</i>	-/-/1B.2	East San Francisco Bay Area, Salinas Valley, Los Osos Valley	Annual grassland, on lower slopes, flats, and swales, sometimes on alkaline or saline soils, below 700 feet above MSL	Jun–Nov	Low to moderate; marginal habitat adjacent to salt marsh and brackish marsh near Amphitheatre Parkway (FW)
Point Reyes bird's-beak <i>Cordylanthus maritimus</i> ssp. <i>palustris</i>	-/-/1B.2	Coastal northern California from Humboldt to Santa Clara Counties; Oregon	Coastal salt marsh	Jun–Oct	Low (possibly extirpated); marginal habitat in salt marsh and brackish marsh near Amphitheatre Parkway (FW)
Western leatherwood <i>Dirca occidentalis</i>	-/-/1B.2	San Francisco Bay region: Alameda, Contra Costa, Marin, Santa Clara, San Mateo, and Sonoma Counties	Moist areas in broadleaved upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland, 165–1,300 feet above MSL	Jan–Apr	Moderate; species has been documented along Wildcat Canyon Trail at Rancho San Antonio County Park
Hairless popcorn-flower <i>Plagiobothrys glaber</i>	-/-/1A	Coastal valleys from Marin to San Benito Counties	Alkaline meadows, coastal salt marsh	Apr–May	Low (possibly extirpated); marginal habitat in salt marsh and brackish marsh near Amphitheatre Parkway (FW)
California seablite <i>Suaeda californica</i>	E/-/1B.1	Morro Bay, San Luis Obispo County; historically found in south San Francisco Bay	Margins of tidal salt marsh	Jul–Oct	Low; marginal habitat in salt marsh and brackish marsh near Amphitheatre Parkway (FW)

Common and Scientific Name	Status <sup>a</sup> Federal/ State/ CNPS	Geographic Distribution	Habitat Requirements	Blooming Period	Potential to Occur in Project Footprint <sup>b,c</sup>
Saline clover <i>Trifolium hydrophilum</i>	-/-/1B.2	Sacramento Valley, central western California	Salt marsh, mesic alkaline areas in grasslands, vernal pools	Apr-Jun	Low; marginal habitat in salt marsh and brackish marsh near Amphitheatre Parkway (FW)

<sup>a</sup> Status Explanations

**Federal**

- E = listed as endangered under the federal Endangered Species Act
- T = listed as threatened under the federal Endangered Species Act
- = no listing

**State**

- E = listed as endangered under the California Endangered Species Act
- T = listed as threatened under the California Endangered Species Act
- R = listed as rare under the California Native Plant Protection Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation
- = no listing.

**California Native Plant Society**

- 1A = List 1A species: plants presumed extinct in California and elsewhere
- 1B = List 1B species: rare, threatened, or endangered in California and elsewhere
- 2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere
- 3 = List 3 species: plants about which more information is needed to determine their status
- 4 = List 4 species: plants of limited distribution
- 0.1 = seriously endangered in California
- 0.2 = fairly endangered in California
- 0.3 = not very endangered in California

<sup>b</sup> Likelihood of Occurrence

- High: Known occurrence of plant in project vicinity from CNDDDB or other documents, or presence of suitable habitat conditions and suitable microhabitat conditions
- Moderate: Known occurrence of plant in project vicinity from CNDDDB or other documents; suitable habitat is present but suitable microhabitat conditions are not
- Low: Plant not known to occur in project vicinity from CNDDDB or other documents, or habitat conditions are of poor quality
- None: Plant not known to occur in project vicinity from CNDDDB or other documents, or suitable habitat not present in any condition

<sup>c</sup> Project Element Codes

- FW = floodwalls north and south of US-101
- RSA = Rancho San Antonio County Park

## Special-Status Fish and Wildlife

### Fisheries

Steelhead is the only special-status fish species known to have been historically present in the Peninsula watersheds, including Permanente Creek. Sources cited by Leidy et al. (2005) indicate that Permanente Creek supported steelhead as late as the mid-20<sup>th</sup> century, and *O. mykiss* individuals were identified in the District's 2000, 2005, and 2006 surveys in the vicinity of Rancho San Antonio County Park (URS 2000; Santa Clara Valley Water District 2005, 2006a). Garza et al.'s 2008 study of genetic samples collected during the 2005 sampling effort found that the *O. mykiss* population in upper Permanente Creek was extremely inbred, probably as a result of isolation, and that these fish were remnant steelhead stock that paired most closely with fish from above Stevens Creek Reservoir. This suggests that the historic connection between Permanente Creek and Stevens Creek was formerly utilized by steelhead. However, the present-day hydrology of the Permanente Creek watershed does not support an anadromous run. Numerous passage barriers are present, stream reaches in the lower part of the watershed are ephemeral, highly modified hardscape channels lack the needed habitat complexity, and flow is insufficient during critical times of the year to support migration. Consequently, while steelhead may be present as transient visitors in the portion of the creek adjacent to the Bay, the creek's current configuration will not support an upstream run of breeding steelhead.

### Terrestrial Wildlife

A search of the CNDDDB and the USFWS database identified 35 special-status wildlife species with some potential to occur in the project area. Of these, the 22 species below may use portions of the project footprint:

- California red-legged frog (*Rana aurora draytonii*),
- foothill yellow-legged frog (*Rana boylei*),
- California tiger salamander (*Ambystoma californiense*),
- western pond turtle (*Actinemys marmorata*),
- Alameda (South Bay) song sparrow (*Melospiza melodia pusillula*),
- Cooper's hawk (*Accipiter cooperii*),
- white-tailed kite (*Elanus leucurus*),
- western burrowing owl (*Athene cunicularia hypugea*),
- California least tern (*Sterna antillarum browni*),
- California clapper rail (*Rallus longirostris obsoletus*),
- California black rail (*Laterallus jamaicensis coturniculus*),
- great blue heron (*Ardea herodias*)
- saltmarsh common yellowthroat (*Geothlypis trichas sinuosa*),
- snowy egret (*Egretta thula*)
- northern harrier (*Circus cyaneus*),
- American badger (*Taxidea taxus*),







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Note: This figure was revised in the Final SEIR to remove the Cuesta Annex project element.



**Figure 5-1c**  
CNDDDB Habitat Occurrences in Project Vicinity

- salt marsh harvest mouse (*Reithrodontomys raviventris*),
- salt marsh wandering shrew (*Sorex vagrans halicoetes*),
- San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*),
- Yuma myotis (*Myotis yumanensis*),
- hoary bat (*Lasiurus cinereus*), and
- pallid bat (*Antrozous pallidus*).

Table 5-2 provides an overview of each species.

## IMPACT ANALYSIS

### ***METHODS AND SIGNIFICANCE CRITERIA***

Impacts on vegetation and wildlife were analyzed based on existing biological conditions and resources present at each project element site and a review of the current working design for the proposed project elements.

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Adverse effects on populations of any special-status plant or wildlife species, as a result of
  - direct mortality, injury, or disturbance; or
  - degradation, modification, or loss of habitat.
- Adverse effects on populations of common or special-status species wildlife as a result of
  - obstruction of movement routes or migratory corridors used by any native resident or migratory fish or wildlife species, or
  - impedance of the use of native wildlife breeding habitat or nursery sites.
- Loss or degradation of wetland habitat through direct removal, filling, hydrologic interruption, or other direct or indirect means.
- Loss or degradation of riparian habitat.
- Conflict with any local policy or ordinance protecting botanical or wildlife resources.

Potential to conflict with an adopted conservation plan (including but not limited to habitat conservation plans and natural community conservation plans) is usually also identified as a significant impact under CEQA. However, there are no adopted habitat conservation plans in the project area, and this issue is not addressed further.

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by text analysis.



**Table 5-2. Special-Status Fish and Wildlife with Potential to Occur in Project Footprint**

Common and Scientific Name	Status <sup>a</sup> Federal/State	California Distribution	Habitats	Potential to Occur within Project Footprint <sup>b</sup>
<b>Fish</b>				
Central California coast steelhead DPS <i>Oncorhynchus mykiss</i>	T/-	Russian River to Soquel Creek, Santa Cruz County	Cold, clear water with clean gravel of appropriate size for spawning; most spawning occurs in headwater streams; adults migrate to the ocean to feed and grow until sexually mature	Low; known to use south San Francisco Bay and may use lower Permanente Creek upstream to migration barrier at US-101
<b>Amphibians and Reptiles</b>				
California red-legged frog <i>Rana draytonii</i>	T/SSC	Along the coast and in coastal mountain ranges of California from Marin to San Diego Counties and in the Sierra Nevada from Butte to Calaveras Counties	Permanent and semi-permanent aquatic habitats, such as creeks and cold-water ponds, with emergent and submergent vegetation; may aestivate in rodent burrows or cracks during dry periods	High; suitable habitat present near Rancho San Antonio <u>County Park</u> , and species has been seen nearby
California tiger salamander <i>Ambystoma californiense</i>	T/TSSC	Central Valley, including Sierra Nevada foothills, up to approximately 1,000 feet above mean sea level (MSL); and coastal region from Butte County to Santa Barbara County	Small ponds, lakes, or vernal pools in grasslands and oak woodlands for larvae; rodent burrows, rock crevices, or fallen logs for cover for adults and for summer dormancy	Low; some suitable habitat present (no breeding habitat) in <u>Permanente Creek within at Rancho San Antonio County Park</u> , but species has not been documented in the vicinity
Foothill yellow-legged frog <i>Rana boylei</i>	-/SSC	Klamath, Cascade, North Coast, South Coast, Transverse, and Sierra Nevada Ranges to approximately 6,000 feet above MSL	Creeks or rivers in woodland, forest, mixed chaparral, and wet meadow habitats with rock and gravel substrate and low overhanging vegetation along the edge; usually found near riffles with rocks and sunny banks nearby	Low; some suitable habitat present at Rancho San Antonio <u>County Park</u> but species not documented in vicinity
Western pond turtle <i>Actinemys marmorata</i>	-/SSC	Southern British Columbia south through northern California	Ponds, marshes, rivers, streams, and irrigation canals with muddy or rocky bottoms	Moderate; in-channel habitat is present throughout project corridor, though quality varies; species has been observed in project vicinity (in adjacent watersheds and at Moffett Field) but not in immediate project area

Common and Scientific Name	Status <sup>a</sup> Federal/State	California Distribution	Habitats	Potential to Occur within Project Footprint <sup>b</sup>
<b>Birds</b>				
Alameda (South Bay) song sparrow <i>Melospiza melodia pusillula</i>	-/SSC	Found only in marshes along the southern margin of San Francisco Bay	Brackish pickleweed marshes; may nest in tall vegetation or among the pickleweed	High; suitable habitat is present in lower Permanente Creek and there have been recent sightings in brackish/ salt marsh near Amphitheatre Parkway
California black rail <i>Laterallus jamaicensis coturniculus</i>	-/T, FP	Permanent resident in San Francisco Bay and east through the Sacramento–San Joaquin River Delta into Sacramento and San Joaquin Counties; small populations in Marin, Santa Cruz, San Luis Obispo, Orange, Riverside, and Imperial Counties	Tidal salt marshes with heavy growth of pickleweed; also, brackish or freshwater marshes at low elevations; intolerant of disturbance	Low; species occurs at nearby Palo Alto Baylands but has never been reported in Permanente Creek and habitat in creek is subject to disturbance
California brown pelican <i>Pelecanus occidentalis californicus</i>	D/E	The Pacific coast from Canada through Mexico.	Coastal areas. Nests on islands. Occasionally along Arizona’s lakes and rivers	None; no suitable habitat for the species within the project element sites
California clapper rail <i>Rallus longirostris obsoletus</i>	E/E, FP	Margins of San Francisco Bay and east to Suisun Marsh	Restricted to salt marshes and tidal sloughs; usually associated with heavy growth of pickleweed; feeds on mollusks removed from the mud in sloughs	Low; species is known to use adjacent areas downstream of Amphitheatre Parkway but in <u>Shoreline Regional Park</u> but unlikely to be present in project footprint due to poor/marginal quality of habitat
California least tern (nesting colony) <i>Sterna antillarum (=albifrons) browni</i>	T/E, FP	Margins of San Francisco Bay; southern California coast from southern San Luis Obispo County to San Diego County	Nests on sandy, upper ocean beaches, and occasionally uses mudflats; forages on adjacent surf line, estuaries, or open ocean waters	Low; species forages downstream of project area, but project area offers no suitable habitat
Cooper's hawk <i>Accipiter cooperii</i>	-/SSC	Throughout California except at high altitudes in the Sierra Nevada; winters in the Central Valley, southeastern desert regions, and plains east of the Cascade Range	Nests in a wide variety of habitat types, from riparian woodlands and grey pine–oak woodlands through mixed conifer forests	High; species nests and forages in wooded habitats in and around urban areas and has recently been sighted in various locations along Permanente Creek, including anecdotal reports of occurrences within the project footprint

<b>Common and Scientific Name</b>	<b>Status<sup>a</sup> Federal/State</b>	<b>California Distribution</b>	<b>Habitats</b>	<b>Potential to Occur within Project Footprint<sup>b</sup></b>
Great blue heron (rookery) <i>Ardea herodias</i>	-/-	Nests in suitable habitat throughout California except at higher elevations in Sierra Nevada and Cascade mountain ranges.	Widely distributed in freshwater and calm-water intertidal habitats	High; suitable habitat is present in lower Permanente Creek, and there have been numerous recent sightings in the immediate area
Northern harrier <i>Circus cyaneus</i>	-/SSC	Throughout lowland California; has been recorded at high elevations in fall	Grasslands, meadows, marshes, and seasonal and agricultural wetlands	High; nesting and foraging habitat is present in marshes north of US-101 and there have been recent sightings downstream of Amphitheatre Parkway
Saltmarsh common yellowthroat <i>Geothlypis trichas sinuosa</i>	-/SSC	Found only in San Francisco Bay area in Marin, Napa, Sonoma, Solano, San Francisco, San Mateo, Santa Clara, and Alameda Counties	Breeds in fresh and brackish marsh associated with and close to Bay wetlands; uses freshwater marshes in summer and salt or brackish marshes in fall and winter; requires tall grasses, tules, and willow thickets for nesting and cover	Moderate to high; suitable habitat is present in lower Permanente Creek, and there have been numerous recent sightings in the immediate area
Snowy egret (rookery) <i>Egretta thula</i>	-/-	Occurs in coastal lowlands and other lowland areas throughout California.	Shores of coastal estuaries, fresh and saline emergent wetlands, ponds, slow-moving rivers, irrigation ditches, and wet fields. Nests in dense marshes or at low heights in trees	High; suitable habitat is present in lower Permanente Creek, and there have been numerous recent sightings in the immediate area
Western burrowing owl <i>Athene cunicularia hypugea</i>	-/SSC	Lowlands throughout California, including the Central Valley, northeastern plateau, southeastern deserts, and coastal areas; rare along south coast	Level, open, dry, heavily grazed or low-growing grassland or desert vegetation with small mammal burrows for nesting and cover	High; potential nesting and foraging habitat is present in grasslands and ruderal areas <del>within project footprint</del> (e.g., adjacent to lower Permanente Creek), and species is abundant at Shoreline Park and elsewhere in project vicinity  None; at Rancho San Antonio County Park. Suitable habitat occurs at this site, but there are no recent occurrences of this species near this site. The nearest occurrence is ~4.5 miles northeast near Santa Clara.

Common and Scientific Name	Status <sup>a</sup> Federal/State	California Distribution	Habitats	Potential to Occur within Project Footprint <sup>b</sup>
White-tailed kite <i>Elanus leucurus</i>	-/FP	Lowland areas west of Sierra Nevada from the head of the Sacramento Valley south, including coastal valleys and foothills	Low foothills or valley areas with valley or live oaks, riparian areas, and marshes near open grasslands for foraging	Moderate to high; species uses riparian corridors throughout the South Bay region for nesting and foraging and has been sighted downstream of Amphitheatre Parkway, adjacent to project corridor
<b>Mammals</b>				
American badger <i>Taxidea taxus</i>	-/SSC	Occurs at low population levels throughout most of the state, with the exception of the north coast	Generally found in treeless regions, prairies, and cold desert areas in the drier open stages of most shrub, forest, and herbaceous habitats with friable soils	Low; suitable habitat is present at Rancho San Antonio County Park but there have been no sightings in project vicinity
Hoary bat <i>Lasiurus cinereus</i>	-/-	Widespread throughout California	Roosts in trees, typically within forests	Moderate in oak woodland and grassland habitat
Pallid bat <i>Antrozous pallidus</i>	-/SSC	Throughout California except the high Sierra from Shasta County to Kern County and the northwest coast, primarily at lower and mid-elevations	Occurs in a variety of habitats from desert to coniferous forest; most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California; relies heavily on trees for roosts	Moderate in oak woodland and grassland habitat
Salt marsh harvest mouse <i>Reithrodontomys raviventris</i>	E/E, FP	San Francisco, San Pablo, and Suisun Bays; Sacramento–San Joaquin River Delta	Salt marshes with dense cover of pickleweed and fat hen adjacent to upland habitat	Low; suitable habitat is present in <u>and the species has been documented in lower Permanente Creek adjacent to the Bay, including in-channel area adjacent to floodwalls alignment, and species has been documented as present, but is unlikely to occur in the Project footprint because no suitable habitat is present within project footprint</u>
Salt marsh wandering shrew <i>Sorex vagrans halicoetes</i>	-/SSC	Restricted to southern and northwestern San Francisco Bay	Mid-elevation salt marsh habitats with dense growth of pickleweed; requires driftwood and other objects for nesting cover	Low; suitable habitat is present in lower Permanente Creek, but species has not been observed in vicinity in more than 50 years

Common and Scientific Name	Status <sup>a</sup> Federal/State	California Distribution	Habitats	Potential to Occur within Project Footprint <sup>b</sup>
San Francisco dusky-footed woodrat <i>Neotoma fuscipes annectens</i>	-/SSC	San Mateo, Santa Clara, Santa Cruz, Alameda, and Contra Costa Counties	Forest habitats with moderate canopy and moderate to dense understory; may prefer chaparral and redwood habitats	High at Rancho San Antonio <u>County Park</u> , based on presence of suitable habitat and recent nearby sightings
Yuma myotis <i>Myotis yumanensis</i>	-/SSC	Common and widespread throughout most of California except the Colorado and Mojave Deserts	Found in a wide variety of habitats from sea level to 11,000 feet above MSL; uncommon above 8,000 feet above MSL; optimal habitat is open forest or woodland near water bodies	Moderate in oak woodland areas

<sup>a</sup> Status Explanations

**Federal**

- D = federally delisted
- E = listed as endangered under the federal Endangered Species Act
- T = listed as threatened under the federal Endangered Species Act
- = no listing.

**State**

- E = listed as endangered under the California Endangered Species Act
- T = listed as threatened under the California Endangered Species Act
- FP = fully protected under the California Fish and Game Code
- SSC = species of special concern in California
- = no listing.

<sup>b</sup> Potential to Occur in Project Footprint

High: Known occurrences of the species within the study area or CNDDDB, or other documents, records the occurrence of the species within a 10-mile radius of the study area. Suitable habitat is present within the study area

Moderate: CNDDDB, or other documents, records the known occurrence of the species within a 10-mile radius of the study area. Poor quality suitable habitat is present within the study area

Low: CNDDDB, or other documents, does not record the occurrence of the species within a 10-mile radius of the study area. Suitable habitat may be present.

## ***IMPACTS AND MITIGATION MEASURES***

### **Impact BIO1—Disturbance or Loss of Special-Status Plant Populations**

<b>Summary by Project Element: Impact BIO1—Disturbance or Loss of Special-Status Plant Populations</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	No Impact	No Impact

#### **Construction**

The following special-status plant species have the potential to occur in the project footprint (Table 5-1).

- Western leatherwood,
- Alkali milk-vetch,
- San Joaquin spearscale,
- Congdon's tarplant,
- Point Reyes bird's-beak,
- Hairless popcornflower,
- California seablite, and
- Saline clover.

Western leatherwood is known to be at Rancho San Antonio County Park (Calflora 2008; Calphotos 2005). It typically occurs in chaparral, woodland, or riparian settings and is unlikely to occur in the grassland habitat that makes up the majority of the project footprint, but it may be present in riparian habitat at the inlet/outlet site, although it was not observed during site visits conducted in 2007. Nonetheless, if present, individuals could be damaged or removed by construction.

The other seven species listed above are halophytes and would occur only where Permanente Creek supports brackish marsh habitat. This limits their potential occurrences in the project footprint to the floodwall and levee alignment downstream of US-101, where they are most likely to be found below the mean high water mark within the creek channel. This is well below the location of the floodwalls, levees, and construction would avoid in-channel habitat disturbance to the extent feasible.

In April of 2011, focused botanical surveys for Alkali milk-vetch, San Joaquin spearscale, Congdon's tarplant, Point Reyes bird's-beak, hairless popcorn flower, California seablite, and Saline clover were conducted over the proposed floodwall alignment project element site. Surveys for western leatherwood were also conducted at the Rancho San Antonio County Park Flood Detention Facility. No special-status plant species were observed at these respective

project element sites where habitat for each was identified; therefore, these species would not be affected by the project (ICF International 2011). Because no impacts on these species would occur, no mitigation is necessary.

### Maintenance and Operation

As discussed in Chapter 2, all in-channel and bankside maintenance of facilities improved by the Project would take place under the District's existing SMP. The Project would not create new in-channel maintenance needs and thus would not result in new impacts on special-status plants in channel or bank areas. After the New Permanente Diversion structure and outlet culvert, channel improvements, and floodwalls are constructed, they would only require minor maintenance (e.g., graffiti) that would not affect special-status plants. In addition, Western leatherwood is not likely to occur within the proposed Rancho San Antonio County Park Detention Facility after construction. Therefore, no impacts on western leatherwood would occur during detention basin maintenance and operation activities.

## Impact BIO2—Disturbance, Injury or Mortality to California Red-Legged Frogs and Foothill Yellow-Legged Frogs

Summary by Project Element: Impact BIO2—Injury or Mortality to California Red-Legged Frogs and Foothill Yellow-Legged Frogs		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	No Impact	No Impact
Guesta Annex Flood Detention Facility	No Impact	No Impact
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	No Impact	No Impact

### Construction

Based on the habitat present, and the locations of recorded occurrences of California red-legged frog and foothill yellow-legged frog in recent years, the only project element site with potential to host these species is Rancho San Antonio County Park (see additional information in Table 5-2). California red-legged frog is considered more likely to be present than foothill yellow-legged frog.

### California Red-Legged Frog

California red-legged frog has been found upstream of Rancho San Antonio County Park and is considered likely to be present in the proposed work area. In 1997, Red-legged frog adults and tadpoles were observed in the artificial landscape pond at the Gate of Heaven Cemetery, slightly more than 500 feet away from Permanente Creek and the proposed Rancho San Antonio County Park Flood Detention Facility site (California Department of Fish and Game 2008). California red-legged frog has also been anecdotally observed between the equestrian

area and the bridge at the trailhead by the County Parks Department staff (Mark pers. comm.). The detention basin site offers suitable upland and dispersal habitat for red-legged frogs. As a result, individuals could move into the construction area during the work season and could be injured or killed by construction equipment. Construction could also result in frogs being excavated from underground refugia. Disturbance, injury, or mortality of red-legged frogs could represent a significant impact. Implementation of standard District BMPs to protect biological resources and implementation of Mitigation Measures BIO2.1 through BIO2.4 would ensure that temporary construction impacts on California red-legged frog are minimized and mitigated to a less-than-significant level. Once construction is completed, the 15-acre detention basin would continue to provide suitable upland habitat for California red-legged frog.

Based on preliminary site design, construction of the proposed detention basin inlet/outlet facilities and bridge would permanently remove approximately 0.15 acre of aquatic habitat, including riparian and other waters in Permanente Creek that could be used by California red-legged frog. Evaluation of riparian and creek impacts are discussed in detail in Impacts BIO13 and BIO14, respectively. The proposed project would also replace existing paved roadways, trails, and parking. Construction of these developed features would result in up to 0.3 acre of new development, reducing upland and dispersal habitat that could be used by red-legged frog. Permanent loss of riparian and upland habitat is considered a significant impact on California red-legged frog. Implementation of Mitigation Measure BIO2.5 would ensure that habitat loss impacts on California red-legged frog are less than significant.

**Mitigation Measure BIO2.1—Avoid Work during Active Breeding and Dispersal Period for Special-Status Frogs**

Site preparation and construction activities that involve substantial earthwork, other ground disturbance, and/or vehicle traffic through frog-sensitive areas (grassland, pond, wetland, and riparian habitat) will not occur during the period when special-status frogs are actively breeding and dispersing from the beginning of the wet season through early summer (October 15–June 15).

**Mitigation Measure BIO2.2—Conduct Preconstruction Surveys at Work Sites in and near Frog-Sensitive Areas; Relocate Individuals as Needed**

At least 247 days-hours prior to the onset of site preparation and construction activity at each site, a qualified wildlife biologist will conduct a preconstruction survey for special-status frogs within the project footprint. The survey will cover all areas where special-status frogs may be present or concealed, including cracks, burrows, vegetation adjacent to wet areas, and other temporary refugia, as well as any riparian or wetland habitat affected. If special-status frogs are determined to be absent from the project footprint, no further action will be required with regard to these species. If any listed amphibians are found within the project footprint, whenever possible construction work and/or maintenance activities in their vicinity will be avoided until they have moved outside of the project area of their own volition. If relocation outside the work area is necessary, a USFWS- and DFG-approved biologist working in accordance with agency-approved protocols will conduct the relocation before site preparation and construction activities begin. Relocation sites will be approved by the USFWS and DFG.



**Mitigation Measure BIO2.3—Provide Construction Worker Awareness Training for Special-Status Frogs**

The District will provide, or require contractors to provide, worker awareness training for construction personnel to enable them to recognize special-status frogs and other aquatic and riparian wildlife. Trained construction personnel will also understand where sensitive resource areas are within the construction zone so they can minimize their impact on upland (dispersal and aestivation) habitat. Training will be presented by a qualified wildlife biologist experienced in training nonspecialists. The training program will include at least the following: a description of the special-status species likely to use the site, and their habitat needs; photographs of these species; an explanation of the legal status of these species and their protection under the ESA and other regulations; a list of measures being taken to reduce effects to these species during project construction; and distribution of a fact sheet summarizing training content. The District will also distribute, or require contractors to distribute, the training summary fact sheet to anyone else who may enter the project site. Upon completion of training, employees will sign a form stating they attended the training and understand all the conservation and protection measures.

**Mitigation Measure BIO2.4—Install Exclusion Fencing and Conduct Construction Monitoring for Special-Status Frogs**

Once it has been determined that no special-status frogs are on the project site, barrier fencing will be installed along the perimeter of the work area where necessary to ensure that frogs do not enter the site during construction. Fencing will be installed promptly after clearance surveys are performed, to ensure that frogs do not reenter the work area. A qualified biologist will be present during the installation of exclusion fencing, will determine which areas need to be monitored on a daily basis during construction activities to avoid harm to red-legged frogs, and will be responsible for follow-up monitoring during all ground-disturbing activities as needed. The monitor will inspect and maintain the integrity of the exclusion fencing and check the fence each morning for trapped frogs and conduct a survey of suitable habitat within the area to undergo disturbance that day prior to the initiation ground-disturbing activities. If a special-status frog is found at the fencing or within the excluded area during monitoring or any project activity, work will cease until the individual has been safely removed and relocated by a USFWS-approved biologist. Relocation will follow all applicable USFWS and DFG protocols and relocation sites will be approved by the USFWS and DFG.

**Mitigation Measure BIO2.5—Restore Areas of Impact at the Rancho San Antonio County Park ~~to~~ and Provide Suitable Habitat for California Red-Legged Frog**

The District will mitigate for permanent impacts on California red-legged frog aquatic and upland habitat through creation or restoration of suitable California red-legged frog habitat within the Permanente Creek area and preserved in perpetuity through a conservation easement restoration of similar habitat on Permanente Creek adjacent to the impact area or at another location within Rancho San Antonio County Park or at an off-site location. The District will develop a Mitigation and Monitoring Plan (MMP) to ensure that all removed habitat is replaced “in-kind” with the appropriate native riparian and upland species to maintain structural complexity and habitat value and provide suitable habitat for California red-legged frog. The MMP will be developed in the context of the federal and state permitting processes under the CWA and California Fish and Game Code and will include success criteria as specified by the permitting agencies. The MMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Additionally, the MMP will be developed in coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District. Mitigation of permanent

impacts on California red-legged frog upland and aquatic habitat will be fully implemented within 51 years following the completion of construction activities. Vegetation used to plant the restoration areas will be native species commonly occurring within ~~Rancho San Antonio County Park~~ the watershed and suited to the proposed site and the surrounding landscape. The District will be responsible for planting and/or enhancing habitat to ensure that all habitat is fully restored to preconstruction conditions and the restoration areas provide suitable habitat for California red-legged frog. The initial annual monitoring will assess the progress of the plantings according to predetermined success criteria. If progress is not satisfactory, then adaptive management actions (including replanting, nonnative species removal, etc.) may be implemented. The MMP will remain in force until the success criteria are met.

### **Foothill Yellow-Legged Frog**

In addition to red-legged frog, there is some, probably minor, potential for foothill yellow-legged frog (*Rana boylei*) to be present at the Rancho San Antonio County Park site. Once common in Santa Clara County's larger streams, the species has all but disappeared from lowland areas, although it is still present and fairly abundant in the Santa Cruz Mountains and east county uplands (H.T. Harvey and Associates 1999). Suitable habitat is present in Permanente Creek at Rancho San Antonio County Park, and adjacent grasslands provide potential dispersal habitat. CNDDB records for foothill yellow-legged frog go back only as far as 1990, and since that time, the species has not been reported in the Rancho San Antonio County Park area. Its likelihood of occurrence within the project footprint at Rancho San Antonio County Park is considered low. However, if yellow-legged frogs are present, potential impacts would be similar to those described for California red-legged frog. Impacts could be significant but would be reduced to a less than significant level by implementation of the following mitigation measures. The District's implementation of Mitigation Measure BIO 2.5 for mitigation of CRLF impacts would also address any habitat impacts on FYLF if they are present in the project area.

#### **Mitigation Measure BIO2.1—Avoid Work during Active Breeding and Dispersal Period for Special-Status Frogs**

This measure is described in detail above.

#### **Mitigation Measure BIO2.2—Conduct Preconstruction Surveys at Work Sites in and near Frog-Sensitive Areas; Relocate Individuals as Needed**

This measure is described in detail above.

#### **Mitigation Measure BIO2.3—Provide Construction Worker Awareness Training for Special-Status Frogs**

This measure is described in detail above.

#### **Mitigation Measure BIO2.4—Install Exclusion Fencing and Conduct Construction Monitoring for Special-Status Frogs**

This measure is described in detail above.

#### **Mitigation Measure BIO2.5—Restore Areas of Impact at Rancho San Antonio County Park ~~to and~~ Provide Suitable Habitat for California Red-Legged Frog**

This measure is described in detail above.

## Maintenance and Operation

Post-flood maintenance at the Rancho San Antonio County Park Flood Detention Facility ~~flood detention facility~~ would include repair of bank failures, restoration of damaged vegetation, and repair of inlet/outlet facilities as needed. Sediment deposited in the detention area would be left in place until it reaches a depth of 1 foot and then removed using heavy equipment. Impacts on special-status amphibians as a result of upland maintenance at Rancho San Antonio County Park would be similar to those identified above for construction. Impacts could be significant but would be reduced to a less than significant level by the same mitigation measures identified for construction, as follows. Impacts due to potential degradation of instream habitat are discussed separately below under Impact BIO-12.

### **Mitigation Measure BIO2.1—Avoid Work during Active Breeding and Dispersal Period for Special-Status Frogs**

This measure is described in detail above.

### **Mitigation Measure BIO2.2—Conduct Preconstruction Surveys at Work Sites in and near Frog-Sensitive Areas; Relocate Individuals as Needed**

This measure is described in detail above.

### **Mitigation Measure BIO2.3—Provide Construction Worker Awareness Training for Special-Status Frogs**

This measure is described in detail above.

### **Mitigation Measure BIO2.4—Install Exclusion Fencing and Conduct Construction Monitoring for Special-Status Frogs**

This measure is described in detail above; note that it only applies if species-status frogs are determined to be present on the work site.

## Impact BIO3—Disturbance, Injury, or Mortality of California Tiger Salamander

<b>Summary by Project Element: Impact BIO3—Disturbance, Injury, or Mortality of California Tiger Salamander</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>Less than Significant</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	No Impact	No Impact

California tiger salamanders were historically found in Permanente Creek; the CNDDDB contains a record from 1893 (California Department of Fish and Game 2012). However, none of the species' recent occurrences documented in the CNDDDB is within 5 miles of the Rancho San

Antonio County Park Detention Basin Project area; the nearest occurrence is 5.5 miles away in the immediate project vicinity or any part of the Permanente Creek watershed (California Natural Diversity Database Department of Fish and Game 2012). Additionally, historic aerial photographs and maps of the project area show a long history of agricultural development and other modifications to the landscape meaning the area likely has not contained suitable habitat for the species for several decades. Consequently, although suitable habitat for the species is still present in portions of the Creek, California tiger salamander is considered unlikely to use any part of the project footprint. The potential for construction or maintenance impacts on California tiger salamander is, therefore, evaluated as less than significant, and no mitigation is required.

### Impact BIO4—Disturbance, Injury, or Mortality of Western Pond Turtles

Summary by Project Element: Impact BIO4—Disturbance, Injury, or Mortality of Western Pond Turtles		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant with Mitigation</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant with Mitigation	No Impact

#### Construction

Although western pond turtles have not been reported from Permanente Creek, the creek is within the species’ range and suitable habitat is present in some reaches; there is some potential that western pond turtles are present, particularly in the more natural riparian areas such as the reach at Rancho San Antonio County Park. ~~Western pond turtle may occasionally move through the portion of Permanente Creek near the Cuesta Annex, but the lack of deep pools and wide riparian habitat further reduces the chances that they use this portion of the Creek. They are highly unlikely to be present in concrete-lined channel sections that are managed primarily for flood protection and would not use off-stream sites such as McKelvey Park. They are also unlikely to be present in the floodwall alignment downstream of US-101 because of increasing water salinity in proximity to the Bay, but they may use the upper portions of the site intermittently. Analysis of impacts on western pond turtle concentrated on the Rancho San Antonio County Park site, which offers the most likely western pond turtle habitat, and the location of the proposed Cuesta Inlet/Outlet Culvert, where western pond turtles may periodically move through creek habitat.~~

The principal concerns with regard to construction- and maintenance-related disturbance of western pond turtles are disturbance during reproduction and/or loss of nests and young.

Western pond turtles do not begin to reproduce until several years into their adult life and nests are rarely successful as they compete with predators such as skunks (*Mephitis mephitis*) and raccoons. Consequently, the loss of even one nest can be devastating to the local population.

At Rancho San Antonio County Park, ~~the Cuesta Annex~~, flood-proofing between Charleston Road and Amphitheatre Parkway, and the floodwall alignment downstream of US-101, excavation of channel banks and/or disturbance of adjacent nesting habitat could result in the loss of individuals or nests, which would represent a significant impact. Impacts would be reduced to a less than significant level by implementation of the following mitigation measure.

**Mitigation Measure BIO4.1—Implement Survey and Avoidance Measures to Decrease Disturbance to Western Pond Turtles**

Prior to the start of construction activities at sites that may support western pond turtle, the District will retain a qualified biologist to conduct preconstruction surveys for pond turtles in all suitable habitats in the vicinity of the work site. Surveys will take place no more than 7 days prior to the onset of site preparation and construction activities with the potential to disturb turtles or their habitat. If preconstruction surveys identify active nests, the biologist will establish no-disturbance buffer zones around each nest using temporary orange construction fencing. The demarcation should be permeable to allow young turtles to move away from the nest following hatching. The radius of the buffer zone and the duration of exclusion will be determined in consultation with the DFG. The buffer zones and fencing will remain in place until the young have left the nest, as determined by the qualified biologist. If western pond turtles are found in the project footprint, a qualified biologist will remove and relocate them to suitable habitat outside of the project limits, consistent with DFG protocols and permits. Relocation sites will be subject to agency approval.

**Maintenance and Operation**

As discussed in Chapter 2, all in-channel and bankside maintenance of facilities improved by the Project would take place under the District's SMP. The Project would not create new in-channel maintenance needs or result in new impacts on western pond turtle, except at Rancho San Antonio County Park, where maintenance of the inlet/outlet and channel adjacent facilities would have some potential to disturb turtles, including breeding turtles and their young, and/or damage turtle nests. This could result in significant impacts; impacts would be reduced to a less than significant level by implementation of Mitigation Measure BIO4.1, identified for construction.

**Mitigation Measure BIO4.1—Implement Survey and Avoidance Measures to Decrease Disturbance to Western Pond Turtles**

This measure is described in detail above.

## Impact BIO5—Disturbance of Nesting Migratory Birds and Raptors

Summary by Project Element: Impact BIO5—Disturbance of Nesting Migratory Birds and Raptors		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	Less than Significant with Mitigation	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant with Mitigation</del>	<del>Less than Significant with Mitigation</del>
McKelvey Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
Channel Improvements: Permanente and Hale Creeks	Less than Significant with Mitigation	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant with Mitigation	Less than Significant with Mitigation

### Construction

Heavy equipment and human activity during construction would increase noise in the vicinity of the work area, potentially resulting in disturbance of birds nesting and foraging in the area. If occupied nests are present on or adjacent to the construction area, construction activities could result in the abandonment of nests, the death of nestlings, and/or the destruction of eggs in active nests.

This would be of particular concern at Rancho San Antonio County Park, where annual grassland habitat and adjacent riparian and woodland habitat may provide nesting opportunities for a variety of migratory birds and raptors, ~~and at the Cuesta Annex, where grasslands may also support migratory bird nesting and adjacent large trees offer potential raptor nesting sites.~~ However, since many migratory bird species are adapted to human presence, all of the project element sites would have some potential to support onsite or adjacent nearby nesting and foraging by protected bird species.

Migratory birds, raptors, and their nests are protected under the Migratory Bird Treaty Act and the California Fish and Game Code. Disturbance of nesting migratory birds or raptors thus represents a significant impact. To avoid disturbance of protected nesting birds, the District routinely requires BMPs that provide the following (see *Best Management Practices* in Chapter 2).

- Prior to the start of construction activities that begin during the migratory bird nesting period (between January 15 and August 31 of any year), the District will retain a qualified wildlife biologist to conduct a survey for nesting raptors and migratory birds that could nest along the project corridor. Surveys will cover all suitable raptor and migratory bird nesting habitat that will be impacted directly or by disturbance, including habitat potentially used by ground-nesting migratory bird species.
- All migratory bird nesting surveys will be performed no more than 2 weeks (14 days) prior to any Project-related activity that could pose the potential to affect migratory birds. With the exception of raptor nests, inactive bird nests may be removed. No birds, nests

with eggs, or nests with hatchlings will be disturbed. In addition, nesting bird preconstruction surveys will occur prior to ground disturbance, including site preparation.

With implementation of these BMPs and the following mitigation measure, impacts on protected nesting birds would be reduced to a less than significant level.

**Mitigation Measure BIO5.1—Establish Buffer Zones for Nesting Raptors and Migratory Birds**

If an active nest is discovered, the District will retain a qualified wildlife biologist to establish a no-disturbance buffer zone around the nest tree (or, for ground-nesting species, the nest itself). The no-disturbance zone will be marked with flagging or fencing that is easily identified by the construction crew and will not impact the nesting bird. In general, the minimum buffer zone widths will be as follows: 50 feet (radius) for nonraptor ground-nesting species; 50 feet (radius) for nonraptor shrub- and tree-nesting species; and 300 feet (radius) for all raptor species. Buffer widths may be modified based on discussion with DFG, depending on the proximity of the nest, whether the nest would have a direct line of sight to construction activities, existing disturbance levels at the nest, local topography and vegetation, the nature of proposed activities, and the species potentially affected. Buffers will remain in place as long as the nest is active or young remain in the area. No construction presence or activity of any kind will be permitted within any buffer zone until the biologist determines that the young have fledged and moved away from the area and the nest is no longer active.

**Maintenance and Operation**

As discussed in Chapter 2, all in-channel and bankside maintenance (including levee maintenance) of facilities improved by the Project would take place under the District's SMP. After the New Permanente Diversion Structure and outlet culvert, channel improvements, and floodwalls are constructed, they would only require minor maintenance (e.g., graffiti) that would not affect nesting migratory birds or raptors. However, maintenance activities at the other constructed features—particularly vegetation maintenance and periodic sediment removal at Rancho San Antonio and disturbance associated with flood-proofing activities between Charleston Road and Amphitheatre Parkway—would have the potential to disturb nesting migratory birds and/or raptors, similar to the impacts described above for construction. Impacts could be significant but would be reduced to a less than significant level by implementation of the District's standard BMPs for bird protection and Mitigation Measure BIO5.1, identified for construction.

**Mitigation Measure BIO5.1—Establish Buffer Zones for Nesting Raptors and Migratory Birds**

This measure is described in detail above.

## Impact BIO6—Disturbance of Western Burrowing Owls and Their Habitat

<b>Summary by Project Element: Impact BIO6—Disturbance of Western Burrowing Owls and Their Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	No Impact	No Impact
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant with Mitigation	Less than Significant with Mitigation

### Construction

Western burrowing owls are known to use grassland and ruderal areas at Moffett Field and are present in open areas at Shoreline Regional Park. Monitoring conducted by the City of Mountain View in Shoreline Regional Park in May 2012 identified two western burrowing owl pairs in burrows adjacent to Permanente Creek downstream of Amphitheatre Parkway. Four chicks were observed in the nest site located on the east side of the creek (Higgins pers. comm.). Recent District surveys did not observe owls within the Permanente Creek ROW, but they were seen in several nearby localities and are considered likely to be present in grassland and ruderal areas within the project footprint, including grasslands at the levee alignment and nearby areas downstream of US-101 (Table 5-2). Suitable habitat for western burrowing owl is present in the grasslands at Rancho San Antonio County Park, but the species was not observed during surveys, and there are no documented occurrences near the park (EDAW 2008a, 2008b). Western burrowing owls are unlikely to be present in the footprint of the other project elements. Construction activities at the downstream levee raising site during the nesting period (February 1–August 31) could result in direct injury or mortality, as well as disturbance impacts related to elevated noise and human presence. Impacts could be significant but would be reduced to a less than significant level with implementation of the following mitigation measure.<sup>2</sup>

#### **Mitigation Measure BIO6.1—Implement Survey and Avoidance Measures for Western Burrowing Owls Prior to Construction Activities**

Western burrowing owl will be included in the preconstruction worker awareness training required for all construction personnel. Construction-worker awareness training will be conducted by a qualified biologist in coordination with the City of Mountain View’s biologist. Prior to any construction activity planned to begin during the fall and winter nonnesting season (September 1 through January 31) during the survey or at any time during the construction process, the District will retain a qualified wildlife biologist to conduct a

<sup>2</sup> This mitigation measure has been modified from the one presented in the FEIR to reflect the new DFG guidelines for survey distance from the impact area and no-activity buffer around active nest sites (California Department of Fish and Game 2012).



preconstruction survey for burrowing owls. As part of the preconstruction survey, the District will consult with the City of Mountain View's biologist and use Shoreline Regional Parks' monthly monitoring reports to identify occupied burrows within 150 meters of the construction footprint. The existing nest burrow at Vista Slope would be considered an occupied burrow for a minimum of 3 years. Surveys will be conducted no more than 7 days prior to ground disturbing activities and will cover all suitable burrowing owl habitat subject to disturbance per the March 7, 2012 California Department of Fish and Game Staff Report on Burrowing Owl Mitigation (California Department of Fish and Game 2012). If any western burrowing owls are found within the disturbance area, the District will notify DFG and will proceed under DFG direction. If construction is planned to occur during the nesting season (February 1 through August 31), surveys for nesting owls will be conducted by a qualified wildlife biologist in the year prior to construction to determine if there is breeding pair within 150 meters of the construction footprint. This will provide the project team advance notice regarding nesting owls in the project area and allow ample time to discuss with DFG regarding the appropriate course of action if nesting owls are found. In addition, same-year pre-construction surveys for nesting western burrowing owls will be conducted no more than 7 days prior to ground disturbance in all suitable burrowing owl habitat. If the biologist identifies the presence of a burrowing owl nest in an area scheduled to be disturbed by construction, a ~~200-meter~~ no-activity buffer will be established and maintained around the nest while it is active. Surveys and buffer establishment will be performed by qualified wildlife biologists, will be coordinated with DFG and the City of Mountain View's biologist, and will be subject to DFG review and oversight.

**Maintenance**

As discussed in Chapter 2 (*Project Description*), all in-channel and bankside maintenance of facilities improved by the Project would take place under the District's SMP. This includes maintenance of the new floodwalls and levee downstream of US-101. The Project thus would not create new in-channel or bankside maintenance needs or result in new impacts on western burrowing owls or their habitat.

**Impact BIO7—Disturbance of California Clapper Rail and Their Habitat**

<b>Summary by Project Element: Impact BIO7—Disturbance of California Clapper Rail and Their Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	No Impact	No Impact

The only project element sites with the potential to support California clapper rails are the floodwall and levee alignments downstream of US-101, where habitat of poor to marginal quality is present in in-channel wetlands. Clapper rails are known to use habitat in Mountain View Slough downstream of Amphitheatre Parkway, but they have never been reported in the vicinity of US-101. Moreover, the levee and floodwall alignment project footprint is on the upper portion of the existing bank, above existing in-channel wetland habitat and upstream from the in-channel areas that support wetland vegetation offering clapper rail foraging and refuge. Clapper rails are considered very unlikely to be present; no impact on this species is anticipated. Similarly, because the project footprint is outside the area of marginally suitable habitat

downstream of US-101, the Project would not impact clapper rail habitat. No mitigation is required. The same applies to future maintenance activities.

### Impact BIO8—Disturbance of American Badgers and Their Habitat

<b>Summary by Project Element: Impact BIO8—Disturbance of American Badgers and Their Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	No Impact	No Impact

The only project element site with the potential to support American badger is at Rancho San Antonio County Park, where grasslands in the area proposed for flood detention facility construction provide suitable foraging and denning habitat. Badgers have never been reported from Rancho San Antonio or adjacent areas and are considered unlikely to be present. Because construction activities would be temporary and comparatively short-term, no badgers have been recorded in the vicinity, and, in the unlikely event badgers are present, they would be able to relocate to large areas of similar adjacent habitat. ~~p-~~ Potential impacts on badgers during construction of the proposed detention facility at Rancho San Antonio are expected to be less than significant. No mitigation is required.

Following construction, the flood detention facility would be restored to grassland habitat, and would continue to offer habitat suitable for badger foraging and denning. Maintenance could result in periodic disturbance, but disturbance would be infrequent and short-term and is unlikely to result in significant impacts on badgers, since the species is believed to be absent from the area. No mitigation is required.

### Impact BIO9—Disturbance of Special-Status Bats and Effects on Bat Habitat

<b>Summary by Project Element: Impact BIO9—Disturbance of Special-Status Bats and Effects on Bat Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	Less than Significant with Mitigation	Less than Significant with Mitigation
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant with Mitigation</del>	<del>Less than Significant with Mitigation</del>

<b>Summary by Project Element: Impact BIO9—Disturbance of Special-Status Bats and Effects on Bat Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	Less than Significant with Mitigation	Less than Significant with Mitigation
Floodwalls and Levees downstream of US-101	No Impact	No Impact

Three protected species of bats may use parts of the project corridor: pallid bat, hoary bat, and Yuma myotis. Pallid bat is considered moderately likely to be present at Rancho San Antonio; oak woodland and grassland habitat at Rancho San Antonio offer potential roosting and foraging habitat, and individuals may also use trees and built features at the park for roosting. Hoary bat is likely to use oak woodlands at Rancho San Antonio County Park as well as arboreal habitats in portions of Permanente Creek, Hale Creek, and the Cuesta Annex and Hale Creeks. Yuma myotis is also moderately likely to use oak woodlands at Rancho San Antonio County Park and may occur within the project footprint. Habitat ~~at the Cuesta Annex and~~ along portions of downstream Permanente Creek, Hale Creek, and the Permanente Diversion Channel may also be suitable.

These species are nocturnal foragers, and no construction would occur at night, so construction is not expected to affect foraging success. Grassland affected by project construction would be revegetated and any trees or riparian growth removed for the Project would also be replaced (see Impacts BIO13 and BIO15). Therefore, there would be no long-term loss of bat habitat. The principal concern with regard to impacts on bats thus relates to the potential for injury or mortality during removal of roost trees. This could occur during construction, and also in the event that long-term maintenance of facilities at Rancho San Antonio Park and long-term maintenance along Permanente Creek, Hale Creek, or the Permanente Diversion Channel requires tree removal. In all cases, impacts could be significant but would be reduced to a less than significant level by implementation of the following mitigation measures.

**Mitigation Measure BIO9.1—Implement Survey and Avoidance Measures for Special-Status Bats**

Prior to the start of construction activities at sites offering suitable bat roosting, the District will retain a qualified biologist to conduct preconstruction surveys for pallid bat, hoary bat, and Yuma myotis. Surveys will take place no more than 7 days prior to the onset of site preparation and construction activities with the potential to disturb bats or their habitat and will include close inspection of potential bat roosts, such as trees and any built features within the work footprint. If special-status bats are found in the project footprint and avoidance of roosting areas is not possible, a qualified wildlife biologist will consult with DFG staff to identify the appropriate protection measures. The District will be responsible to ensure that DFG requirements are implemented.

## Impact BIO10—Disturbance of Dusky-Footed Woodrats and Their Habitat

<b>Summary by Project Element: Impact BIO10—Disturbance of Dusky-Footed Woodrats and Their Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	No Impact	No Impact

San Francisco dusky-footed woodrats are commonly found in chaparral that provides a moderate understory for cover and may nest in riparian habitat. They have been sighted recently in the Adobe Creek watershed adjacent to the Permanente Creek watershed, and there is some potential that they may use riparian areas in and adjacent to the proposed inlet/outlet structure site at Rancho San Antonio County Park. Riparian habitat would be replanted following construction (see Impact BIO13), so no long-term effect on nesting habitat is anticipated. However, nesting woodrats could be disturbed or injured during inlet/outlet construction. They could also be affected by future maintenance activities requiring removal or trimming of riparian vegetation at the inlet/outlet structure. Disturbance or mortality of woodrats could rise to the level of a significant impact. Impacts would be reduced to a less than significant level by implementation of the following mitigation measure.

### **Mitigation Measure BIO10.1—Conduct Surveys for San Francisco Dusky-Footed Woodrat and Protect Nests with Young**

Prior to the start of construction activities at sites offering suitable foraging and/or nesting habitat for San Francisco dusky-footed woodrat, the District will retain a qualified biologist to conduct preconstruction surveys for woodrat nests. Surveys will take place no more than 7 days prior to the onset of site preparation and construction activities with the potential to disturb woodrats or their habitat. If woodrat nests are found in the project footprint, a qualified biologist will determine whether the nests are occupied. If unoccupied, the biologist will dismantle and remove the nest so it cannot be reoccupied prior to construction. If the nest is occupied and young are present, the area will be protected as a sensitive resource during construction. If avoidance of active woodrat nests is not possible, a qualified wildlife biologist will consult with DFG staff to identify appropriate protection measures. The District will be responsible to ensure that DFG requirements are implemented.

## Impact BIO11—Disturbance of Salt Marsh Harvest Mouse and Its Habitat

<b>Summary by Project Element: Impact BIO11—Disturbance of Salt Marsh Harvest Mouse and Their Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	No Impact	No Impact

The only project element site in proximity to suitable habitat for salt marsh harvest mouse is the levee and floodwall alignment downstream of US-101. Salt marsh harvest mice are known to use habitat in Mountain View Slough downstream of Amphitheatre Parkway, but they have never been reported in the vicinity of US-101. Moreover, the levee and floodwall alignment project footprint is on the upper portion of the existing bank above existing in-channel wetland habitat and upstream from the in-channel areas that support suitable foraging and refugia for the mouse. The species is considered very unlikely to be present; therefore, no substantial adverse impact on salt marsh harvest mouse is anticipated. Similarly, because the project footprint is outside of the area of suitable in-channel habitat, the Project would not impact salt marsh harvest mouse habitat. Therefore, no mitigation is required. The same applies to future maintenance activities.

## Impact BIO12—Temporary Degradation of Instream Habitat

<b>Summary by Project Element: Impact BIO12—Temporary Degradation of Instream Habitat</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	Less than Significant	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant</del>	<del>Less than Significant</del>
McKelvey Park Flood Detention Facility	Less than Significant	Less than Significant
Channel Improvements: Permanente and Hale Creeks	Less than Significant	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant	No Impact

As discussed in Impact HWR3 in Chapter 4 (*Hydrology and Water Quality*), construction- and maintenance-related ground disturbance could result in increased delivery of sediment into Permanente Creek, Hale Creek, and/or the Permanente Diversion Channel, depending on the location of the work. This has the potential to degrade habitat immediately adjacent to the work site, which receives direct sediment input, and could also degrade downstream habitat, to the extent that fine sediment is carried downstream. In both cases, the areas of principal concern are those that support habitat for native fish and amphibians, particularly the high-quality habitat at Rancho San Antonio, and downstream habitat that offers direct access to the Bay.

High concentrations of suspended sediment can have both direct and indirect effects. The severity of these effects depends on the sediment concentration, duration of exposure, and sensitivity of the affected life stage. Short-term increases in turbidity and suspended sediment

may disrupt feeding activities or result in avoidance or displacement of fish from preferred habitat. Chronic exposure to high turbidity and suspended sediment may also affect growth and survival by impairing respiratory function, reducing tolerance to disease and contaminants, and causing physiological stress (Waters 1995). However, as identified in Chapter 2 and in Impact HWR3 (see Chapter 4), the District routinely implements comprehensive BMPs to protect water quality, and Project construction work would also require implementation of a SWPPP, providing further oversight. With the District’s standard BMPs, and (where applicable) additional SWPPP protection, in place, impacts related to degradation of in-stream habitat during construction are expected to be less than significant. No mitigation is required.

Over the longer term, Project operation would entail new maintenance activities (maintenance outside the scope of the District’s existing SMP) for the three flood detention facilities and their inlet and outlet culverts. Some maintenance activities could involve ground disturbance and could therefore result in increased sediment delivery to local surface waters, with some potential to degrade instream habitat. However, all new maintenance activities would incorporate the same types of BMPs currently implemented by the District under its SMP. With these measures in place, maintenance-related impacts on instream habitat are also expected to be less than significant.

### Impact BIO13—Disturbance or Loss of Riparian Habitat

Summary by Project Element: Impact BIO13—Disturbance or Loss of Riparian Habitat		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	<del>Less than Significant with Mitigation</del> <u>No Impact</u>	<del>Less than Significant</del> <u>No Impact</u>
Floodwalls and Levees downstream of US-101	No Impact	No Impact

#### Construction

The Project has been designed to avoid impacts on riparian habitat to the extent feasible; for instance, channel improvements are proposed for reaches of Hale and Permanente Creeks that largely lack riparian habitat. However, construction of the inlet/outlet facilities and new bridge at Rancho San Antonio County Park would result in both permanent and temporary impacts on riparian habitat. Along the channel improvement alignments, modifications to the Hale Creek bridges would occur in existing sections of concrete-lined channel and would not result in ~~could~~ also temporarily impacts on riparian habitat. Minor, areally restricted trimming of riparian vegetation is unlikely to constitute a significant impact; willows (*Salix* spp.) in particular are rapid growers and would recover quickly from minor trimming. However, given the importance of the remaining riparian habitat in urbanized areas such as the project corridor, more extensive trimming, pruning, or removal of riparian habitat could represent a significant impact. Impacts

would be reduced to a less-than-significant level with implementation of the following mitigation measures.

**Mitigation Measure BIO13.1—Survey, Identify, and Protect Riparian Habitats**

To avoid unnecessary damage to or removal of riparian habitat, the District will retain a qualified biologist or ecologist to survey and demarcate riparian habitat on or adjacent to the proposed areas of construction at Rancho San Antonio County Park, ~~at the bridges over Hale Creek,~~ and in any additional areas identified for protection under the jurisdiction of the DFG and RWQCB. Riparian areas not slated for trimming or removal to accommodate Project construction will be protected from encroachment and damage during construction by installing temporary construction fencing to create a no-activity exclusion zone. Fencing will be bright-colored and highly visible and installed under the supervision of a qualified biologist experienced in implementing techniques which avoid/minimize construction impacts on trees to prevent damage to riparian habitat during installation. The fencing and other methods deemed necessary such as trunk wrapping, root mulching, access route gravelling, etc. will protect all potentially affected riparian habitat consistent with International Society of Arboriculture tree protection zone recommendations and any additional requirements of the resource agencies with jurisdiction; fencing will be installed far outside the tree's dripline. Fencing and other protecting techniques will be installed before any site preparation or construction work begins and will remain in place for the duration of construction. Construction personnel will be prohibited from entering the exclusion zone for the duration of project construction. Essential vehicle operation on existing roads will be permitted, but all other construction activities, vehicle operation, material and equipment storage, and other surface-disturbing activities will be prohibited within the exclusion zone.

**Mitigation Measure BIO13.2—Restore Riparian Habitat in Areas of Impact**

Wherever feasible, the District will integrate inlet and outlet structures with existing infrastructure to avoid and/or minimize impacts on riparian habitat. The District will retain a qualified biologist to identify and map areas where Project construction requires trimming and/or removal of riparian habitat prior to trimming or removing such habitat for the purposes of project element construction. Temporary impacts on riparian habitat at Rancho San Antonio County Park will be mitigated through restoration of the disturbed area at a 1:1 ratio. The District will also mitigate for permanent impacts on riparian habitat at Rancho San Antonio County Park through restoration of riparian habitat on Permanente Creek at another location in the park. Permanent impacts on riparian habitat at Rancho San Antonio County Park will be mitigated at a minimum 1:1 ratio. The precise mitigation ratio for permanent impacts will be determined at a later date through agency coordination. The District will develop an MMP to ensure that all removed habitat is replaced "in-kind" with the appropriate native overstory and understory species to maintain structural complexity and habitat value. The MMP will be developed in the context of the federal and state permitting processes under the CWA and California Fish and Game Code and will include success criteria as specified by the permitting agencies. The MMP will also include adaptive management guidelines for actions to be taken if the success criteria are not met. Additionally, the MMP for Rancho San Antonio County Park will be developed in coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District. The initial annual monitoring will assess the progress of the plantings according to predetermined success criteria. If progress is not satisfactory, then adaptive management actions (including replanting, nonnative species removal, etc.) may be implemented. The MMP will remain in force until the success criteria are met.

### Maintenance and Operation

The Project is not expected to have substantial permanent long-term impacts on the riparian habitat along Permanente Creek in Rancho San Antonio County Park or at the bridge locations because the affected riparian habitat will be restored after construction is complete. As discussed in Chapter 2, all in-channel and bankside maintenance of facilities improved by the Project would take place under the District’s SMP. The Project would not create new in-channel maintenance needs or result in new impacts on riparian habitat, except at Rancho San Antonio County Park, where maintenance of the inlet/outlet facilities could require trimming, pruning, and/or limited removal of riparian vegetation. However, implementation of the District’s standard BMPs (consistent with the permit terms that govern the SMP) would ensure that maintenance-related impacts, including those at Rancho San Antonio County Park, are less than significant over the long term. No mitigation is required.

### Impact BIO14—Disturbance or Loss of State- or Federally Protected Wetlands and Other Waters

Summary by Project Element: Impact BIO14—Disturbance or Loss of State- or Federally Protected Wetlands and Other Waters		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>No Impact</del>
McKelvey Park Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant with Mitigation	No Impact

### Construction

The floodwall and levee alignment downstream of US-101 and flood-proofing will occur at the top of the bank, upslope from in-channel areas that support emergent wetland vegetation (on the in-land side of existing levees away from the creek) and abut existing buildings along the reach between Charleston Road and Amphitheatre Parkway. Construction activity is not expected to disturb these wetland areas, but if activity, foot traffic, and equipment are not adequately confined, there is some potential for disturbance or damage to substrate and vegetation. At worst, impacts could be significant, but implementation of the following mitigation measure would ensure that impacts are reduced to a less than significant level.

#### Mitigation Measure BIO14.1—Avoid and Protect Jurisdictional Wetlands during Construction

To avoid construction encroachment on jurisdictional wetlands, the District will ensure that a qualified resource specialist (biologist, ecologist, or soil scientist) clearly identifies wetland areas with temporary orange construction fencing before site preparation and construction activities begin at each site or will implement another suitable low-impact measure (e.g.,



construction monitoring by a qualified individual). The resource specialist will use the wetland delineation mapping prepared for the proposed project and will confirm or modify the location of wetland boundaries based on existing conditions at the time of the survey. Exclusion fencing will be installed before construction activities are initiated and maintained throughout the construction period. No construction activity, traffic, equipment, or materials will be permitted in fenced wetland areas.

Based on the preliminary delineation of jurisdictional habitat prepared for the proposed project, the only project element site that would have an impact on federally protected wetland habitat is at Rancho San Antonio County Park, where the flood detention basin footprint includes an existing wetland swale with an extent of approximately 0.42 acre (ICF Jones & Stokes 2009; ICF International 2012), and less than 0.02 acre of other waters within the footprint of the new bridge. This wetland, located in an undeveloped area of nonnative annual grassland approximately 650 feet northeast of Permanente Creek, receives surface flows and culverted runoff from residential developments to the east and northeast, draining toward the creek. The wetland is surrounded by upland habitat and supports native hydrophytic vegetation. Construction of the detention basin would require removal of the entire existing wetland area and would be subject to federal (USACE) jurisdiction under Section 404 of the CWA, and state (DFG and RWQCB) jurisdiction under CWA Sections 401 and 402. Wetland removal would represent a significant impact. While wetland impacts as a result of the levee expansion downstream of US-101 are not expected, minor potential effects on wetland habitat from foot traffic during adjacent construction would be less than significant. Temporary impacts on wetlands will be replaced at a 1:1 ratio, resulting in no net loss of wetland or waters. Implementation of Mitigation Measure BIO 14.2 would reduce impacts on wetland habitat to a less than significant level.

**Mitigation Measure BIO14.2—Compensate for Temporary Loss of Existing Wetlands and Other Waters, Consistent with State and Federal Agency Requirements**

The District will ensure that all wetland habitat temporarily impacted by Project activities at Rancho San Antonio County Park is compensated for, consistent with the terms of applicable state and federal permits at a minimum ratio of 1:1 to ensure no net loss of wetland habitat. Prior to excavation of the flood detention basin, the District will salvage and stockpile topsoil from the work area to preserve the native wetland seed bank as well as the soils' existing biogeochemical characteristics. The bottom of the basin will be graded to create swales that will collect surface runoff, as occurs under existing conditions and retain water to saturate soils, and create conditions suitable for the establishment and persistence of native wetland vegetation. Following excavation of the detention basin, the salvaged material will be placed and the surface fine-graded to create natural contours. It is anticipated with topsoil salvage and replacement, and enhancement of the natural hydrology through creation of the detention basin that the wetland will re-establish following construction. Appropriate native wetland species will also be planted within the basin to supplement the salvaged seed bank, provide vegetative structure, and enhance habitat value. The details of site restoration, monitoring, and adaptive management will be specified in a Mitigation and Monitoring Plan (MMP) by the District in compliance with the CWA and California Department of Fish and Game Code. The MMP will also include success criteria for vegetation establishment, extent and duration of seasonal ponding/soil saturation, evidence of erosion and/or sediment deposition, adaptive management guidelines for actions to be taken if the success criteria are not met, and other parameters specified by the permitting agencies. The MMP will be developed in coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District. The District will conduct annual monitoring to assess re-establishment of wetland vegetation and hydrologic

characteristics, and if necessary, implement adaptive management actions (including replanting, regrading, nonnative species removal, etc.) to ensure that there is no net loss of wetland habitat. ~~The details of site restoration, monitoring, and adaptive management will be specified in an MMP prepared by the District in compliance with the CWA and California Department of Fish and Game Code. The MMP will be developed in coordination with Santa Clara County Parks Department and Midpeninsula Regional Open Space District.~~ Wetland compensation habitat will be set aside and protected in perpetuity through appropriate legal means, consistent with agency requirements and as specified in permits. The District will be responsible for all associated costs and logistics.

**Maintenance and Operation**

As discussed in Chapter 2, all in-channel and bankside maintenance of facilities improved by the Project would take place under the District’s SMP. This includes maintenance of the new floodwalls and raised levee downstream of US-101. The Project thus would not create new in-channel or bankside maintenance needs or result in new impacts on in-channel wetlands. Therefore, there would be no impact at the floodwalls and levee downstream of US-101 project element, and no mitigation is required.

At Rancho San Antonio County Park, maintenance could include infrequent sediment removal from the inlet and outlet structures if depths exceed 1 foot, vegetation removal (if impeding flows), and other minor maintenance using hand equipment. Maintenance activities would be intermittent (i.e., triggered by accumulation of sediment exceeding 1 foot and/or vegetation obstructing flows) and temporary (i.e., following infrequent flood events). All maintenance would follow the BMPs from the District BMP handbook, which specifies guidelines to minimize disturbance to wildlife and habitats (Santa Clara Valley Water District 2008). With the District’s BMPs in place, impacts at Rancho San Antonio County Park are expected to be less than significant and no mitigation is required.

**Impact BIO15—Loss of or Damage to Protected Trees**

<b>Summary by Project Element: Impact BIO15—Loss of or Damage to Protected Trees</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant with Mitigation</del>	<del>Less than Significant</del>
McKelvey Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant
Channel Improvements: Permanente and Hale Creeks	Less than Significant with Mitigation	Less than Significant
Floodwalls and Levees downstream of US-101	No Impact	No Impact

## Construction

The Project could require removal of as many as 91 trees at Rancho San Antonio County Park, ~~as many as 15 trees at Cuesta Annex,~~ as many as 10 trees at McKelvey Park, and as many as 30 trees at the sites of channel improvements. Existing trees within 10 feet of the current top of the banks may be affected by channel widening work along Hale Creek; however, because the new channel will consist of a U-frame structure and be built inside the current channel's top of the banks, impacts are expected to be minimal. At Rancho San Antonio County Park, trees that may require removal are primarily coast live oak, but, depending on final design, may also include California sycamore (*Plantanus racemose*), Fremont's cottonwood (*Populus fremontii*), ~~and white alder (*Alnus rhombifolia*) and nonnative ornamental and agricultural species such as Monterey pine (*Pinus radiata*), Lombardy poplar (*Populus nigra* "Italica"), mulberry (*Morus alba*) and almond (*Prunus amygdalus*).~~ At Cuesta Annex, ~~trees to be removed include coast live oak along with orchard and ornamental species.~~ At the channel improvement sites, vegetation consists primarily of overhanging ornamental vines, ornamental trees and shrubs, and scattered remnant, as well as planted native trees including tree species vary and may include coast live oak, willows, sycamores (*Platanus* spp.), and California bay (*Umbellularia californica*). At Rancho San Antonio County Park and McKelvey Park, trees are landscape plantings that may include native species such as coast live oak and nonnative ornamental species. At this time, the District is not proposing to modify or remove any features on private property, with the possible exception of minor tree trimming without damage to private landscape trees to provide equipment access. If additional work is necessary, the District will work closely with property owners as needed to ensure that any work is done satisfactorily.

Some of the trees in the project area are protected by local tree ordinances (e.g., Santa Clara County Tree Ordinance, City of Los Altos Tree Ordinance, City of Mountain View Tree Ordinance, and City of Cupertino Tree Ordinance). Additionally, riparian trees are protected by DFG, and oak trees are managed under the Oak Woodland Conservation Act. Of the species that could be impacted, some would establish fairly quickly, such as willow, alder, and California bay, and their removal would represent less of a long-term concern than removal of slower-growing species such as coast live oak. However, removal of any protected trees would be considered a significant impact.

In addition, construction activities—including the use of heavy equipment and vehicles, and stockpiling of excavated materials—could inadvertently damage protected trees not designated for removal, by directly cutting or injuring roots, compacting the soil and reducing the tree's ability to take up water, and/or compromising the tree's structural integrity. Injuries to limbs or trunk can alter a tree's ability to transport water and nutrients. All of these effects can decrease a tree's chances of survival, and such injuries or damage to protected trees would also be considered significant impacts.

Implementation of Mitigation Measures BIO15.1 and BIO15.2 would reduce impacts on protected trees to a less than significant level. Note that removal of trees in riparian habitat is addressed and compensated separately in Impact BIO13 and Mitigation Measures BIO13.1 and 13.2 above; thus, the following mitigation measures apply only to trees outside areas of riparian habitat (i.e., landscape trees).

### **Mitigation Measure BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations**

Before ground disturbing activities (including site preparation) begin, the District will retain an ISA- (International Society of Arboriculture) or ASCA- (American Society of Consulting

Arborists) certified arborist to conduct a tree survey to identify protected landscape trees, including native trees, heritage trees, and other landscape trees subject to local jurisdiction protection.

Protected landscape trees slated for removal and deemed good candidates for transplantation will be considered for transplanting in conjunction with the proposed landscaping plans. Transplanted trees will be located onsite if space permits. If the number of trees to be transplanted is too large to be accommodated on the project site, the District will prepare a landscaping plan detailing other locations where transplanted trees will be planted, consistent with the requirements of the applicable tree protection ordinance or regulations. Transplanted trees will be subject to the monitoring and replacement requirements identified for replacement trees below.

Protected landscape trees not deemed good candidates for transplantation will be replaced. The landscaping plan for tree replacement will specifically identify the locations where replacement trees are to be planted; replacements will occur onsite if possible. The landscaping plan will be subject to review and approval by the agency with jurisdiction (DFG, the County, Midpeninsula Regional Open Space District, City of Los Altos, City of Mountain View, or City of Cupertino).

Tree removals within the City of Mountain View will be compensated at a ratio of 1:1, or as determined by the City, with minimum 24-in box stock. Species and location of the replacement tree will be determined in consultation with the property owner and the City.

Tree removals within the City of Los Altos will be compensated at a minimum ratio of 1:1, or as determined by the City, with minimum 24-inch box stock; ~~additional tree plantings will be provided if required by the City of Los Altos.~~

Tree removals within the City of Cupertino will be compensated according to size of tree removed. Tree replacement guidelines are:

- Trunk size of removed tree up to 12 inches; plant one 24-inch box tree.
- Trunk size of removed tree over 12 inches and up to 18 inches; plant two 24-inch box trees.
- Trunk size of removed tree over 18 inches and up to 36 inches; plant two 24-inch box trees or one 36-inch box tree.
- Trunk size of removed tree over 36 inches; plant one 36-inch box tree.
- Removal of heritage tree; plant one 48-inch box tree.

If protected landscape trees are removed in the County of Santa Clara (at Rancho San Antonio Park), such removals will be compensated in accordance with the County's Tree Preservation and Removal Ordinance (Section C16). Under Section C16, replacement trees must be of a like kind and species of trees removed, if native and feasible, or of a kind and species to be determined by the County's Planning Department. Replacement tree planting shall use at least 5-gallon size stock at a ratio determined by the Planning Department. A replanting and/or re-vegetation plan is required for all trees to be removed and an erosion control plan may also be required where determined appropriate by County staff.

Newly planted trees will be monitored by District staff at least once a year for 3 years. Each year, any trees that do not survive will be replaced consistent with the compensation required under the applicable tree ordinance. Any trees planted as remediation for failed plantings will then be monitored for a period of 3 years in the same manner, and any trees that do not survive will be replaced.

Large boxed trees used as replacement for loss of landscape specimen trees will not be native species if these same species are found in the adjacent land. Commercially available native trees in these sizes are typically of unknown genetic origin, but often originate in southern California. Therefore, ecological sensitivity dictates that no commercial tree stock of native species present in the surrounding park land will be used in this project. Suitable substitute species will be selected that cannot hybridize with resident natives nor become invasive in the adjacent land. All activities in this Mitigation Measure will be conducted per the Guidelines and Standards for Land Use near Streams (Santa Clara Valley Water District 2007).

#### **Mitigation Measure BIO15.2—Protect Remaining Trees from Construction Impacts**

Trees not designated for removal will be protected from damage during construction by installing temporary fencing and other methods determined necessary such as trunk wrapping, root mulching, access route gravelling, etc. consistent with International Society of Arboriculture tree protection zone recommendations. Fencing will be installed outside of the tree's dripline to keep construction equipment away from trees and prevent unnecessary damage to or loss of protected trees on the project site. Any protected trees retained on the site and located adjacent to construction activities will be monitored as specified for newly planted trees (see Mitigation Measure BIO15.1) and replaced if they do not survive through the monitoring period.

### **Maintenance and Operation**

As discussed in Chapter 2, all in-channel and bankside maintenance of facilities improved by the Project would take place under the District's SMP. Thus, the Project would not create new maintenance-related impacts related to removal of trees in these areas. Maintenance of the new inlet and outlet culverts would not affect trees. Any tree removal necessitated by long-term maintenance at the new flood detention facilities would be subject to local tree protection ordinances and be limited and compensated for in accordance with their requirements. Impacts of maintenance on protected trees at these facilities are therefore expected to be less than significant, and no mitigation is required.

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### **PERSONAL COMMUNICATION**

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Mark, Julie. Deputy Director of Administration. County of Santa Clara, Parks and Recreation Department, Los Gatos, CA. October 30, 2009—Comment Letter on Permanente Draft EIR.



# CHAPTER 6. CULTURAL AND PALEONTOLOGICAL RESOURCES

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Cultural and paleontological resources are protected by the Federal Antiquities Act, NEPA, CEQA, California Public Resources Code, and the local jurisdiction (county and city) planning process. Important paleontological sites and resources may also be preserved and protected through the National Natural Landmarks Program. For additional information, see Appendix B of this SEIR.

### *EXISTING CONDITIONS*

#### **Cultural Resources Setting**

Existing conditions for cultural resources were identified based on the published literature relative to prehistory, ethnography, and history of the Santa Clara Valley area. To assess the potential for cultural resources within the project area, a records search and literature review was conducted at the Northwest Information Center (NWIC) at Sonoma State University on March 22, 2012. The results of this records search and literature review are presented in Archeological Survey Report, Permanente Creek Flood Control Project (ICF International 2012).

#### **Background**

The Santa Clara Valley has been a region of intense human occupation for thousands of years. Archaeological investigations have shown that the prehistoric Santa Clara Valley was inhabited by mobile hunter-gatherers who made use of the rich resources provided by the region's estuaries, bayshore, riparian corridors, and oak woodlands (Erlandson and Jones 2002).

At the time of European contact, the Santa Clara Valley was occupied by a group of Native Americans referred to by ethnographers as the Ohlone or Costanoans. The territory of the Ohlone people extended along the coast from the Golden Gate in the north to just beyond Carmel in the south and as much as 60 miles inland, encompassing a lengthy coastline as well as several inland valleys (Levy 1978). The proposed project area was inhabited by the Tamien tribe, whose territory encompassed the central Santa Clara Valley along the banks of the Guadalupe River from Agnews to present day downtown San Jose, and the flatlands westward to Adobe Creek and present day Los Altos (Milliken 1995).

Spanish colonization of what is now California began in the late 1700s, based around a system of missions intended to convert the native peoples to Catholicism, gain control of the native population, and create economically self-sufficient colonial communities. When Mexico won its independence from Spain in 1824, one of the first acts of the new government was to secularize

the missions and redistribute the mission land holdings in the form of land grants to individuals who promised to work the land, primarily by raising cattle. Although secularization was intended to distribute the mission lands to the settlers and native population, the large-scale cattle ranchers or *rancheros* claimed the bulk of the resources, and ranching became the driving force of the economy and culture in the Santa Clara Valley (Bean and Rawls 1988).

In 1848, the United States won the Mexican-American War and as a result gained approximately 50% of Mexico's territory, including what would become the state of California. Within weeks of the end of the war, gold was discovered in the Sierra Nevada foothills, and by the summer of 1849, thousands of people were arriving in California in search of their fortunes. Americans who flooded into California at this time sought to acquire the vast land grant holdings of the *Californios*. Most of the Mexican land grants were judged invalid; the land was subject to sale, opening large acreages to new ownership and initiating a shift to farming to supply the growing demand for fresh foods. In the South Bay, a combination of wheat and barley production, dairy farms, and orchards dominated the valley floor from the 1860s until the late 1870s (Jacobson 1984).

With the collapse of the worldwide wheat market in the late 1870s, fruit farming became increasingly important in the Santa Clara Valley, facilitated by the development of the refrigerated railroad car, which allowed the transport of agricultural produce to distant markets. By the 1890s, orchard production was the dominant agricultural activity in the valley, remaining in this position through the 1940s (Jacobson 1984).

Following World War II, the growth of light industry and high-tech research and development, coupled with expanding suburbanization gradually eroded the valley's orchards. However, vestiges of the old orchards persisted throughout the area. As late as 1970, the city of San Jose—which at that time had a population of almost half a million—was still classified as partly rural by the U.S. census, and scattered areas of undeveloped land such as the Grant Road “farm parcel” in the city of Mountain View still remain (Payne 1987).

### **Flood Control History—Permanente Creek**

The first flood control studies for Permanente and Hale Creeks were conducted in the mid-1950s in response to flooding that occurred in the area in 1955 (Santa Clara Valley Water District 2004). Based on the recommendations in these reports, the Permanente Diversion was built in 1959 and the first flood control channels in Permanente and Hale Creeks were constructed in the early 1960s. Several channel sections and related improvements to the east levee at Mountain View Slough followed in the 1960s. In the early and mid-1980s, additional improvements in Permanente Creek and in the Permanente Diversion Channel were implemented to increase capacity and reinforce some existing channel structures. In the same year, floodproofing measures—including earth mounds, floodwalls, and ramps—were installed at El Camino Hospital (located at the corner of Grant Road and North Drive in the City of Mountain View). No further major work has been done in Permanente Creek, Hale Creek, or the Permanente Diversion since the mid-1980s. More information on the history of flood protection planning and projects in the project area is provided in the *Project Background/Problem Definition Report* (Santa Clara Valley Water District 2004).

## History of Rancho San Antonio County Park

The Ohlone village of Partacsi was located near what is now Rancho San Antonio County Park, among many smaller settlements (Kroeber 1925).

Colonel Juan Bautista de Anza and Lieutenant Jose Joaquin Moraga were among the first Europeans to pass through the area while escorting Spanish colonists to establish the Presidio of San Francisco in 1776. They camped near what is now Cupertino on the evening of March 25, and viewed San Francisco Bay from a knoll near the present-day entrance to Rancho San Antonio County Park, now known as the Anza Knoll. During the Spanish Mission period, what is now Rancho San Antonio Park was within the sphere of influence of Mission Santa Clara. With the secularization of mission lands following the transition to Mexican rule, the 4,440-acre Rancho San Antonio was granted to a soldier from the San Francisco Presidio named Juan Prado Mesa. When he died in 1845, the rancho was divided and sold progressively to a number of farmers who put the land into orchards, vineyards, and grain crops (Midpeninsula Regional Open Space District 2008; National Park Service 2010).

A portion of the cultivated lands was bought by Archbishop William Patrick Riordan in the early 20th century, and in 1926 Saint Joseph's Seminary (demolished following damage sustained in the 1989 Loma Prieta earthquake) and the Maryknoll Seminary (located east of the present-day park across Cristo Rey Drive). The Santa Clara County Parks Department purchased 165 acres of land from the seminary in the 1970s and 1980s. Initial improvements to the park were carried out in the early 1980s, with additional upgrades in 1993 (Midpeninsula Regional Open Space District 2008).

## Records Search Results

Sources consulted in the March 22, 2012, NWIC records search conducted for the proposed project include the list of prior studies, previously recorded sites, historical maps and literature, the National Register of Historical Places (NRHP), the California Register of Historical Resources (CRHR), and the Santa Clara County Historical Resources Index.

The records search identified one cultural resource within a project element. C-262 is known only as the "Swimming Pool Site," on which no other information is available. This resource is recorded adjacent to Hale Creek north of Cuesta Drive in the Permanente and Hale Creek Channel Improvements project elements.

Thirty-four previously recorded cultural resources were within 0.50 mile of the project elements. Of these, 30 are built resources and four are archaeological resources. Resources closest to current project elements are presented below.

A total of 70 cultural resources surveys have been conducted within the project elements, including regional overviews, site-specific surveys, cellular tower studies, linear studies along roadways, and studies of specific topics. A discussion of all surveys and cultural resources along with a breakdown of surveys by project element and regional overviews, is provided in Archeological Survey Report, Permanente Creek Flood Control Project (ICF International 2012).

### Rancho San Antonio County Park Flood Detention Facility

Two archaeological resources are located within 0.50 mile of the Rancho San Antonio County Park Flood Detention Facility. These resources are presented in Table 6-1.

**Table 6-1. Archaeological Resources—Rancho San Antonio County Park Flood Detention Facility**

Resource	Description
CA-SCL-213	Lithic Scatter
P-43-001633	Historic-era Trash Scatter

Two built environment resources are located within 0.50 mile of the Rancho San Antonio County Park Flood Detention Facility. These resources are presented in Table 6-2.

**Table 6-2. Built Environment Resources—Rancho San Antonio County Park Flood Detention Facility**

Resource	Description
P-43-001833	Five parallel railroad tracks
P-43-001867	Historic District (the Hansen Permanente Cement Plant Mining District)

### ~~Cuesta Annex Flood Detention Facility~~

~~One archaeological resource is located within a half-mile of the Cuesta Annex Flood Detention Facility. That resource is C-262: the Swimming Pool Site. No other information is available regarding this resource. One built environment resource is located within 0.50 mile of the Cuesta Annex Flood Detention Facility. That resource is P-43-002049, the Edwin L. Emerson Farm House, b. 1902–1905.~~

### McKelvey Park Flood Detention Facility

One built environment resource is located within 0.50 mile of McKelvey Park. This resource is P-43-002060: A Period Revival farmhouse, c. 1905–1910.

### New Permanente Diversion Structure

Nine built environment resources are located within 0.50 mile of the New Permanente Diversion Structure. These resources are presented in Table 6-3.

**Table 6-3. Built Environment Resources—New Permanente Diversion Structure**

Resource	Description
P-43-001476	Reservoir, concrete
P-43-002035	Spanish Revival residence, ca. 1930
P-43-002036	Residence, c. 1890
P-43-002037	Residence, c. 1890

Resource	Description
P-43-002049	Farmhouse, b. 1902-05
P-43-002078	Farmhouse, ca. 1920
P-43-002092	Cluster of residences (Holly Village), b. 1938
P-43-002096	Farmhouse, ca. early 20th century
P-43-002100	Residence, ca. early 20th century

### Floodwalls and Levees Downstream of US-101

One archaeological resource is located within 0.50 mile of the Floodwalls and Levees downstream of US-101, which is P-43-000441 (CA-SCL-439): dark friable soil with shell. Eleven built environment resources are located within 0.50 mile of the Floodwalls and Levees downstream of US-101. These resources are presented in Table 6-4.

**Table 6-4. Built Environment Resources—Floodwalls and Levees Downstream of US-101**

Resource	Description
P-43-000441	One-story single-family residence, b. 1955
P-43-001518	One-story single-family residence, b. 1955
P-43-001519	One-story single-family residence, b. 1955
P-43-001520	One-story single-family residence, b. 1955
P-43-001579	One-story single-family residence, b. 1955
P-43-001580	One-story single-family residence, b. 1955
P-43-001581	One-story single-family residence, b. 1955
P-43-001582	One-story single-family residence, b. 1955
P-43-001583	One-story single-family residence, b. 1955
P-43-001584	One-story single-family residence, b. 1955
P-43-001585	Jones Hall, b. 1956, 2-story concrete block

### Channel Improvements: Permanente and Hale Creeks

One archaeological resource is located within 0.50 mile of the Channel Improvements: Permanente and Hale Creeks project element. That resource is C-262, The Swimming Pool Site. No other information is available regarding this resource. Thirteen built environment resources are located within 0.50-mile of the Channel Improvements: Permanente and Hale Creeks project element. These resources are presented in Table 6-5.

### Potential for Buried Resources in the Project Footprint

The project corridor has a moderate to high potential for containing buried archaeological resources, some of which could qualify as significant resources. The Santa Clara Valley as a whole is rich in archaeological sites, and buried sites with little to no surface evidence can exist.

There are several reasons for this—sites may be buried by sediments, or may have been scoured by erosional processes. Because of the area’s dense development, many sites could be concealed beneath pavement. Episodic flooding and sedimentation can “cap” buried sites to depths exceeding modern construction, and previous subsurface disturbances can be more extensive than originally supposed. This is particularly true of areas adjacent to watercourses (Allen et al. 1999; Hylkema 1996).

**Table 6-5. Built Environment Resources—Channel Improvements: Permanente and Hale Creeks**

<b>Resource</b>	<b>Description</b>
P-43-002035	Spanish Revival residence, ca. 1930
P-43-002036	Residence, c. 1890
P-43-002037	Residence, c. 1890
P-43-002038	Period Revival cottage, ca. 1920s
P-43-002039	Spanish Revival residence, ca. 1925
P-43-002047	Two Board-and-Batt cottages, n.d.
P-43-002049	Farmhouse, b. 1902-1905
P-43-002056	Dutch Colonial Residence, n.d.
P-43-002060	Period Revival farmhouse, ca. 1905–1910
P-43-002064	Bungalow residence, ca. 1920
P-43-002101	Stick/Queen Anne farmhouse, b. 1895
P-43-002102	Bungalow residence, ca. 1920
P-43-002106	Tudor residence, ca. 1890s

## Native American Correspondence

ICF International contacted the California Native American Heritage Commission (NAHC) on March 19, 2012, to identify any areas of concern within the project area that may be listed in the NAHC’s Sacred Land File. The NAHC responded on March 22 2012, stating that a search of its files failed to indicate the presence of Native American cultural resources in the immediate project area. A letter was sent to all interested Native American individuals and organizations on the list from the NAHC on March 28, 2012.

Andy Galvan of the Ohlone Indian Tribe replied on April 4, 2012. He stated that he was familiar with the project area, knew of no prehistoric resources in this area, and had no further concerns regarding the Project. To date, no other responses have been received regarding the Project.

## Field Surveys

### Archaeological Field Surveys

Archaeological surveys were conducted in September 2009 and March 2012. Formal transects were surveyed for flat, open areas while in other areas an intuitive survey was conducted where archaeologists had limited visibility or terrain was steep and irregular.

Physical characteristics of the locations of the project elements range from paved, suburban areas where Permanente Creek is channelized and concrete-lined to wide, open spaces with excellent ground visibility. Consequently, each project element was surveyed in the manner deemed most appropriate based on its location, condition, and accessibility. As a result, ~~three~~ two project elements—the Rancho San Antonio County Park Flood Detention Facility, ~~Cuesta Annex Flood Detention Facility~~, and McKelvey Park Flood Detention Facility—were thoroughly field surveyed. For all both of these areas, transects spaced no wider than 10 meters ~~wide~~ were walked to ensure maximum ground coverage in a timely manner. Cutbanks were inspected for potential cultural resources. Areas that had poor visibility due to thick, low-lying grasses were subjected to trowel scrapes in order to better view the ground surface. The field inspections included observing evidence of topographic disturbances; soil discoloration (such as to indicate a burn area or midden deposit); charcoal, modified bone, stone, historic-era artifacts and features such as archaeological stone or adobe walls; glass, ceramic, or metal fragments; and exotic materials. No cultural resources were identified at any of these project elements as a result of this survey.

The New Permanente Diversion Structure and Channel Improvements: (Permanente and Hale creeks) elements are closely flanked by suburban infrastructure, including fencing and landscaping in adjacent yards. Special attention was paid to the Channel Improvements: Permanente and Hale Creeks between Paco Drive and Cuesta Drive, as the Swimming Pool Site was recorded in this area. Unimpeded views of the creek channels- which are channelized and concrete-lined in these residential areas can only be obtained from adjacent residential streets in certain places. These constraints limited access and visibility to the creek. No cultural resources were identified at any of these project elements as a result of this survey.

For the Floodwalls and Levees downstream of US-101 project element, the portion of Permanente Creek proposed for the addition of floodwalls (from US-101 to the vicinity of Amphitheatre Parkway) consists of an earthen trapezoidal channel with paved levee-top trails on both banks. Adjacent land uses are primarily large business park developments and smaller-scale light industrial uses. Mature trees are present on both sides of the creek. There was little ground visibility within the creek corridor due to the paved trails and concrete channel. No cultural resources were identified at this project element as a result of this survey.

### Architectural Field Surveys

Architectural surveys were conducted in September 2009 and March 2012. All project elements were surveyed in March 2012. Properties with buildings, structures, and objects over 50 years old were photographed and recorded as best as possible with accessibility and visibility constraints.

During the architectural field surveys, single-family and multiple-family residences, commercial properties, and concrete culverts and bridges were all observed. Consequently, each project element was surveyed in the manner deemed most appropriate based on its location, condition, and accessibility and on research of assessor’s records to determine dates of construction on subject properties. The field inspections included visual inspection of the properties in the project’s Architectural APE to anticipate the presence and integrity of historic resources and in order to photograph buildings, structures and objects older than 50 years. Table 6-6 summarizes the findings from the architectural field survey.

~~No properties were found to be eligible for listing in the NRHP. The Snyder-Hammond House, a historic resource listed in the City of Cupertino’s historic register list, is at a distance of 200 feet from the Rancho San Antonio Flood Detention Facility project boundary; therefore, this building falls outside of the project APE. An ICF noise specialist provided an analysis of the peak particle velocity (PPV) estimates to the house. Any vibration impacts on the Snyder-Hammond House from haul trucks and construction equipment would be well below the suggested standard of 0.2 PPV. The vibration impacts on the house would result in approximately 0.004 PPV (in/sec) when the construction equipment is operating at the boundary, and approximately 0.06 PPV (in/sec) from haul trucks traveling along Snyder-Hammond Loop trail to Permanente Road. Therefore, there are no direct or indirect vibration impacts on this resource. The other properties identified and surveyed in the Architectural APE do not appear to be eligible for listing in the NRHP or the CRHR.~~

~~The properties were evaluated in accordance with Section 15064.5(a)(2)(3) of the State of California CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code and were determined not to be historic resources under CEQA.~~

**Table 6-6. Architectural Survey Results for Built Environment Resources per Project Element**

Project Element	Resource	NRHP/CRHP Eligibility	Impacts
Rancho San Antonio County Park Flood Detention Facility	Gate of Heaven Chapel	Not eligible	No impacts
<del>Cuesta Annex Flood Detention Facility</del>	<del>NA</del>	<del>N/A</del>	<del>No impacts</del>
McKelvey Park Flood Detention Facility	St. Joseph School	Not eligible	No impacts
New Permanente Diversion Structure	NA	N/A	No impacts
Floodwalls and Levees downstream of US-101	1024 Alta Ave	Not eligible	No Impacts
Channel Improvements: Permanente and Hale Creeks	Approximately 80 single-family residences; 2 multiple-family residences	Not eligible	No impacts
Channel Improvements: Permanente and Hale Creeks – includes bridge replacement	Permanente and Hale Creek Bridges	Not eligible	No impacts

No properties were found to be eligible for listing in the NRHP. The Snyder-Hammond House, a historic resource listed in the City of Cupertino’s historic register list, is at a distance of 200 feet



from the Rancho San Antonio Flood Detention Facility project boundary; therefore, this building falls outside of the project APE. An ICF noise specialist provided an analysis of the peak particle velocity (PPV) estimates to the house. Any vibration impacts on the Snyder-Hammond House from haul trucks and construction equipment would be well below the suggested standard of 0.2 PPV. The vibration impacts on the house would result in approximately 0.004 PPV (in/sec) when the construction equipment is operating at the boundary, and approximately 0.06 PPV (in/sec) from haul trucks traveling along Snyder-Hammond Loop trail to Permanente Road. Therefore, there are no direct or indirect vibration impacts on this resource. The other properties identified and surveyed in the Architectural APE do not appear to be eligible for listing in the NRHP or the CRHR.

The properties were evaluated in accordance with Section 15064.5(a)(2)(3) of the State of California CEQA Guidelines, using the criteria outlined in Section 5024.1 of the California Public Resources Code and were determined not to be historic resources under CEQA.

## Paleontological Resources Setting

Information on paleontological resources of the project area was derived from the published literature and university and museum databases. Paleontological sensitivity (essentially the likelihood that significant fossil resources are present) was evaluated following guidelines of the Society of Vertebrate Paleontology (SVP) (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995), according to the criteria in Table 6-7.

**Table 6-7. Criteria Used to Evaluate Paleontological Sensitivity in Project Area**

Sensitivity Category	Definition
High sensitivity	Areas underlain by geologic units from which vertebrate or significant invertebrate fossils or suites of plant fossils have been recovered
Undetermined sensitivity	Areas underlain by geologic units for which little information is available
Low sensitivity	Areas underlain by geologic units that are not known to have produced a substantial body of significant paleontological material

Source: Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995.

As used in Table 6-7, the term *significant* refers to paleontological resources that meet one or more of the following criteria.

- Provides important information shedding light on evolutionary trends and/or helping to relate living organisms to extinct organisms.
- Provides important information regarding the development of biological communities.
- Demonstrates unusual circumstances in the history of life.
- Represents a rare taxon or a rare or unique occurrence; is in short supply and in danger of being destroyed or depleted.
- Has a special and particular quality, such as being the oldest of its type or the best available example of its type.

- Provides important information used to correlate strata for which it may be difficult to obtain other types of age dates.

Paleontological resources considered significant in California typically include vertebrate remains but may also include invertebrate fossils and plant fossils in some areas (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995).

Figure 3-1 shows the geology of the project alignment. Upstream (southwest) of Foothill Expressway, the range front is flanked by an apron of conglomerate, sandstone, and mudstone assigned to the Santa Clara Formation of late Pliocene–Pleistocene age (Brabb et al. 2000). Incised into and overlying the Santa Clara Formation are alluvial fan and fluvial deposits of Pleistocene age, consisting of variably sorted sand and gravel fining upward to sandy clay. These deposits are related to modern stream courses. They are in turn incised and overlain by Holocene alluvial (Qhaf on Figure 3-1) and basin (Qhab) strata. At the downstream end of the project corridor, immediately upstream of Shoreline at Mountain View Park, are extensive areas of artificial fill placed over Bay mud deposits. Ribbons of artificial levee fill material border Mountain View Slough as it approaches the Bay margin (Brabb et al. 2000).

The Plio-Pleistocene Santa Clara Formation is known to contain vertebrate fossil materials, including remains of *Bison latifrons* and *Equus* sp. (University of California Museum of Paleontology 2008a). It also contains freshwater bivalves and gastropods as well as plant fossils (Wentworth et al. 1998). Younger Pleistocene alluvial and fluvial strata that overlie the Santa Clara Formation also contain vertebrate materials, including remains of peccary and mammoth, as well as freshwater molluscan fossils (Brabb et al. 2000; University of California Museum of Paleontology 2008a). Because of their vertebrate content, the Santa Clara Formation and the overlying Pleistocene strata are considered highly sensitive for paleontological resources. This is consistent with the general standard of care—California’s Pleistocene nonmarine strata have yielded a wealth of stratigraphically important vertebrate fossils, including the assemblages that defined both the Rancholabrean and Irvingtonian Stages of the North American Land Mammal Chronology, used as a reference by paleontologists and stratigraphers across the country. Because of this wealth of information, continental deposits of Pleistocene age are almost universally treated as paleontologically sensitive in California.

Geologic units of Holocene age are generally not considered sensitive for paleontological resources because biological remains younger than 10,000 years are not fossils in the strict sense. However, remains of a Rancholabrean (early Pleistocene) Columbian mammoth (*Mammuthus columbi*) were recently found along the Guadalupe River in San Jose (University of California Museum of Paleontology 2008b), in strata identified as Holocene by published geologic maps (e.g., Wentworth et al. 1998). Either the mammoth remains were reworked from older deposits or some strata identified as Holocene in the Santa Clara Valley are actually of Pleistocene age; in either case, “Holocene” materials in the project area may have some level of sensitivity for paleontological resources. The level of sensitivity is difficult to determine and likely varies from place to place. Accordingly, this analysis treats Holocene materials as potentially sensitive, consistent with SVP’s “undetermined” sensitivity category.

Table 6-8 summarizes the paleontological sensitivity of geologic units exposed in the project corridor.

**Table 6-8. Paleontological Sensitivity Overview for Project Corridor**

<b>Geologic Unit</b>	<b>Paleontological Sensitivity</b>
Santa Clara Formation	High
Pleistocene alluvial fan and fluvial deposits	High
Holocene alluvial fan, fluvial, basin deposits, and Bay mud deposits	Undetermined; if correctly identified as Holocene, low

## IMPACT ANALYSIS

### *METHODS AND SIGNIFICANCE CRITERIA*

#### Cultural Resources

Impact analysis for cultural resources was based on results of the records search, a review of prior cultural resources studies within the Santa Clara Valley, and professional judgment in light of the current standard of care for cultural resources within California.

For the purposes of this analysis, an impact on cultural resources was considered to be significant and to require mitigation if it would result in any of the following.

- Substantial adverse change in the significance of a historical resource that is
  - listed, or eligible for listing, in the NRHP;
  - listed, or eligible for listing, in the CRHR; or
  - included in a local register of historical resources, or otherwise identified as an important resource by a local jurisdiction or agency.
- Substantial adverse change in the significance of an archaeological resource meeting the above qualifications.
- Substantial adverse change in a “unique archaeological resource,” as defined in Section 21083.2(g) of the California Public Resources Code PRG.
- Disturbance of human remains, including those interred outside of formal cemeteries.

#### Paleontological Resources

Impacts on paleontological resources were evaluated following guidelines published by the SVP (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995) and updated guidance available on the SVP website ([www.vertpaleo.org](http://www.vertpaleo.org)). This analysis reflects professional judgment in light of information available from the published geologic and paleontological literature and museum databases. No new paleontological fieldwork or research was conducted for this SEIR.

SVP’s guidelines were developed in response to a recognized need for standardized methods to assess and mitigate impacts on paleontological resources and are now widely accepted as

an industry standard. Because many fossil materials are buried in subsurface geologic units rather than exposed at the ground surface, a lead agency often cannot be certain until project earthwork has made substantial progress whether any such resources will actually be encountered. Thus, impact analysis for paleontological resources operates based on probabilities of impact, with the goal of developing flexible strategies to support adaptive management based on information that may quite literally “come to light” during project construction. The first step in the process is to assess the likelihood that the project area contains significant nonrenewable paleontological resources that could be directly or indirectly impacted, damaged, or destroyed as a result of the Project. This baseline is referred to as an area’s *paleontological sensitivity* or *sensitivity for paleontological resources*. Once the project area’s paleontological sensitivity is known, the likelihood of impact is constrained and an appropriate mitigation strategy can be developed, as summarized in Table 6-9.

**Table 6-9. Society of Vertebrate Paleontology’s Recommended Treatment for Paleontological Resources, by Sensitivity Category**

Sensitivity Category	Definition	Recommended Treatment
High sensitivity	Areas underlain by geologic units from which vertebrate or significant invertebrate fossils or suites of plant fossils have been recovered	<ul style="list-style-type: none"> <li>• Preliminary survey and surface salvage before construction begins</li> <li>• Monitoring and salvage during construction</li> <li>• Specimen preparation; identification, cataloging, curation, and storage of materials recovered</li> <li>• Preparation of final report describing finds and discussing their significance</li> <li>• All work supervised by a professional paleontologist who maintains the necessary collecting permits and repository agreements</li> </ul>
Undetermined sensitivity	Areas underlain by geologic units for which little information is available	<ul style="list-style-type: none"> <li>• Preliminary field surveys by a qualified vertebrate paleontologist to assess project area’s sensitivity</li> <li>• Design and implementation of mitigation if needed, based on results of field survey</li> </ul>
Low sensitivity	Areas underlain by geologic units that are not known to have produced a substantial body of significant paleontological material	<ul style="list-style-type: none"> <li>• Protection and salvage are generally not required. However, a qualified paleontologist should be contacted if fossils are discovered during construction, in order to salvage finds and assess the need for further mitigation</li> </ul>

Source: Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995.

For the purposes of this analysis, an impact on paleontological resources was considered to be significant and to require mitigation if it would result in any of the following.

- Damage to or destruction of vertebrate paleontological resources.
- Damage to or destruction of any paleontological resource that
  - provides important information about evolutionary trends, including the development of biological communities;
  - demonstrates unusual circumstances in the history of life;
  - represents a rare taxon or a rare or unique occurrence;

- is in short supply and in danger of being destroyed or depleted;
- has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- provides information used to correlate strata for which it may be difficult to obtain other types of age dates.

## **IMPACTS AND MITIGATION MEASURES**

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by analysis.

### **Impact CR1—Effect of Ground Disturbance on Undocumented Prehistoric and Historic Archaeological Resources, Including Human Remains**

<b>Summary by Project Element: Impact CR1—Effect of Ground Disturbance on Undocumented Prehistoric and Historic Archaeological Resources, Including Human Remains</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant	No Impact

Only one previously documented cultural resource is known to be present within or adjacent to any of the project elements. As discussed earlier, there is no information on the Swimming Pool Site. The field survey revealed a built-up suburban environment with paved roadways, sidewalks, and private residences surrounding the area in which this resource was recorded. No cultural resources were encountered during the archaeological field surveys of any of the project elements, in many of which Permanente and Hale Creeks are channelized in concrete and fenced in from the adjacent private properties.

As discussed in *Existing Conditions*, however, the project corridor is considered moderately to highly sensitive for unrecorded prehistoric, ethnohistoric, and historic cultural materials. Although most work would not extend below as-built conditions, work conducted in native soils below engineered channels could encounter previously undiscovered deposits. Ground-disturbing activities in native soils could affect Native American remains. However, as identified in Chapter 2 (*Project Description*), the District routinely implements comprehensive BMPs to minimize the potential for disturbance to undocumented prehistoric and historic archaeological resources during construction. With the District’s standard BMPs in place, impacts related to disturbance to undocumented and historic archaeological resources, including human remains, are expected to be less than significant. No mitigation is required.

## Impact CR2—Substantial Adverse Change to Historical Resources

<b>Summary by Project Element: Impact CR2—Substantial Adverse Change to Historical Resources</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	No Impact	No Impact
New Permanente Diversion Structure	No Impact	No Impact
Guesta Annex Flood Detention Facility	No Impact	No Impact
Channel Improvements: Permanente and Hale Creeks (includes bridge replacements)	No Impact	Less than Significant Impact
McKelvey Park Flood Detention Facility	No Impact	No Impact
Floodwalls and Levees downstream of US-101	No Impact	No Impact

Because flood protection efforts on Permanente and Hale Creeks began in the mid-20th century, there was potential that existing infrastructure (in particular, the bridges/culverts over Hale and Permanente Creeks proposed for replacement) had historic significance. The survey of these resources in March 2012, however, found that they are not eligible for listing in the NRHP or the CRHR and, therefore, are not historic resources for purposes of CEQA. A California Department of Parks and Recreation 523 Form for Permanente Creek and Hale Creek bridges, as well as the other resources present in the APE, are provided in Archeological Survey Report, Permanente Creek Flood Control Project (ICF International 2012).

The Hammond-Snyder House, a historic resource listed in the City of Cupertino’s historic register list, is directly outside of the Rancho San Antonio County Park Flood Detention Facility project element APE. Any vibration impacts on the Snyder-Hammond House from haul trucks would be well below the suggested standard of 0.2 PPV. Therefore, there are no direct or indirect vibration impacts on this resource.

There were no other historic resources identified for the project elements; therefore, there is no potential for substantial adverse changes to historic resources.

## Impact PALEO1—Damage to Significant Paleontological Resources

<b>Summary by Project Element: Impact PALEO1—Damage to Significant Paleontological Resources</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant with Mitigation	Less than Significant

Significant impacts on paleontological resources are possible in two situations:

- where substrate materials identified as highly sensitive for paleontological resources are present at the surface and would be disturbed by project construction (earthwork and/or other construction activities); and
- where highly sensitive substrate materials are present in the shallow subsurface beneath a veneer of Holocene deposits, and project excavation would be deep enough to involve the underlying sensitive materials.

As shown on Figure 3-1, the proposed sites for ~~four~~three project elements are situated on geologic units identified as highly sensitive for paleontological resources near the ground surface:

- the Rancho San Antonio County Park Flood Detention Facility site is situated on the Santa Clara Formation and in some areas on nonmarine deposits of Pleistocene age,
- the Hale Creek channel segment proposed for widening is situated on nonmarine deposits of Pleistocene age, and
- ~~the upstream end of the Cuesta Inlet Culvert may be situated on nonmarine deposits of Pleistocene age, and~~
- a portion of the Permanente Creek channel segment proposed for widening is situated on nonmarine deposits of Pleistocene age.

Construction earthwork at these ~~four~~three sites would thus have some potential to result in disturbance or damage to significant paleontological resources. Depending on the extent of disturbance or damage, this could rise to the level of a significant impact. Implementation of the following FEIR mitigation measures would reduce construction impacts at these sites to a less-than-significant level.

**Mitigation Measure PALEO1.1—Provide Preconstruction Worker Awareness Training**

The District will ensure that all construction personnel receive paleontological resources awareness training that includes information on the possibility of encountering fossils during construction; the types of fossils likely to be seen, based on finds in the site vicinity; and proper procedures in the event fossils are encountered. Worker training will be prepared and presented by a qualified paleontologist as defined by the SVP (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995) or other appropriate personnel (e.g., California licensed professional geologist with appropriate experience and expertise) experienced in teaching nonspecialists. It may be delivered at the same time as other preplanned construction worker education or it may be presented separately.

**Mitigation Measure PALEO1.2—Conduct Preconstruction Survey, with Salvage if Needed**

For sites where native substrate materials of high paleontological sensitivity are exposed, the District will retain a qualified professional paleontologist as defined by the SVP's Conformable Impact Mitigation Guidelines Committee (1995) to conduct a pedestrian surface survey before site preparation and project earthwork begin to assess whether paleontological materials are exposed at the surface and should be salvaged. If salvage is required, this will also take place before ground-disturbing activities begin. The goal of the

survey and follow-up activities will be to ensure that paleontological materials exposed at the surface are protected, recovered, and properly prepared and curated. If materials must be protected in place until they can be excavated, protection will be designed and installed in consultation with the District's project manager to ensure that it is appropriate and effective but does not unduly impede construction activities.

**Mitigation Measure PALEO1.3—Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities**

The District will retain a qualified professional paleontologist as defined by the SVP's Conformable Impact Mitigation Guidelines Committee (1995) to monitor during any activities with the potential to disturb substrate units identified as highly sensitive for paleontological resources. Paleontological monitoring will consist of observing operations and periodically inspecting disturbed, graded, and excavated surfaces. The monitor will have authority to divert grading or excavation away from exposed surfaces temporarily in order to examine disturbed areas more closely and/or recover fossils. The qualified paleontologist responsible for monitoring will coordinate with the construction manager to ensure that monitoring is thorough but does not result in unnecessary delays.

**Mitigation Measure PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate**

If vertebrate fossils are discovered during construction, all work on the site will stop immediately until a qualified professional paleontologist as defined by the SVP's Conformable Impact Mitigation Guidelines Committee (1995) can assess the nature and importance of the find and recommend appropriate treatment. Treatment may include preparation and recovery of fossil materials so that they can be housed in an appropriate museum or university collection and may also include preparation of a report for publication describing the finds. The District will be responsible for ensuring that the recommendations of the paleontological monitor regarding treatment and reporting are implemented.

Any ground disturbance associated with maintenance would be much more restricted in extent and depth and thus is considered very unlikely to affect fossil resources in the subsurface; maintenance impacts at these sites are considered less than significant. No additional mitigation is required.

As shown on Figure 3-1, the other project element sites—the remainder of the Permanente Creek channel widening alignment, the New Permanente Diversion Structure, ~~Cuesta Annex Flood Detention Facility~~, the ~~Cuesta Annex Outlet Culvert~~, McKelvey Park, and the Floodwalls and Levees downstream of US-101—are located on alluvial fan and fluvial deposits of Holocene age. The paleontological sensitivity of these materials is undetermined. Holocene materials are typically not considered paleontologically sensitive because biological remains less than 10,000 years old do not qualify as fossils. However, the recent, highly publicized discovery of Columbian mammoth remains in deposits identified as Holocene (University of California Museum of Paleontology 2008b) suggests that in some places, stratigraphy may be misidentified, with older Pleistocene strata incorrectly mapped as Holocene. In addition, even where "Holocene" materials are correctly identified and mapped, and thus of genuinely low sensitivity, deeper earthwork could involve underlying Pleistocene strata, and thus there could be some potential for significant impacts on fossil resources.



~~Project elements~~ The McKelvey Park Flood Detention Facility ~~requiring~~ requires deeper and more extensive earthwork into largely undisturbed substrate ~~include Cuesta Annex and McKelvey Park flood detention facilities.~~ For ~~these~~ this two sites, the following mitigation measures are required to reduce construction impacts to a less-than-significant level. Any ground disturbance associated with maintenance would be much more restricted in extent and depth and is very unlikely to affect fossil resources in the subsurface; maintenance impacts at ~~these~~ this sites are considered less than significant and no additional mitigation is required.

**Mitigation Measure PALEO1.5—Assess Potential for Project Excavation to Disturb Pleistocene Strata**

For sites where materials of Holocene age are present at the surface, before ground-disturbing activities begin, the District will retain a California-licensed professional geologist (PG) with appropriate experience to evaluate the potential for project earthwork to disturb Pleistocene or other strata identified as highly sensitive for paleontological resources. Based on the professional judgment of the responsible PG, this assessment may also include an evaluation of the age/stratigraphic affinity of surface-exposed materials identified as Holocene. The evaluation may rely on the published literature, geotechnical data collected to support project design, or other sources deemed appropriate by the responsible PG.

**Mitigation Measure PALEO1.1—Provide Preconstruction Worker Awareness Training**

This measure is described in detail above.

**Mitigation Measure PALEO1.3—Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities**

This measure is described in detail above.

**Mitigation Measure PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate**

This measure is described in detail above.

The remaining project elements located on alluvial fan and fluvial deposits of Holocene age include:

- the portion of the Permanente Creek channel widening alignment on Holocene substrate,
- the New Permanente Diversion Structure, and
- ~~the Cuesta inlet and outlet culverts (excluding the portion of the Cuesta inlet on Pleistocene substrate), and~~
- the Floodwalls and Levees downstream of US-101.

In these areas, excavation would be shallower and less extensive and/or would involve materials at least in part subject to prior disturbance. The potential for significant impacts on paleontological resources is, therefore, less at these elements; construction impacts would be reduced to a less-than-significant level by the following mitigation measures. Any ground disturbance associated with maintenance would also be very restricted in extent and depth and/or would involve previously disturbed materials and is, thus, considered very unlikely to

affect fossil resources in the subsurface. Maintenance impacts at these sites would be less than significant, and no additional mitigation is required.

**Mitigation Measure PALEO1.1—Provide Preconstruction Worker Awareness Training**

This measure is described in detail above.

**Mitigation Measure PALEO1.4—Stop Work if Vertebrate Remains are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate**

This measure is described in detail above.

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# CHAPTER 7. AESTHETICS

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Aesthetic values are protected indirectly through a variety of federal, state, and local laws and programs. The federal government does not explicitly regulate visual quality but recognizes its importance and preserves aesthetic values through the National Park, National Wildlife Refuge, National Monument, and National Scenic Byway Systems. At the state level, aesthetic values are preserved through the establishment of state parks and preserves, and through the California Scenic Highway Program. In addition, although local jurisdictions are not required to address visual resources as a separate topic in their general plans, several of the required general plan elements—including land use, conservation, and open space—relate indirectly to the aesthetic issues faced by communities as they manage their growth. General plans may also contain additional elements on topics of concern to the local community; common themes that bear on aesthetics and visual resources include recreation and parks, community design, and heritage or cultural resources.

Although numerous high quality views are available throughout the Santa Clara Valley region, including aesthetics and views from hillsides, no scenic vistas ~~of regional importance within in~~ in the project area are specifically identified in the Santa Clara County, Mountain View, Los Altos, or Cupertino general plans or municipal codes. While the Santa Clara County General Plan identifies Interstate 280 (I-280) as a “State Scenic Route” on the Regional Parks and Scenic Highways map, I-280 is only an eligible (and not officially designated) state scenic highway as identified in the Santa Clara County General Plan text and by the California Department of Transportation (Caltrans) (County of Santa Clara 1994; Caltrans 2012). Furthermore, the Santa Clara County General Plan Regional Parks and Scenic Highways map identifies Foothill Expressway and State Route 85 (SR 85) as “Scenic Freeways, Expressways, Arterial, and Rural Route” in the project area but states that “designation of scenic highways passing through urban areas is somewhat more complex since it may also require designation by various cities as well” (County of Santa Clara 1994). The Santa Clara County Zoning Ordinance, §3.30.050 Scenic Roads Inventory, includes roadways that are recognized as having scenic qualities and, therefore, have a design review overlay; however, these roadways are not officially designated Santa Clara County scenic roadways. I-280, Foothill Expressway, and SR 85 are not identified in this Santa Clara County Zoning Ordinance. County scenic roadways undergo a similar designation process to state scenic highways, and there are no officially designated Santa Clara County scenic roadways (Santa Clara County 2012; Shoe pers. comm.). Therefore, no federal, state, or local scenic routes are officially designated in the project area. However, the general plans do contain language requiring the preservation of aesthetic/visual resources values, as summarized in Table 7-1. Appendix B, *Relevant Regulations*, also includes local, state, and federal regulations that are applicable to aesthetic resources.

**Table 7-1. County and City Policies Relevant to Aesthetics**

<u>Document</u>	<u>Policy</u>
<u>Santa Clara County General Plan</u>	<p><b>C-RC 57:</b> <u>The scenic and aesthetic qualities of both the natural and built environments should be preserved and enhanced for their importance to the overall quality of life for Santa Clara County.</u></p> <p><b>C-RC 58:</b> <u>The general approach to scenic resource preservation on a countywide basis should include the following strategies:</u></p> <ul style="list-style-type: none"> <li>a. <u>conserving scenic natural resources through long range, inter-jurisdictional growth management and open space planning;</u></li> <li>b. <u>minimize development impacts on highly significant scenic resources; and</u></li> <li>c. <u>maintaining and enhancing scenic urban settings, such as parks and open space, civic places, and major public commons areas.</u></li> </ul> <p><b>C-RC 62:</b> <u>Urban parks and open spaces, civic places, and public commons areas should be designed, developed and maintained such that the aesthetic qualities of urban settings are preserved and urban livability is enhanced. Natural resource features and functions within the urban environment should also be enhanced.</u></p> <p><b>C-GD 4:</b> <u>Development activity should minimize degradation of the natural environment and avoid diminishment of heritage resources.</u></p>
<u>Mountain View General Plan</u>	<p><b>Residential Neighborhoods</b></p> <p><b>Policy 27:</b> <u>Preserve and enhance the character of Mountain View's neighborhoods.</u></p> <p><b>Community Development</b></p> <p><b>Policy 8:</b> <u>Promote the visibility of and safe physical access to San Francisco Bay, the baylands, Stevens Creek, and other natural resources in the city.</u></p> <p><b>Policy 10:</b> <u>Preserve scenic views of the natural landscape.</u></p> <p><b>Action 10.a:</b> <u>Use the development review process to ensure that the design, location, and size of new projects, whenever possible, preserve significant views of the mountains, Bay, wetlands, streams, and other natural resources in the city.</u></p> <p><b>Policy 11:</b> <u>Encourage building and site design that is compatible with the natural environment and features of the site.</u></p> <p><b>Action 11a:</b> <u>Ensure that building and site design keep destruction of mature trees and vegetation on the site to a minimum.</u></p>
<u>Los Altos General Plan</u>	<p><b>Open Space, Conservation, &amp; Community Facilities</b></p> <p><b>Policy 4.1:</b> <u>Provide adequate level of maintenance for City parks, open space, and public property to ensure safety, aesthetics, and recreational enjoyment for Los Altos residents</u></p>
<u>Cupertino General Plan</u>	<p><b>Policy 2-8:</b> <u>Provide distinctive community gateways at major entry points that create a unique community identity for Cupertino.</u></p> <p><b>Policy 2-14:</b> <u>Emphasize attractive building and site design during the development review process by giving careful attention to building scale, mass and placement, architecture, materials, landscaping, screening of equipment and loading areas, and related design considerations.</u></p> <p><b>Policy 2-79:</b> <u>Design parks to utilize the natural features and topography of the site and to keep long-term maintenance costs low.</u></p> <p><b>Policy 2-80:</b> <u>Parks shall be designed to enhance public safety by providing visibility to the street and access by public safety responders.</u></p>

Sources: County of Santa Clara 1994; City of Mountain View 2002; City of Los Altos 2002; City of Cupertino 2005.

## EXISTING CONDITIONS

Existing conditions for visual resources were identified using a modified version of the Federal Highway Administration (FHWA) methodology (Federal Highway Administration 1988). The FHWA approach provides a systematic, standardized approach to meet the challenge of objectively addressing issues (aesthetic judgment and values) that by their nature are subjective and may be deeply personal. This approach identifies a view’s aesthetic value based on its inherent visual character, its visual quality, and viewers’ response to it.

**Visual character** refers to the nature of a view—put simply, what does it look like, or what is there to see? Visual character may depend on a combination of natural and artificial (urban or “built”) elements.

A view’s **visual quality** is described in terms of its vividness, intactness, and unity. *Vividness* describes the power or “memorable-ness” of landscape components as they combine in visual patterns. *Intactness* refers to the visual integrity of the natural or built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, as well as in natural settings. *Unity* is the visual coherence and compositional harmony of the landscape considered as a whole. Typically, high-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity (Federal Highway Administration 1988; Dunne and Leopold 1978; Jones et al. 1975).

**Table 7-1. County and City Policies Relevant to Aesthetics**

Document	Policy
Santa Clara County General Plan	<p><b>C-RC 57:</b> The scenic and aesthetic qualities of both the natural and built environments should be preserved and enhanced for their importance to the overall quality of life for Santa Clara County.</p> <p><b>C-RC 58:</b> The general approach to scenic resource preservation on a countywide basis should include the following strategies:</p> <ul style="list-style-type: none"> <li>a. conserving scenic natural resources through long range, inter-jurisdictional growth management and open space planning;</li> <li>b. minimize development impacts on highly significant scenic resources; and</li> <li>c. maintaining and enhancing scenic urban settings, such as parks and open space, civic places, and major public commons areas.</li> </ul> <p><b>C-RC 62:</b> Urban parks and open spaces, civic places, and public commons areas should be designed, developed and maintained such that the aesthetic qualities of urban settings are preserved and urban livability is enhanced. Natural resource features and functions within the urban environment should also be enhanced.</p> <p><b>C-GD 4:</b> Development activity should minimize degradation of the natural environment and avoid diminishment of heritage resources.</p>
Mountain View General Plan	<p><b>Residential Neighborhoods</b></p> <p><b>Policy 27:</b> Preserve and enhance the character of Mountain View’s neighborhoods.</p>

Document	Policy
Los Altos General Plan	<p><b>Community Development</b></p> <p><b>Policy 8:</b> Promote the visibility of and safe physical access to San Francisco Bay, the baylands, Stevens Creek, and other natural resources in the city.</p> <p><b>Policy 10:</b> Preserve scenic views of the natural landscape.</p> <p><b>Action 10.a:</b> Use the development review process to ensure that the design, location, and size of new projects, whenever possible, preserve significant views of the mountains, Bay, wetlands, streams, and other natural resources in the city.</p> <p><b>Policy 11:</b> Encourage building and site design that is compatible with the natural environment and features of the site.</p> <p><b>Action 11a:</b> Ensure that building and site design keep destruction of mature trees and vegetation on the site to a minimum.</p>
Cupertino General Plan	<p><b>Open Space, Conservation, &amp; Community Facilities</b></p> <p><b>Policy 4.1:</b> Provide adequate level of maintenance for City parks, open space, and public property to ensure safety, aesthetics, and recreational enjoyment for Los Altos residents</p> <p><b>Policy 2-8:</b> Provide distinctive community gateways at major entry points that create a unique community identity for Cupertino.</p> <p><b>Policy 2-14:</b> Emphasize attractive building and site design during the development review process by giving careful attention to building scale, mass and placement, architecture, materials, landscaping, screening of equipment and loading areas, and related design considerations.</p> <p><b>Policy 2-79:</b> Design parks to utilize the natural features and topography of the site and to keep long-term maintenance costs low.</p> <p><b>Policy 2-80:</b> Parks shall be designed to enhance public safety by providing visibility to the street and access by public safety responders.</p>

Sources: County of Santa Clara 1994, City of Mountain View 2002, City of Los Altos 2002, City of Cupertino 2005.



**Viewer response** to a view—and to potential changes in that view—depends on viewer exposure and viewer sensitivity. This analysis emphasized the sensitivity of individual viewers rather than overall viewer exposure. *Viewer exposure* reflects the number of viewers, the distance from which they view the resource, and the duration of viewing. *Viewer sensitivity* describes the public's level of concern for particular views. It depends in part on viewer exposure but is also affected by viewer activity, awareness, and expectations. For example, visual sensitivity is higher for views seen by people who are driving for pleasure; people engaging in recreational activities such as hiking, biking, or camping; and homeowners. Visual sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Forest Service 1995, Federal Highway Administration 1988, Soil Conservation Service 1978). This is because commuters and nonrecreational travelers generally have fleeting views and tend to focus away from surrounding scenery and onto traffic. By contrast, residential viewers typically experience extended viewing periods; visual quality can become a quality of life issue and may carry additional emotional weight because of its potential to affect real estate values. Views from recreation trails and areas, scenic highways, and scenic overlooks are generally assessed as having high visual sensitivity because visual quality is an important aspect of the recreational experience.

To apply this approach to the project alignment, the project corridor portions of Permanente Creek and Hale Creek were surveyed for views from publicly accessible locations (e.g., streets, sidewalks, parking lots, public parks, and other public use areas). Representative views from these locations were photographed from selected viewpoints. To the extent feasible, views from private vantage points were also considered. Viewer groups in the project area include residential viewers; a wide range of recreational viewers (bicyclists, hikers/pedestrians, track and field users, baseball players and spectators, etc.); commercial viewers (business owners, employees, and customers); and motorists, most of whom are commuters. The anticipated sensitivity of the various viewer groups varies somewhat from site to site, as discussed below.

## **CONCEPTS AND TERMINOLOGY**

Existing conditions for visual resources were identified using a modified version of the Federal Highway Administration (FHWA) methodology (Federal Highway Administration 1988). The FHWA approach provides a systematic, standardized approach to meet the challenge of objectively addressing issues (aesthetic judgment and values) that by their nature are subjective and may be deeply personal. This approach identifies a view's aesthetic value based on its inherent visual character, its visual quality, and the viewer's response to it.

Identifying a project area's visual resources and conditions involves three steps:

- (1) Objectively identify the visual features (visual resources) of the landscape.
- (2) Assess the character and quality of those resources relative to overall regional visual character.
- (3) Determine the importance to people, or sensitivity, of views of visual resources in the landscape.

The aesthetic value of an area is a measure of its visual character and quality, combined with the viewer response to the area (Federal Highway Administration 1988). Scenic quality can best be described as the overall impression that an individual viewer retains after driving through, walking through, or flying over an area (U.S. Bureau of Land Management 1980). Viewer response is a combination of viewer exposure and viewer sensitivity. Viewer exposure is a function of the number of viewers, number of views seen, distance of the viewers, and viewing duration. Viewer sensitivity relates to the extent of the public's concern for a particular viewshed. These terms and criteria are described in detail below.

## **Visual Character**

Natural and artificial landscape features contribute to the visual character of an area or view. Visual character is influenced by geologic, hydrologic, botanical, wildlife, recreational, and urban features. Urban features include those associated with landscape settlements and development, including roads, utilities, structures, earthworks, and the results of other human activities. The perception of visual character can vary significantly by season, and even hourly, because of weather, light, shadow, and elements that compose the viewshed change. The basic components used to describe visual character for most visual assessments are the elements of form, line, color, and texture of the landscape features (U.S. Forest Service 1995; Federal Highway Administration 1988). The appearance of the landscape is described in terms of the dominance of each of these components.

## **Visual Quality**

Visual quality is evaluated using the well-established approach to visual analysis adopted by FHWA, and employs the concepts of vividness, intactness, and unity (Federal Highway Administration 1988; Jones et al. 1975), which are described below.

- Vividness is the visual power or memorability of landscape components (i.e., landcover that consists of water, vegetation, and human development) as they combine in striking and distinctive visual patterns.
  - Water has varying degrees of vividness based on reflection, clarity, motion, and color: High vividness might include a waterfall or dramatic shoreline, moderate vividness might include a regular lake edge, and low vividness might include a marsh where water is only seen partially between breaks in wetland vegetation.
  - Vegetation has varying degrees of vividness based on vegetation patterns, texture, and color: High vividness might include an area where grasslands with seasonal wildflowers meet a deciduous/mixed evergreen forest where seasonal displays of color are available, moderate vividness might include farm fields backed dropped by hedgerows that allow for some seasonal variety, and low vividness might include a large expanse of pastureland with lack of vegetation variety and seasonal interest.
  - Human development has varying degrees of vividness based on vegetation form, line, and color: High vividness might include an urban setting with striking architectural setting, moderate vividness might include a traditional built environment such as an area with rural architecture, and low vividness might

include an area that contains a mix-match of built features such as a highway with disjointed strip mall development.

- Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements; this factor can be present in well-kept urban and rural landscapes, and in natural settings.
  - Intactness is influenced by the presence or absence of eyesores or encroaching features and the integrity of the visual order of the landscape: High intactness might include a ranch that is well- sited within a valley with few other visual encroachments or within city blocks that are well ordered and do not have encroaching architectural elements that are not in keeping with the visual character. Moderate intactness might include a suburban setting with similar architectural styles or a rural area that is developed but only contains a moderate amount of visual encroachments, and low intactness might include an unreclaimed mine pit or and urban area that is split by a freeway.
- Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape.
  - Unity is influenced by the presence or absence of eyesores or encroaching features and the integrity of the visual order of the landscape: High unity might include roadways that are well designed and wind through a high quality visual landscape without detracting from the landscape or urban spaces with outstanding compositional harmony, moderate unity might include a suburban or urban setting where development and open spaces have well-designed transitions between land uses. Low unity might include a utility line clearcut in a forest or a strip mall developed with a conglomeration of uses that are further compounded by the presence of utility lines.

High-quality views are highly vivid, relatively intact, and exhibit a high degree of visual unity. High-quality views can include such places as Yosemite National Park, the San Francisco waterfront, and the wine country of Sonoma and Napa Valleys. Low-quality views lack vividness, are not visually intact, and possess a low degree of visual unity and can included disjointed industrial areas and developed areas with a conglomeration of uses that are in high visual disrepair. Moderate-quality views fall in the middle and have moderate vividness, intactness, and unity and are generally consistent with standard rural, suburban, and urban development patterns.

Visual quality is evaluated based on the relative degree of vividness, intactness, and unity. Once visual quality is established, it is modified by viewer exposure and sensitivity, which determines the visual experience (Federal Highway Administration 1988).

## **Visual Exposure and Sensitivity**

The measure of a view's quality must be tempered by the overall sensitivity of the viewer. Viewer sensitivity or concern is based on the visibility of resources in the landscape, proximity of viewers to the visual resource, elevation of viewers relative to the visual resource, frequency and duration of views, number of viewers, and type and expectations of individuals and viewer groups.

The importance of a view is related in part to the position of the viewer to the resource; therefore, visibility and visual dominance of landscape elements depend on their placement within the viewshed. A viewshed is defined as all of the surface area visible from a particular location (e.g., an overlook) or sequence of locations (e.g., a roadway or trail) (Federal Highway Administration 1988). To identify the importance of views of a resource, a viewshed must be broken into distance zones of foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in a viewshed may vary between different geographic region or types of terrain, the standard foreground zone is 0.25 to 0.5 mile from the viewer, the middleground zone from the foreground zone to 3 to 5 miles from the viewer, and the background zone from the middleground to infinity (Jones et al. 1975).

Visual sensitivity depends on the number and type of viewers and the frequency and duration of views. Visual sensitivity is also modified by viewer activity, awareness, and visual expectations in relation to the number of viewers and viewing duration. For example, visual sensitivity is generally higher for views seen by people who are driving for pleasure, people engaging in recreational activities such as hiking, biking or camping, and homeowners. Sensitivity tends to be lower for views seen by people driving to and from work or as part of their work (U.S. Forest Service 1995; Federal Highway Administration 1988; U.S. Soil Conservation Service 1978). Commuters and nonrecreational travelers have generally fleeting views and tend to focus on commute traffic, not on surrounding scenery; therefore, they are generally considered to have low visual sensitivity. Residential viewers typically have extended viewing periods and are concerned about changes in the views from their homes; therefore, they are generally considered to have high visual sensitivity. Viewers using recreational trails and areas, scenic highways, and scenic overlooks are usually assessed as having high visual sensitivity.

Judgments of visual quality and viewer response must be made based on a regional frame of reference (U.S. Soil Conservation Service 1978). The same landform or visual resource appearing in different geographic areas could have a different degree of visual quality and sensitivity in each setting. For example, a small hill may be a significant visual element on a flat landscape but may have very little significance in mountainous terrain.

To apply this approach to the project alignment, the project corridor portions of Permanente Creek and Hale Creek were surveyed for views from publicly accessible locations (e.g., streets, sidewalks, parking lots, public parks, and other public use areas). Representative views from these locations were photographed from selected viewpoints. To the extent feasible, views from private vantage points were also considered. Viewer groups in the project area include residential viewers; a wide range of recreational viewers (bicyclists, hikers/pedestrians, track and field users, baseball players and spectators, etc.); commercial viewers (business owners, employees, and customers); and motorists, most of whom are commuters.

## **EXISTING CONDITIONS**

### **Rancho San Antonio County Park Flood Detention Facility**

Proposed project features at this location include the Rancho San Antonio County Park Flood Detention Facility (Figure 2-2a). In Rancho San Antonio County Park, Permanente Creek traverses an open, gently rolling landscape of grassland and oak woodland set against a

backdrop of steep, chaparral-covered hillslopes. Dense riparian growth is present along the creek itself. Views within the parklands at Rancho San Antonio County Park have a largely undeveloped “open space” character but do include some built features, including a paved trail that crosses the site on the west and a parking lot to the north. The site is bordered on the northeast and east by residential development on Cristo Rey Drive and Juniper Court and on the southeast by the Gate of Heaven funeral home and cemetery. Residences along Cristo Rey Drive, between the park entrance and the Cristo Rey Drive/Hammond Way/Canyon Oak Way round-about are one-story residences that back Cristo Rey Drive and face Hammond Way. A solid wooden fence line and dense landscape act as a privacy barrier between residences and Cristo Rey Drive; they also act to limit direct views toward the project site. Residences along Juniper Court back the park and face the roadway. These residences also have a solid wooden fence-line and dense landscape that act as a privacy barrier between residences and the park. Because of distance and intervening topography and vegetation, residences along Juniper Court are not likely to have views of the project site or only extremely limited views of small portions of the project site. Residences north of Oak Valley Road are not likely to have views of the project site because of distance and intervening topography and vegetation (Figure 7-1, Photo 1). However, partial views may exist between gaps in vegetation because the houses are slightly elevated compared to Cristo Rey Drive. The Gate of Heaven funeral home and cemetery views are focused inward toward the cemetery grounds, along Cristo Rey Drive. However, while visitors of the Gate of Heaven funeral home generally focus their views inward and on the cemetery grounds, the project site is adjacent to the cemetery and views toward the project site are available. Maryknoll Seminary is located northeast of Cristo Rey Drive, near the roadways intersection with Oak Valley Road, but is surrounded by dense vegetation so only has very limited views of the project site that are mostly available along the seminary’s fence line. The proposed flood detention facility site occupies a level to rolling floodplain area on the northeast side of the creek and is viewed largely in the context of this undeveloped natural setting (Figure 7-1, Photos 2 and 3). Views of the project site also exist from nearby trails, the closest of which are the Hill and PG&E Trails (Figure 7-1, Photo 4).

The dramatic rangefront and open grassland/woodland character at Rancho San Antonio County Park create a vivid landscape panorama. Built elements within the park itself are limited and appropriately rustic in character, so views into and within the park are considered intact and moderately to highly unified. Overall, the visual quality of the Rancho San Antonio County Park site and adjacent parklands is high.

Viewers of the Rancho San Antonio County Park site include residents of the adjacent neighborhoods as well as recreationists using park facilities. Open-space views are a primary attraction of neighboring residential areas, and residents are expected to prize these views and value them highly. Recreationists viewing the site from within the park include hikers, trail runners, bicyclists, equestrians, and/or model plane enthusiasts. Most recreationists—particularly hikers, runners, cyclists, and equestrians—are expected to consider the site’s visual quality an important aspect of their recreational experience. Consequently, residential and recreational viewers are expected to be highly sensitive to changes in the viewscape at Rancho San Antonio County Park.

## **Inlet and Outlet Culvert Alignments**

Proposed project features include the McKelvey Outlet Pipe, near McKelvey Park (Figure 2-2f), and the Cuesta Inlet/Outlet Culvert, near Cuesta Annex (Figure 2-2c). The McKelvey Outlet

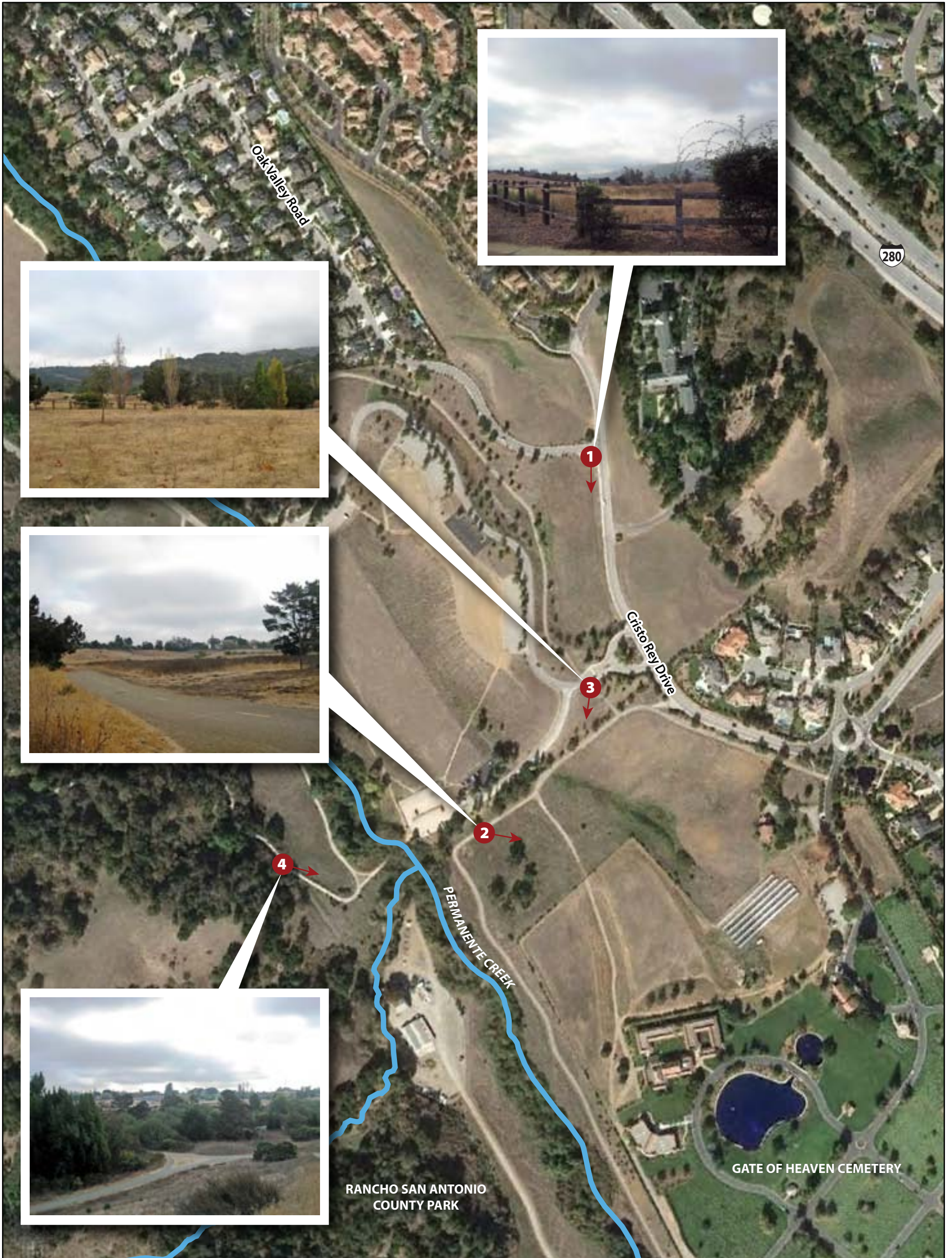
Pipe alignment follows the existing street ROW for Cuesta Drive in a densely populated suburban area with a mix of commercial, residential, educational uses, and open space/recreational uses. The Cuesta Inlet/Outlet Culvert alignment follows the existing street ROW for Cuesta Drive and Miramonte Avenue in a densely populated suburban area that also comprises a mix of commercial, residential, educational, and open space/recreational uses. Taken as a whole, the proposed alignments and their immediate surroundings are typical of suburban/urban development in the project region. Striking views are generally absent, so vividness is evaluated as low, and the visual diversity of the various different uses creates low to moderate intactness and unity. Overall, visual quality is low to moderate.

Viewers along and near the alignments would include motorists on roadways along and approaching the culvert alignments, as well as local residents in neighboring houses. In addition, recreational viewers would be present and would include individuals using McKelvey Park, Cuesta Annex, and local sidewalks and bike lanes that would be moderately to highly sensitive to visual changes. Motorists, particularly commuters, are not typically sensitive viewers because their viewing duration is short and views are incidental to the purpose of travel. However, residents are a highly sensitive viewer group because they see the same local views often and for protracted periods of time—visual quality affects residential quality of life and can carry additional importance because of its potential to affect real estate values.

## New Permanente Diversion Structure Site

Proposed project features at this location include the New Permanente Diversion Structure (Figure 2-2b). The existing Permanente Diversion Structure is within the Permanente Diversion Channel, which is an artificial U-shaped concrete channel in a fenced ROW abutting eight residential parcels that face toward Eastwood Drive and Suffolk Way and back the ROW. The site is not readily available to these one- and two-story residences viewers due to because the ROW and is separated from the parcels by residential fencing and dense, mature landscaping that obscures direct views of the site. Roadway users and recreationists do not have views because the privacy fencing along Miramonte Avenue, residential properties, and dense, mature landscape prevent direct views of the ROW. The site does not offer vivid views. In addition, the site is closely flanked by suburban infrastructure, including fencing and landscaping in adjacent yards as well as overhead utility lines; because of these visually disparate and intrusive elements, the site's visual intactness is low. However, it is visually consistent with adjacent portions of the diversion channel and thus is moderately to highly unified. Overall, visual quality of the diversion structure site is considered low.

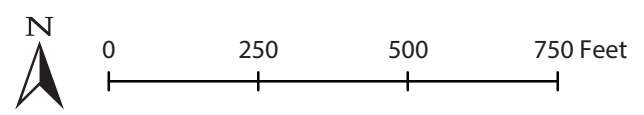
With the exception of District maintenance workers, viewers experience the diversion structure site via limited views from adjacent roadways and backyards. Viewers include motorists, whose views are fleeting and obstructed and therefore not considered sensitive. Residents would be more sensitive to visual changes at this site, but they also have limited visual access to the diversion structure site.



- 1** Oak Valley Road, looking towards proposed flood detention area and Gate of Heaven Cemetery
- 2** Hammond-Snyder Loop Trail, looking towards proposed flood detention area and Gate of Heaven Cemetery
- 3** Park Entrance, looking towards proposed flood detention area
- 4** PG&E Trail, looking towards proposed flood detention area and Gate of Heaven Cemetery

**Legend**

Stream



Graphics...03516.03 (10-2012)



**Figure 7-1**  
**Representative Views of the Rancho San Antonio County Park**  
**Flood Detention Facility Project Element**

## **McKelvey Park Flood Detention Facility and Cuesta Annex Flood Detention Facilities**

Proposed project features at McKelvey Park consist of McKelvey Park Flood Detention Facility and McKelvey Outlet Pipe (Figure 2-2e). The viewsheds surrounding McKelvey Park and the Cuesta Annex consist almost entirely of single-family residential development typical of the project region. Residences along Mountain View Avenue, between the park and roadway, are one- and two-story homes that face the roadway and back the park. Fencing and landscaping separate these residences from the park; these features serve as a visual barrier to block ground-level views, but views from second-story windows may be partially visible.

Apartment buildings are located across from the existing park parking lot, along Mountain View Avenue. These long structures are oriented east-west, in perpendicular manner to the roadway, so that the windows face north-south toward parking and paved/courtyard areas and not toward Mountain View Avenue and the park to the east. A very limited number of residents would have views from their apartments toward the park (Figure 7-2, Photo 1). There is a AAA building location along Park Drive, across from the park that would have views of the park from business offices. One-story residences exist along Miramonte Avenue, between Park Drive to the north and Park Drive to the south. Fencing and landscaping limit views of the park from most of these residences (Figure 7-2, Photo 2).

There are a few homes that have windows facing the park, such as those facing the park along Miramonte Avenue, south of Park Drive to Sonia Way. McKelvey Park is also flanked on the south by St. Joseph Catholic School and on the north by commercial development on Park Drive that has views from the playground area. Residences along Rincon Street, south of the park, face the roadway and back St. Joseph Catholic School. These residences may have views of the park from second-story windows.

Lighting at McKelvey Park includes stadium lighting around the larger ball field (Figure 7-2, Photo 3) and smaller lighting standards in the parking areas (Figure 7-2, Photo 4). Eight high-intensity stadium lights, approximately 60 feet tall, surround the perimeter of the large ball field. Four lights in the parking lot are approximately 10 feet tall. There is no lighting around the small ball field (St. John pers. comm.).

~~Proposed project features at McKelvey Park include the McKelvey Park Flood Detention Facility (Figure 2-2f). The McKelvey Park site offers open and green space views, as seen from nearby residences and roadways, but does not include notable or striking views. Therefore, the vividness of the flood detention facility locations is considered low. Views within the site are generally consistent in terms of architectural style and elements such as lighting, fencing, paved walkways and/or parking lots, and landscaped vegetation, and the site is visually consistent with its surroundings, so its intactness and unity is considered moderate. Overall visual quality of the McKelvey Park site is considered moderate to moderately low.~~

Recreationists include viewers at McKelvey Park who would be moderately to highly sensitive to visual changes. Motorists, particularly commuters, are not typically sensitive viewers because their viewing duration is short and views are incidental to the purpose of travel and their sensitivity is likely moderate to low. However, residents are a highly sensitive viewer group because they see the same local views often and for protracted periods of time—visual quality



affects residential quality of life and can carry additional importance because of its potential to affect real estate values.

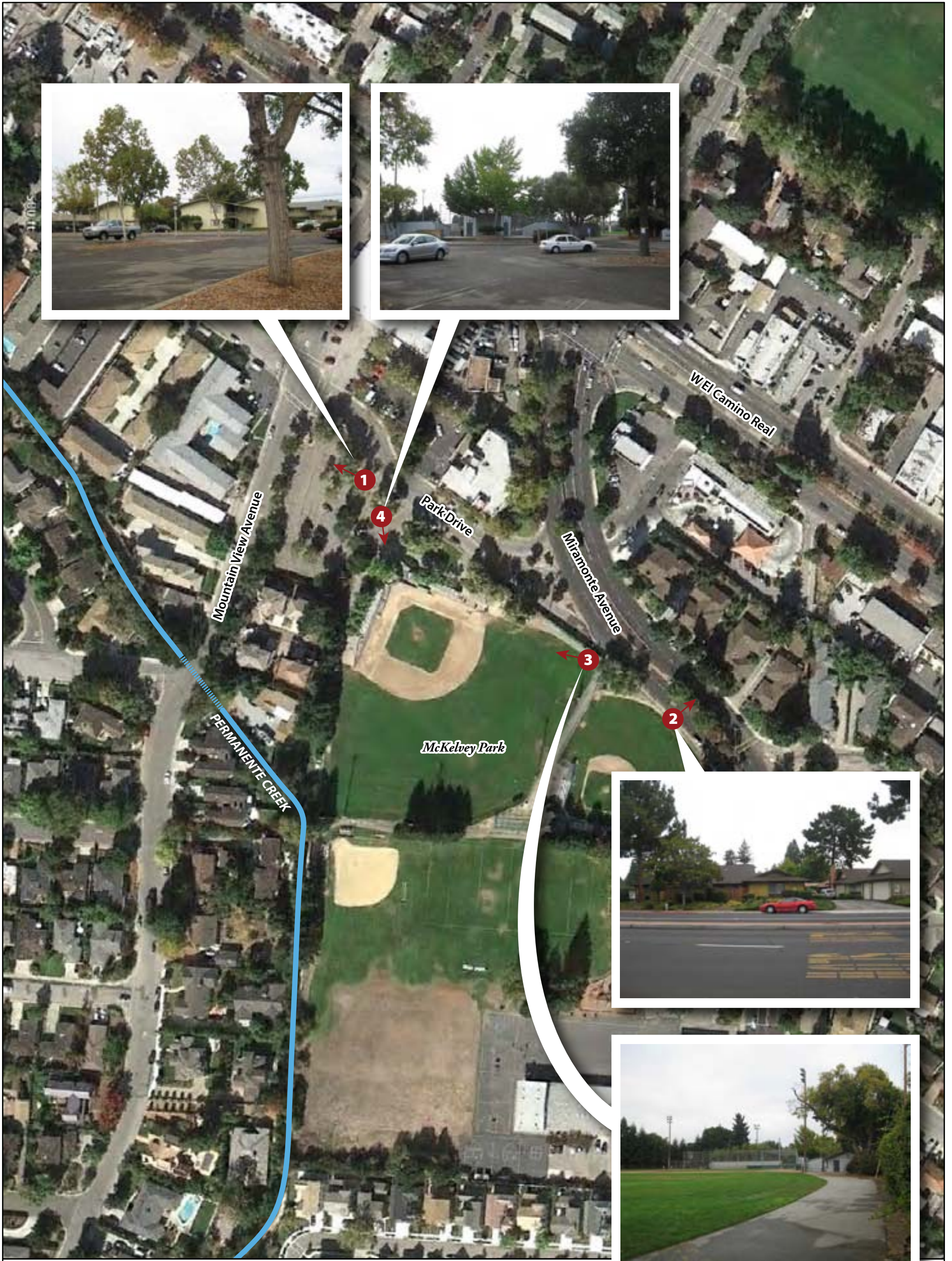
Proposed project features at Cuesta Annex include the Cuesta Annex Flood Detention Facility (Figure 2-2c). Cuesta Annex as a whole is visually vivid in that it provides an “island” of green recreational space surrounded by built areas. The Annex, which consists of undeveloped ruderal grassland with scattered large trees and shrubs, is particularly distinctive, and therefore highly vivid, in that it contrasts both with the surrounding residential areas and with adjacent landscaped portions of the park. Views internal to the Cuesta Annex site are consistent, so the site has a moderate to high degree of intactness, but the site’s unplanned character and visual disparity with its surroundings create low to moderate visual unity. Overall, the visual quality of the Cuesta Annex site is considered moderate.

Viewers of the Cuesta Annex include recreationists, as well as residents in neighboring houses and motorists on roadways along the culvert alignment and bordering the site. Input from the community indicates that Cuesta Annex is highly valued as a visual resource. Residents are a highly sensitive viewer group because they see the same local views often and for protracted periods of time—visual quality affects the residential quality of life and can carry additional importance because of its potential to affect real estate values. All viewer groups are expected to be highly sensitive to changes in visual character at this site, with recreationist and residential viewers especially so.

## **Inlet and Outlet Culvert Alignments**



Proposed project features include the McKelvey Outlet Pipe, near McKelvey Park (Figure 2-2f), and the Cuesta Inlet/Outlet Culvert, near Cuesta Annex (Figure 2-2c). The McKelvey Outlet Pipe alignment follows the existing street ROW for Cuesta Park Drive in a densely populated suburban area with a mix of commercial, residential, educational uses, and open space/recreational uses. The Cuesta Inlet/Outlet Culvert alignment follows the existing street ROW for Cuesta Drive and Miramonte Avenue in a densely populated suburban area that also comprises a mix of commercial, residential, educational, and open space/recreational uses. Taken as a whole, the proposed alignments and their immediate surroundings are typical of suburban/urban development in the project region. Striking views are generally absent, so vividness is evaluated as low, and the visual diversity of the various different uses creates low to moderate intactness and unity. Overall, visual quality is low to moderate.

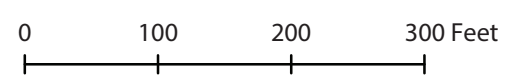
Viewers along and near the alignments would include motorists on roadways along and approaching the culvert alignments, as well as local residents in neighboring houses. In addition, recreational viewers would be present and would include individuals using McKelvey Park, Cuesta Annex, and local sidewalks and bike lanes that would be moderately to highly sensitive to visual changes. Motorists, particularly commuters, are not typically sensitive viewers because their viewing duration is short and views are incidental to the purpose of travel. However, residents are a highly sensitive viewer group because they see the same local views often and for protracted periods of time—visual quality affects residential quality of life and can carry additional importance because of its potential to affect real estate values.



- 1** Parking Lot, looking towards Mountain View Avenue
- 2** Miramonte Avenue, looking towards McKelvey Park
- 3** McKelvey Park, looking towards bleachers and residences
- 4** Parking Lot, looking towards restrooms

**Legend**

-  Stream
-  Covered Stream



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**Figure 7-2**  
**Representative Views of the McKelvey Park**  
**Flood Detention Facility Project Element**

## Channel Improvements: Permanente and Hale Creeks

Proposed project features along the alignment include the channel improvement and storm drain (Figures 2-2c through 2-2f). The portions of the Permanente and Hale Creek channels proposed for widening—Permanente Creek between the Hale Creek confluence and just northwest of Mountain View Avenue (Figures 7-4-3 and 7-24); and Hale Creek between Rosita Avenue and Permanente Creek confluence (Figure 7-4-3)—occupy concrete “box” channels largely surrounded by residential development. The storm drain would follow South Springer Road from Rosita Avenue south for approximately 0.25 mile. Although some trees are present along the top of bank along the channel improvement alignment, the heavily modified channel does not support a natural riparian corridor that would contrast vividly with the developed elements in the surrounding urban landscape, and the alignment is disrupted by the proximity of visually intrusive built elements such as fences, bridges, overhead lines, and adjacent landscaping. Accordingly, the vividness and intactness of the channel improvement alignment is generally considered low. However, there is some visual continuity between the hardscaped channel and the surrounding urban hardscape. Thus, the visual unity of the alignments within the limits of the proposed channel improvement work is considered moderate. Overall, visual quality of the channel improvement alignment is low.

There is no designated pedestrian access to the channel improvement alignment; however, the alignment is culverted beneath roadways, so unimpeded views of the creek channels can be obtained from adjacent residential streets in some places. Viewers from these locations would primarily include motorists, whose sensitivity is likely low to moderate. Pedestrians would also be able to view the creek from culverted roadway crossings; these viewers are expected to be somewhat more sensitive than motorists because of their longer viewing time and closer proximity to the channel. Most if not all pedestrians on local residential streets are likely to be area residents, which would further increase their sensitivity. In addition, although the creek alignments are fenced and the majority of creekside yards have separate, privately owned fencing, views of the creek may be possible from some adjacent private property. Almost all viewers looking into the creek alignment from private property would be residents and thus considered highly sensitive to visual changes.

## Levees and Floodwalls downstream of US-101

Proposed project features at these locations include a levee raise downstream of Amphitheatre Parkway, floodwalls along west bank structures between Amphitheatre Parkway and Charleston Road, and a floodwall on the outboard side west bank levee along the channel between Charleston Road and US-101. The portion of Permanente Creek proposed for the levee raise and addition of floodwalls (from US-101 to the vicinity of Amphitheatre Parkway; Figure 7-35) consists of an earthen trapezoidal channel with paved levee-top trails on both banks south of Amphitheatre Parkway. North of Amphitheatre Parkway the eastern levee-top is paved; the western top of bank is a narrow, dirt path closed to the public. Adjacent land uses are primarily large business park developments and smaller-scale light industrial uses. Limited vista views are present in this area of the project as presented by tunnel-like vistas available to recreationists using the Permanente Creek Trail and partial vista views for roadway users and recreationists along Amphitheatre Parkway. The Santa Cruz Mountains can be seen when looking south down the Permanente Creek Trail and the reclaimed landfill and skyline is visible to the north. The tunnel-like vista views are created by the presence of office park development and dense vegetation that lines the outer edges of the trail on both

sides of the creek. Mature trees are present on both sides of the creek, partially screening view to and from adjacent uses. Because the creek at this location has vegetated earthen banks and is flanked on both sides by mature trees, it has a more natural appearance than in some areas and provides some contrast to surrounding development landscaping; as such, it offers moderately to highly vivid views. Since there are few encroaching artificial elements within the immediate creek viewshed, the views are highly intact. The creek corridor's paved trails and modified channel prevent an entirely natural appearance but serve to unify the creek visually with its built surroundings, contributing to a high degree of unity. Overall, the visual quality of this portion of the creek is high.

Viewers along the levee and floodwall alignments include pedestrians and bicyclists using the levee-top trails, as well as workers employed in nearby office buildings. There are 11 office buildings of varying size in proximity to the floodwall alignment: three are within 100 feet, four are within 170 feet, and the remaining four are within 250 feet of the alignment. The levee raise project area is visible to recreationists using the Google Soccer Field and Permanente Creek Trail north of Amphitheatre Parkway Trail and roadway users on Amphitheatre Parkway passing by the project site. ~~In addition, m~~Motorists would have fleeting views along the creek alignment from culverted roadway crossings. Recreationists are expected to be highly sensitive to changes in visual quality. Workers are somewhat less sensitive to visual changes than recreationists, but they typically experience extended, repeated views, and visual quality can affect quality of work life; as such, the sensitivity of workers employed in buildings with creek views is evaluated as moderate. Motorists, primarily commuters, are expected to be less sensitive to visual changes in this portion of the alignment than recreationists or local employees because their views are short term and incidental to their principal activity in the area.

## IMPACT ANALYSIS

### **METHODS AND SIGNIFICANCE CRITERIA**

The Project's potential impacts on aesthetic resources were assessed qualitatively, based on existing visual quality and the Project-related changes proposed for each site, the viewer groups most affected, and their anticipated sensitivity to changes in each site's appearance.

For the purposes of this analysis, an impact was considered to be significant and require mitigation if it would result in either of the following.

- Substantial degradation of the visual character or quality or alter scenic vistas of the project site and its surroundings.
- Creation of a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area.

As discussed in *Environmental Setting*, while the importance of aesthetics from hillsides may be discussed, there are no designated scenic vistas of regional importance identified in the Santa Clara County, Mountain View, Los Altos, or Cupertino general plans, and no designated scenic routes are present in the project vicinity. Impacts related to ~~scenic vistas and~~ state scenic highways are not discussed further in this chapter.



- 1 Arroyo Drive, looking north towards Hale Creek
- 2 Mountain View Avenue, looking west towards Hale Creek
- 3 Mountain View Avenue, looking east towards Hale Creek

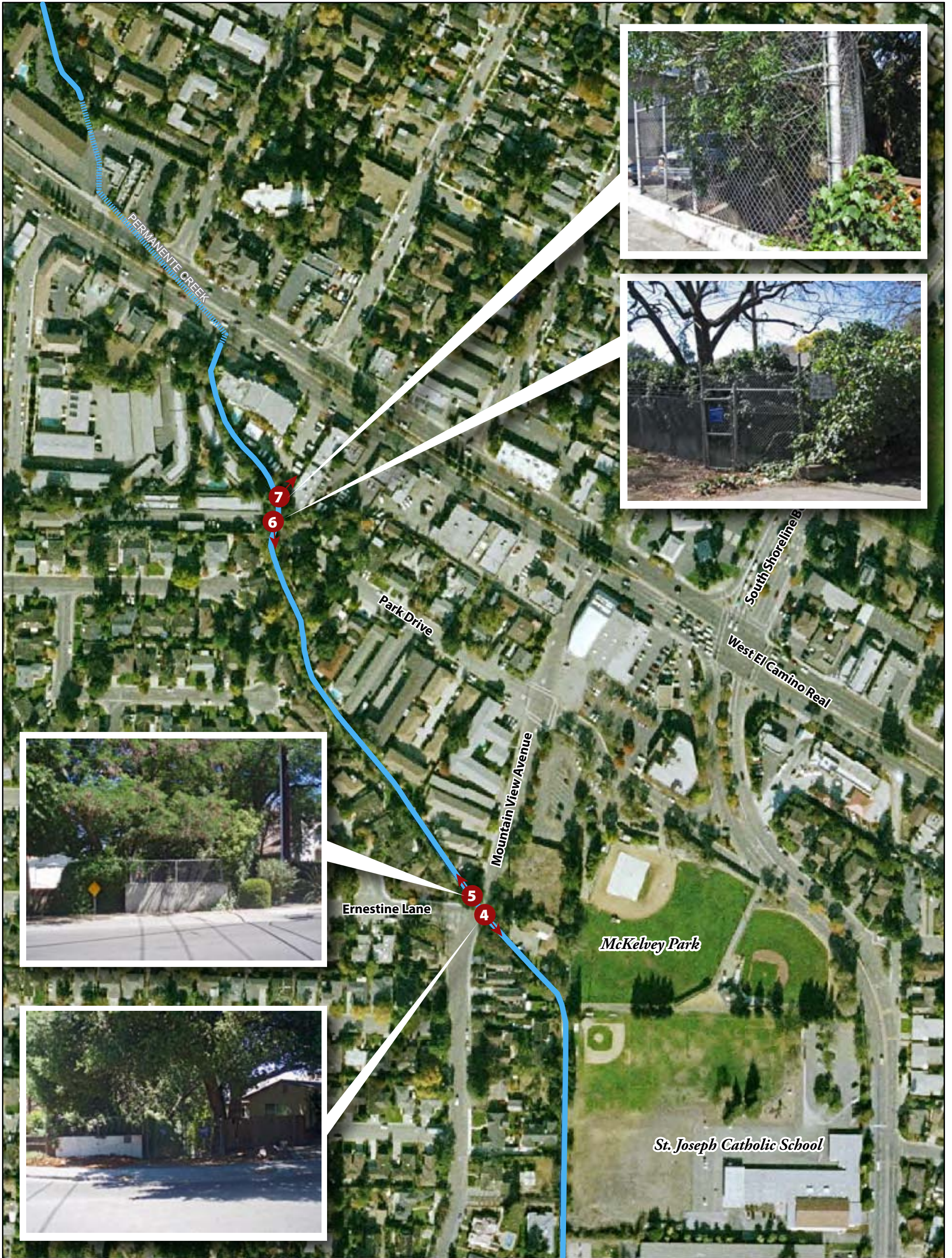
**Legend**

- Stream
- Covered Stream



0 200 400 Feet

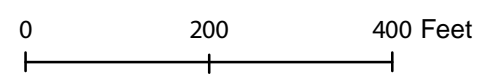
**Figure 7-34**  
**Representative Views of the Hale Creek Alignment**  
**(Arroyo Drive to Mountain View Avenue)**



- 4** Corner of Ernestine Lane and Mountain View Avenue, looking northwest towards Permanente Creek
- 5** Corner of Ernestine Lane and Mountain View Avenue, looking southeast towards Permanente Creek
- 6** Terminus of Park Drive, looking southwest towards Permanente Creek
- 7** Terminus of Park Drive, looking northeast towards Permanente Creek

**Legend**

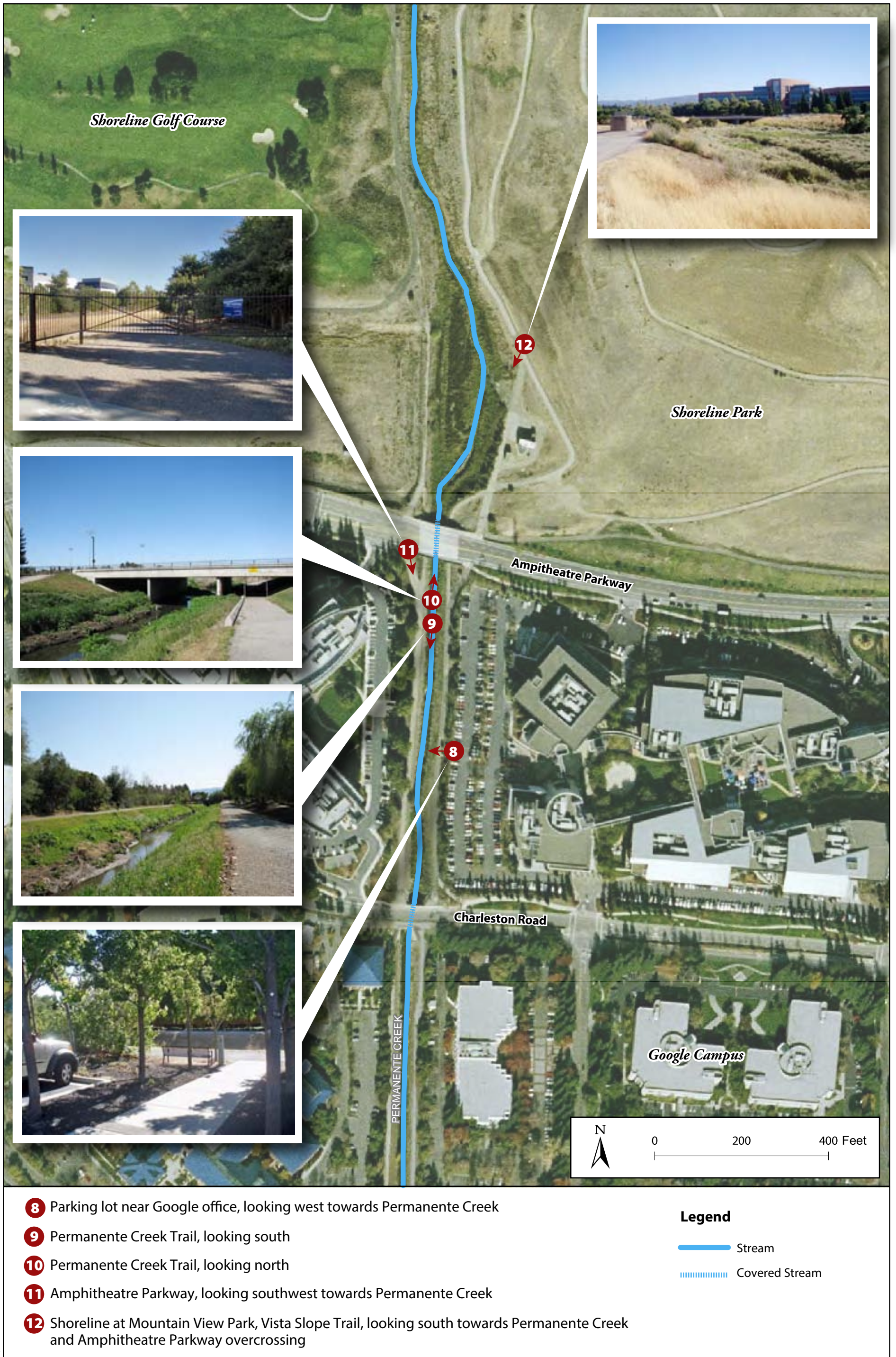
- Stream
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**Figure 7-42**  
**Representative Views of the Permanente Creek Alignment**  
**(Ernestine Lane to Park Drive)**



Graphics...03516.03 (10-2012)

**Figure 7-53**  
**Representative Views of the Permanente Creek Alignment**  
**(US-101 to Amphitheatre Parkway)**

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by analysis.

## **IMPACTS AND MITIGATION MEASURES**

### **Impact AES1—Alteration in Existing Visual Character or Quality or Scenic Vistas of the Site and Its Surroundings**

<b>Summary by Project Element: Impact AES1—Alteration in Existing Visual Character or Quality of the Site and Its Surroundings</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	Less than Significant	Less than Significant
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant with Mitigation</del>	<del>Less than Significant/Beneficial</del>
Channel Improvements: Permanente and Hale Creeks	Less than Significant	Less than Significant with Mitigation
McKelvey Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant <u>with Mitigation</u> / <del>Beneficial</del>
Floodwalls and Levees downstream of US-101	Less than Significant	Less than Significant with Mitigation

#### **All Project Elements**

As discussed previously in Environmental Setting, no designated scenic vistas within the project area are identified in the Santa Clara County, Mountain View, Los Altos, or Cupertino general plans. Additionally, there are no scenic vistas of, or only very limited partial views toward, the background available from New Permanente Diversion Structure, Channel Improvements: Permanente and Hale Creeks, and McKelvey Park Flood Detention Facility project elements because of the level of development and existing vegetation. Vista views are available from Rancho San Antonio County Park and in the area of Floodwalls and Levees downstream of US-101 project element.

#### **Rancho San Antonio County Park Flood Detention Facility**

##### **Construction**

Existing visual quality at the proposed site for the Rancho San Antonio County Park Flood Detention Facility is high. Construction would result in temporary visual disruption related to grading for the flood basin, and would create views of construction debris, construction staging and materials storage areas, soil stockpiles, and construction vehicles and equipment. Affected viewers would include recreationists using the nearby trails, vehicle parking lots, equestrian parking lot, and model plane staging area, as well as residents on Cristo Rey Drive; all of these



viewers are expected to be highly sensitive to changes in the site's visual character. Only limited views exist for residences and recreationists only access the site intermittently and for short periods of time. Roadway travelers would have brief views in passing. The closest vista views from Rancho San Antonio County Park toward the project site at this location include views from Hill and PG&E Trails (Regional Open Space 2012). Other trails have vista views, but are further away. Therefore, views from the Hill and PG&E Trails represent the most sensitive vista views in the park. In addition, vista views are available from Cristo Rey Drive and partially from other nearby local roadways where there are breaks in landscaping and between houses. As seen in Figure 7-1, Photo 4 from PG&E Trail, the project site is only partially visible in the foreground and existing vegetation obscures views of the project site. Foreground views are available from Cristo Rey Drive but the hills in the background are the focal point of vista views. Affected viewers would include recreationists using the nearby trails, vehicle parking lots, equestrian parking lot, and a model plane staging area, as well as residents on Cristo Rey Drive with second-story vista views. All of these viewers are expected to be highly sensitive to changes in the site's visual character.

A portion of the equestrian parking lot would be removed, and new parking would be built prior to demolition of the existing lot. In addition, a new restroom would be built near this parking lot. The period of construction-related visual disruption would be limited, and, as discussed in Chapter 2 (see *Best Management Practices in Project Description*), contractors would be required to follow good construction site housekeeping practices to minimize aesthetic impacts, but given the existing aesthetic value of the site and the sensitivity of affected viewers, impacts could nonetheless be significant. Accordingly, the District will implement the following mitigation measure, which is intended to ensure visual screening for the most intrusive/disruptive portion of the construction activities. With this measure in place, and in light of the temporary nature of construction activities, construction-related impacts at Rancho San Antonio County Park are considered less than significant. In addition to the following SEIR mitigation measure (also provided in the 2010 FEIR), Mitigation Measures BIO13.2 and BIO15.1, as identified in Chapter 5 (*Biological Resources*), would also be implemented ~~to~~ and would help to improve site aesthetics post-construction.

**Mitigation Measure AES1.1—Provide Visual Screening for Affected Construction Area**

To buffer the effects of the affected construction areas, including equipment parking and materials storage, on aesthetic values for recreational uses and the adjacent neighborhood, the District will require contractors to provide visual screening around portions of the construction area. Screening will consist of 8-foot-high chain-link fence covered with fabric, or an equivalent. It will be put in place during the first week of construction, and will remain until construction is complete and equipment is demobilized. The location of the visual screening may be adjusted depending on construction activities.

**Mitigation Measure BIO13.2—Restore Riparian Habitat in Areas of Impact**

This measure is described in Chapter 5 (*Biological Resources*).

**Mitigation Measure BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations**

This measure is described in Chapter 5 (*Biological Resources*).

**Operation**

Once constructed, the Rancho San Antonio County Park Flood Detention Facility would occupy an area of approximately 15 acres and it would be 8 to 15 feet deep. Given its size and depth,

this facility could substantially degrade the appearance of the site if it were poorly designed or finished. However, the facility would be designed for as natural an appearance as possible, including smooth transitions to adjacent natural topography and would not result in substantial changes to the existing visual character as seen by intermittent recreationist in the project area or from the very limited available residential vantages. The new detention areas would be connected to the Permanente Creek channel via an inlet spill structure at the creek, transport pipes that are placed approximately 2 to 10 feet underground, and an inlet/outlet within the detention basin. The inlet/outlet spill structure at the creek and those within the detention basin would be visible and light gray concrete would draw a recreational viewer's attention toward these features--; these features would not be seen by residences due to distance and intervening topography and vegetation. A new restroom would result in similar impacts if constructed of concrete. Once the facility is completed, the site would be revegetated with appropriate grassland species. This would not result in substantial changes to the existing visual character as seen by intermittent recreationist in the project area or from the very limited available residential vantages with incorporation of Mitigation Measure AES1.2. Mitigation Measure AES1.2 was not provided in the 2010 FEIR. This new measure is provided to allow visible structures to better blend with and recede into the surrounding environment, reducing impacts on aesthetic resources. Figure 7-4a-6a shows a conceptual birds-eye view of the site with the proposed flood detention facility in place. The cross sections in Figure 7-4b-6b depict the variable depth of the detention basin.

The site would have a rather barren appearance immediately following construction, but reseeded grassland vegetation would sprout and grow rapidly during the first winter after construction, and over the longer term, wetland species are expected to recruit naturally into the swale area receiving stormwater flow from adjacent residential areas. Thus, within the first few months after construction, the site would begin to return to an attractive, vegetated condition, and its appearance would become increasingly natural over the Project's lifespan. During the infrequent (>10-year) flood events when the basin retains floodwaters, it would have the appearance of a natural floodplain pond and is likely to be considered attractive by most viewers. There could be some visual disruption associated with post-flood clean-up activities, but this would be short-term and minor. In addition, the cemetery maintenance bridge would be replaced with a concrete box bridge and would not affect visual resources, as seen by recreational viewers, because it is in keeping with existing visual conditions; this feature would not be seen by residences due to distance and intervening topography and vegetation. Focal points of vista views in the project area are generally centered on the surrounding vegetated hillsides. A naturally appearing basin in the foreground of views from the Hill and PG&E Trails and trails that are farther away would not detract from vista views. In addition, vista views available from nearby roadways, such as Cristo Rey Drive, and second--story views from residences would not be affected because the naturally appearing basin would not detract from vista views focused on the surrounding hillsides. Furthermore, many vista views toward the project site would be partially and fully obscured by vegetation and development in the immediate foreground. The restroom and visible, aboveground drainage features have the potential to negatively affect views and vistas, and this impact is considered significant. However, long-term impacts of these proposed project features on aesthetic quality would be less than significant with incorporation of Mitigation Measure AES1.2. Mitigation Measure AES1.2 was not provided in the 2010 FEIR. This new measure is provided to allow visible structures to better blend with and recede into the surrounding environment, reducing impacts on aesthetic resources.

### **Mitigation Measure AES1.2—Apply Aesthetic Design Treatments to Visible Structures to the Extent Feasible**

Designs of nNew structures that are associated with the proposed project that are not replacing similar existing structures, such as the proposed restroom at Rancho San Antonio County Park, will be designed in a manner that allows these features to blend with the surrounding built and natural environments so that project features complement and do not detract or stand out within the visual landscape. Such measures will include, but are not limited to, the following:

- New structures, such as the proposed restroom at Rancho San Antonio County Park, will evaluate similar, local structures ~~with historic value or~~ that are well designed and use these features as design precedent to develop designs for structures that complement the natural landscape, are aesthetically pleasing, and minimize the effects of visual intrusion of the proposed project on the landscape. Design precedent will be found in structures or features with local historic value, that are locally revered for their aesthetics, or for being in-keeping with or an improvement upon the existing visual landscape. Aesthetic treatments will be implemented on restrooms and other visible features, such as floodwalls and inlets/outlets, to help soften their visual intrusion upon the landscape, especially in areas of high use, and improve project aesthetics.
- New visible elements introduced into the viewshed will be constructed with low-sheen and non-reflective surface materials to reduce potential for glare. Unpainted metal surfaces will not be permitted.
- At a minimum, finishes will be matte and roughened and new structures that are visible to the public (e.g., restrooms, spillways, and floodwalls) will be painted or will use concrete colored integrally with a shade that is two to three shades darker than the general surrounding area. Colors will be chosen from the U.S. Department of the Interior Bureau of Land Management (BLM) Standard Environmental Colors Chart CC-001: June 2008. Because color selection will vary by location, the facility designer shall employ the use of color panels evaluated from key observation points during common lighting conditions (front versus backlighting) to aid in the appropriate color selection. Color selection will be made for the coloring of the most prevalent season. Panels will be a minimum of 3 by 2 feet in dimension and will be evaluated from various distances, but within 1,000 feet, to ensure the best possible color selection. ~~Refer to <http://www.blm.gov/bmp> for more information on this technique and other best management practices (BMPs) and techniques for visual screening.~~
- All paints used for the color panels and structures will be color matched directly from the physical color chart, rather than from any digital or color-reproduced versions of the color chart. Paints will be of a dull, flat, or satin finish only to reduce potential for glare, and the use of glossy paints for surfaces should be avoided. Appropriate paint type will be selected for the finished structures to ensure long-term durability of the painted surfaces. The appropriate operating agency or organization will maintain the paint color over time.

The following guidance will be used to design visible structures and help ensure that operational aesthetic impacts are less than significant:

- Overview of BLM design fundamentals and strategies:  
[http://www.blm.gov/wo/st/en/prog/Recreation/recreation\\_national/RMS/3.html](http://www.blm.gov/wo/st/en/prog/Recreation/recreation_national/RMS/3.html)



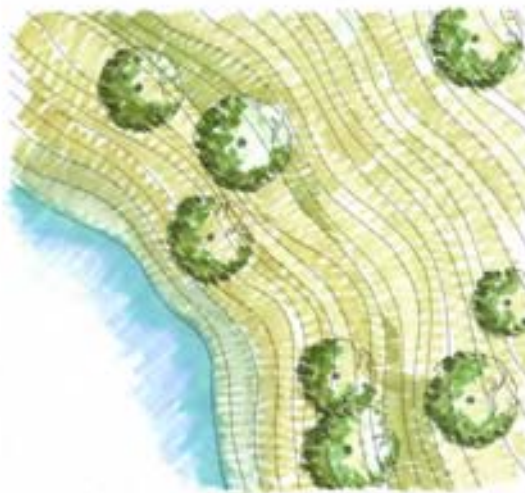
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Figure 7-64a  
Rancho San Antonio Conceptual Birds Eye View



KEY PLAN  
Scale 1" = 100'-0"



ILLUSTRATIVE SLOPE PLAN  
Scale 1" = 10'-0"



ILLUSTRATIVE SLOPE SECTION  
Scale 1" = 10'-0"



SECTION AA  
Scale 1" = 20'-0"



SECTION BB  
Scale 1" = 20'-0"



RANCHO SAN ANTONIO CONCEPTUAL BASIN SECTIONS

Bellinger Foster Steinmetz  
Landscape Architects

Graphics: 03516.03 (10-2012)



Figure 7-64b  
Rancho San Antonio Conceptual Basin Sections

- Design fundamentals to lessen visual impacts:  
<http://www.ntc.blm.gov/krc/uploads/35/Unit%206%20Design%20Fundamentals%201%2005%2008.pdf>.
- Design strategies to lessen visual impacts through color charts/panels and siting:  
<http://www.ntc.blm.gov/krc/uploads/35/Unit%207%20Design%20Strategies%2011%2005%2008.pdf>.
- Links to the BLM's Visual Resource Management (VRM) strategies:  
<http://www.ntc.blm.gov/krc/viewresource.php?courseID=35&programArealD=50>.
- The VRM Manual:  
[http://www.ntc.blm.gov/krc/uploads/35/Master%20VRM%20Notebook%20%202008\\_9%20%2010%2010%2008%20ver.pdf](http://www.ntc.blm.gov/krc/uploads/35/Master%20VRM%20Notebook%20%202008_9%20%2010%2010%2008%20ver.pdf).
- Examples of mitigation using BLM VRM design strategies:  
<http://www.ntc.blm.gov/krc/uploads/35/Unit%2014%20Experience%20Examples%20Oil%20Gas%2011%2005%2008.pdf>.

## **New Permanente Creek Diversion Structure**

### **Construction**

The existing visual quality of the Permanente Diversion Structure site is low, and that of the outlet culvert alignment is low to moderate, similar to the other inlet and outlet culvert alignments. Construction of the new diversion would create some visual disruption, but public views of the site are limited and the duration of construction would be comparatively short. In addition, the District will require contractors to implement standard construction site housekeeping measures to ensure that construction visual disruption is as restricted as possible. In light of the site's poor visual quality, its limited visibility, the short duration of work, and the housekeeping measures to be implemented, the aesthetic impacts of constructing the new diversion structure are considered less than significant. No mitigation is required.

Trench work to install the new outlet culvert via the cut and cover technique would create additional visual disruption but would not obstruct line of sight and would be short term; impacts are considered less than significant. No mitigation is required.

### **Operation**

The New Permanente Diversion Structure—like the existing diversion—would be within the channel and therefore would not be conspicuously visible to most residential viewers. In addition, it would be similar in overall visual character to the existing diversion structure, so it would not substantially alter the appearance of the site. The culvert would be underground and would not result in long-term aesthetic changes. Long-term aesthetic impacts of the new diversion structure and outlet are therefore expected to be less than significant. No mitigation is required.

## **~~Guesta Annex Flood Detention Facility~~**

### **Construction**

~~Work at the Guesta Annex site would include extensive excavation, followed by construction of new park amenities such as the streambed feature, trails, viewing platform etc., along with landscaping to reestablish vegetation on the site. These activities, and the required staging and~~

materials storage, would create substantial visual disruption. Existing visual quality at the Cuesta Annex is moderate; however, the Annex is an important and valued visual resource for Cuesta Annex users and the surrounding community, and the principal viewer groups affected by construction at the site—park users and neighboring residents—are all expected to be highly sensitive to changes in the site’s aesthetic quality. Consequently, even with the District’s required construction site housekeeping measures in effect, construction is likely to result in significant aesthetic impacts. These would be addressed to the extent feasible by implementation of FEIR Mitigation Measure AES1.1, BIO13.2, and BIO15.1. With these measures in place, and in consideration of the temporary nature of construction activities, residual aesthetic impacts of construction at the Cuesta Annex are expected to be less than significant.

**Mitigation Measure AES1.1— Provide Visual Screening for Affected Construction Area**

This measure is described in detail above.

**Mitigation Measure BIO13.2—Restore Riparian Habitat in Areas of Impact**

This measure is described in Chapter 5 (*Biological Resources*).

**Mitigation Measure BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees**

This measure is described in Chapter 5 (*Biological Resources*).

**Operation**

Once constructed, the Cuesta Annex Flood Detention Facility would occupy an area of approximately 4.5 acres and 8 to 12 feet deep in a highly visible and aesthetically sensitive location. In light of its size and location, this facility could substantially degrade the appearance of the site if it were poorly designed or finished. However, the District has been working closely with community members and the City of Mountain View to develop a conceptual design that meets with community approval and benefits park users and area residents in terms of the uses offered at the Cuesta Annex, as well as the site’s appearance. With this process in place, the finished site is expected to offer an overall aesthetic improvement for viewers within the park, neighboring residents, and motorists who view the site from passing cars. Figure 7-5a shows a plan view of the site with the proposed flood detention facility with recreational elements in place. The cross sections in Figure 7-5b depicts the depth of the detention basin and project features. Figures 7-5c and 7-5d show conceptual perspective renderings of the finished flood detention basin and recreational features from the proposed overlook and basin bottom, respectively.

Although the site would be landscaped and revegetated following construction and plantings would include mature container stock to ensure the presence of large trees immediately following construction, the site would nonetheless have a rather barren, “immature” appearance immediately following construction. However, reseeded grassland vegetation would sprout and grow rapidly during the first winter after construction, so the site would return to an attractive, vegetated condition within the first few months after construction. During the infrequent (>10-year) flood events when the basin retains floodwaters, it would have the appearance of a natural pond and is likely to be considered attractive by most viewers. However, depending on the magnitude of the flood event, the detention area would empty within 1 to 2 days. There could be some visual disruption associated with post-flood clean-up activities, but this would be short term and minor, and facilities would be returned to usable condition as soon as possible after

~~flooding. Accordingly, long-term impacts of the proposed Cuesta Annex Flood Detention Facility on aesthetic quality at the site would be less than significant and are likely to be beneficial overall. No mitigation is required.~~

## **Channel Improvements: Permanente and Hale Creeks**

### **Construction of Channel Improvement**

Existing visual quality along the portions of Permanente and Hale Creeks proposed for channel improvement is low. Demolition of existing channel hardscape and construction of the new U-shaped channel and concrete walls along both sides of the channel along Permanente Creek, from Mountain View Avenue and extending 1,200 feet south to downstream of confluence with Hale Creek would be required. These walls would range in height from 7 feet above adjacent ground at the downstream end to 2 feet at the upstream end. In addition, the upstream side of the bridge would include a 7-foot-high headwall.

These walls would create some visual disruption, and some viewers (area residents in particular) are expected to be highly sensitive to changes in visual quality. However, most of the work for this project element would occur within the channel, so its visibility to nearby viewers would be limited. In addition, the District will require contractors to implement standard construction site housekeeping measures to ensure that construction visual disruption is as restricted as possible. In light of the alignments' poor visual quality, the limited visibility of most construction-related visual disruption, and the construction site housekeeping measures to be implemented, the aesthetic impacts of channel improvement are considered less than significant. No mitigation is required.

### **Operation of the Channel Improvements**

Channel improvement would replace the existing concrete channel with a new U-shaped concrete channel. The existing channel is aging and in need of repair in many places; the new channel would address this concern and, to the extent the new channel is visible to the public, is expected to represent an aesthetic improvement over existing conditions. The storm drain following South Springer Road would be located underground and would not be visible. In addition, existing concrete box bridges on Mountain View Avenue, North and South Sunshine Drive, Springer Road, Cuesta Drive, Arboleda Drive, and several privately owned bridges would be replaced to match the new channel width with concrete box bridges and would not affect visual resources because they would be in keeping with existing visual conditions. However, concrete walls along both sides of the channel along Permanente Creek, from Mountain View Avenue and extending 1,200 feet south to just downstream of confluence with Hale Creek would be required; these walls would range in height from 7 feet above adjacent ground at the downstream end to 2 feet at the upstream end. In addition, the upstream side of the bridge would include a 7-foot-high headwall.

These walls could negatively affect visual resources as seen by sensitive viewers. Residences that abut the creek, pedestrians, and motorists on Mountain View Avenue, and recreational viewers using McKelvey Ball Park and St. Joseph's School play fields that are currently separated from the creek by a chain link fence and trees and shrubs would be able to see the wall. This would act as a visual barrier where none previously existed. Where views are already obstructed by dense vegetation or tall, wooden fences, the impacts from the wall would be negligible because views of the wall would be heavily obscured or not present. Light-colored



concrete would make the wall stand out more, would attract more attention, and would be more visually prominent.

**Mitigation Measure AES1.2—Apply Aesthetic Design Treatments to Visible Structures to the Extent Feasible**

This measure is described in detail above.

## **McKelvey Park Flood Detention Facility**

### **Construction**

Construction at the McKelvey Park site would include extensive excavation, followed by installation of new ball field facilities and related amenities. These activities, and the required staging and materials storage, would create substantial visual disruption. Existing visual quality at the McKelvey Park site is moderate; however, viewers at McKelvey Park include ball field users, who are expected to be moderately to highly sensitive to changes in the site's visual quality, as well as neighboring residents, who are expected to be highly sensitive. However, as described previously in *Existing Conditions*, there are only a small number of residences, primarily those facing the park along Miramonte Avenue, south of Park Drive to Sonia Way that have direct views facing the park. The remaining residences have only partial views from second-story windows or from behind fencing and landscaping that limit views from windows.

Consequently, even with the District's required construction site housekeeping measures in effect, construction could result in significant aesthetic impacts. These would be addressed to the extent feasible by implementation of FEIR Mitigation Measures AES1.1 and BIO15.1. With these measures in place, and in consideration of the temporary nature of construction activities, residual aesthetic impacts of construction at McKelvey Park are expected to be less than significant.

**Mitigation Measure AES1.1— Provide Visual Screening for Affected Construction Area**

This measure is described in detail above.

**Mitigation Measure BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations**

This measure is described in Chapter 5 (*Biological Resources*).

### **Operation**

The Project would result in substantial long-term changes in the appearance of the McKelvey Park site. However, as discussed in Chapter 2, the District is working with youth baseball and softball organizations and the City of Mountain View to develop a site design that meets with stakeholder approval and will represent a benefit to park users and the community. With this process in place, the restored facilities are expected to offer an overall aesthetic improvement for viewers within the park and for neighboring residents. Figures 7-76a to through 7-76c shows conceptual renderings of the finished flood detention basin, ball fields, and amenities.

Following the rare (>50-year) flood events when the detention basin is in use, the site would experience temporary visual degradation as a result of flooding. However, depending on the magnitude of the flood event, the detention area would empty within 1 to 4 days, and the fields would then be cleaned and returned to play-ready condition- as quickly as possible following flooding, so the site would continue to be maintained at or above the current standard.



Existing Conditions (May 14, 2012)



Proposal Overview

Source: RHHA, 2012.

Graphics: 03516.03 (10-2012)



**Figure 7-76a**  
**McKelvey Park Existing Conditions and Proposal Overview**



View from Southeast Corner



View from Northwest Corner

Source: RHHA 2012.

Graphics: 03516.03 (10-2012)



Figure 7-76b  
McKelvey Park Proposal Renderings



Graphics: 03516.03 (10-2012)



**Figure 7-76c**  
**McKelvey Park MiniPark Sketch**

Therefore, temporary visual degradation as a result of flooding is considered a less-than-significant impact.

In addition, while it is not anticipated, some project features may stand out visually, such as light-colored concrete against darker surroundings. This is considered a significant impact that would be reduced to less-than-significant levels by Mitigation Measure AES1.2.

**Mitigation Measure AES1.2—Apply Aesthetic Design Treatments to Visible Structures**  
This measure is described in detail above.

## **Floodwalls and Levees downstream of US-101**

### **Construction of Floodwalls and Levee Raise**

Existing visual quality along the segment of Permanente Creek proposed for the floodwall and levee raise construction is high, and some viewers (recreationists in particular) are expected to be sensitive to changes in visual quality. Instead of a floodwall along the west bank between Amphitheatre Parkway and US-101, floodwalls would be built to the east of buildings that are adjacent to the creek. Floodwalls would still be constructed on the outboard side of the west bank levee. Floodwalls would be offset from the buildings by approximately 10 to 20 feet. To the north (downstream) of Amphitheatre Parkway, the levee would be raised by 2 to 3 feet instead of constructing a floodwall. Construction activities and materials storage would create some visual disruption. These activities would be visible within the limited, tunnel-like vista views of the Santa Cruz Mountains that are available to recreationists using the Permanente Creek Trail and partial vista views of the reclaimed landfill and skyline for roadway users and recreationists along Amphitheater Parkway. However, the District will require contractors to implement construction housekeeping measures to restrict visual disruption as much as possible. With these measures in place, and in light of the comparatively short duration of construction along the floodwall and levee alignment, aesthetic impacts of floodwall and levee construction to the existing visual character and scenic vistas are evaluated as less than significant. No mitigation is required.

### **Operation of Floodwalls and Raised Levee**

Floodwall design varies from upstream to downstream along the floodwall alignment, as shown in the diagrams in Figure 7-798.

Along the alignment from US-101 to Amphitheatre Parkway, the height of visible new hardscape created by the floodwalls would vary, extending between 2 and 4 feet above the existing top of the bank. The 3- to 4-foot-high floodwall segments would limit views at certain locations when viewers are approaching or are parked near the wall and are within their vehicles. These viewers would see the wall while in their vehicles and would have partially obstructed views once they exit their vehicles, because the ground plane (included the creek channel) between the parking lot and creek would no longer be immediately visible, but features seen above the wall would be visible. This same impact would be seen by viewers walking within nearby areas of the parking lot and using building sidewalks and outside entry areas. Views of the ground plane, in these areas, would be visible when a viewer is standing at the wall and looks over it. In addition, the 3- to 4-foot-high floodwall segments would be in keeping with the tunnel-like vista views that are available from Permanente Creek Trail and would not obscure vista views. Shorter floodwall segments would not pose a substantial visual obstruction.

New segments of floodwalls could result in a significant adverse aesthetic impact from US-101 to Amphitheatre Parkway, because some viewers may perceive the floodwalls to be a visual intrusion or visually unappealing, while many viewers may have little concern over the floodwall. However, without flood protection at these locations, the increased risk of flooding has the potential to alter the greater visual environment in a more unpredictable and potentially severe manner. Therefore, incorporation of Mitigation Measures AES1.2 and AES1.3 (same as the 2010 FEIR) would ensure that floodwall aesthetics are improved to the liking of those concerned with the appearance of the wall, while providing for increased flood safety, and reduce visual impacts to less than significant. Mitigation Measure AES1.2 was not provided in the 2010 FEIR. This new measure is provided to allow visible structures to better blend with and recede into the surrounding environment, reducing impacts on aesthetic resources.

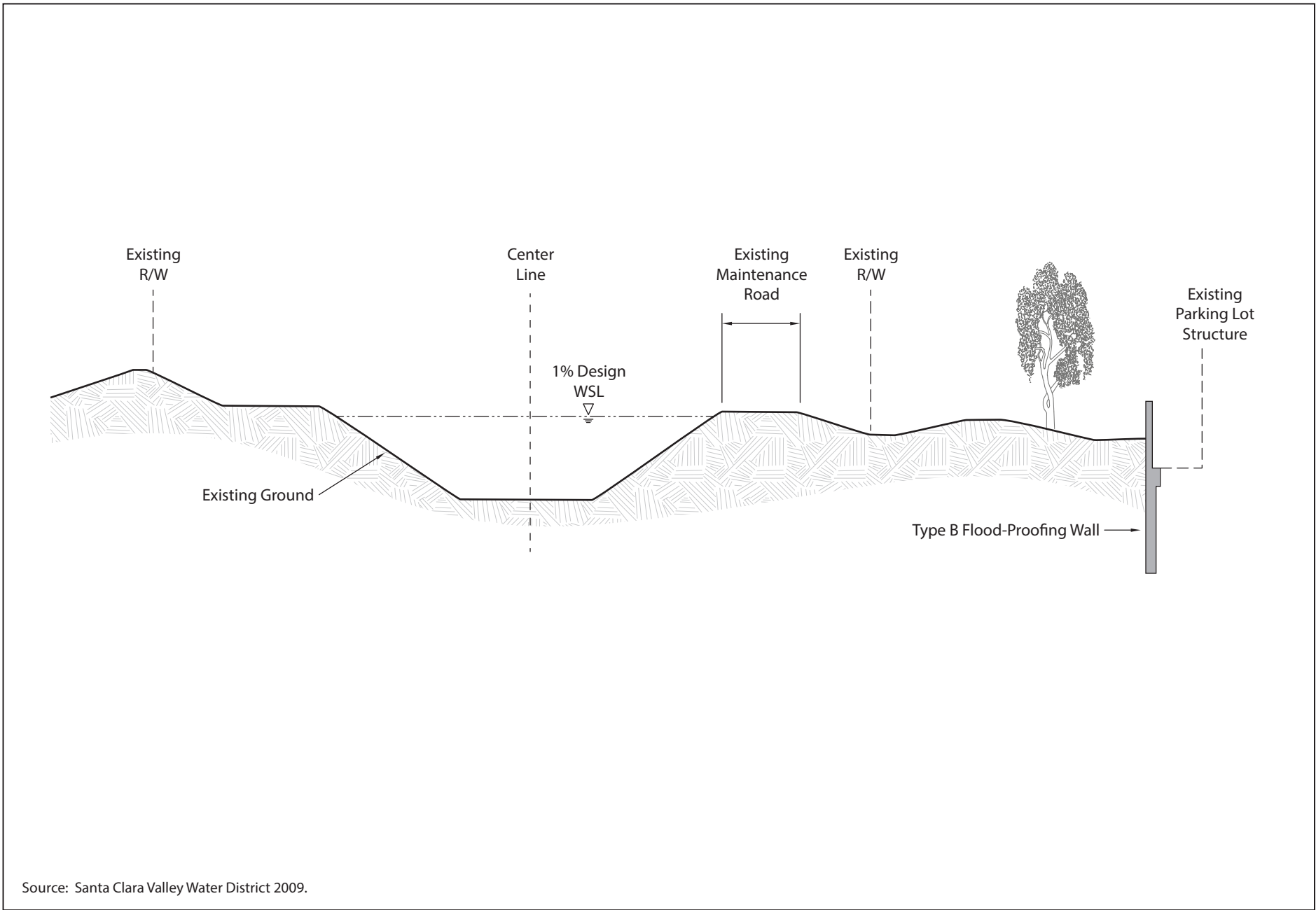
North (downstream) of Amphitheatre Parkway, the levee would be raised by 2 to 3 feet instead of constructing a floodwall. Levees are an existing visual element along this portion of the creek, and once completed the levee raise would only incrementally increase the visibility of the levee and would not affect vista views. As part of the water quality BMP measures, the levees would be seeded for erosion control and would re-vegetate with grasses, like existing conditions. Therefore, the levee raise would be in keeping with existing visual conditions and would not be substantial enough to pose a significant visual impact or alter scenic views.

**Mitigation Measure AES1.2—Apply Aesthetic Design Treatments to Visible Structures**

This measure is described in detail above.

**Mitigation Measure AES1.3—Work With Key Viewer Groups to Design Aesthetic Modifications to Floodwall Design**

The District will conduct a focused outreach effort to identify the viewer groups most affected by the proposed floodwalls on the west bank of Permanente Creek between Charleston Road and Amphitheatre Parkway, and will conduct public meetings and/or charrette sessions with the City of Mountain View and stakeholder representatives to develop aesthetic modifications to reduce the visual impact of the proposed floodwalls. Modifications may include such approaches as planting screening vegetation, using decorative surface textures or treatments, and/or including artwork. This measure will allow concerned viewers to aid in creating a floodwall that is visually appealing, while balancing the need for increased flood safety at these locations. The District will be responsible for implementing and maintaining the modifications agreed upon.



Graphics: 0316.03 (10-2012)



**Figure 7-87**  
**Floodwalls and Levees Downstream of US-101**

## Impact AES2—Creation of a New Source of Light or Glare

Summary by Project Element: Impact AES2—Creation of a New Source of Light or Glare		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Light—No Impact Glare—Less than Significant with Mitigation
New Permanente Diversion Structure	Less than Significant	Light—No Impact Glare—Less than Significant
Cuesta Annex Flood Detention Facility	Less than Significant	Light—No Impact Glare—Less than Significant with Mitigation
Channel Improvements: Permanente and Hale Creeks	Less than Significant	Light—No Impact Glare—Less than Significant with Mitigation
McKelvey Park Flood Detention Facility	Less than Significant	Light—Less than Significant Glare—Less than Significant with Mitigation
Floodwalls and Levees downstream of US-101	Less than Significant	Light—No Impact Glare—Less than Significant with Mitigation

### All Project Elements

#### Construction

Construction of all project elements would create some level of increase in local ambient glare as a result of sun reflecting from glass and metal surfaces of construction equipment and materials. However, this would be a temporary effect, and would be limited in extent and severity because the number of construction vehicles and other potential glare sources present on any given site at any one time would be limited. No need for nighttime construction lighting or security lighting is anticipated at any of the sites. In light of these factors, short-term impacts related to new sources of light and glare are expected to be less than significant. No mitigation is required.

#### Operation

~~None of the project elements would incorporate new sources of nighttime lighting, although conceptual planning for McKelvey Park includes night lighting of recreation fields, similar to what is currently on site. As shown in Figure 7-9, there would be six, instead of eight, high-intensity stadium lights around the perimeter of the large ball field. The large ball field would be in the same location as it is currently; only the field orientation would change. The existing lights are approximately 60 feet tall, and while the new lights would be 70 feet tall, they would be placed in the sunken ball field, which would be 20 feet below existing grade. Therefore, the new lights would stand 10 feet shorter than the existing lights.~~



Fewer stadium lights at a lower elevation would improve light pollution conditions experienced by surrounding residents and businesses. There would be no lighting around the small ball field. Design Commitments incorporated into the proposed project would ensure that new lighting that replaces existing lighting around the ball field would will be designed consistent with current practices to control fugitive light and glare while maintaining safety and compliance with applicable ballfield standards. This will ensure that any shifts in lighting structures or changes in operation will not negatively affect nearby sensitive viewers. Therefore, impacts related to long-term increases in nighttime light generation or fugitive glare associated with the ball field would be less than significant, and no mitigation is required.

The parking lot would be located along Park Drive instead of at the corner of Park Drive and Mountain View Avenue. The new parking lot would slope down so that the western end would be at the existing grade and the east end would be close to the grade of the sunken ball fields or approximately 20 feet below existing grade. New lights in the parking lot would be 14 to 16 feet tall compared to the approximately 10-foot-tall lights that are in the existing parking lot. Therefore, some lights would be higher than the existing light standards, but others would be below existing grade and would not be as visible. Minimal lighting from 8 to 16 feet tall (St. John pers. comm.) would also be installed at the Mini Park in a location of the existing parking lot that currently has four, 10-foot-tall lights. The parking lot and Mini Park are adjacent to an area that is well lit at night from street lighting at regular intervals along Miramonte Avenue, Park Drive, and Mountain View Avenue, in addition to lighting from adjacent residences and businesses.

Any proposed lighting would need to comply with the City of Mountain View's Zoning Ordinances that apply to site lighting, such as SEC. A36.37.080.B, *Development Standards for Off-street Loading* that states "Loading areas shall have lighting capable of providing adequate illumination for security and safety. Lighting standards shall be energy-efficient and in scale with the height and use of the structure(s). Any illumination, including security lighting, shall be directed away from adjoining parcels and public rights-of-way" and SEC. A36.37.090.G, *Development standards for off-street parking*, that states "parking areas shall have lighting capable of providing adequate illumination for security and safety. Lighting standards be energy efficient and in scale with the height and use of the on-site structure(s). Any illumination, including security lighting, be directed away from adjoining properties and public rights-of-way in compliance with Sections 8.242 and 8.252 of the City Code" (City of Mountain View 2012a). Furthermore, SEC. 38.15, *Operational Hours of City Parks*, in the zoning ordinance states that parks and their parking lots are closed "between one-half (1/2) hour after sunset of any day and 6 a.m. of the following day, without the written approval of the city manager, unless such person is attending a special event or a class authorized by the city manager, or attending or participating in tennis or softball activities at a city night-lighted facility" (City of Mountain View 2012b). Therefore, new hours of operation and use of lights would be the same as existing conditions under Mountain View's Zoning Ordinance.

Design commitments in Chapter 2, (*Project Description*), state that parking lot and Mini Park lights will be used to light only onsite uses intended for illumination and will be installed at the lowest practical height and wattage amounts necessary to adequately illuminate the sites. This will be achieved by applying minimum levels of 0.5-footcandles for park pathways and 0.2-footcandles for background areas. Lights at the parking lot and Mini Park would employ shielding to further minimize off-site light spill and glare and will be screened and directed away from residences and adjacent uses to the highest degree possible. At a minimum, light fixtures would be galvanized steel that would naturally oxidize within a short time following installation and would not cause reflective daytime glare. The Mini Park would not be lit at night unless a



**MY PROJECT**  
**Name:** McKelvey Playfields  
**Location:** Mountain View, CA

**EQUIPMENT LAYOUT**  
**INCLUDES:**  
 · Baseball  
 · Softball  
**Electrical System Requirements:** Refer to Amperage Draw Chart and/or the "Musco Control System Summary" for electrical sizing.  
**Installation Requirements:** Results assume +/- 3% nominal voltage at line side of the ballast and structures located within 3 feet (1m) of design locations.

**EQUIPMENT LIST FOR AREAS SHOWN**

QTY	LOCATION	Pole		Luminaires		
		SIZE	GRADE ELEVATION	MOUNTING HEIGHT	LAMP TYPE	QTY / POLE
2	A1-A2	50'	19'	69'	1500W MZ	5
2	B1-B2	70'	-	70'	1500W MZ	7
2	C1-C2	70'	-	70'	1500W MZ	5
<b>TOTALS</b>						<b>34</b>

**SINGLE LUMINAIRE AMPERAGE DRAW CHART**

Ballast Specifications (.90 min power factor)	Line Amperage Per Luminaire (max draw)						
	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
Single Phase Voltage	208 (60)	220 (60)	240 (60)	277 (60)	347 (60)	380 (60)	480 (60)
1500 watt MZ	8.6	7.7	7.5	6.5	5.1	-	3.7

Pole location(s) ⊕ dimensions are relative to 0,0 reference point(s) ⊗

**ENGINEERED DESIGN**  
**By:** Ben Drost  
**File # / Date:** 140541R5 04-May-12

Source: Musco Sports Lighting 2012

Graphics: 031516.03 (10-2012)



**Figure 7-9**  
**Proposed McKelvey Park Lighting System**

sporting event is taking place at the large ball field. This design commitment is in place to further reduce lighting impacts and would ensure that the relocated parking lot and Mini Park are not over lit and that new lighting would not result in light pollution, offsite light spill, or an increase in ambient light glow. The schedule for lighting at the ball field, Mini Park and parking would not change as a result of the project and would be at the discretion of the City of Mountain View. Therefore, impacts related to long-term increases in nighttime light generation or fugitive glare associated with the parking lot and Mini Park would be less than significant, and no mitigation is required.

Many elements of the proposed project would not create a significant increase in glare. Levee raising would not provide a significant change in glare because the levee side slopes would be revegetated with grasses, and any changes in glare from the increased surface area of the levees would be negligible. The New Permanente Diversion Structure would not increase the surface area of potentially reflective surfaces at the diversion site and is not expected to result in a significant increase in glare generation. The new pipes connecting inlet and outlet culverts would be entirely underground within existing road ROWs and would not have surfaces exposed to sunlight that would create glare. Replaced concrete box bridges on Mountain View Avenue, North and South Sunshine Drive, Springer Road, Cuesta Drive, Arboleda Drive, and several privately owned bridges to match the new channel width would not greatly increase glare. They would be in keeping with existing materials and would not greatly increase reflective surface areas compared to the existing concrete box bridges at these locations. Therefore, there would be no glare-related impacts as a result of these project elements, and no mitigation is required.

However, when completed, proposed project elements would include features or facilities with wood, metal, and/or hardscape concrete surfaces that could generate glare, as summarized below.

- Rancho San Antonio County Park Flood Detention Facility—restroom and aboveground portions of the inlet/outlet facility.
- ~~Cuesta Annex Flood Detention Facility—aboveground portions of the inlet/outlet facility, trails, viewing platform, rock installations, and other recreation-related and landscape design features.~~
- McKelvey Park Flood Detention Facility—ball field facilities and related amenities, hardscape components of landscaping, aboveground portions of the inlet/outlet facility.
- Channel Improvements—increase hardscape area within channel cross section and floodwalls near McKelvey Park.
- Floodwalls and Levees downstream of US-101—floodwalls.

If improperly designed, all of these project elements could generate significant levels of glare. With implementation of Mitigation Measures AES1.2, impacts would be less than significant. ~~Cuesta Annex Flood Detention Facility and McKelvey Park Flood Detention Facility were not identified in the FEIR to receive this mitigation. However, these sites would also benefit from glare-reducing measures that are provided by Mitigation Measure AES1.2 and, therefore, will receive this measure.~~

#### **Mitigation Measure AES1.2—Apply Aesthetic Design Treatments to Visible Structures to the Extent Feasible**

This measure is described in detail above.

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## ***PERSONAL COMMUNICATION***

Shoe, Bill. Principal Planner. Santa Clara County Planning Office, San Jose, CA. October 22, 2012—telephone conversation.

St. John, Adrienne. Designer. rhaa Landscape Architecture + Planning, San Francisco, CA. September 25, 2012—email.

# CHAPTER 8. TRANSPORTATION AND TRAFFIC

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## ENVIRONMENTAL SETTING

### ***REGULATORY CONTEXT***

Traffic and transportation planning in the project area is guided by California Government Code § 65300, which requires each local government to include a circulation element as part of its general plan. The primary area potentially affected by Project traffic (referred to in this SEIR as the *transportation study area* or *study area*) includes roadways under the jurisdiction of Santa Clara County and the Cities of Los Altos, Mountain View, and Cupertino.

The quality of service provided by a roadway or intersection is typically measured in terms of three parameters.

- **Volume-to-capacity ratio (V/C):** The number of vehicles that travel on a transportation facility divided by the vehicular capacity of that facility (the number of vehicles the facility was designed to convey).
- **Delay:** The additional travel time experienced by a vehicle or traveler because of inability to travel at optimal speed and/or stops due to congestion or traffic control.
- **Level of service (LOS):** A scale used to determine the operating quality of a roadway segment or intersection based on V/C or average delay experienced by vehicles on the facility. The levels range from A to F, with LOS A representing free traffic flow and LOS F representing severe traffic congestion.

The adopted city and County LOS standards for the project area are as follows.

- **Santa Clara County:** Santa Clara Valley Transportation Authority (VTA) is responsible for maintaining the performance and standards of the Congestion Management Program (CMP) roadway system in the Santa Clara County. VTA strives to maintain LOS E operations on all CMP-monitored facilities, unless the segment was operating at LOS F in 1991 (the date when the CMP was adopted), in which case the LOS standard is LOS F. (Santa Clara Valley Transportation Authority 2009) The County strives to maintain an LOS D standard for County roadway operations and also follows the CMP criteria for regional facilities. However, in certain instances, a lower LOS may be acceptable when LOS D cannot practically be achieved (County of Santa Clara 1994).
- **City of Los Altos:** LOS standard is LOS D for city-controlled intersections during peak travel periods (City of Los Altos 2002).
- **City of Mountain View:** LOS standard is LOS D for most arterials and their intersections during peak travel periods. However, in certain instances, a lower LOS may be acceptable when LOS D cannot practically be achieved (City of Mountain View 1992).
- **City of Cupertino:** LOS standard is LOS D for major intersection during peak travel periods (City of Cupertino 2005).

Table 8-1 shows the V/C values, average delay, and typical driving conditions for each LOS as defined by Santa Clara County and the Cities of Los Altos, Mountain View, and Cupertino.

**Table 8-1. Volume to Capacity (V/C) Ratio, Delay, and Traffic Flow Conditions for LOS Designations**

LOS	Approximate V/C Range	Average Delay (seconds per vehicle)		Traffic Flow Conditions
		Stop-Controlled Intersection	Signalized Intersection	
A	0–0.6	≤10	0–5	Free-flow operations; vehicles unimpeded in ability to maneuver in traffic stream
B	0.6–0.7	11–15	5–15	Reasonable free-flow conditions; only slightly restricted ability to maneuver
C	0.7–0.8	16–25	15–25	Flows still near free-flow speed but noticeably restricted ability to maneuver
D	0.8–0.9	26–35	25–40	Speeds begin to decline; maneuverability limited and queues begin to form
E	0.9–1.0	36–50	40–60	Operation at capacity of roadway; maneuverability extremely limited and queues form with any disruption
F	>1.0	>50	>60	Failure conditions indicating breakdowns in vehicular flow with long queues forming at breakdown points

Source: County of Santa Clara 1994; City of Los Altos 2002; City of Mountain View 1992; and City of Cupertino 2005.

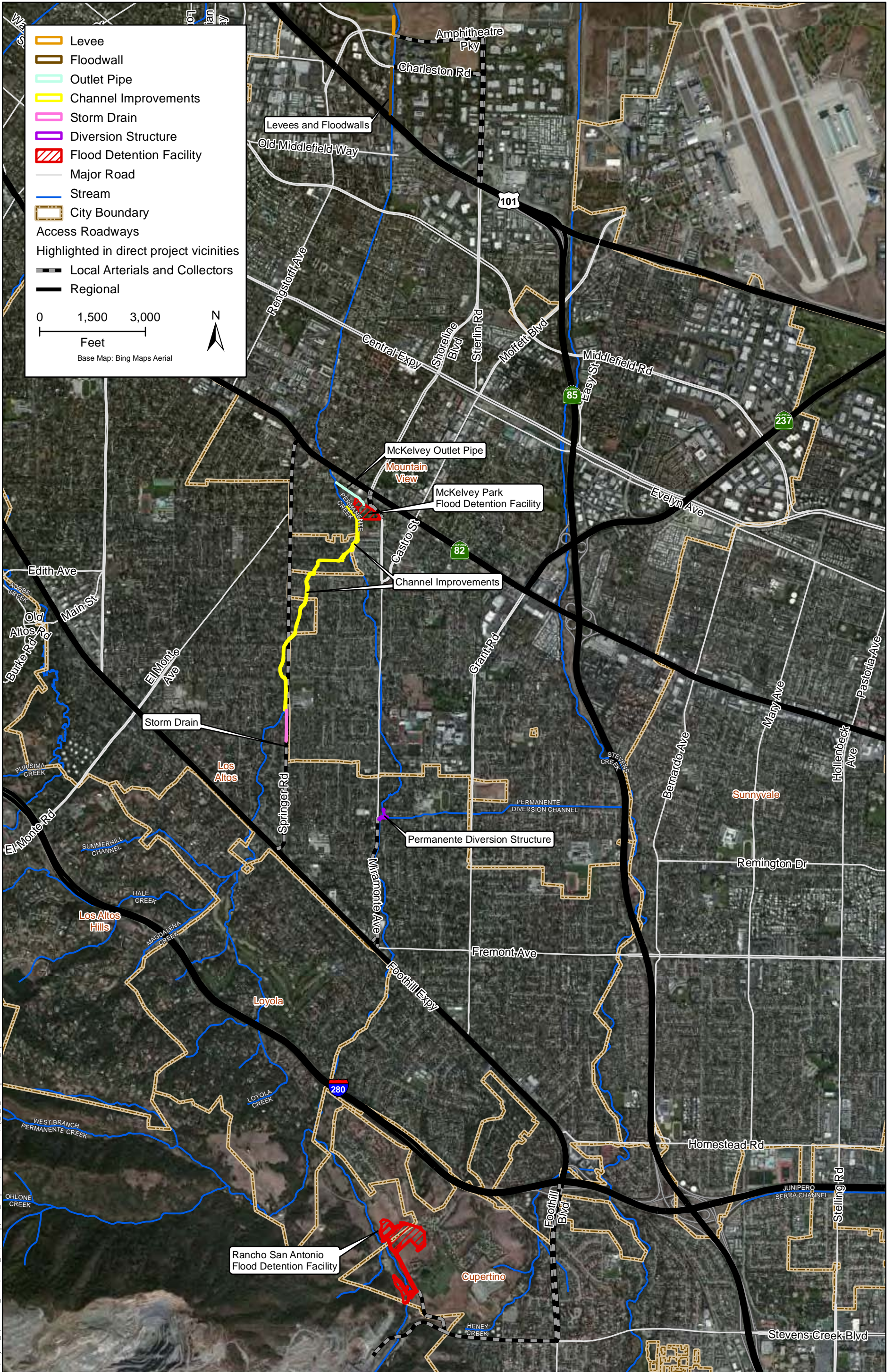
Note: Cities in the project area use the LOS methodology presented in the *Highway Capacity Manual* (Transportation Research Board 2000), although specific delay thresholds vary. For V/C ratio at signalized intersections, they use methods presented in the 1985 *Highway Capacity Manual* with saturation flow rates adjusted to reflect local (Santa Clara County) conditions, and for V/C ratio at stop-controlled intersections they use methods and delay thresholds presented in the current *Highway Capacity Manual* (Transportation Research Board 2000).

For additional information, see Appendix B of this SEIR.

## EXISTING CONDITIONS

### Vehicular Access

Table 8-2 lists the regional highways and local roadways that provide access to one or more project element site(s) and would be directly or indirectly affected by Project traffic. Figure 8-1 shows the locations of the regional highways and major local roadways (arterials and collectors).



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Note: This figure was revised in the Final SEIR to remove the Cuesta Annex project element.



**Figure 8-1**  
**Roadway Network in Study Area**



**Table 8-2. Highway and Roadway Connections to the Project Elements**

<b>Project Element</b>	<b>Local Roadways</b>	<b>Highways</b>
Rancho San Antonio County Park Flood Detention Facility	Foothill Boulevard Stevens Creek Boulevard Permanente Road	I-280 State Route (SR) 85
New Permanente Diversion Structure	Miramonte Avenue	Foothill Expressway
<del>Cuesta Annex Flood Detention Facility (including Cuesta Annex Inlet/Outlet Pipes)</del>	<del>Grant Road Miramonte Road Cuesta Drive</del>	<del>SR-237 SR-82</del>
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacement)	El Monte Avenue Mountain View Avenue Park Drive Arroyo Road Marilyn Drive Sunshine Drive Springer Road Cuesta Drive Arboleda Drive	SR 82 Foothill Expressway
McKelvey Park Flood Detention Facility (including McKelvey Park Outlet Pipe)	Miramonte Avenue Park Drive Mountain View Avenue	SR 82
Floodwalls and Levees downstream of US-101	Shoreline Boulevard Amphitheatre Parkway Charleston Road	SR 101

The following sections provide additional information on key regional and local roadways accessing the study area and project elements.

### Regional Roadways

Regional access to the project sites is provided by SR 82, SR 85, US-101, I-280, and Foothill Expressway, which is a County arterial roadway (Figure 8-1). Table 8-3 lists the regional access highways and the 2010 average annual daily traffic (AADT) volumes on these highway segments in the project vicinity. These highways and the Foothill Expressway are part of the CMP roadway system in the study area (Santa Clara Valley Transportation Authority 2009).

**Table 8-3. Regional Access Highways and Average Annual Daily Traffic**

Highway	Location	2010 AADT
SR 82 (El Camino Real)	Between SR 85 and SR 237	48,500
	Between SR 237 and El Monte Avenue	41,500
SR 85	Between Stevens Creek Boulevard and I-280	122,000
	Between Fremont Avenue and SR 82	116,000
	Between SR 82 and SR 237	109,000
	Between SR 237 and US-101	86,000
US-101	Between SR 85 to Middlefield Road Interchange	200,000
SR 237	Between SR 82 and SR 85	33,500
I-280	Between SR 85 and Foothill Boulevard	139,000
Foothill Expressway	Santa Clara Countywide	110,000 <sup>a</sup>

Source: California Department of Transportation 2010.

<sup>a</sup> AADT on Foothill Expressway is based on 2001 data (County of Santa Clara 2003).

According to the VTA 2011 CMP Annual Monitoring and Conformance Report, SR 85, US-101, and I-280 highway segments (listed in Table 8-3) operate at LOS F during the peak hours; the SR 237 freeway segment operates at LOS E during the peak hours.

Traffic operations on SR 82 and Foothill Expressway are evaluated at intersections. According to the VTA 2010 CMP Annual Monitoring and Conformance Report, the following CMP intersections along SR 82 and Foothill Expressway in the project vicinity operate at LOS D or better.

- SR 82 and El Monte Avenue,
- SR 82 and Miramonte Avenue,
- SR 82 and Grant Road,
- Foothill Expressway and Springer Road, and
- Foothill Expressway and Grant Road.

### Local Roadways

Table 8-4 summarizes the local roadways that provide access between regional highways and the project sites. Each roadway is designated with a functional classification that describes the mobility and access function that the roadway is intended to serve. Functional classifications are defined as follows.

- *Arterials* are major streets that primarily serve through traffic and provide access to abutting properties as a secondary function. The City of Los Altos designates arterials as Major Arterial or Minor Arterial. In the City of Mountain View, arterials that primarily serve residential areas are designated as Residential Arterials.
- *Collectors* connect local streets to arterials and provide for both access and traffic circulation within residential and nonresidential areas. The City of Cupertino also

designates collectors as either Major Collector or Minor Collector, and the City of Los Altos also has a designation of Local Collector, which primarily serves residential areas.

- *Local Streets* primarily provide access to adjacent residential properties. They serve limited mobility functions and are designed to discourage through traffic. All roadways not designated as Arterials or Collectors are designated as Local Streets.

**Table 8-4. Local Roadways in Study Area**

Roadway	Jurisdiction	Functional Classification
Amphitheatre Parkway	Mountain View	Arterial
Arboleda Drive	Los Altos	Local Street
Arroyo Road	Los Altos	Local Street
Charleston Road	Mountain View	Arterial
Cuesta Drive	Los Altos	Collector
	Mountain View	Residential Arterial
El Monte Avenue	Mountain View	Residential Arterial
Foothill Boulevard	Cupertino	Major Arterial
Grant Road	Los Altos	Collector
	Mountain View	Residential Arterial
Marilyn Drive	Mountain View	Local Street
Miramonte Avenue	Los Altos	Collector
	Mountain View	Arterial
Mountain View Avenue	Los Altos	Local Street
	Mountain View	Local Street
Park Drive	Mountain View	Local Street
Permanente Road	Cupertino	Local Street
Sunshine Drive	Los Altos	Local Street
Stevens Creek Boulevard	Cupertino	Arterial
Shoreline Boulevard	Mountain View	Arterial
Springer Road	Los Altos	Collector
El Monte Avenue	Mountain View	Collector

Sources: City of Los Altos 2002; City of Mountain View 1992; City of Cupertino 2005.

### Congested Roadways and Intersections in Study Area

Based on the most recent available information, the following key roadways experience congested conditions.

- Segments of US-101, SR 85, ~~SR 237~~, and I-280 in the study area operate at LOS F during the peak hours, ~~which meet the CMP LOS standard because they were operating at LOS F in 1991 (the date when the CMP was adopted) and the LOS standard F was determined for these segments (Santa Clara Valley Transportation Authority 2009).~~

~~VTA strives to maintain LOS E operations on all CMP-monitored facilities, unless the segment was operating at LOS F in 1991 (the date when the CMP was adopted), in which case the LOS standard is LOS F (Santa Clara Valley Transportation Authority 2009).~~

- The LOS at Springer Road/Fremont Avenue intersection exceeds the City of Los Altos standard of LOS D (City of Los Altos 2002).
- The LOS at Springer Road/El Monte Avenue intersection exceeds the City of Los Altos standard of LOS D (City of Los Altos 2002).
- The LOS on Grant Road between Phyllis Avenue and Cuesta Drive exceeds the City of Mountain View standard of LOS D (City of Mountain View 2009).

Current area general plans do not identify operational deficiencies on any other study area roadways.

## Transit

The Santa Clara Valley Transportation Authority (VTA) provides bus and light rail transit throughout Santa Clara County. Table 8-5 lists the bus routes that run on the City streets located in the vicinity of each of the project elements.

**Table 8-5. Transit Service in Study Area**

<b>Project Element</b>	<b>Project Access Roads and Bus Services</b>
Rancho San Antonio County Park Flood Detention Facility	Stevens Creek Boulevard: no bus service Foothill Boulevard: local Bus Route 51
New Permanente Diversion Structure	Miramonte Avenue: no bus service
<del>Cuesta Annex Flood Detention Facility (including Cuesta Annex Inlet/Outlet Pipes)</del>	<del>Cuesta Drive: local Bus Route 51 Grant Road: local Bus Route 51 Miramonte Avenue: local Bus Route 51</del>
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacement)	Mountain View Avenue: no bus service Park Drive: no bus service Arroyo Road: no bus service Marilyn Drive: no bus service Sunshine Drive: no bus service Springer Road: no bus service Cuesta Drive: no bus service Arboleda Drive: no bus service El Monte Avenue: local Bus Route 52
McKelvey Park Flood Detention (including McKelvey Park Outlet Pipe)	Miramonte Avenue: local Bus Route 51 Park Drive: no bus service Mountain View Avenue: no bus service
Floodwalls and Levees downstream of US-101	Amphitheatre Parkway: no bus service Charleston Road: local Bus Route 40 Shoreline Boulevard: local Bus Route 40

Source: Santa Clara Valley Transportation Authority 2012.

## **Bikeways and Walkways**

Bikeways in the study area are designated as bike paths, bike lanes, and bike routes, as follows.

- *Bike paths* are paved facilities designated for bicycle use that are physically separated from roadways by spaces or physical barrier.
- *Bike lanes* are lanes on the outside edge of roadways reserved for the exclusive use of bicycles.
- *Bike routes* are roadways recommended for bicycle use and often connected to bike lanes and bike paths.

Table 8-6 lists the bicycle facilities on City streets in the vicinity of each of the project elements.

**Table 8-6. Bicycle Facilities in Study Area**

<b>Project Element</b>	<b>Project Access Roads and Bicycle Facilities</b>
Rancho San Antonio County Park Flood Detention Facility	Stevens Creek Boulevard: no bikeway Foothill Boulevard: bike lane
New Permanente Diversion Structure	Miramonte Avenue: bike lane
<del>Cuesta Annex Flood Detention Facility (including Cuesta Annex Inlet/Outlet Pipes)</del>	<del>Cuesta Drive: bike lane Grant Road: bike lane Miramonte Avenue: bike lane</del>
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacement)	Mountain View Avenue: no bikeway Park Drive: no bikeway Arroyo Road: no bikeway Marilyn Drive: no bikeway Sunshine Drive: no bikeway Cuesta Drive: bike lane Arboleda Drive: no bikeway Springer Road: bike lane El Monte Avenue: bike lane
McKelvey Park Flood Detention Facility (including McKelvey Park Outlet Pipe)	Miramonte Avenue: bike lane Park Drive: no bikeway Mountain View Avenue: no bikeway
Floodwalls and Levees downstream of US-101	Amphitheatre Parkway: bike lane Charleston Road: bike lane Shoreline Boulevard: bike lane Permanente Creek Trail: mixed-use bicycle/pedestrian path

Sources: City of Los Altos 2002; City of Mountain View 2012; City of Cupertino 2005.

Pedestrian walkways comprise sidewalks, roadway shoulders, off-street trails, and the shared use of low-traffic streets. Walkways provided within and adjacent to each project element are summarized below.

- Rancho San Antonio County Park Flood Detention Facility: Trails are provided in Rancho San Antonio County Park; sidewalks and shoulders are provided on Stevens Creek Boulevard and Foothill Boulevard.
- New Permanente Diversion Structure: Shoulders and sidewalks are provided on Miramonte Avenue.
- Permanente and Hale Creek Channel Improvements: Sidewalks and shoulders are provided on Mountain View Avenue, Park Drive, Marilyn Drive, Springer Road, and El Monte Avenue. Shoulders are provided on Cuesta Drive that is a shared use with bikeways. No sidewalks or marked shoulders are provided on Arroyo Road, Sunshine

Drive, and Arboleda Drive; pedestrians share use with vehicles on these low-traffic residential streets.

- McKelvey Park Flood Detention Facility and Outlet Pipe: Sidewalks are provided on streets adjacent to the park. Pedestrian access is provided between the parking lots and ball fields in the park. Sidewalks and shoulders are provided on Miramonte Avenue, Park Drive, and Mountain View Avenue.
- Floodwalls and Levees downstream of US-101: Mixed use trails are provided along Permanente Creek. Sidewalks and off-street trails are provided on Amphitheatre Parkway, Charleston Road, and Shoreline Boulevard.

## IMPACT ANALYSIS

### ***METHODS AND SIGNIFICANCE CRITERIA***

The Project proposes to construct multiple separate project elements located in several jurisdictions. Because of the earthwork volumes involved and the need for materials deliveries, construction would intermittently generate substantial volumes of traffic. Once the Project is constructed, maintenance needs would be very limited; traffic generation would be well within the capacity of the local roadway system and would not differ materially from current maintenance traffic levels. Analysis of traffic impacts therefore concentrated on Project construction.

Analysis used estimated construction traffic generation (expressed as maximum trips per day) to develop a qualitative evaluation of short-term impacts on the local and regional roadways in the Project vicinity. For this impact analysis, individual project elements were evaluated separately, but project elements that would be constructed in the same year were also evaluated in combination to ensure that analysis considered the worst case or maximum anticipated traffic impact for each year of Project construction, based on assumed construction overlap.

For the purposes of this analysis, an impact was considered to be significant and require mitigation if it would result in any of the following.

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.
- Conflict with an applicable CMP, including, but not limited to LOS standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Inadequate emergency access.

- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or that otherwise decrease the performance or safety of such facilities.

### Construction Traffic Generation

Table 8-7 summarizes estimated construction-generated traffic for each project element. It also identifies the roadways most likely to be affected by traffic generated by construction of each project element. Except for the channel improvement and floodwall elements, analysis assumes that Year 1 elements would be constructed entirely within Year 1, with no continuation into Year 2 (see Table 2-3 for the anticipated construction schedule by project element). Calculation data of construction trip generation and the distribution of construction trips to project access highways and local streets are included in Appendix H of the Final SEIR.

#### Rancho San Antonio County Park Flood Detention Facility

Construction of the Rancho San Antonio County Park Flood Detention Facility flood detention facility would take approximately 9 months. The peak construction phase would occur over about 6 months during site excavation. The excavated soil would be hauled to the Lehigh Quarry located 1 mile southwest of the park via Permanente Road. Based on a typical capacity of 20 cubic yards (cy) per truck, the soil haulage would result in an average of 20 round trips per day. A maximum of 10 construction workers per day, generating 10 daily round trips, are expected to work at the site during the peak construction period. Additionally, a projected average of five trucks per day, generating five daily round trips, would deliver material and equipment. Overall, construction at this site is projected to generate a maximum of 30 trips per day on regional and local project access roads and 40-60 haul truck trips per day<sup>1</sup> on Permanente Road between the site and the quarry.

Trucks and workers would access the site via Foothill Boulevard and Stevens Creek Boulevard in the city of Cupertino. Stevens Creek Boulevard connects to an unpaved road in Rancho San Antonio Park that would access the site from the south. Dump trucks hauling excavated soil between the project site and the Lehigh Quarry would use the unpaved road and connect to Permanente Road. The staging and parking area would be provided in open space adjacent to the site.

**Table 8-7. Estimated Construction Traffic by Project Element**

Project Element	Construction Year	Maximum Daily Trips (vehicles per day)	Local Project Access Roads	Regional Access Highways
Rancho San Antonio County Park Flood Detention Facility	Year 1	<del>70-90</del> (30 on regional and local streets, <u>40-60<sup>a</sup></u> to Lehigh Quarry)	Foothill Boulevard Stevens Creek Boulevard	I-280 SR 85
New Permanente Diversion Structure	Year 1	30 <sup>b</sup>	Miramonte Avenue	Foothill Expressway

<sup>1</sup> Haul truck trips associated with excavation activities are calculated by increasing the estimated volumes by 30% to account for soil expansion during excavation. Based on available soils information, an average of 30% is adequate for clay and sand type soils found at the project sites.

Project Element	Construction Year	Maximum Daily Trips (vehicles per day)	Local Project Access Roads	Regional Access Highways
Permanente Creek Channel Improvements	Year 1	30 <sup>b</sup>	Mountain View Avenue Park Drive Arroyo Road	SR 82
Hale Creek Channel Improvements (including Hale Creek Bridge Replacement)	Years 2-4	30 <sup>b</sup>	El Monte Avenue Mountain View Avenue Arroyo Road Marilyn Drive Sunshine Drive Cuesta Drive Arboleda Drive Springer Road	SR 82 Foothill Expressway
Floodwalls and Levees downstream of US-101	Year 1	30 <sup>b</sup>	Amphitheatre Parkway Charleston Road Shoreline Boulevard	SR 101
Cuesta Annex Inlet/Outlet Pipes	Year 2	35	Miramonte Road Cuesta Drive Grant Road	SR 237 SR 82
Cuesta Annex Flood Detention Facility	Year 2	405	Grant Road Miramonte Road Cuesta Drive	SR 237 SR 82
McKelvey Park Flood Detention Facility	Year 2	<del>485</del> 228 <sup>a</sup>	Miramonte Avenue Park Drive Mountain View Avenue	SR 82
McKelvey Park Outlet Pipe	Year 2	35 <sup>b</sup>	Miramonte Avenue Park Drive Mountain View Avenue	SR 82

<sup>a</sup> Haul truck trips associated with excavation activities were calculated by increasing the estimated volumes by 30% to account for soil expansion during excavation. Based on available soils information, an average of 30% is adequate for clay and sand type soils found at the project sites.

<sup>b</sup> Minimal excavation activities would occur for the project element; therefore, even with the 30% increase to account for soil expansion, the estimated haul truck trips for the excavated soils remain the same as the Draft SEIR.

The following sections provide additional information on the anticipated construction process and estimated construction traffic generation for each of the project elements.

### New Permanente Diversion Structure

The New Permanente Diversion Structure would be installed at the same location as the existing diversion to be replaced, at the upstream end of the Permanente Diversion Channel near the intersection of Miramonte Avenue and Eastwood Drive in the city of Los Altos. The new Outlet Culvert would be installed along the path of the existing underground outlet pipe.

Construction of the New Permanente Diversion Structure and Outlet Culvert would take approximately 6 months and would entail low-volume demolition, excavation, and materials delivery. The culverts would be installed using “cut and cover” construction method. A projected average of five trucks per day, generating a total of five daily round trips, would haul away excavated soil and deliver material and equipment to the site. A maximum of 10 construction workers per day,



generating a total of 10 daily round trips, are expected to work at the site. Overall, the construction of the new diversion structure is projected to generate a maximum of 30 trips per day.

Trucks and workers would access the site via Miramonte Avenue. The staging and parking area would be provided within District property along the New Permanente Diversion Structure. Culvert installation may require temporary lane closures on Eastwood Drive.

### **Cuesta Annex Flood Detention Facility**

Construction of the Cuesta Annex flood detention facility would take approximately 6 months, in which the peak construction phase would occur over approximately 4 months during site excavation. A total of 50,000 cy of soil was assumed to be hauled offsite over the 3-month period in order to estimate the maximum daily haul truck trips. Based on a typical capacity of 20 cy per truck, soil haulage would result in an average of 38 round trips per day. A maximum of 10 construction workers per day, generating a total of 10 daily round trips, are expected to work at the site during the peak construction period. Additionally, a projected average of five trucks per day, generating a total of five daily round trips, would deliver material and equipment. Overall, the construction at this site is projected to generate a maximum of 105 trips per day.

Trucks and workers would access the site from the north via Grant Road and Cuesta Drive. The staging and parking area would be provided at the site.

### **Cuesta Annex Inlet and Outlet Pipes**

The inlet and outlet culverts serving the Cuesta Annex flood detention facility would extend east along Cuesta Drive to the northwest corner of the Cuesta Annex. Construction of these new underground inlet and outlet pipes would take approximately 3 months.

The culverts would be installed using "cut and cover" construction method and would be constructed progressively by sections moving at an average of 100 feet per week. A total of 1,000 cy of excavated soil would be hauled offsite. Based on a typical capacity of 10 cy per dump truck, soil haulage would result in an average of two round trips per week. Additionally, a projected average of five trucks per day, generating a total of five daily round trips, would deliver material and equipment to the site. A maximum of 10 construction workers per day are expected to work at the site. Overall, construction of the culverts is projected to generate a maximum of 35 trips per day.

Trucks and workers would access the inlet and outlet alignments from Miramonte Road and Cuesta Drive. The parking and staging area would be provided at the Cuesta Annex. Temporary lane closures on Cuesta Drive would be required to accommodate trenching and pipe installation. Because the pipes would be constructed progressively by sections, lane closure would be proportional to the length of each working section; pipe installation and equipment staging areas are expected to require approximately 200 feet of lane closures at any given time.

### **Channel Improvements: Permanente and Hale Creeks**

Construction work to widen the Permanente and Hale Creek channels would last a total of approximately 48 months. The work would involve deepening and enlarging almost 1,200 feet of the Permanente Creek channel from just south of Mountain View Avenue to upstream of the confluence with Hale Creek for 12 months in Year 1. After the construction of Permanente

Creek channel, the 3,200 feet of the Hale Creek channel would be widened from Permanente Creek to north of Rosita Avenue and connect to a storm drain on Springer Road for 36 months, beginning in Year 2. The 800-foot storm drain would be built along and under Springer Road from Rosita Avenue to Riverside Drive. Existing bridges crossing Hale Creek at Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Springer Road, Cuesta Drive, and Arboleda Drive would be replaced as part of the channel improvement work.

The construction work would be carried out progressively by sections. The bridges would be replaced with culverted, at-grade crossings. The entire process—bridge demolition, road excavation, culvert installation, and road paving—would last for approximately a few weeks for each bridge. A total of 4,800 cy of demolished concrete and 1,200 cy of excavated soil would be hauled offsite. Based on a typical capacity of 10 cy per dump truck, soil haulage and concrete removal would result in an average of one round trip per week. Additionally, a projected average of five trucks per day, generating a total of five daily round trips, would deliver material and equipment to the site. A maximum of 10 construction workers per day, generating a total of 10 daily round trips, are expected to work at the site. Overall, channel improvement construction is projected to generate a maximum of 30 trips per day.

Trucks and workers would likely access the channel improvement corridor and local neighborhood streets adjacent to the channel via Springer Road and/or El Monte Avenue. Temporary road closures on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Springer Road, Cuesta Drive, and Arboleda Drive would be required to accommodate construction of new bridges and the storm drain. Bridge replacement on Springer Road would be constructed with precast culverts in two or three sections and would only require temporary lane closures during the construction. To minimize the traffic impacts as a result of road and lane closures, only one bridge would be replaced at a time. The exact location of the staging and parking area has not yet been determined. However, because the limits of work are confined to a narrow ROW, the staging and parking area may need to be located offsite.

### **McKelvey Park Flood Detention Facility**

Construction of the McKelvey Park Flood Detention Facility~~flood detention facility~~ would take approximately 1 year. The peak construction phase would occur over approximately 6 months during site excavation. A total of 100,000 cy of soil was assumed to be hauled offsite over the 3-month period in order to estimate the maximum daily haul truck trips. Based on a typical capacity of 20 cy per truck, soil haulage would result in an average of ~~77~~99 round trips per day<sup>2</sup>.

Construction activities would consist of a maximum of ten construction workers per day, generating ten daily round trips, and are expected to work at the site during the peak construction period. Additionally, a projected average of five trucks per day, generating five daily round trips, would deliver material and equipment. Overall, construction at this site is projected to generate a maximum of 228 trips per day.

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<sup>2</sup> ~~Haul truck trips associated with excavation activities are calculated by factor up the estimated volumes by 30% to account for the soil expansion during the excavation. Based on available soils information, an average of 30% is adequate for clay and sand type soils found at the project sites.~~

~~Construction activities for this detention facility would be very similar to those described for the Cuesta Annex flood detention site and would generate a projected maximum of 185 trips per day during the peak construction phase.~~

Trucks and workers would access the site from the north via Miramonte Avenue, Park Drive, and Mountain View Avenue. The staging and parking area would be provided at the site.

### **McKelvey Park Outlet Pipe**

~~The 1,500-foot outlet pipe serving the McKelvey Park Flood Detention Facility would extend along Park Drive between Permanente Creek and the park. Construction of the new underground outlet pipe would take approximately 2 months. Construction activities for the pipe would be very similar to the inlet and outlet culverts described for the Cuesta Annex and would generate a maximum of 35 trips per day.~~

The pipe would be installed using a “cut and cover” construction method and would be constructed progressively by sections moving at an average of 100 feet per week. A total of 1,000 cy of excavated soil would be hauled off site. Based on a typical capacity of 10 cy per dump truck, soil haulage would result in an average of two round trips per week. Additionally, a projected average of five trucks per day, generating five daily round trips, would deliver material and equipment to the site. A maximum of 10 construction workers per day are expected to work at the site. Overall, construction of the culverts is projected to generate a maximum of 35 trips per day.

Trucks and workers would access the outlet alignment from Mountain View Avenue and Miramonte Avenue. The parking and staging area would be provided at the McKelvey Park. Temporary lane closures on Park Drive would be required to accommodate trenching and pipe installation.

### **Floodwalls and Levees downstream of US-101**

Construction of the new floodwalls, flood-proofing structures, and levees along the west bank of Permanente Creek downstream of US-101 would take approximately 12 months. Construction of the proposed west bank levee downstream of Amphitheater Boulevard would take about 3 months and would require approximately 1,000 cy of levee fill materials. The 1,600 feet of new floodwalls and flood-proofing structures would be built progressively in sections. Minimal excavation work along levees is expected for the floodwall footing. A total of 600 cy of concrete and aggregate material would be imported to the site to construct the floodwalls. Based on a typical capacity of 10 cy per truck, an average of five trucks per day, generating a total of five daily round trips, would be needed to haul away excavated soil and deliver materials and equipment to the site. A maximum of 10 construction workers per day, generating a total of 10 daily round trips, are expected to work at the site. Overall, the construction of the floodwalls and levee is projected to generate a maximum of 30 trips per day.

Trucks and workers would access the project corridor via Shoreline Boulevard, Amphitheatre Parkway, and Charleston Road. The Project would require temporary trail closures along the west bank to accommodate installation of the floodwalls. However, because floodwall construction would occur on one side of the creek, the eastern levee top trail would remain open. The staging and parking area would be provided along the project corridor within District property.

## Construction Traffic Distribution

Based on the estimated construction trips and identified access roadways summarized in Table 8-7, construction-generated trips that would occur on the project access roads are summarized in Table 8-8 and Table 8-9. The estimated daily and peak-hour trips account for project elements that could be constructed at the same time. Data documenting the calculation of construction trip generation and the distribution of construction trips to access highways and local streets are included in Appendix H of the Final SEIR.

**Table 8-8. Estimated Construction Trip Distribution on Regional Access Roadways**

<u>Highway</u>	<u>Daily Trips</u>	<u>Peak Hour Trips</u>	<u>Project Element</u>
<b><u>Year 1</u></b>			
<u>I-280</u>	<u>30</u>	<u>11</u>	<u>Rancho San Antonio County Park Flood Detention Facility</u>
<u>SR 85</u>	<u>30</u>	<u>11</u>	<u>Rancho San Antonio County Park Flood Detention Facility</u>
<u>US-101</u>	<u>30</u>	<u>11</u>	<u>Floodwalls</u>
<u>SR 82</u>	<u>30</u>	<u>12</u>	<u>Permanente Creek Channel</u>
<u>Foothill Expressway</u>	<u>30</u>	<u>12</u>	<u>Permanente Diversion Structure</u>
<b><u>Year 2 during the 3-month peak excavation at McKelvey Park</u></b>			
<u>SR 82</u>	<u>243</u>	<u>42</u>	<u>Hale Creek Channel, McKelvey Park Detention Facility</u>
<u>Foothill Expressway</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<b><u>Year 2 without the peak excavation activities at McKelvey Park</u></b>			
<u>SR 82</u>	<u>83</u>	<u>30</u>	<u>Hale Creek Channel, McKelvey Park Detention Facility and Pipe</u>
<u>Foothill Expressway</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<b><u>Year 3</u></b>			
<u>SR 82</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<u>Foothill Expressway</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<b><u>Year 4</u></b>			
<u>SR 82</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<u>Foothill Expressway</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>

**Table 8-9. Estimated Construction Trip Distribution on Local Access Roadways**

<u>Local Street Segment</u>	<u>Daily Trips</u>	<u>Peak Hour Trips</u>	<u>Project Element</u>
<b><u>Year 1</u></b>			
<u>Foothill Boulevard between I-280 and Stevens Creek Boulevard</u>	<u>30</u>	<u>11</u>	<u>Rancho San Antonio County Park Flood Detention Facility</u>
<u>Stevens Creek Boulevard west of Foothill Boulevard</u>	<u>30</u>	<u>11</u>	<u>Rancho San Antonio County Park Flood Detention Facility</u>
<u>Amphitheatre Parkway</u>	<u>30</u>	<u>11</u>	<u>Floodwalls</u>
<u>Charleston Road between Amphitheatre Parkway and Shoreline Boulevard</u>	<u>30</u>	<u>11</u>	<u>Floodwalls</u>
<u>Shoreline Boulevard between US101 and Amphitheatre Parkway</u>	<u>30</u>	<u>11</u>	<u>Floodwalls</u>
<u>Miramonte Avenue south of Marilyn Drive</u>	<u>30</u>	<u>11</u>	<u>Permanente Diversion Structure</u>
<u>Mountain View Avenue</u>	<u>30</u>	<u>12</u>	<u>Permanente Creek Channel</u>
<b><u>Year 2 during the 3-month peak excavation at McKelvey Park</u></b>			
<u>Mountain View Avenue</u>	<u>144</u>	<u>29</u>	<u>Hale Creek Channel, McKelvey Park Detention Facility</u>
<u>Miramonte Avenue north of Marilyn Drive</u>	<u>114</u>	<u>18</u>	<u>McKelvey Park Detention Facility</u>
<u>Park Drive between Mountain View Avenue and Miramonte Avenue</u>	<u>114</u>	<u>18</u>	<u>McKelvey Park Detention Facility</u>
<u>Arroyo Road between Springer Road and Mountain View Avenue</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>El Monte Avenue north of Springer Road</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<u>Springer Road south of El Monte Avenue</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<b><u>Year 2 without the peak excavation activities at McKelvey Park</u></b>			
<u>Mountain View Avenue</u>	<u>35</u>	<u>12</u>	<u>McKelvey Park Detention Facility and Pipe</u>
<u>Miramonte Avenue north of Marilyn Drive</u>	<u>35</u>	<u>12</u>	<u>McKelvey Park Detention Facility and Pipe</u>
<u>Park Drive between Mountain View Avenue and Miramonte Avenue</u>	<u>35</u>	<u>12</u>	<u>McKelvey Park Detention Facility and Pipe</u>
<u>Park Drive west of Mountain View Avenue</u>	<u>35</u>	<u>12</u>	<u>McKelvey Park Pipe</u>
<u>Arroyo Road between Springer Road and Mountain View Avenue</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>El Monte Avenue north of Springer Road</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<u>Marilyn Drive between Springer Road and Hale Creek Channel</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>Sunshine Drive between Springer Road and Hale Creek Channel</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>Springer Road south of El Monte Avenue</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<b><u>Year 3</u></b>			
<u>El Monte Avenue north of Springer Road</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>

<u>Sunshine Drive between Springer Road and Hale Creek Channel</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>Cuesta Drive between Springer Road and Hale Creek Channel</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>Arboleda Drive between Springer Road and Hale Creek Channel</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>Springer Road south of El Monte Avenue</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<b><u>Year 4</u></b>			
<u>El Monte Avenue north of Springer Road</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>
<u>Arboleda Drive between Springer Road and Hale Creek Channel</u>	<u>30</u>	<u>11</u>	<u>Hale Creek Channel</u>
<u>Springer Road south of El Monte Avenue</u>	<u>15</u>	<u>6</u>	<u>Hale Creek Channel</u>

## **IMPACTS AND MITIGATION MEASURES**

### **Impact TT1—Potential to Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System**

<b>Summary by Project Element: Impact TT1—Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level<sup>3</sup></b>
<b>Year 1 Elements</b>		
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant
New Permanente Diversion Structure	Less than Significant with Mitigation	Less than Significant
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacements)	Less than Significant with Mitigation	Less than Significant
Floodwalls and Levees downstream of US-101	Less than Significant with Mitigation	Less than Significant
Year 1 Worst-Case	Less than Significant with Mitigation	Less than Significant
<b>Year 2 Elements</b>		
Cuesta Annex Flood Detention Facility (including Cuesta Annex Inlet/Outlet Pipes)	Significant and Unavoidable	Less than Significant
McKelvey Park Flood Detention Facility (including	Less than Significant with	Less than Significant

<sup>3</sup> As discussed in *Methods and Significance Criteria*, impact analysis focused on construction-generated traffic because operation and maintenance of the project facilities would generate a very small number of vehicle trips at periodic intervals. Traffic generation would not differ materially from current maintenance traffic levels at these project facilities.

<b>Summary by Project Element: Impact TT1—Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level<sup>3</sup></b>
McKelvey Park Outlet Pipe)	Mitigation	
	Year 2 Worst-Case	Less than Significant with Mitigation
		Less than Significant

**Year 1 Project Elements**

As shown in Table 8-78, the Rancho San Antonio County Park Flood Detention Facility and the other project elements proposed for construction during Project Year 1 would generate a combined-maximum of 420-30 vehicle trips per day and 12 vehicle trips during peak hours on each regional access highways. This would be an increase of less than 1% in daily traffic volume, based on the AADT listed in Table 8-3.

SR 85, US-101, and the I-280 highway segments, listed in Table 8-3 operate at LOS F during the peak hours. Based on the traffic LOS threshold defined by the CMP, for highway segments that operate at LOS F, the added vehicle trips by the Project would not be more than 1% of the peak hour freeway capacity (Santa Clara Valley Transportation Authority 2009). The project construction is anticipated to add 12 vehicle trips during peak hours on each regional access highway, which are less than 1% peak hour capacity of each highway segment. Therefore, even with all Year 1 project elements under simultaneous construction (a worst-case scenario), construction-related traffic is not expected to significantly degrade the operation and LOS of regional highways. Calculation of peak-hour capacities of highway segments is included in Appendix H of the Final SEIR.

As discussed under Existing Conditions, traffic operations at intersections along SR 82 and Foothill Expressway in the project vicinity are at LOS D or better, which is well below the CMP standard of LOS E. Project construction is anticipated to add 6 to 12 vehicle trips during peak hours on SR 82 and Foothill Expressway. This very small number of peak hour trips is unlikely to degrade the intersection operations from LOS D or better to the LOS standard (LOS F).

The following paragraphs provide additional analysis of the effects of individual project elements on local roadways in proximity to individual project element sites. Channel improvement activities are discussed under Year 1 because construction on this portion of the project would begin during Year 1; note, however, that channel improvement would continue into Year 2.

**Rancho San Antonio County Park Flood Detention Facility**

Construction of the Rancho San Antonio detention facility is expected to generate a maximum of 70-90 vehicle trips per day; however, only 30 vehicle trips per day would access the site via regional and local city streets because 40-60 truck trips would travel between the site and the Lehigh Quarry via Permanente Road. The principal arterial routes accessing the site, Foothill Boulevard and Stevens Creek Boulevard, are not identified as exceeding the City of Cupertino’s LOS standard (City of Cupertino 2005), and the comparatively small volume of traffic generated by construction at Rancho San Antonio is not expected to be sufficient to degrade existing LOS. Nonetheless, construction-related traffic could significantly affect traffic flow on these roadways,

particularly if numerous trips occur during the morning or afternoon peak traffic periods. To address these concerns, the District has committed to implement a site-specific traffic control plan, detailed in Mitigation Measure TT1.1 of the FEIR and provided below, to minimize the effects of construction traffic. With Mitigation Measure TT1.1 in place, and given the comparatively short duration of peak construction activities at the Rancho San Antonio site, impacts are expected to be less than significant. (Mitigation Measure TT1.1 has been updated since the 2010 FEIR to remove references to the Los Altos School District as a responsible agency for the proposed project and to include more measures.)

#### **Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

For each work site, the District will work with a design engineer to develop a site-specific traffic control plan to minimize the effects of construction activities and traffic on surrounding areas and roadways, bicycle and pedestrian facilities, transit services, and emergency access. The plan will be prepared with oversight by a licensed traffic engineer, and with input from school, park, and community stakeholders, and local neighborhood residents to ensure that all concerns are appropriately addressed. The plans will be subject to review and approval by the District and, as applicable, the Cities of Mountain View, Cupertino, and Los Altos (including local Police and Fire Departments), the County of Santa Clara, and the Midpeninsula Regional Open Space District prior to bidding. The District will be responsible for ensuring that the plan is effectively implemented.

All traffic control plans will include, at a minimum, information regarding working schedules and hours, allowable and restricted streets, allowable times for lane closures, emergency vehicle access, detours, and access to private and public properties, and protocol and format for providing construction updates to local agencies as agreed upon by individual agencies. All construction traffic control plans will contain the following general requirements.

- Restrict work site access to the roadways indicated on the traffic control plan.
- Prohibit access via residential streets unless expressly approved by the city with jurisdiction.
- Maintain two-way traffic flow on arterial roadways accessing active work sites except where closure is needed to accommodate construction of project facilities, or unless otherwise allowed by the city having jurisdiction. Where temporary lane closures cannot be avoided, two-way flow may be provided as flow in alternating directions, controlled by flaggers. Provide advance construction warning signage for lane closures.
- Limit lane closures to the duration and area required for safety.
- Provide a minimum of 72-hour advance notification if access to driveways or private roads will be affected. Limit effects on driveway and private roadway access to working hours and ensure that access to driveways and private roads is uninterrupted during non-work hours. If necessary, use steel plates, temporary backfill, or another accepted measure to provide access. When special needs or events require unimpaired access for local businesses and residents, 7 days advance notification will be provided.



- Include an emergency contact number for the public in the notification to provide an opportunity for the District to promptly address any access issues that arise during construction.
- Provide 30-day advance notification of necessary closures on pedestrian/bicycle trails or paths. The detour routes will be designed in conformance with the VTA Bicycle Technical Guidelines (BTG).
- Provide clearly marked pedestrian and/or trail detours if any sidewalk or pedestrian walkway or trail closures are necessary.
- Provide clearly marked bicycle detours if heavily used bicycle routes must be closed or if bicyclist safety would be otherwise compromised.
- Provide crossing guards and/or flagpersons as needed to avoid traffic conflicts and ensure pedestrian and bicyclist safety.
- Use nonskid traffic plates over open trenches to minimize hazards.
- Locate all stationary equipment as far away as possible from areas used by vehicles, bicyclists, and pedestrians.
- Notify and consult with emergency service providers, and provide emergency access by whatever means necessary to expedite and facilitate the passage of emergency vehicles. Ensure clear emergency access to all existing buildings and facilities at all times. The District will submit emergency access plans for approval by emergency service providers in the affected areas (including local Police and Fire Departments) as part of the overall Traffic Control Plan to ensure satisfaction that normal response time parameters for emergency calls in the area can be achieved.
- Queue trucks~~Trucks shall be queued~~ only in areas allowed by the city having jurisdiction.
- Provide adequate parking for construction vehicles, equipment, and workers within the designated staging areas throughout the construction period. If adequate space for parking is not available at a given work site and staging area, provide an offsite parking area at another suitable location, and coordinate the daily transport of construction vehicles, equipment, and personnel to and from the work site as needed.
- Fences, barriers, lights, flagging, guards, and signs will be installed as determined appropriate by the public agency having jurisdiction to give adequate warning to the public of the construction and of any dangerous condition to be encountered as a result thereof.

### **New Permanente Diversion Structure**

As shown in Table 8-79, construction of the new Permanente Diversion Structure and Outlet Culvert would generate a maximum of 30 vehicle trips per day on Miramonte Avenue and/or nearby city streets. Miramonte Avenue in the study area is not identified as exceeding the City of Los Altos' LOS standard, but the increase in traffic due to construction, and the intermittent presence of heavy haul trucks, could degrade traffic operation on Miramonte Avenue or nearby city streets. With the implementation of Mitigation Measure TT1.1, ~~of the 2010 FEIR and provided below~~, and given the comparatively short duration of construction at the diversion site, impacts would be less than significant following mitigation.

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This measure is described in detail above.

**Channel Improvements: Permanente Creek**

Construction work for Permanente and Hale Creek channels is expected to begin one after another, with the widening of Permanente Creek channel beginning in Year 1 and the widening of Hale Creek beginning in Year 2. As shown in Table 8-79, channel improvement on Permanente and Hale Creeks would generate a maximum of 30 vehicle trips per day on local roadways and regional highways. The addition of 30 trips per day on local neighborhood streets adjacent to the channel would be a relatively small increase in daily traffic volumes and unlikely to degrade the existing LOS. However, the addition of heavy trucks and other construction traffic could impair the operation of these roadways.

The Springer Road/El Monte Avenue and Springer Road/Fremont Avenue intersections have been identified by the City of Los Altos as congested and are currently functioning below the minimum acceptable LOS (D). The addition of construction traffic, particularly heavy trucks, traveling through these intersections could further worsen intersection function, potentially rising to the level of a significant impact.

To address the potential impacts on local neighborhood streets adjacent to the channel and at Springer Road/El Monte Avenue and Springer Road/Fremont Avenue intersections, the District will implement Mitigation Measures TT1.1 and TT1.2; with this mitigation in place, impacts would be less than significant.

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This measure is described in detail above.

**Mitigation Measure TT1.2—Require All Construction Traffic to Avoid the Springer Road/El Monte Avenue and Springer Road/Fremont Avenue Intersections at Peak Traffic Hours**

The District will require all construction traffic to avoid the Springer Road/El Monte Avenue and Springer Road/Fremont Avenue intersections at peak traffic hours, ~~unless directed otherwise by the City of Los Altos~~ Impacts at these intersections are adequately minimized by the selection of alternate routes included in the Traffic Control Plan described in Mitigation Measure TT1.1.

**Floodwalls and Levees downstream of US-101**

As shown in Table 8-79, construction of the floodwalls and levees downstream of US-101 would generate a combined maximum of 30 vehicle trips per day on Amphitheatre Parkway, Charleston Road, Shoreline Boulevard, and regional highways. The addition of 30 trips per day would be a relatively small increase in daily traffic volumes, unlikely to degrade existing LOS. However, the addition of heavy trucks and other construction traffic could impair the operation of these roadways. To address this concern, the District has committed to implement Mitigation Measure TT1.1 of the 2010 FEIR. With this measure in place, and given the comparatively small number of trips generated and the short duration of peak construction activities, impacts are expected to be less than significant.

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This measure is described in detail above.

## Year 2 Project Elements

As shown in Table 8-78, the project elements proposed for construction during Project Year 2 (including continued work on the channel improvements element) would generate a combined maximum of ~~390-83~~ to 243 vehicle trips per day and 30 to 42 vehicles trips during peak hours on ~~regional highways~~ SR 82 and a maximum of 15 vehicle trips per day and 6 vehicles trips during peak hours on Foothill Expressway. This would be an increase of less than 1% in daily traffic volume, based on the AADT listed in Table 8-3.

As discussed under Existing Conditions, traffic operations at intersections along SR 82 and Foothill Expressway in the project vicinity are at LOS D or better, which is well below the CMP standard of LOS E. Project construction is anticipated to add 30 to 42 vehicle trips during peak hours on SR 82 and add 6 vehicle trips during peak hours on Foothill Expressway. The very small number of peak hour trips is unlikely to degrade the intersection operations from LOS D or better to the LOS standard (LOS F). Therefore, even with all Year 2 project elements under simultaneous construction (a worst-case scenario), construction-related traffic is not expected to significantly degrade the operation and LOS of regional highways.

The following paragraphs provide additional analysis of the effects of individual project elements on local roadways in proximity to individual project element sites.

### Channel Improvements: Hale Creek

Channel improvement is discussed in detail under Year 1, because construction on this project element would begin in Year 1 and continue into Year 2. Mitigation Measures TT1.1 and TT1.2 applied to channel improvement in Year 1 would also be applied to channel improvement work in Year 2.

Channel improvement would replace the existing bridges over Hale Creek with culverted at-grade crossings on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Springer Road, Cuesta Drive, and Arboleda Drive. Temporary road closures on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Cuesta Drive, and Arboleda Drive would be required to accommodate construction of new bridges and the storm drain. Bridge replacement on Springer Road would be constructed with precast culverts in two or three sections and would only require temporary lane closures during the construction. To minimize the traffic impacts as a result of road and lane closures, only one bridge would be replaced at a time.

As shown in Table 8-79, construction of each bridge would generate a maximum of about 30 vehicle trips per day, and by itself, would not be expected to significantly impair area traffic flow or degrade existing LOS. However, bridge construction would require temporary closure of these affected roads and temporarily shifting existing traffic to adjacent roadways. The resulting inconvenience and delay to drivers, and potential disruption of emergency response, could rise to the level of a significant impact, but implementation of Mitigation Measure TT1.1 ~~of the 2010 FEIR and Mitigation Measures TT1.2,~~ and TT1.3 would reduce impacts to a less-than-significant level. (Please note that Mitigation Measure TT1.3 has been revised since the FEIR to identify bridge crossings beyond Mountain View Avenue that would be affected by the proposed project.)

### Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan

This measure is described in detail above.

**Mitigation Measure TT1.2—Require All Construction Traffic to Avoid the Springer Road/El Monte Avenue and Springer Road/Fremont Avenue Intersections at Peak Traffic Hours**

This measure is described in detail above.

**Mitigation Measure TT1.3—Provide Detour Plan to Reroute Traffic, Bicyclists, and Pedestrians on Existing Bridges during Construction of Creek Crossings**

The District will work with the Cities of Mountain View and Los Altos to develop a detour plan for vehicle traffic, bicyclists, and pedestrians rerouted from bridges crossing on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Springer Road, Cuesta Drive, and Arboleda Drive during construction of these culvert crossings over Hale Creek. The detour plan will be subject to approval by the Police and Fire Departments to ensure satisfaction that normal response time parameters for emergency calls in the area can be achieved. The detour plan will be included in the traffic control plan(s) for these project elements, and the District will be responsible for proper implementation. The detour route(s) will be designed to provide efficient access and ensure that emergency service is not impaired, while minimizing corollary impacts on other area roadways. Detour route(s) will be clearly marked with signage. Signage announcing the closure and detour will be posted at least 2 weeks in advance of closure. An emergency contact number for the public will be included in the notification to provide an opportunity for the District to promptly address any access or travel delay issues along the detour routes during the closures.

**Cuesta Annex Flood Detention Facility**

~~Construction of the Cuesta Annex flood detention facility would generate 105 vehicle trips per day. For regional highways, this would be a relatively small increase in daily traffic volume compared to the AADT listed in Table 8-3. Therefore, this construction-related traffic is not expected to significantly degrade the operation of most regional highways or arterial roadways.~~

~~In the immediate site vicinity, traffic generated by construction of the Cuesta Annex Flood Detention Facility is expected to use Grant Road, Miramonte Avenue, and Cuesta Drive. In light of their identified AADT, the addition of 105 trips per day on these roadways is not expected to degrade existing LOS, except on Grant Road. Grant Road north of Cuesta Drive is already considered to operate in exceedance of the City of Mountain View's LOS standard (City of Mountain View 1999). The addition of construction traffic, particularly heavy trucks, could result in further substantial impairment of traffic flow on Grant Road. To address this concern, the District committed to implement Mitigation Measures TT1.1, TT1.4, TT1.5, and TT1.6 in the 2010 FEIR. Mitigation Measures TT1.1, TT1.4, TT1.5, and TT1.6 include all feasible measures identified to date; no additional feasible measures are available. Therefore, traffic flow impacts related to construction traffic use of Grant Road are considered significant and unavoidable. Impacts on other area roadways could also be significant and unavoidable, depending on construction scheduling, routing, and the number of trips added to individual roadways.~~

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

~~This measure is described in detail above.~~

**Mitigation Measure TT1.4—Require All Construction Traffic to Avoid Grant Road at Peak Traffic Hours**

~~The District will require all construction traffic to avoid using Grant Road during peak traffic hours, unless directed otherwise by the City of Mountain View. The District will be responsible for ensuring adherence to this measure.~~

**Mitigation Measure TT1.5—Require All Construction Traffic to Avoid the Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours**

The District will require all construction traffic to avoid the intersection of Miramonte Avenue and Marilyn Drive at peak traffic hours, unless directed otherwise by the City of Mountain View.

**Mitigation Measure TT1.6—Require All Construction Traffic to Avoid the Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours**

The District will require all construction traffic to avoid the intersection of Cuesta Drive and Miramonte Avenue at peak traffic hours, unless directed otherwise by the City of Mountain View.

**McKelvey Park Flood Detention Facility**

As shown in Table 8-78, construction of the detention facility at McKelvey Park in combination with the Hale Creek channel would generate a combined maximum of 185-83 to 243 vehicle trips per day and 30 to 42 vehicles trips during peak hours on SR 82. For regional highways, this would be a relatively small increase in daily traffic volume compared to the AADT listed in Table 8-3. Traffic operations at intersections along SR 82 in the project vicinity are at LOS D or better, which is well below the CMP standard of LOS E. The very small number of peak hour trips is unlikely to degrade the intersection operations from LOS D or better to the LOS standard (LOS F). Therefore, this construction-related traffic is not expected to significantly degrade the operation of most regional highways or arterial roadways.

In the immediate site vicinity, traffic generated by construction of the McKelvey Park flood detention facility Flood Detention Facility is expected to use Miramonte Avenue, Park Drive, and Mountain View Avenue. In light of their identified AADTAs shown in Table 8-9, the construction is anticipated to add 18 to 29 peak hour vehicle trips on these street segments during the 3-month peak excavation at McKelvey Park, and add 12 peak hour vehicle trips after the excavation work is completed. The addition of 185 trips per day construction trips on these roadways is not expected to degrade existing LOS. However, the addition of heavy trucks and other construction traffic could impede traffic flow. To address this concern, the District has committed to implement Mitigation Measures TT1.1 and TT1.6 in the 2010 FEIR. With these this measures in place, and given the comparatively small number of trips generated and the short duration of peak construction activities, impacts are expected to be less than significant following mitigation.

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This measure is described in detail above.

**Mitigation Measure TT1.6—Require All Construction Traffic to Avoid the Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours**

This measure is described in detail above.

**Cuesta Annex Inlet/Outlet Pipes and McKelvey Park Outlet Pipe**

As shown in Table 8-79, construction of the Cuesta Annex Inlet and Outlet Culverts and McKelvey Park Outlet Pipe together with the McKelvey Park Flood Detention Facility would generate a combined maximum of 35 vehicle trips per day on Grant Road, Miramonte Road, Cuesta Drive, Mountain View Avenue, and Park Drive, and regional highways. Grant Road north of Cuesta Drive was identified to operate in exceedance of the City of Mountain View's LOS standard (City of Mountain View 1999). Miramonte Road, Cuesta Drive, Mountain View Avenue,

and Park Drive were not identified as exceeding the applicable LOS standard. Regardless, the small number of trips generated by pipe construction is unlikely to degrade the existing LOS. However, the addition of heavy trucks and other construction traffic could impair the operation of these roadways, and in addition to generating traffic, ~~culvert pipe~~ construction would require lane closures and would temporarily decrease road capacity on ~~Cuesta Drive and Park Drive~~. To address these concerns, the District has committed to implement Mitigation Measures ~~TT1.1, TT1.4, TT1.5, and TT1.6~~. With ~~these~~ this measures in place, and given the small number of trips generated and the comparatively short duration of peak construction activities along any given segment of the culvert alignment, impacts related to lane closures are expected to be less than significant following mitigation.

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This measure is described in detail above.

**Mitigation Measure ~~TT1.4—Require All Construction Traffic to Avoid Grant Road at Peak Traffic Hours~~**

~~This measure is described in detail above.~~

**Mitigation Measure ~~TT1.5—Require All Construction Traffic to Avoid the Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours~~**

~~The measure is described in detail above.~~

**Mitigation Measure ~~TT1.6—Require All Construction Traffic to Avoid the Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours~~**

~~This measure is described in detail above.~~

### Parking

Construction parking impacts could be significant. However, Mitigation Measure TT1.1 would assure that impacts related to creation of inadequate parking conditions or violation of parking policies or regulations would be less than significant. The mitigation measure requires that ~~During~~ during the construction, the District will provide parking on the worksite or in neighboring District ROW areas for most project elements. If onsite parking is insufficient, the District will require contractors to provide offsite parking and daily transport for construction vehicles, equipment, and personnel, as described in Mitigation Measure TT1.1 ~~of the 2010 FEIR~~. Mitigation Measure TT1.1 will also prohibit construction-related ~~construction related~~ parking on city streets and in residential areas. ~~With Mitigation Measure TT1.1 in place, impacts related to creation of inadequate parking conditions or violation of parking policies or regulations would be less than significant.~~

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This measure is described in detail above.

The Project will result in a modification of the existing parking area in the Rancho San Antonio County Park. However, the modification would not result in the change of existing vehicle parking spaces. New replacement parking would be constructed in advance of disrupting/demolishing the existing parking area. Therefore, the modification would not result in a significant impact on parking demand at the park.

McKelvey Park and the associated parking lot would be temporarily closed for public use during the construction of the flood detention facility. A new parking lot would be constructed before the

park is open to public. Therefore, the modification would not result in a significant impact on parking demand at the park.

**Property Access**

Construction of the McKelvey Park Outlet Pipe and Hale Creek channel would require temporary closures of lanes or roads to perform construction work on the street. McKelvey Park Outlet Pipe construction would require lane closures on Park Drive. Hale Creek channel construction would require road closures at bridge replacement locations on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Cuesta Drive, and Arboleda Drive Channel construction would also require lane closures at the bridge replacement location on Springer Road and lane closures for pipe construction on Springer Road.

The temporary closures of lanes or roads could interrupt driveway access for homes and businesses located adjacent to the construction sites. Therefore, the impact on property access would be potentially significant for homes and business adjacent to the closure locations. To address these concerns, the District has committed to implement Mitigation Measure TT1.1. With this measure in place, the District will maintain access to individual homes, businesses, and community facilities at all times during construction by coordinating construction activities and schedules with individual homes, businesses, and community facilities. If necessary, steel plates, temporary backfill, or another accepted measure will be used to provide access. Therefore, the impact on property access would be less than significant with Mitigation Measure TT1.1.

**Impact TT2—Potential to Conflict with an Applicable Congestion Management Program**

<b>Summary by Project Element: Impact TT2—Conflict with an Applicable Congestion Management Program</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level<sup>4</sup></b>
All Elements	Less than Significant	Less than Significant

Segments of US-101, SR 85, ~~SR 237~~, and I-280 in the study area operate at LOS F during the peak hours, which meet CMP LOS standard of LOS F. ~~Because these segments were operating at LOS F in 1991 (the date when the CMP was adopted), an LOS standard of LOS F was determined for these segments.~~ Based on the traffic LOS threshold defined by the CMP, for segments that operate at LOS F, the added vehicle trips by the Project should not be more than 1% of the peak hour freeway capacity (Santa Clara Valley Transportation Authority 2009).

<sup>4</sup> As discussed in *Methods and Significance Criteria*, impact analysis focused on construction-generated traffic because operation and maintenance of the project facilities would generate a very small number of vehicle trips at periodic intervals. Traffic generation would not differ materially from current maintenance traffic levels at these project facilities.

As discussed in Impact TT1 above, the construction vehicle trips generated from project elements would result in an increase of less than 1% ~~in-of peak hour capacity daily traffic volume~~ on regional highways in the study area. Therefore, the Project is not expected to significantly degrade the operation of regional highways or to conflict with any applicable CMP.

Traffic operations at CMP intersections along SR 82 and Foothill Expressway in the project vicinity are at LOS D or better, which is well below the CMP standard of LOS E. As discussed in Impact TT1 above, the very small number of peak hour trips added by the project elements is unlikely to degrade the intersection operations from LOS D or better to the LOS standard (LOS F).

### Impact TT3—Potential to Create Traffic Safety Hazards

Summary by Project Element: Impact TT3—Traffic Safety Hazards		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level <sup>5</sup>
All Elements	Less than Significant with Mitigation	No Impact

For all project elements, the presence of large, slow-moving construction-related vehicles and equipment among the general-purpose traffic on roadways in the project area could result in safety hazards. ~~At Cuesta Annex the remainder of Cuesta Annex would remain in operation during construction at the Annex, additional hazards could result from the presence of heavy construction traffic at a site regularly accessed by pedestrians and bicyclists.~~ To address the potential for safety hazards related to construction traffic, the District will implement Mitigation Measure TT1.1 ~~in the 2010 FEIR.~~ The traffic control plan specified in Mitigation Measure TT1.1 will be developed in coordination with school, park, and community stakeholders, ensuring that all safety needs are identified and addressed. With the implementation of this measure, impacts related to traffic safety are expected to be less than significant.

#### Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan

This measure is described in detail above.

<sup>5</sup> As discussed in *Methods and Significance Criteria*, impact analysis focused on construction-generated traffic because operation and maintenance of the project facilities would generate a very small number of vehicle trips at periodic intervals. Traffic generation would not differ materially from current maintenance traffic levels at these project facilities.



## Impact TT4—Potential to Obstruct Emergency Access

Summary by Project Element: Impact TT4—Emergency Access		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level <sup>6</sup>
All Elements	Less than Significant with Mitigation	No Impact

Slow-moving construction trucks could potentially delay or obstruct the movement of emergency vehicles on area roadways. At project work areas, where lane closures are required for pipe installation or where roadway closures are required for bridge demolition and replacement as part of the channel improvement project, construction would have the potential to significantly affect emergency vehicle access. However, the site-specific traffic control plan required under Mitigation Measure TT1.1 ~~described in the 2010 FEIR will include~~ would reduce this impact to a less-than-significant level. It includes provisions to ensure unrestricted access and passage for emergency vehicles. In addition, as discussed in Impact TT1, the District is committed to working with the Cities of Mountain View and Los Altos to develop a detour plan that includes provisions for emergency response vehicle traffic routed around the bridge crossing sites (Mitigation Measure TT1.3). With the implementation of Mitigation Measures TT1.1 in the 2010 FEIR and the Mitigation Measure TT-1.3, described above, impacts on emergency access are expected to be less than significant.

### Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan

This measure is described in detail above.

### Mitigation Measure TT1.3—Provide Detour Plan to Reroute Traffic, Bicyclists, and Pedestrians on Existing Bridges during Construction of Creek Crossings

This measure is described in detail above.

## Impact TT5—Potential to Conflict with Alternative Transportation

Summary by Project Element: Impact TT5—Conflict with Alternative Transportation		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level <sup>7</sup>
All Elements	Less than Significant with Mitigation	No Impact

<sup>6</sup> As discussed in *Methods and Significance Criteria* above, impact analysis focused on construction-generated traffic because operation and maintenance of the project facilities would generate a very small number of vehicle trips at periodic intervals. Traffic generation would not differ materially from current maintenance traffic levels at these project facilities.

<sup>7</sup> As discussed in *Methods and Significance Criteria* above, impact analysis focused on construction-generated traffic because operation and maintenance of the project facilities would generate a very small number of vehicle trips at periodic intervals. Traffic generation would not differ materially from current maintenance traffic levels at these project facilities.

Construction of the proposed project would not result in any physical changes to the transportation system or traffic operations that would affect transit or nonmotorized transportation. Therefore, there would be no impact related to such conflicts, and no mitigation is required.

On construction-affected roadways that do support transit and/or bikeways, lane closures during pipe installation and resulting modifications in traffic patterns could result in significant conflicts with bus and bicycle traffic. However, lane closures would be restricted in length (no more than 200 feet long in general) and short in duration, and Mitigation Measure TT1.1 in the 2010 FEIR would provide specifics for all closures, including approaches to maintain safe, efficient passage for transit and bicyclists, assuring these conflicts with transit and bikeways as a result of construction closures would be less than significant.

Temporary road closure for bridge demolition and replacement as part of the channel improvement project would not affect transit service or bikeway facilities on most of these bridges, except on Cuesta Drive bridge where both transit service and a bike lane are provided. As discussed in Impact TT1, the District is committed to developing a detour plan for road users routed around the bridge crossing sites (Mitigation Measure TT1.3). With Mitigation Measures TT1.1 and TT1.3 in place, impacts related to these conflicts with alternative transportation transit and bikeways as a result of construction closures are expected to be less than significant.

Temporary lane closures during construction of the McKelvey Park Outlet Pipe on Park Drive and the Hale Creek channel on Springer Road could also result in temporary sidewalk closures on these roads and could affect the pedestrian circulation adjacent to the construction sites. Road closures during construction of the Hale Creek bridges on Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Cuesta Drive, and Arboleda Drive would also affect the pedestrian access and circulation at the bridge replacement locations. Pedestrian travel impacts could, therefore, be significant during project construction. As discussed in Impact TT1, the District is committed to developing a detour plan for road users routed around the bridge crossing sites (Mitigation Measure TT1.3). With Mitigation Measures TT1.1 and TT1.3 in place, impacts related to conflicts with pedestrian access as a result of construction closures are expected to be less than significant.

During the construction of the McKelvey Park Flood Detention Facility, the park (including pedestrian pathways, the parking lot, and ball fields) would close to the public. On-street sidewalks will be maintained for pedestrian circulation. If any on-street sidewalk or pedestrian walkway closures are necessary during construction of the McKelvey Park Flood Detention Facility, pedestrian travel impacts would be significant, but Mitigation Measures TT1.1 and TT1.3 will be implemented to provide clearly marked pedestrian detours and assure these impacts are less than significant.

In summary, with Mitigation Measures TT1.1 and TT1.3 in place, potentially significant impacts related to conflicts with all forms of alternative transportation (transit, biking, and pedestrian) as a result of construction closures would be less than significant.

#### **Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This measure is described in detail above.

**Mitigation Measure TT1.3—Provide Detour Plan to Reroute Traffic, Bicyclists, and Pedestrians on Existing Bridges during Construction of Creek Crossings**

This measure is described in detail above.

Construction of the proposed floodwalls would require temporary closure of the trail along the west bank of Permanente Creek. However, the trail along the east bank would remain open to pedestrians and bicyclists. Therefore, there would be no impact on alternative transportation, and no mitigation is required.

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# CHAPTER 9. NOISE AND VIBRATION

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Acceptable levels of environmental noise are regulated at the local level through the general plan process and city and county noise ordinances. Groundborne vibration is not regulated explicitly, although the Federal Transit Administration (FTA) has identified thresholds at which vibration becomes a concern (annoying and/or damaging) (Federal Transit Administration 2006). Local regulations have also been established by Santa Clara County, the City of Los Altos, the City of Mountain View, and the City of Cupertino. For additional information, see Appendix B of this SEIR.

### *BACKGROUND*

#### Terminology

- **Sound.** A vibratory disturbance transmitted by pressure waves through a medium such as air and capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A measure of sound intensity based on a logarithmic scale that indicates the squared ratio of actual sound pressure level to a reference sound pressure level (20 micropascals).
- **A-Weighted Decibel (dBA).** A measure of sound intensity that is weighted to take into account the varying sensitivity of the human ear to different frequencies of sound. The dBA scale is the most widely used for environmental noise assessments.
- **Equivalent Sound Level ( $L_{eq}$ ).**  $L_{eq}$  represents an average of the sound energy occurring over a specified period. In effect,  $L_{eq}$  is the steady-state sound level that would contain the same acoustical energy as the time-varying sound that actually occurs during the monitoring period. The 1-hour A-weighted equivalent sound level ( $L_{eq}$  1h) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- **Maximum and Minimum Sound Levels ( $L_{max}$ ,  $L_{min}$ ).** The maximum ( $L_{max}$ ) and minimum ( $L_{min}$ ) sound levels measured during a monitoring period.
- **Day-Night Level ( $L_{dn}$ ).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with a 10 dB penalty added to sound levels between 10 p.m. and 7 a.m.
- **Peak Particle Velocity (PPV).** A measurement of ground vibration defined as the maximum speed at which a particle in the ground is moving, expressed in inches per second (in/sec).
- **Vibration Velocity Level (or Vibration Decibel Level, VdB).** The root mean square velocity amplitude for measured ground motion expressed in dB.

## Sound and Noise

Typical A-weighted noise levels for various types of sound sources are summarized in Table 9-1.

**Table 9-1. Typical A-Weighted Sound Levels**

Sound Source	Sound Level (dBA)	Typical Response
Carrier deck jet operation	140	Painfully loud
Limit of amplified speech	130	
Jet takeoff (200 feet)	120	Threshold of feeling and pain
Auto horn (3 feet)		
Riveting machine	110	Very annoying
Jet takeoff (2,000 feet)		
Shout (0.5 foot)	100	
New York subway station		
Heavy truck (50 feet)	90	Hearing damage (8-hour exposure)
Pneumatic drill (50 feet)		
Passenger train (100 feet)	80	Annoying
Helicopter (in flight, 500 feet)		
Freight train (50 feet)		
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet)	60	
Light auto traffic (50 feet)		
Normal speech (15 feet)	50	Quiet
Living room, Bedroom, Library	40	
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

Source: Federal Transit Administration 2006.

Urban noise commonly represents the combined sound level contributed by several individual sources—different pieces of equipment operating on a construction site, for instance. However, the individual dB ratings for different noise sources cannot be added directly to give the sound level for the combined noise source. Instead, the combined noise level produced by multiple noise sources is calculated using logarithmic summation. For example, if one bulldozer produces a noise level of 80 dBA, then two bulldozers operating side by side would generate a combined noise level of 83 dBA (only 3 dBA louder than the single bulldozer), not 160 dBA.

In general, human sound perception is such that a change in sound level of 3 dB is just noticeable; a change of 5 dB is clearly noticeable; and a change of 10 dB is perceived as doubling or halving the sound level. A doubling of actual sound energy is required to result in a 3 dB (i.e., barely noticeable) increase in noise; in practice, for example, this means that the volume of traffic on a roadway typically needs to double to result in a noticeable increase in noise.

Sound perception also depends on whether a new sound is similar to existing sounds in an area. Most people cannot detect differences of 1 to 2 dB between noise levels of a similar nature (for example, a 1 dB increase in traffic noise compared to existing traffic noise). However, under ideal listening conditions, some people can detect differences of 2 or 3 dB, and most people under normal listening conditions would probably perceive a 5 dB change in sounds of a similar nature. When a new, intruding sound is of a different nature than the background sound (for example, a car alarm compared to quiet residential sounds), most people can detect changes as small as 1 dBA.

When distance is the only factor considered, sound levels from isolated point sources of noise typically decrease by about 6 dB for every doubling of distance from the noise source. When the noise source is a continuous line, such as vehicle traffic on a highway, sound levels decrease by about 3 dB for every doubling of distance. Noise levels can also be affected by several factors other than the distance from the noise source. Topographic features and structural barriers that absorb, reflect, or scatter sound waves can affect the reduction of noise levels. Atmospheric conditions (wind speed and direction, humidity levels, and temperatures) and the presence of dense vegetation can also affect the degree of sound attenuation.

## Groundborne Vibration

In addition to generating noise, traffic and heavy construction equipment can generate groundborne vibration. The effects of groundborne vibration include perceptible movement of the building floors and walls, rattling of windows, and rumbling sounds. The overall effect of vibration caused by construction activities is generally limited only to people living close to the vibration sources. Building damage can also occur but only at exceptionally high vibration levels not commonly encountered except for vibration-sensitive structures very close to large vibration sources.

The average ground velocity of the vibratory motion generally quantifies vibration caused by transit projects and construction activities such as blasting, pile driving, and heavy construction equipment. Such vibration is commonly described as a “vibration decibel level” (VdB) (Federal Transit Administration 2006). Vibration levels in the United States are commonly measured as VdB relative to a reference velocity of 1 microinch ( $\mu$  inch) per second to assess the potential for human annoyance. Table 9-2 summarizes the typical groundborne vibration levels and average human response to vibration that may be anticipated when a person is at rest in quiet surroundings. If the person is engaged in any type of physical activity, vibration tolerance increases considerably. Vibration can be felt or heard well below the levels that produce any damage to structures. The duration of the event has an effect on human response, as does its daily frequency of occurrence. Generally, as the duration and frequency of occurrence increase, the potential for adverse human response increases.

In addition to annoyance/nuisance factors, another major concern associated with construction vibration is the potential for building or structural damage. This assessment is typically made based on PPV, measured in in/sec (Federal Transit Administration 2006). Caltrans identifies the limit for potential cosmetic damage to plaster-walled residences as 0.2 in/sec PPV (California Department of Transportation 2004).



**Table 9-2. Typical Levels of Groundborne Vibration**

Velocity Vibration Level (VdB)	Typical Sources	Human or Structural Response
50	Typical background vibration	None; below typical threshold of perception
65	Bus or truck on public road, 50 feet away	Approximate threshold of human perception
80	Railroad train, 50 feet away	Threshold for residential annoyance for occasional events
90	Bulldozer, 50 feet away	Difficulty in reading computer screen
100	Blasting from construction project, 50 feet away	Cosmetic damage to fragile buildings

Source: Federal Transit Administration 2006.

## EXISTING CONDITIONS

Ambient noise environment in the project vicinity was identified based on the land uses present and published studies of noise levels at similar land uses (Federal Transit Administration 2006). Noise sensitive land uses were identified based on site reconnaissance and aerial photo images of the project vicinity.

The project corridor is located along and near portions of Permanente and Hale Creeks within Santa Clara County and the cities of Mountain View, Los Altos, and Cupertino. Land uses in the project vicinity include residential areas, schools, and parks, with some light industrial/high tech businesses in the downstream portion of the area.

Principal noise sources in the project vicinity include local and regional street traffic and lawn care equipment (e.g., lawn mowers, chain saws, leaf blowers, and “weed whackers”), along with occasional dog barks, fire and police sirens, and aircraft. Residences adjacent to schools and parks also experience noise generated by athletic events. Typical background noise levels in suburban residential areas are 50–60 dBA  $L_{dn}$ . Background noise levels in urban residential areas, such as downtown Mountain View, are typically higher, between 60 and 70 dBA  $L_{dn}$  (Federal Transit Administration 2006).

Noise-sensitive land uses<sup>1</sup> in the project vicinity include residential neighborhoods, hospitals, and schools. Parks in the project area support both active and passive recreation and are not considered noise-sensitive uses.

<sup>1</sup> *Noise-sensitive land uses* are areas where the presence of unwanted sound could adversely affect the use of the land, including residences, hospitals, schools, guest lodgings, libraries that have outdoor seating areas, and certain types of recreational uses.

# IMPACT ANALYSIS

## METHODS AND SIGNIFICANCE CRITERIA

Construction of the Project would require the use of heavy equipment that would temporarily increase noise and/or groundborne vibration levels at properties near the work sites. After the Project is constructed, project maintenance would likely require periodic use of smaller equipment to clean detention sites, channels, and culverts; however, the work would be much less extensive and would take place over a much shorter period (several hours or days) than project construction (months). Therefore, the analysis of noise impacts focused primarily on noise generation during construction of each Project element.

Table 9-3 presents typical noise levels for various types of construction equipment. The noise levels listed represent the A-weighted  $L_{max}$ , measured at a distance of 50 feet from the construction equipment. The table also lists typical acoustical use factors for the equipment (Federal Highway Administration 2006). The acoustical use factor is the percentage of time each piece of construction equipment is assumed to be operating at full power (i.e., its noisiest condition) during construction operation and is used to estimate  $L_{eq}$  values from  $L_{max}$  values. For example the  $L_{eq}$  value for a piece of equipment that operates at full power 50% of the time (acoustical use factor of 50) is 3 dB less than the  $L_{max}$  value.

**Table 9-3. Typical Maximum Noise Emission Levels by Construction Equipment**

Equipment	Acoustical Use Factor (%)	Typical Maximum Noise Level (dBA) 50 feet from Source
Backhoe	40	78
Bulldozer	40	82
Concrete mixer truck	40	79
Concrete pump truck	20	81
Crane	16	81
Dump truck	40	76
Excavator	40	81
Loader	40	79
Jackhammer	20	89
Impact pile driver	20	101
Pumps	50	81
Street sweeper	10	82

Source: Federal Highway Administration 2006.

Table 9-4 summarizes typical vibration levels generated by construction equipment (Federal Transit Administration 2006).

**Table 9-4. Vibration Source Levels for Construction Equipment**

Equipment	PPV at 25 feet (in/sec)	Approximate VdB at 25 feet
Pile driver (impact)	0.644–1.518	104–112
Pile driver (sonic)	0.170–0.734	93–105
Vibratory roller	0.210	94
Hoe ram	0.089	87
Large bulldozer	0.089	87
Caisson drilling	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

Source: Federal Transit Administration 2006.

Although construction of some project elements would overlap, the construction noise impacts for each project element were evaluated separately because the work sites are located at least 0.5 mile apart and therefore would represent separate noise sources.

For each project element, noise levels were calculated assuming continuous operation of the three loudest pieces of equipment for a 1-hour period. In reality, construction activities would likely be intermittent, so actual noise levels could be somewhat lower than the estimated values. On larger work sites, where more than one of the same type of equipment may be used (multiple excavators at sites requiring extensive earthwork, for instance), equipment was assumed to spread out over the site. That is, three excavators are not expected to operate in close proximity to one another; a more likely configuration, reflected in the modeling assumptions, is one excavator, one loader, and one large dump truck.

Noise levels decrease with increasing distance from the noise source; the noise level calculations include a geometric point-source attenuation rate of 6 dB per doubling of distance, molecular absorption of 0.7 dB per 1,000 feet (Hoover and Keith 2000), and additional attenuation resulting from ground absorption (Federal Transit Administration 2006). However, any shielding effects that may result from local barriers such as topography, fences, vegetation, etc., are not incorporated, so the modeled noise levels represent a conservative or “worst-case” estimation.

Haul traffic would be routed on main arterial roadways, but access to some of the project work sites would require haul trucks to pass homes. To evaluate noise impacts related to haul traffic, the Federal Highway Administration (FHWA) Traffic Noise Model (TNM) Version 2.5 Lookup Tables were used to compare noise levels caused by heavy trucks to background ambient noise.

Like noise, vibration also attenuates with increasing distance, as a complex function of energy transfer into the ground, and the soil conditions through which the vibration is transmitted. Calculations of vibration attenuation followed standard FTA methods (Federal Transit Administration 2006).

Analysis assumed that construction would be limited to daytime hours,<sup>2</sup> from 7 a.m. to 7 p.m., Monday through Friday (see *Best Management Practices* section in Chapter 2). Some work could also take place on Saturdays between 7 a.m. and 7 p.m., if this is necessary to expedite the construction process. Extending weekday or Saturday hours, working Sundays, and working on legal holidays will require approval by the public agencies with jurisdiction. The arrival and departure of trucks hauling material will be limited to the hours of construction.

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance, as follows. Where two standards are relevant (for example, noise generated on County-owned land but potentially affecting residents of a nearby incorporated area), the more stringent standard was applied.
  - Construction noise limits are 75 dBA for residential areas dominated by single- and two-family residences, 80 dBA for multifamily residential areas, and 85 dBA for commercial uses in Santa Clara County and the City of Los Altos.
  - The City of Cupertino's construction noise limit is 80 dBA at any nearby property.
  - The City of Mountain View does not have specific construction noise standards; the County noise limits were applied in Mountain View for the purpose of this CEQA analysis.
  - Construction noise generated at any time other than daytime hours, Monday through Saturday.
- Exposure of persons to or generation of groundborne vibration levels in excess of 80 VdB (the FTA "annoyance threshold" for infrequent vibration events per Federal Highway Administration 2006).
- Exposure of buildings or structures to groundborne vibration levels in excess of 0.2 in/sec PPV (FTA threshold for non-engineered timber and masonry buildings per Federal Highway Administration 2006).
- Substantial temporary increase in existing ambient noise levels from project-related trucking (5 dB increase based on clearly noticeable change described above)
- Substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the Project, including the following.
  - Noise creating substantial annoyance or disruption to adjacent land uses.
  - Substantial traffic noise increase, as defined by Caltrans (an increase of 12 dBA or more) (California Department of Transportation 2011).<sup>3</sup>

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by text analysis.

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<sup>2</sup> Note that the daytime hours between 5:00 p.m. and 7:00 p.m. may be dark during the winter months.

<sup>3</sup> Caltrans uses its "substantial noise increase" criterion to assess the need for noise mitigation for new roadway projects. The Project is not a roadway construction project, so the Caltrans criterion is not applicable for regulatory purposes, but it offers a relevant indicator of potential noise impacts caused by increased traffic on public roads. Traffic noise was estimated using the FHWA's TNM Version 2.5 Lookup Tables.

## IMPACTS AND MITIGATION MEASURES

### Impact NV1—Noise Levels in Excess of Applicable Standards

Summary by Project Element: Impact NV1—Noise Levels in Excess of Applicable Standards		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	Less than Significant with Mitigation	Less than Significant
Cuesta Annex Flood Detention Facility (including Cuesta Annex Inlet/Outlet Pipes)	Significant and Unavoidable	Less than Significant
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacements)	Significant and Unavoidable	Less than Significant
McKelvey Park Flood Detention Facility (including McKelvey Park Outlet Pipe)	Significant and Unavoidable	Less than Significant
Floodwalls and Levees downstream of US-101	Less than Significant	Less than Significant

### Construction

#### Flood Detention Facilities

Construction of each flood detention facility would last approximately 1 year, with the construction activities occurring between 4 and 6 months during site excavation. Construction equipment used for site excavation would include three excavators, two loaders, one backhoe, one water truck, and one street sweeper. In addition to this equipment, large capacity dump trucks (20 cubic yards [cy]) would be used to haul off the excavated materials. Table 9-5 shows estimated construction noise for excavation of the flood detention basins, which assumed simultaneous and continuous operation of the three loudest pieces of equipment for a 1-hour period, as described above under *Methods and Significant Criteria*. The input and output data for operation noise calculations are included in the Appendix C.

The Rancho San Antonio County Park Flood Detention Facility would be located adjacent to residential neighborhoods in the unincorporated county and in the City of Cupertino. Noise sensitive land uses adjacent to Rancho San Antonio County Park include single-family homes, a cemetery, and a seminary. The distance between the nearest homes and the construction activities at the proposed detention site in the park would range from approximately 100 to greater than 1,600 feet. As shown in Table 9-5, construction activity at this site would generate maximum noise levels of about 72 dBA  $L_{eq}$  at the nearest homes, which is less than the most stringent applicable construction noise limit of 75 dBA. Therefore, there would be less than significant related to the violation of applicable standards, and no mitigation is required.

**Table 9-5. Estimated Construction Noise for Flood Detention Basins**

Construction Equipment Noise Levels at 50 feet	
Equipment Type	Noise Level $L_{eq}$ (dBA)
Excavator	77
Loader	75
Backhoe	74
Combined equipment noise level	80
Calculated Noise Levels at Varying Distances	
Distance from Construction Site (feet)	Calculated $L_{eq}$ (dBA)
100	72
150	68
200	64
300	60
400	56
600	51
800	48
1,200	43
1,600	39

The ~~Cuesta Annex and McKelvey Park Flood Detention Facility site~~ flood detention sites are is located in residential Mountain View. Adjacent noise-sensitive land uses include ~~single-family homes and a hospital at the Cuesta Annex, and single-family homes at McKelvey Park.~~ Distances between the nearest homes and the construction activities at the site would range from approximately 50 to 600 feet ~~at these sites~~, depending on the location of the activity on any given day. Thus, as shown in Table 9-5, the exterior noise levels could be as high as 80 dBA during some portions of site excavation; noise levels in excess of 75 dBA  $L_{eq}$  would result in a significant impact. However, implementation of Mitigation Measures NV1.1 through NV1.4 (provided below) of the FEIR would reduce impacts to a less-than-significant level. Please note that Mitigation Measure NV1.4 has been revised since publication of the FEIR to omit the mention of school employees because construction activities are no longer planned at the Blach School under the proposed project. Mitigation Measure NV1.2 has been revised since the 2010 FEIR to include the allowable construction hours specified in the municipal codes of Mountain View and Cupertino.

#### **Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-hour Hotline to Residents**

The District will provide advance written notification of the proposed construction activities to all residences and other noise- and air quality-sensitive uses within 750 feet of the construction site. Notification will include a brief overview of the proposed project and its purpose, as well as the proposed construction activities and schedule. It will also include the name and contact information of the District's project manager or another District representative or designee responsible for ensuring that reasonable measures are implemented to address the problem (the construction noise and air quality disturbance coordinator; see Mitigation Measure NV1.3).

**Mitigation Measure NV1.2—Implement Work Site Noise Control Measures**

To reduce noise impacts, the District will require all contractors to adhere to the following measures. The District will be responsible for ensuring implementation.

- All construction equipment will be equipped with manufacturer's standard noise control devices or with equally effective replacement devices consistent with manufacturer specifications.
- Stationary noise-generating equipment will be located as far as possible from sensitive receptors, and, if feasible, will be shielded by placement of other equipment or construction materials storage.
- Contractors will be required to use ambient-sensitive backup alarms.
- In Los Altos, construction will be limited to between 7:00 a.m. to 5:30 p.m., Monday through Friday, between 9:00 a.m. and 3:00 p.m. on Saturdays, and will not occur on City-observed holidays, except for emergency work of public utilities or by special exception.
- In Cupertino, construction will be limited to between 7:00 a.m. and 8:00 p.m. on weekdays and will not occur on Saturday or Sunday or holidays, except for emergency work.
- In Mountain View, construction will be limited to between 7:00 a.m. and 6:00 p.m. on weekdays and will not occur on weekends or holidays unless prior written approval is granted by a building official.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

The District will designate a representative to act as construction noise and air quality disturbance coordinator, responsible for resolving construction noise and air quality concerns. The disturbance coordinator's name and contact information will be included in the preconstruction notices sent to area residents (see Mitigation Measure NV1.1). She or he will be available during regular business hours to monitor and respond to concerns; if construction hours are extended, the disturbance coordinator will also be available during the extended hours. In the event an air quality or noise complaint is received, she or he will be responsible for determining the cause of the complaint and ensuring that all reasonable measures are implemented to address the problem.

**Mitigation Measure NV1.4—Install Temporary Noise Barriers**

As described in Mitigation Measures NV1.1, NV1.2, and NV1.3, the District will notify noise-sensitive land uses near the site of upcoming activity before construction begins, will require construction-site noise reduction measures, and will provide a 24-hour complaint hotline. If a resident submits a complaint about construction noise and the District is unable to reduce noise levels to below the significance threshold through other means, the District will install temporary noise barriers, where feasible, to reduce noise levels below the applicable construction noise standard. Barriers will be installed as promptly as possible, and, if possible, work responsible for the disturbance will be suspended or modified until barriers have been installed. The District will include a construction bid item to provide noise barriers on-site and install noise barriers immediately in response to noise or dust concerns from the community. Following are the relevant specifications.

- The barrier will be 10 feet tall. It will surround the work area to block the line of sight for all diesel-powered equipment on the ground, as viewed from any private residence or any building.
- The barrier will be constructed of heavyweight plywood (at least 5/8 inch thick) or other material providing a Sound Transmission Classification of at least 25 dBA. (As above, note that 5/8 inch is sufficiently thick to provide optimal noise buffering; increasing the thickness of the barrier above 5/8 inch would not provide a noticeable improvement in noise reduction.)
- The barrier will be constructed with no gaps or holes that would allow noise to transmit through the barrier.
- To minimize reflection of noise toward workers at the construction site, the surface of the barrier facing the workers will be covered with sound-absorbing material that meets a Noise Reduction Coefficient of at least 0.70.

Truck traffic to and from the construction site would create additional intermittent noise at nearby residences along haul routes. However, the noise impact would be limited to several seconds of elevated noise during each truck pass. During the peak construction period at Rancho San Antonio, excavated materials would be hauled to the Lehigh Quarry located 1 mile southwest of the park via the unpaved road in the park and connecting to Permanente Road to the south. One residential home is located along the haul route at the south end of the park. Although actual haulage needs would vary depending on how fast excavation progresses, an average of ~~20-24~~ round truck trips would be needed each day to haul away excavated materials. Assuming an 8-hour workday, an average of 3 dump trucks per hour would be needed to haul away excavated soil from the site, which would add 6 additional truck trips on the haul route. Based on the FHWA TNM, the small increase in hauling truck trips would temporarily increase the ambient noise at the adjacent home along the haul route by 4 dBA  $L_{eq}$ . The noise increase related to haul traffic is, therefore, expected to be less than the 5 dB “substantial increase” criterion for temporary trucking noise.

~~At the Cuesta Annex site, 50,000 cy of material would be off-hauled, generating an average of 38 round truck trips per day on local streets adjacent to each of these sites. Assuming an 8-hour workday, this translates to 4 round truck trips or 8 total truck trips per site, which would result in a temporary increase of the ambient noise at adjacent noise-sensitive uses by 3 dBA  $L_{eq}$ . At the McKelvey Park site, 100,000 cy of material would be off-hauled, generating an average of 77-99 round trips per day for trucks on local streets adjacent to each this of these sites. Assuming an 8-hour workday, this would translate to approximately 10-12 round trips for the trucks, or 20-24 total truck trips, per hour at the site, which would result in a temporary increase in ambient noise at adjacent noise-sensitive uses of 4 dBA  $L_{eq}$ . The noise increase related to haul traffic at these this sites is thus expected to be less than the 5 dB “substantial increase” criterion for temporary trucking noise. Noise impacts related to haul traffic are considered less than significant, and no additional mitigation is required.~~

### **New Permanente Diversion Structure**

This Project element would replace the existing Permanente Diversion Structure and outlet with a new structure and outlet culvert. It is assumed that removal of the existing structure would require the use of a jack-hammer or similar impulsive noise-generating device. Construction equipment used for this Project element would include one excavator, one loader, one jack-hammer, one crane, one water truck, and one street sweeper. In addition to this equipment, a small capacity dump truck (10 cy) would be used to haul the excavated materials off-site. Using



the cut-and-cover construction method, the loudest equipment for construction of the new outlet culvert would be an excavator, a crane, and a jackhammer in simultaneous operation. Table 9-6 shows estimated construction noise for the construction of the Project element. The input and output data for operation noise calculations are included in the Appendix C.

The diversion structure site is located at the upstream end of the Permanente Diversion Channel in residential Los Altos. Noise-sensitive land uses at this site are single-family homes immediately adjacent to the Diversion Channel; distances between the nearest homes and construction activities at the site would be approximately 50 to 100 feet, translating to maximum anticipated noise levels of 76 to 84 dBA  $L_{eq}$  at the nearest homes. Consequently, noise levels could exceed the applicable limit of 75 dBA  $L_{eq}$ , representing a significant impact.

**Table 9-6. Estimated Construction Noise for New Permanente Diversion Structure**

Construction Equipment Noise Levels at 50 feet	
Equipment Type	Noise Level $L_{eq}$ (dBA)
Jackhammer	82
Excavator	77
Crane	73
Combined equipment noise level	84
Calculated Noise Levels at Varying Distances	
Distance from Construction Site (feet)	Calculated $L_{eq}$ (dBA)
100	76
150	71
200	68
300	63
400	59
600	55
800	51
1,200	46
1,600	43

Note: These noise levels also apply to the Cuesta Annex inlet/outlet culverts, McKelvey Park outlet pipe, and Hale Creek bridges, as explained in text.

Implementation of Mitigation Measures NV1.1 through NV1.4 in the FEIR and provided previously in this section would reduce impacts to a less-than-significant level.

**Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

This measure is described in detail above.

**Mitigation Measure NV1.2—Implement Work Site Noise Control Measures**

This measure is described in detail above.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above.

#### **Mitigation Measure NV1.4—Install Temporary Noise Barriers**

This measure is described in detail above.

One or two heavy trucks per day would be required to off haul excavated materials from the diversion structure site, creating up to four additional truck trips per day on local streets. Based on FHWA's TNM, the small increase in truck trips is not expected to result in an increase in ambient traffic noise levels. Noise impacts related to haul traffic would be less than significant, and no additional mitigation is required.

#### **~~Cuesta Annex Inlet and Outlet Pipes and McKelvey Park Outlet Pipe~~**

~~The new Cuesta Annex Inlet and Outlet Pipes and McKelvey Park outlet pipe would consist of a large-diameter underground pipes installed within existing public roads. Construction of each the new pipeline would take between 2 and 3 months, depending on the length of the pipe. The new pipes would be installed using conventional open trench cut-and-cover construction methods in which construction proceeds by section; construction work at each section is expected to be short term. The three loudest pieces of equipment would be the same as those assumed for the New Permanente Diversion Structure and outlet culvert—one excavator, one crane, and one jackhammer; estimated construction noise levels are shown in Table 9-6.~~

~~The new pipe alignments are is proposed for primarily residential areas in the cities of Los Altos City of and Mountain View; adjacent noise-sensitive land uses include single-family homes, churches (i.e., First Presbyterian), and schools (i.e., St. Joseph Elementary School and Saint Francis High School). In most places, distances between the nearest homes and the proposed pipe alignment would be 30 to 100 feet, depending on the specific location. As shown in Table 9-6, the exterior noise levels could be 76 to 84 dBA  $L_{eq}$  or higher when construction is adjacent to the closest homes. Because construction would progress quickly, it is expected that construction equipment would not be adjacent to any given home for more than a few days. Nonetheless, the maximum projected noise level exceeds the applicable construction noise limit of 75 dBA for single-family residential areas. To reduce this impact to the extent feasible, the following mitigation measures would be implemented, but even with Mitigation Measures NV1.1, NV1.2, and NV1.3 in place, impacts could still be significant. As described in the 2010 FEIR, Mitigation Measure NV1.4 (Install Temporary Noise Barriers) is not feasible for pipe installation because construction equipment would be present for only a short period at any given locality; installation of barriers would prolong construction at any given location, increasing the duration of noise impacts. Furthermore, the presence of noise barriers on public roads could create a safety hazard by reducing drivers' sight distances. Because the following measures include all feasible mitigation, residual significant impacts, if any, are considered unavoidable.~~

#### **Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

This measure is described in detail above.

#### **Mitigation Measure NV1.2—Implement Work Site Noise Control Measures**

This measure is described in detail above.

#### **Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above.

Installation of the new pipes would require excavated materials to be hauled off-site for disposal, adding up to approximately four additional truck trips per day on local streets. Based on FHWA's TNM, the small increase in truck trips is not expected to result in an increase in ambient traffic noise levels. Noise impacts related to haul traffic would be less than significant, and no additional mitigation is required.

### **Channel Improvements: Permanente Creek and Hale Creeks**

Channel improvement would require demolition and disposal of the existing concrete channel lining, followed by replacement with a wider and deeper concrete channel. The entire process would last about 4 years, but construction would move progressively along the channel, with work at each channel section expected to be short term. Equipment used for demolition of the existing channel lining would include jackhammers, an excavator, and a loader. The channel cross section would be widened using an excavator, and a pile driver would then install temporary sheet pile shoring to reinforce the channel walls until the new concrete lining is constructed.<sup>4</sup> Equipment needed to construct the new concrete channel would include a crane to install precast channel sections or concrete trucks and pumps to pour concrete sections. Small-capacity dump trucks (10 cy) would be used to deliver material and equipment.

The loudest single piece of equipment used for channel improvement would be the pile driver; noise modeling for the channel improvement elements focused on shoring installation and assumed simultaneous operation of one pile driver, one excavator, and one loader for a 1-hour period. Table 9-7 shows estimated construction noise for the construction of this project element. The input and output data for operation noise calculations are included in the Appendix C.

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<sup>4</sup> As discussed in Impact NV2 of the FEIR, a variety of approaches could be used to provide the needed temporary shoring, but sheet piling is expected to be the most appropriate. Depending on soil conditions, this could be installed using either an impact hammer (pile driver) or a sonic (vibratory) driver. This assessment assumed the use of an impact pile driver, which represents a conservative "worst case" from the noise and vibration standpoint.

**Table 9-7. Estimated Construction Noise for Temporary Shoring and Construction at Channel Improvement Sites**

Construction Equipment Noise Levels at 50 feet	
Equipment Type	Noise Level $L_{eq}$ (dBA)
Pile driver (impact)	94
Excavator	77
Loader	75
Combined equipment noise level	94
Calculated Noise Levels at Varying Distances	
Distance from Construction Site (feet)	Calculated $L_{eq}$ (dBA)
100	86
150	81
200	78
300	73
400	70
500	67
600	65
800	62
1,200	57

Channel improvement would take place along parts of Permanente and Hale Creeks in residential Los Altos and Mountain View. Noise-sensitive land uses adjacent to the channel are primarily homes with backyards facing the channel; distances to the closest homes are approximately 30 to 100 feet depending on specific location. As shown in Table 9-7, the exterior noise level could be 86 to 94 dBA  $L_{eq}$  when a channel section is installed adjacent to these homes, potentially exceeding the applicable construction noise limit of 75 dBA for single-family residential areas. To reduce this impact to the extent feasible, the following mitigation measures will be implemented, but even with Mitigation Measures NV1.1, NV1.2, and NV1.3 in place, impacts could still be significant. As described in the 2010 FEIR, Mitigation Measure NV1.4 (Install Temporary Noise Barriers) is not feasible for channel improvement because construction equipment would only be present for a short period at any given locality; installation of barriers would prolong construction at any given location, increasing the duration of noise impacts. In addition, the ROW where channel improvement would occur is very narrow, and the presence of noise barriers between the channel and nearby homes could interfere with the movement of construction equipment. Because Mitigation Measures NV1.1 through NV 1.3 include all feasible mitigation, residual significant impacts, if any, are considered unavoidable.

**Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

This measure is described in detail above.

**Mitigation Measure NV1.2—Implement Work Site Noise Control Measures**

This measure is described in detail above.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above.

Channel improvement would generate a small volume of excavated materials requiring removal from the site. This is expected to add about four additional truck trips per day on local streets. Based on FHWA's TNM, the small increase in truck trips is not expected to result in an increase in ambient traffic noise levels. Noise impacts related to haul traffic would be less than significant, and no additional mitigation is required.

**Hale Creek Bridge Replacements**

As discussed in Chapter 2, channel improvement would include replacing the existing bridges over Hale Creek with culverted at-grade crossings. Equipment used for demolition of the existing bridges, and subsequent construction of at-grade bridge crossings, would be similar to other elements of the proposed project. Equipment anticipated to be required for demolition activities includes a jackhammer, an excavator, and a loader. The loudest equipment for construction of the bridges would be the same as that assumed for Permanente Diversion Structure—one excavator, one crane, and one jackhammer in simultaneous operation. The estimated construction noise levels are shown in Table 9-6.

Noise-sensitive land uses adjacent to the bridge crossing sites are single-family homes; distances between the nearest homes and construction activities at various bridge sites would be approximately 30 to 100 feet, translating to maximum anticipated noise levels of 76 to 84 dBA  $L_{eq}$  or higher at the nearest homes. Consequently, noise levels could exceed the applicable limit of 75 dBA  $L_{eq}$ , representing a significant impact. To reduce this impact, the following mitigation measures will be implemented, but even with Mitigation Measures NV1.1, NV1.2, and NV1.3 in place, impacts could still be significant. Mitigation Measure NV1.4 (Install Temporary Noise Barriers) is not feasible for bridge replacements because construction equipment would only be present for a short period at any given locality; installation of barriers would prolong construction at any given location, increasing the duration of noise impacts. In addition, the road ROW where construction would occur is very narrow, and the presence of noise barriers between the site and nearby homes could interfere with the movement of construction equipment. Furthermore, the presence of noise barriers on public roads could create a safety hazard by reducing drivers' sight distances. Since these measures include all feasible mitigation, residual significant impacts, if any, are considered unavoidable.

**Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

This measure is described in detail above.

**Mitigation Measure NV1.2—Implement Work Site Noise Control Measures**

This measure is described in detail above.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above.

Bridge demolition and construction would generate a small volume of excavated materials requiring haulage away from the site. This is expected to add one to two additional truck trips per day on local streets. Based on FHWA's TNM, the small increase in truck trips is not

expected to result in an increase in ambient traffic noise levels. Noise impacts related to haul traffic would be less than significant, and no additional mitigation is required.

#### **Floodwalls and Levees downstream of US-101**

Construction of the floodwall (including flood-proofing activities) and levee along the west bank of Permanente Creek downstream of US-101 would last about 1 year, but construction would move progressively along the creek, with work at each section expected to be short-term. Construction equipment would include one excavator, one trencher, one backhoe, and concrete trucks, as well as heavy trucks (10 cy) to deliver materials and equipment. Noise modeling assumed simultaneous and continuous operation of excavator, one backhoe, and one dump truck for a 1-hour period (Table 9-8).

Land uses along Permanente Creek downstream of US-101 include the Permanente Creek trail and light industry/high tech, commercial, and office buildings. The flood-proofing would be constructed against the Google parking lot with the closest distance of 50 feet to the office building, translating to anticipated noise levels up to about 80 dBA  $L_{eq}$  at the nearest buildings. The distance between the nearest office building and the floodwall is approximately 50 feet, translating to anticipated noise levels up to about 80 dBA  $L_{eq}$  at the nearest buildings. This is less than the applicable construction noise limit of 85 dBA for commercial areas. There would be no impact related to the violation of applicable standards at this site, and no additional mitigation is required.

Floodwall construction would generate a small volume of excavated materials requiring haulage away from each of the alignments. This is expected to add about four additional truck trips per day on local streets. Based on FHWA's TNM, this would not noticeably increase ambient traffic noise levels. Noise impacts related to haul traffic would be less than significant at both alignments, and no additional mitigation is required.

**Table 9-8. Estimated Construction Noise for Floodwalls and Levees**

Construction Equipment Noise Levels at 50 feet	
Equipment Type	Noise Level $L_{eq}$ (dBA)
Excavator	77
Backhoe	74
Dump truck	72
Combined equipment noise level	80
Calculated Noise Levels at Varying Distances	
Distance from Construction Site (feet)	Calculated $L_{eq}$ (dBA)
100	72
150	67
200	64
300	59
400	55
600	51
800	47
1,200	42
1,600	39

### Maintenance and Post-Flood Event

Flood detention basins would require cleanup and/or maintenance following a flood event to remove sediment and restore recreational amenities to their preflooding condition. At Rancho San Antonio County Park, sediment would be allowed to accumulate to a depth of about 1 foot and then removed; thus, although the basin is expected to flood about once in every 10 years on average, sediment removal could be much more infrequent. At ~~the Cuesta Annex and~~ McKelvey Park, sediment would be removed following each flood event to restore playing fields and amenities to a fully usable condition; ~~at the Cuesta Annex facility this would likely occur once every 10 years on average, while~~ McKelvey Park would flood approximately once in 50 years. At all of the detention facilities, post-flood maintenance, if required, would occur as soon as possible after each flood event. The equipment used for maintenance work—and the resulting noise levels—would vary depending on the scale of the flood event, but typically would include loaders, backhoes, dump trucks, and vegetation control hand equipment. Table 9-9 shows estimated construction noise for post-flood cleanup of the flood detention basins, which assumed simultaneous and continuous operation of the three loudest pieces of equipment for a 1-hour period, as described above under *Methods and Significant Criteria*. The input and output data for operation noise calculations are included in the Appendix C.

The distance between the nearest homes and the post-flood cleanup activities at the Rancho San Antonio County Park would range from approximately 200 feet to greater than 1,600 feet. As shown in Table 9-9, cleanup activities at this site would generate maximum noise levels of

**Table 9-9. Estimated Post-Flood Maintenance Noise for Flood Detention Basins**

Construction Equipment Noise Levels at 50 feet	
Equipment Type	Noise Level $L_{eq}$ (dBA)
Loader	75
Backhoe	74
Dump truck	72
Combined equipment noise level	79
Calculated Noise Levels at Varying Distances	
Distance from Construction Site (feet)	Calculated $L_{eq}$ (dBA)
100	71
150	66
200	63
300	58
400	54
600	50
800	46
1,200	41
1,600	38

about 63 dBA  $L_{eq}$  at the nearest homes, which is less than the most stringent applicable construction noise limit of 75 dBA. Distances between the nearest homes and the post-flood cleanup activities at the Cuesta Annex and McKelvey Park would range from approximately 100 to 600 feet at these sites, depending on the location of the activity. Thus, as shown in Table 9-9, cleanup activities at this site would generate maximum noise levels of about 71 dBA  $L_{eq}$  at the nearest homes, which is less than the most stringent applicable construction noise limit of 75 dBA. Therefore, noise impacts related to post-flood cleanup and/or maintenance would be less than significant.

During the lifetime of the detention facilities at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park, the inlet/outlet structures could require minor repairs. At the Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park detention facilities, vegetation maintenance could be required to maintain the capacity of the flood detention basin. All minor repairs and vegetation and landscaping maintenance work would typically be very short in duration and would probably use only hand equipment; these would be similar in scale and duration to maintenance and landscaping activities already occurring at these sites and thus would not represent a substantial change from the existing noise baseline. Therefore, the impact would be less than significant.

Maintenance activities related to ensuring that the flood-proofing is in place would occur periodically. Maintenance activities would be similar in scale and duration to activities already occurring at the site and would not represent a substantial change from the existing noise baseline. Therefore, the impact would be less than significant.



### Pump Operation

Two submersible pumps would be installed at each of Cuesta Annex and McKelvey Park as part of the proposed detention facilities facility. The average annual operation of both pumps at each site is anticipated to be 100 hours at Cuesta Annex and 300 hours at McKelvey Park, based on the average of measurable rainfall in the area. Pumps would be installed at the southwest corner of McKelvey Park and the northeast corner of Cuesta Annex.

Because the pumps would be enclosed underground about 12 feet below grade at Cuesta Annex and 15 to 20 feet below the grade at McKelvey Park, noise levels generated during the operation of the pumps are expected to be below the background noise level on the ground and would not be perceptible at the nearest homes. Therefore, the impact would be less than significant.

### Impact NV2—Excessive Groundborne Vibration Levels

Summary by Project Element: Impact NV2—Excessive Groundborne Vibration Levels		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	Less than Significant	Less than Significant
<del>Cuesta Annex Flood Detention Facility (including Cuesta Annex Inlet/Outlet Pipes)</del>	<del>Less than Significant</del>	<del>Less than Significant</del>
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacements)	Less than Significant with Mitigation	Less than Significant
McKelvey Park Flood Detention Facility (including McKelvey Park Outlet Pipe)	Less than Significant	Less than Significant
Floodwalls and Levees downstream US-101	Less than Significant	Less than Significant

### Construction

Construction activities may generate localized groundborne vibration at buildings adjacent to the construction site, especially during the operation of high-impact equipment, such as pile drivers listed in Table 9-4. Vibration from nonimpact construction activity and truck traffic is typically below the threshold of perception when the activity is more than about 50 feet from the receiver (Federal Transit Administration 2006). Because most of the project element would not involve high-impact equipment and the construction sites are more than 50 feet from the noise-sensitive land uses, this impact is expected to be less than significant for most of the project elements (detention facilities and floodwalls), except for the channel improvement discussed below. The same would be true for maintenance activities at all project elements, since maintenance is expected to use only nonimpact equipment.

For the Hale Creek bridge replacements, New Permanente Diversion Structure, ~~Cuesta Annex inlet/outlet pipes~~, and McKelvey Park outlet pipes, vibration may be perceptible when construction activities move within 50 feet of the residences located along the project alignments; nevertheless, these project elements would not involve pile-driving activities and construction work would progress quickly. Among the nonimpact equipment used for these elements, jackhammers would most likely generate the highest vibration level (Table 9-4); they are expected to generate a vibration level between 0.035 in/sec PPV and 79 VdB at 25 feet from the equipment (Federal Transit Administration 2006). Some existing homes are as close as 30 feet from the construction site, which could be exposed to a vibration level of 0.03 in/sec PPV and 77 VdB.<sup>5</sup> This is below the 0.2 in/sec PPV and 80 VdB thresholds at which vibration may become an annoyance and/or damage non-engineered timber and masonry buildings, such as the nearby residence (Federal Highway Administration 2006). Therefore impacts are expected to be less than significant.

Along the channel improvement alignments, temporary shoring would be needed to support the walls of the newly widened channel until the new channel lining is installed. A variety of approaches are available to provide the needed shoring, but sheet piling is expected to be the most appropriate and offers a conservative “worst-case” scenario for evaluation of noise and vibration impacts. Depending on soil conditions, sheet piling may be installed using an impact hammer (pile driver) or a sonic (vibratory) driver.

The level of vibration generated by pile driving and transmitted to nearby structures would depend on the type of pile driver used and site-specific soil properties that are not known at this time. Under “average” soil conditions an impact sheet pile driver is expected to generate a vibration level of between 0.170 in/sec PPV and 1.518 in/sec PPV, or 103 VdB at 25 feet from the sheet pile (Federal Transit Administration 2006). Some existing homes are within 50 feet of the presumed sheet pile location, and under “average” soil conditions those homes could be exposed to vibration levels of 0.06–0.5 in/sec PPV, or up to about 93 VdB.<sup>6</sup> This exceeds the 0.2 in/sec PPV and 80 VdB thresholds at which vibration may become an annoyance and/or damage plaster-walled residential structures; thus, vibration impacts at homes closest to the channel improvement alignment could be significant during the installation of sheet piling. Implementation of Mitigation Measures NV2.3 and NV2.4 in the FEIR and provided below would reduce groundborne vibration impacts to a less-than-significant level.

**Mitigation Measure NV2.3—Conduct Construction Vibration Assessment and Implement Recommended Vibration Control Approach(es) for Shoring Installation**

Prior to final design of the shoring system, the District will retain a qualified, state-licensed geotechnical professional to determine site-specific soil stratigraphy and engineering properties and model anticipated vibration levels based on soil properties. If the anticipated vibration level at any home exceeds 80 VdB, the District will modify the design of the shoring system to achieve the 80 VdB threshold (for example, by prohibiting use of impact pile driving; using vibratory pile driving; or using drilled piles).

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<sup>5</sup> The actual vibration level at the nearest homes would depend on the specific soil type at any given location. If the soil is loose and sandy, vibration levels would be lower. If soil includes stiff clay or hardpan, vibration levels could be higher.

<sup>6</sup> The actual vibration level at the nearest homes would depend on the specific soil type at any given location. If the soil is loose and sandy, vibration levels would be lower. If soil includes stiff clay or hardpan, vibration levels could be higher.

**Mitigation Measure NV2.4—Conduct Construction Vibration Monitoring for Shoring Installation**

The District will retain a qualified acoustical consultant or engineering firm to conduct vibration monitoring at the nearest vibration-sensitive receptor during periods of temporary construction where construction equipment for shoring installation is located within 100 feet of occupied buildings or other vibration-sensitive structures. If at any point the measured PPV is in excess of 0.1 in/sec, construction activity will cease and alternative methods of construction and excavation will be considered to prevent possible exposure of vibration-sensitive buildings and structures to levels of 0.2 in/sec PPV or higher. Prior to construction activity, a preconstruction survey will be conducted which documents any existing cracks or structural damage at vibration-sensitive receptors by means of black and white photography or video. Additionally, a designated complaint coordinator will be responsible for handling and responding to any complaints received during such periods of construction. The District will also implement a reporting program that documents complaints received, actions taken, and the effectiveness of these actions in resolving disputes.

**Pump Operation**

Two submersible pumps would be installed at McKelvey Park as part of the proposed detention facility. The average annual operation of both pumps is anticipated to be 300 hours, based on the average of measurable rainfall in the area. Pumps would be installed at the southwest corner of McKelvey Park.

Based on current design information, the pumps would be housed in a deep, wet well about 15 to 20 feet below grade and continuously submerged in water. As such, pump vibrations and motor noise would generally not be noticeable at the ground surface. Furthermore, the specifications will require the pumps to be tested and balanced upon installation so as to be free of vibration or any other deleterious effects.

**Impact NV3—Substantial Permanent Increase in Ambient Noise**

<b>Summary by Project Element: Impact NV3—Substantial Permanent Increase in Ambient Noise</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	No Impact	Less than Significant

Construction noise would be temporary and would not result in a permanent increase in ambient noise; therefore, construction noise impact is discussed in detail in Impacts NV1 and NV4.

Maintenance would generate recurring short-term increases in noise throughout the project lifespan. As discussed in Impact NV1, maintenance work would typically be very short in duration and would mostly be performed with hand equipment and the occasional use of small, diesel-powered equipment. The maintenance work would be similar in scale, duration, and frequency to maintenance and landscaping activities already occurring at these project elements and would not represent a substantial change from the existing noise baseline. Therefore, the impact would be less than significant.

As discussed in Impact NV1, post-flood clean-up activities at the new detention facilities would not result in noise levels that exceed the noise standard at the closest homes. Floods are expected to occur infrequently (10 to 50 years), and post-flood cleanup would be completed in a short period; therefore, clean-up activities are expected to have a less-than-significant impact on long-term ambient noise levels.

New submersible pumps installed at ~~Cuesta Annex and McKelvey Park~~ would be enclosed underground, about ~~12 feet below grade at Cuesta Annex and 15 to 20 feet below grade at McKelvey Park~~. Noise levels generated during the operation of the pumps are expected to be below the background noise level on the ground and would not be perceptible at the nearest homes. Therefore, the impact would be less than significant.

### Impact NV4—Substantial Temporary Increase in Ambient Noise

#### Summary by Project Element: Impact NV4—Substantial Temporary Increase in Ambient Noise

Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	Less than Significant with Mitigation	Less than Significant
<del>Cuesta Annex Flood Detention Facility (including Cuesta Annex Inlet/Outlet Pipes)</del>	<del>Significant and Unavoidable</del>	<del>Less than Significant</del>
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacements)	Significant and Unavoidable	Less than Significant
McKelvey Park Flood Detention Facility (including McKelvey Park Outlet Pipe)	Significant and Unavoidable	Less than Significant
Floodwalls and Levees downstream of US-101	Less than Significant	Less than Significant

Table 9-10 summarizes the maximum noise levels anticipated at the nearest noise-sensitive land use during construction of each of the project elements.

**Table 9-10. Maximum Construction Noise Levels at Nearest Sensitive Land Use**

Project Element	Maximum Noise Level at Nearest Noise-Sensitive Land Use (dBA L <sub>eq</sub> )	Applicable Noise Standard Exceeded?
Rancho San Antonio County Park Flood Detention Facility	39–72	No
New Permanente Diversion Structure	76–84	Yes
<del>Cuesta Annex Flood Detention Facility</del>	<del>51–80</del>	<del>Potentially</del>
<del>Cuesta Annex Inlet/Outlet Pipes</del>	<del>76–84</del>	<del>Yes</del>
McKelvey Park Flood Detention Facility	51–80	Potentially
McKelvey Park Outlet Pipe	76–84	Yes
Channel Improvements: Permanente and Hale Creeks (including Hale Creek Bridge Replacements)	76-94	Yes
Floodwalls and Levees downstream of US-101	72-80	No

As shown in Table 9-10 and discussed in Impact NV1, construction noise would have the potential to exceed applicable noise standards in the vicinity of some of the sites, and even where noise standards are not exceeded, construction noise levels could be high enough to result in short-term disturbance where equipment operates in close proximity to residences. Disturbance could rise to the level of a significant impact. Impacts from construction activities would be reduced to a less-than-significant level by implementation of Mitigation Measures NV1.1 through NV1.4, described above, except for ~~inlet/outlet culverts installation at Cuesta Annex and the channel improvements~~ along Permanente and Hale Creeks where Mitigation Measure NV1.4 would be infeasible.

**Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

This measure is described in detail above. It applies to all project elements.

**Mitigation Measure NV1.2—Implement Work Site Noise Control Measures**

This measure is described in detail above. It applies to all project elements during construction and maintenance.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above. It applies to all project elements.

**Mitigation Measure NV1.4—Install Temporary Noise Barriers**

This measure is described in detail above. It applies to ~~the Cuesta Annex, McKelvey Park and, the and New Permanente Diversion Structure sites, and the Hale Creek bridge replacements~~. It is not feasible for the ~~Cuesta Annex inlet and outlet culverts, channel improvements, or the floodwalls and levees~~.

As discussed in Impact NV3, maintenance activities are expected to have a less-than-significant impact on ambient noise levels, in light of their short duration, intermittent occurrence, and small scale.

## REFERENCES

California Department of Transportation. 2011. *Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects*. May. Division of Environmental Analysis.

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Hoover, R. M., and R. H. Keith. 2000. *Noise Control for Buildings, Manufacturing Plants, Equipment, and Products*. Houston, TX: Hoover & Keith, Inc.

~~Santa Clara Valley Water District. 2008. *Santa Clara Valley Water District, Permanente Creek Flood Protection—Project Planning Study Report (Project No. 10244001)*. (July.) San Jose, CA: Santa Clara Valley Water District.~~

# CHAPTER 10. AIR QUALITY

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## ENVIRONMENTAL SETTING

### ***REGULATORY CONTEXT***

Air quality is protected by the federal Clean Air Act (CAA) and California Clean Air Acts (CCAA) and by local air district planning undertaken pursuant to the acts. At the federal level, the U.S. Environmental Protection Agency (EPA) administers the CAA. In California, the CCAA is administered by the California Air Resources Board (ARB) at the state level and by the air quality management districts at the regional and local levels. The Bay Area Air Quality Management District (BAAQMD) has local jurisdiction over the project area.

The EPA and ARB have established national ambient air quality standards (NAAQS) and California ambient air quality standards (CAAQS), respectively, for the following six criteria pollutants: carbon monoxide (CO); nitrogen dioxide (NO<sub>2</sub>); sulfur dioxide (SO<sub>2</sub>); ozone (O<sub>3</sub>); lead; and particulate matter (PM), including PM less than 10 microns in diameter (PM<sub>10</sub>) and PM less than 2.5 microns in diameter (PM<sub>2.5</sub>). The pollutants of greatest concern in the Santa Clara County are CO; ozone; PM<sub>10</sub> and PM<sub>2.5</sub>; and toxic air contaminants (TACs).

Areas are classified as either *in attainment* or *in nonattainment* with respect to state and federal ambient air quality standards. These classifications are made by comparing actual monitored air pollutant concentrations to state and federal standards. If a pollutant concentration is lower than the state or federal standard, the area is considered to be *in attainment* of the standard for that pollutant. If pollutant levels exceed a standard, the area is considered a *nonattainment* area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated *unclassified*.

Appendix B of this SEIR provides additional information, including the specifics of the state and federal ambient air quality standards.

### ***EXISTING CONDITIONS***

#### **Climate and Air Quality in the Project Area**

Although the primary factors that determine air quality are the locations of air pollutant sources and the amount of pollutants emitted from those sources, meteorological conditions and topography are also important factors. Atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants.

Air pollution potential in the Santa Clara Valley is high. High summer temperatures, stable air, and mountains surrounding the valley combine to promote ozone formation. In addition to the many local sources of pollution, ozone precursors from San Francisco, San Mateo, and Alameda Counties are carried by prevailing winds to the Santa Clara Valley. The shape of the valley tends to channel pollutants to the southeast. In addition, on summer days with low level temperature inversions, ozone can be re-circulated by southerly drainage flows in the late

evening and early morning and by the prevailing northwesterly winds in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of CO and particulate matter. This movement of the air up and down the valley increases the impact of the pollutants significantly.

Existing air quality conditions in the project area can be characterized by monitoring data collected in the region. The air quality monitoring station closest to the project alignment is the Jackson Street station in San Jose, which monitors for ozone, CO, PM10, and PM2.5. Recent air quality monitoring results from the Jackson Street monitoring station are summarized in Table 10-1. These data represent air quality monitoring for the last 3 years for which a complete dataset is available (2008–2010). As indicated in Table 10-1, the Jackson Street monitoring station has experienced six violations of the state 1-hour ozone standard, six violations of the state 8-hour O<sub>3</sub> standard, one violation of the federal 8-hour ozone standard, and seven violations of the state 24-hour PM10 standard during the last 3 years. There were no violations of the federal or state CO standards, federal PM10 standards, or federal PM2.5 standards at the Jackson Street monitoring station during this period.

**Table 10-1. Ambient Air Quality Monitoring Data from Jackson Street Monitoring Station, San Jose**

<b>Pollutant Standards</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
<b>Ozone</b>			
Maximum 1-hour concentration (ppm)	0.118	0.088	0.126
Maximum 8-hour concentration (ppm)	0.080	0.069	0.086
Number of days standard exceeded <sup>a</sup>			
CAAQS 1-hour (>0.09 ppm)	1	0	5
NAAQS 8-hour (>0.075 ppm)	2	0	3
CAAQS 8-hour (>0.07 ppm)	3	0	3
<b>Carbon monoxide (CO)</b>			
Maximum 8-hour concentration (ppm)	2.48	2.5	2.19
Number of days standard exceeded <sup>a</sup>			
NAAQS 8-hour (>9.0 ppm)	0	0	0
CAAQS 8-hour (>9.0 ppm)	0	0	0
<b>PM10<sup>b</sup></b>			
National <sup>c</sup> maximum 24-hour concentration (µg/m <sup>3</sup> )	55.0	41.1	44.2
National <sup>c</sup> second-highest 24-hour concentration (µg/m <sup>3</sup> )	40.3	40.6	37.4
State <sup>d</sup> maximum 24-hour concentration (µg/m <sup>3</sup> )	57.3	43.3	46.8
State <sup>d</sup> second-highest 24-hour concentration (µg/m <sup>3</sup> )	43.5	43.0	38.0
National annual average concentration (µg/m <sup>3</sup> )	22.6	19.5	18.9
State annual average concentration (µg/m <sup>3</sup> ) <sup>e</sup>	22.4	20.3	19.5
Number of days standard exceeded <sup>a</sup>			
NAAQS 24-hour (>150 µg/m <sup>3</sup> ) <sup>f</sup>	0	0	0
CAAQS 24-hour (>50 µg/m <sup>3</sup> ) <sup>f</sup>	1	0	0
<b>PM2.5</b>			
National <sup>c</sup> maximum 24-hour concentration (µg/m <sup>3</sup> )	41.9	35.0	41.5
National <sup>c</sup> second-highest 24-hour concentration (µg/m <sup>3</sup> )	39.8	34.7	36.0
State <sup>d</sup> maximum 24-hour concentration (µg/m <sup>3</sup> )	41.9	35.0	41.5
State <sup>d</sup> second-highest 24-hour concentration (µg/m <sup>3</sup> )	41.5	34.7	36.0
National annual average concentration (µg/m <sup>3</sup> )	11.5	10.1	-
State annual average concentration (µg/m <sup>3</sup> ) <sup>e</sup>	11.5	10.1	9.0
Number of days standard exceeded <sup>a</sup>			
NAAQS 24-hour (>35 µg/m <sup>3</sup> )	5	0	3



<b>Pollutant Standards</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>
Notes: CAAQS = California ambient air quality standards.			
NAAQS = national ambient air quality standards.			
– = insufficient data available to determine the value.			
ppm = parts per million.			
µg/m <sup>3</sup> = micrograms per cubic meter.			
<sup>a</sup> An exceedance is not necessarily a violation.			
<sup>b</sup> Measurements usually are collected every 6 days.			
<sup>c</sup> National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.			
<sup>d</sup> State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California approved samplers.			
<sup>e</sup> State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.			
<sup>f</sup> Mathematical estimate of how many days' concentrations would have been measured as higher than the level of the standard had each day been monitored.			
Sources: California Air Resources Board 2011a.			

Based on monitoring data such as those shown in Table 10-1, EPA has designated Santa Clara County as a marginal nonattainment area for the 8-hour ozone NAAQS, a non-attainment area for the PM<sub>2.5</sub> NAAQS, and a maintenance area for the CO NAAQS (Environmental Protection Agency 2012). ARB has classified Santa Clara County as a nonattainment area for the 1-hour ozone (serious nonattainment), 8-hour ozone, PM<sub>10</sub>, and PM<sub>2.5</sub> CAAQS. Santa Clara County is classified as an attainment area for the CO CAAQS. (California Air Resources Board 2012a)

## **Sensitive Land Uses in the Project Area**

BAAQMD generally defines a *sensitive receptor* as a facility or land use that houses or attracts members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Sensitive receptors located in the vicinity of the project alignment include numerous single-family homes and other residential uses (condominiums, apartments), as well as schools, parks, and hospitals.

## **IMPACT ANALYSIS**

### **ASSESSMENT METHODS**

The air quality analysis focuses on construction emissions. Maintenance of the project elements could require short-term equipment use to perform minor repairs to channels and bypasses and to remove sediment and restore recreational usability following flooding at the detention basins. All of these tasks would have the potential to generate air pollutants. However, maintenance activities would be restricted in extent and duration, involving comparatively small areas over a period of hours or days. Table 10-2 summarizes the maintenance activities and frequency for the project elements. Post-flood cleanup would be the most protracted, extensive, and complex task, with the greatest potential for pollutant generation, but it would occur very infrequently (once in 10 years on average at Rancho San Antonio and Cuesta Annex, and once in 50 years on average at McKelvey Park). Overall, pollutant emissions from long-term maintenance activities are, therefore, not expected to represent a substantial increase over current levels and were not evaluated quantitatively in this document.

**Table 10-2. Maintenance Activity, Frequency, and Equipment by Project Element**

Project Element	Maintenance/Operation Activity	Frequency	Equipment
Rancho San Antonio Park Flood Detention Facility	Infrequent post-flood clean-up	1–2 days per flood event (once per 10 years)	Loader, backhoe, dump truck, vegetation control hand equipment
New Permanente Diversion Structure	Removing debris from diversion structure (same as existing)	Once per 2–5 years	Loader, dump truck, hand equipment
New Permanente Outlet Culvert	Removing debris from culvert	Once per 10 years	Dump truck, hand equipment
Cuesta Annex Flood Detention Facility	Infrequent post-flood clean-up Pump operation	1–2 days per flood event (once per 10 years) 100 hours per year	Loader, backhoe, dump truck, vegetation control hand equipment
Cuesta Annex Inlet/Outlet Culvert	Removing debris from culvert	Once per 2–5 years	Dump truck, hand equipment
Channel Improvements: Permanente and Hale Creeks	Removing debris from channels (same as existing)	Once per year	Loader, dump truck, hand equipment
(Hale Creek Bridge Replacements)	Removing debris from channels (same as existing)	Once per year	Loader, dump truck, hand equipment
McKelvey Park Flood Detention Facility	Infrequent post-flood clean-up Pump operation	1–2 days per flood event (once per 50 years) 300 hours per year	Loader, backhoe, dump truck, vegetation control hand equipment
McKelvey Park Outlet Pipe	Removing debris from culvert	Once per 2–5 years	Dump truck, hand equipment
Floodwalls and Levees downstream of US-101	Graffiti control and levee maintenance (same as existing)	As needed	Loader, backhoe, dump truck, crane

Source: Rouhani pers. comm.

Two submersible pumps would be installed at both ~~Cuesta Annex and~~ McKelvey Park as part of the proposed flood detention ~~facilities~~ facility. The pumps would be electrical powered. Greenhouse gas (GHG) emissions associated with electrical consumptions of these pumps are discussed in Chapter 15 (*Cumulative Impacts*).

Construction activities associated with the Project would generate short-term emissions of ROG, nitrogen oxide (NO<sub>x</sub>), CO, PM<sub>10</sub>, and PM<sub>2.5</sub>. Emissions would originate from on-road hauling trips, worker commute trips, construction site fugitive dust, and off-road construction equipment. Construction-related emissions would vary substantially depending on the level of activity, specific equipment operations, and wind and precipitation conditions. Construction emissions are estimated based on the construction activities anticipated for each element, as described in the following section and summarized in Table 10-3. Models, tools, and assumptions used to calculate the emissions associated with on-site equipment, on-road vehicles, and site fugitive dust are described below. Air Quality modeling calculations are provided in Appendix D.

**Table 10-3. Construction Phases, Activities, and Schedule by Project Element**

<b>Project Element</b>	<b>Construction Year</b>	<b>Construction Phase</b>	<b>Area/ Length<sup>1</sup></b>	<b>Export Spoils/ Import Material<sup>2</sup></b>	<b>Equipment</b>
Rancho San Antonio Park Flood Detention Facility	Year 1	Site excavation	15 ac	40,000 cy exported	Excavators (3), loaders (2), backhoe, water truck, street sweeper, dump trucks (up to 5)
		Landscaping			Backhoe, hand equipment, trenchers, hydroseed truck
New Permanente Diversion Structure	Year 1	Demolition, excavation, construction	7,000 square ft	250 cy soil and concrete exported, 50 cy imported,	Excavator, loader, jackhammer, dump truck, crane
New Permanente Outlet Culvert	Year 1	Outlet culvert excavation, construction	200 linear ft	50 cy exported, 20 cy imported	Excavator, loader, jackhammer, dump truck, concrete truck with pump (2)
Floodwalls and Levees downstream of US-101	Year 1	Excavation, floodwall construction	1,600 ft	1,000 cy spoils exported, 600 cy of concrete imported	Excavator, trencher, backhoe, concrete trucks with pump (2), dump truck
Permanente Creek Channel Improvements	Year 1	Channel demolition, excavation, channel construction	1,200 ft	2,400 cy exported, 2,720 cy concrete and soil imported	Excavator, loader, backhoe, jackhammer, concrete trucks with pump (2), dump truck, crane, street sweeper
Hale Channel Improvements (including Hale Creek Bridge Replacements)	Years 2-4	Channel demolition, excavation, channel construction Bridge demolition, road excavation, culvert installation, road paving	4,000 ft	3,600 cy exported, 3,600 cy concrete and soil imported	Excavator, loader, backhoe, jackhammers, concrete trucks with pump (2), dump truck, crane, street sweeper
Guesta Annex Flood Detention Facility	Year 2	Site excavation Landscaping	4.5 ac	50,000 cy exported Minimal	Excavators (3), loaders (2), backhoe, water truck, street sweeper, dump trucks (up to 5) Backhoe, hand equipment, trenchers, hydroseed truck

Project Element	Construction Year	Construction Phase	Area/ Length <sup>1</sup>	Export Spoils/ Import Material <sup>2</sup>	Equipment
Cuesta Annex Inlet/Outlet Pipes	Year 2	Road excavation, pipe installation, road paving	700 ft	1,000 cy exported, 150 imported	Excavator, loader, jackhammer, concrete trucks with pump (2), dump truck, street sweeper, backhoe, crane
McKelvey Park Flood Detention Facility	Year 2	Site excavation	5 ac	100,000 cy exported	Excavators (3), loaders (2), backhoe, water truck, street sweeper, dump trucks (up to 5)
		Retaining wall construction		2,600 cy of concrete imported	Backhoe, loader, concrete trucks with pump (3), dump truck
		Landscaping		Minimal	Backhoe, hand equipment, trenchers, hydroseed truck
McKelvey Park Outlet Pipe	Year 2	Road excavation, pipe installation, road paving	1,500 ft	50 cy exported, 50 imported	Excavator, loader, jackhammer, concrete trucks with pump (2), dump truck, street sweeper, backhoe, crane

<sup>1</sup>ac = acres, ft = feet. <sup>2</sup>cy = cubic yards.

Source: Rouhani pers. comm.

- On-Site Equipment:** Exhaust emissions from operation of on-site equipment are calculated using the URBEMIS2007 model (Version 9.2.4). The load factors for construction equipment are updated to reflect the values presented the 2011 Carl Moyer Guidelines, which are based on ARB’s most recently released load factor data (California Air Resources Board 2011b). Analysis assumed that each piece of construction equipment would operate an average of 5 hours per day and 75 hours per month.
- On-Road Vehicles:** Exhaust emissions from truck haul trips and worker commute trips are calculated using the EPA EMFAC 2011 emissions model. The numbers of haul trips were estimated on the exported and imported materials provided by the District. The capacity of trucks that would typically be used for equipment and supply delivery and soils hauling is assumed to be 10 cubic yards (cy), except the 20-cy dump trucks used for soil hauling for flood detention facilities. Round-trip truck haul distances were assumed to be 50 miles based on the proximity of likely suppliers and debris disposal sites, except at the Rancho San Antonio Park Flood Detention Facility, where the excavated soil would be hauled to Lehigh Quarry located 1 mile southwest of the park. The numbers of workers required to complete construction activities are provided by the District.

- **Land Disturbance and Earth Moving:** Fugitive dust emissions generated by land disturbance and earth moving are quantified using the URBEMIS with the disturbed acreages and earthwork volume provided by the District.

Construction emissions were modeled separately for each of the project elements. Then, to assess the maximum (worst-case) level of pollutant emissions likely during each year of construction, emissions for all project elements that would be constructed in the same year were evaluated together—this gives the maximum total project-related air quality impact for each year of construction.

## **SIGNIFICANCE CRITERIA**

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Conflict with, or obstruction of, the applicable air quality plan.
- Violation of any air quality standard or substantial contribution to existing or projected air quality violation.
- Exposure of sensitive receptors to substantial pollutant concentrations.
- Objectionable odors affecting a substantial number of people.
- A cumulatively considerable net increase of any criteria pollutant for which the project region is a non-attainment area under NAAQS and CAAQS.

GHG emissions impacts from the operation of diesel-powered equipment during construction and the electrical consumption by project operation are discussed in Chapter 15 (*Cumulative Impacts*).

State CEQA Guidelines state that the significance criteria established by the applicable air quality management or air pollution control district may be relied on to make the determinations above. In March 2012, an Alameda County Superior Court ruled that BAAQMD needed to comply with CEQA prior to adopting its 2010 Air Quality CEQA Guidelines, which included significance thresholds for criteria air pollutants and GHGs. The Superior Court did not determine whether the thresholds were valid on the merits, but found that the adoption of the thresholds was a project under CEQA. The court ordered a writ of mandate ordering BAAQMD to set aside the thresholds and cease dissemination of them until BAAQMD complied with CEQA. In May 2012, BAAQMD filed an appeal with the Court of Appeals, First Appellate District, and the plaintiff filed a cross-appeal shortly thereafter.

While BAAQMD is no longer recommending its significance thresholds for use by local agencies at this time, the District has independently reviewed the BAAQMD-proposed thresholds and determined that they are supported on substantial evidence and are appropriate for use in determining significance in the environmental review of this project. Specifically, the District has reviewed a number of BAAQMD reports (2012) that provide substantial evidence supporting its thresholds. Following this review, the District determined that the BAAQMD thresholds are well founded and grounded on air quality regulations, scientific evidence, and scientific reasoning concerning air quality and GHG emissions. Using these thresholds also allows a rigorous

standardized approach for determining whether the project would cause a significant air quality impact.

In particular, BAAQMD's 2011 Threshold of Significance Justification explains the agency's reasoning for adopting the thresholds, and is included in Final SEIR Appendix G, which consists of the BAAQMD 2011 CEQA Guidelines. Below is a summary of the basis upon which the BAAQMD thresholds were developed.

The significance thresholds, as shown in Table 10-4, for criteria pollutants (ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>) are based on the stationary source emissions limits of the federal CAA and the BAAQMD Regulation 2, Rule 2. The federal New Source Review (NSR) program, created by the federal CAA, set the emissions limits to ensure that stationary sources of air pollution are constructed in a manner that is consistent with attainment of NAAQS. Similarly, to ensure that new stationary sources do not cause or contribute to violation of NAAQS, BAAQMD Regulation 2 Rule 2 requires any new source that emits criteria air pollutants above specified emissions limits to offset those emissions. Although the emissions limits are adopted in the regulation to control stationary source emissions, when addressing public health impacts of regional criteria pollutants, the amount of emissions is the key determining factor, regardless of source. Thus, the emissions limits are appropriate for the evaluation of land use development and construction activities as well as stationary sources. Projects that result in emissions below the thresholds would not be considered endeavors that would contribute to an existing or projected air quality violation or result in a considerable net increase in criteria pollutant emissions. The federal NSR emissions limits and BAAQMD's offset limits are identified in regulation on an annual basis (in tons per year). For construction activities, the limits are converted to average daily emissions (in pounds per day), as shown in Table 10-4, because of the short-term intermittent nature of construction activities. Additionally, if emissions would not exceed the average daily emissions limits, the project would not exceed the annual levels.

Similar to the criteria pollutant thresholds, the health risk impact thresholds are developed based on the cancer and non-cancer risk limits for new and modified sources adopted in the BAAQMD Regulation 2, Rule 5 and the EPA Significant Impact Level (SIL) for PM<sub>2.5</sub> emissions. The EPA SIL is a measure of whether a source may cause or contribute to a violation of NAAQS. Health risks due to toxic emissions from construction, though temporary, can still result in substantial public health impacts due to increases cancer and non-cancer risks. Applying quantitative thresholds allows a rigorous standardized method of determining when a construction project will cause a significant increase in increases cancer and non-cancer risks. The cumulative health risk thresholds are based on EPA guidance for conducting air toxics analyses and making risk management decisions at the facility and community-scale level and are also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on BAAQMD's recent regional modeling analysis and the non-cancer Air Toxics Hot Spots (ATHS) mandatory risk reduction levels.

GHG emissions from construction are evaluated on a case-by-case consideration of construction GHG emissions and best management practices (BMPs). Construction emissions make up a small portion of overall emissions in the Bay Area, statewide, and globally and are temporary in nature (unlike operational emissions). Thus, the significance of construction GHG emissions is evaluated by determining whether or not the project has incorporated feasible reduction measures that can be applied during the construction period. The significance threshold is based on an analysis of future development potential in the land use sector, an estimate of the effectiveness of state-adopted GHG reduction measures, and identification of

the amount of reductions needed in the Bay Area in the land use sector to promote overall GHG reductions consistent with Assembly Bill 32, the Global Warming Solutions Act (AB 32).

The odor threshold is consistent with BAAQMD Regulation 7 for Odorous Substances and reflects the most stringent standards derived from the Air District rule.

**Table 10-4. Air Quality Significance Thresholds**

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (lbs/day)	Average Daily Emissions (lbs/day)	Annual Average Emissions (tons/year)
Criteria Air Pollutants			
ROG	54	54	10
NO <sub>x</sub>	54	54	10
PM <sub>10</sub> (exhaust)	82	82	15
PM <sub>2.5</sub> (exhaust)	54	54	10
CO	Not Applicable	9.0 ppm (8-hour average) or 20.0 ppm (1-hour average)	
Fugitive Dust	Best Management Practices	None	
Health Risks and Hazards for New Sources and Receptors (Individual Project)			
Increased Cancer Risk	10 per 1 million	10 per 1 million	
Increased Non-Cancer Risk	1.0 Hazard Index (Chronic or Acute)	1.0 Hazard Index (Chronic or Acute)	
Incremental annual average PM <sub>2.5</sub>	0.3 µg/m <sup>3</sup>	0.3 µg/m <sup>3</sup>	
Health Risks and Hazards for New Sources and Receptors (Cumulative Thresholds)			
Increased Cancer Risk	100 per 1 million	100 per 1 million	
Increased Non-Cancer Risk	10.0 Hazard Index (Chronic or Acute)	10.0 Hazard Index (Chronic or Acute)	
Incremental annual average PM <sub>2.5</sub>	0.8 µg/m <sup>3</sup>	0.8 µg/m <sup>3</sup>	
Odors			
Odors	None	5 confirmed complaints per year averaged over three years	
GHGs			
Stationary Sources	None	10,000 MT CO <sub>2</sub> e/year	
Projects other than Stationary Sources	None	Compliance with Qualified GHG Reduction Strategy OR 1,100 MT CO <sub>2</sub> e/year OR 4.6 MT CO <sub>2</sub> e/SP/year (residents and employees)	
MT CO <sub>2</sub> e = metric tons of carbon dioxide equivalents (CO <sub>2</sub> e).			

## **CONSTRUCTION ACTIVITIES BY PROJECT ELEMENT**

Table 10-3 summarizes the construction phases, activities, and schedule for each of the project elements. Additional information on each project element follows the table.

### **Rancho San Antonio County Park Flood Detention Facility**

Construction of the proposed 15-acre flood detention facility at Rancho San Antonio County Park would take approximately 9 months. The peak construction period would occur over about 6 months during the site excavation phase. Construction equipment used for site excavation is listed in Table 10-3. Following excavation, the installation of inlet/outlet facilities and landscaping of the detention facility would take approximately another 3 months. Construction equipment used for the landscaping is listed in Table 10-3.

### **New Permanente Diversion Structure and Outlet Culvert**

Demolition of the existing Permanente Diversion Structure and construction of the new diversion structure would take approximately 3 months. The installation of the new outlet culvert would take approximately 3 months. Construction equipment used for this project element is listed in Table 10-3. Analysis assumed that the diversion structure and outlet culvert would be constructed one after another for a total of a 6-month construction period.

### **Channel Improvements: Permanente and Hale Creeks**

Channel improvement would take place over a period of 4 years and would require demolition of the existing concrete channel followed by construction of a new, larger concrete channel. Construction would be carried out progressively by sections, so the work at each channel section is expected to be comparatively short term. Equipment used for demolition of the existing channel would include jackhammers, one excavator, and one loader. Equipment used for the channel excavation would include one pile driver to install temporary shoring and one excavator for the actual channel improvement. The new concrete channel would be constructed using a crane to install precast channel sections, or concrete trucks and concrete pumps to pour cast-in-place concrete sections. In addition to this construction equipment, there would also be trucks delivering material. Construction equipment and the exported and imported materials for this project element are listed in Table 10-3.

As part of the channel improvement process for Hale Creek, the existing bridges at Mountain View Avenue, Arroyo Drive, Marilyn Drive, north and south Sunset Drive, Springer Road, Cuesta Drive, and Arboleda Drive would be removed and replaced with at-grade crossings over new bridges.

### **Floodwalls and Levees downstream of US-101**

Construction of the floodwalls, flood proofing, and levee along the west bank of Permanente Creek would take place over a period of approximately 1 year, with the new structures built progressively by sections. Minimal excavation work along existing levees is expected for the



floodwall footing. A total of 1,000 cy of fill materials and 600 cy of concrete and aggregate material would be imported to the site for floodwall forming and concrete pouring. Construction equipment used for this project element is listed in Table 10-3.

### **~~Cuesta Annex Flood Detention Facility~~**

~~Construction activity and equipment at the Cuesta Annex would also be generally similar to that described for the Rancho San Antonio flood detention facility, but the landscaping and site finishing phase would be more extensive to allow for installation of paths, viewing platforms, and other recreational amenities, as well as numerous tree and shrub plantings. The entire construction process at Cuesta Annex is expected to be completed within 6 months. The peak construction period would occur over about 4 months during site excavation. A total of 50,000 cy of excavated materials would be hauled offsite over this period.~~

### **~~Cuesta Annex Inlet and Outlet Culverts~~**

~~Construction of the new Cuesta Inlet and Outlet Culverts would take approximately 3 months. The culvert would be installed using conventional open trench ("cut and cover") methods and would be constructed progressively by sections. A total of 1,000 cy of excavated materials would be hauled offsite and 500 cy of concrete would be imported to the site. Construction equipment would include one excavator, one loader, jackhammers, one water truck, one street sweeper, and one crane, as well as trucks delivering material and equipment (Table 10-3). After the culvert is installed, the road would be repaved. To estimate the peak construction emissions, the 700-foot inlet and outlet culverts were assumed to be constructed at the same time. The inlet and outlet culverts were assumed to be constructed after the majority of the work is done at the Cuesta Annex.~~

### **McKelvey Park Flood Detention Facility**

Construction activity and equipment at McKelvey Park would be generally similar to that described for the Rancho San Antonio County Park Flood Detention Facility flood detention facility but would be followed by a more extensive landscaping and site finishing phase during which the new ball field facilities and associated amenities would be installed. The entire construction process at McKelvey Park is expected to be completed within 1 year. The peak construction period would occur over about 3 to 4 months, during site excavation. A total of 100,000 cy of excavated materials would be hauled offsite during this period.

### **McKelvey Park Outlet Pipe**

Construction of the new McKelvey Park Outlet Pipe would take approximately 2 months. The culvert would be installed using the conventional open trench ("cut and cover") method and would be constructed progressively by sections. A total of 50 cy of excavated materials would be hauled off site and 50 cy of concrete would be imported to the site. Construction equipment would include one excavator, one loader, jackhammers, one water truck, one street sweeper, and one crane, as well as trucks delivering material and equipment (Table 10-3). After the culvert is installed, the road would be repaved. The pipe would be installed using the similar method described for the Cuesta Inlet and Outlet Culverts. Construction equipment and the exported and imported materials for this project element are listed in Table 10-3. The outlet pipe was assumed to be constructed after the majority of the work is done at McKelvey Park.

## CONSTRUCTION EMISSIONS

Construction of the Project would temporarily create emissions of fugitive dust and exhaust gases. Based on the construction activities and assessment methods described above, the estimated maximum daily construction emissions are summarized in Table 10-5. Fugitive dust emissions are typically generated from construction activities related to site grading, excavation, and earth moving; and exhaust emissions are generated from diesel construction equipment operating at project sites and vehicles traveling to and from the project sites. The maximum emissions shown in Table 10-5 present a conservative estimation, which assumed all provided construction equipment would operate 5 hours on the same day and construction-related trucks and workers would travel 50 miles (round trip) to and from the project site. In addition, the total maximum daily emissions present the worst-cast condition, assuming peak construction activity from each project element would all occur on the same day. The input and output data for emission calculations are included in Appendix D.

**Table 10-5. Maximum Daily Construction Emissions**

Project Element	Construction Emission (pounds/day)						
	ROGs <sup>a</sup>	NO <sub>x</sub> <sup>a</sup>	CO	PM10 Fugitive Dust	PM10 Exhaust	PM2.5 Fugitive Dust	PM2.5 Exhaust
<b>Year 1 Elements</b>							
Rancho San Antonio Park Flood Detention Facility <sup>b</sup>	2.2	20.0	12.2	75.1	1.0	15.7	0.9
New Permanente Diversion Structure <sup>c</sup>	1.7	17.7	8.6	0.5	0.7	0.1	0.7
Floodwalls and Levees downstream of US-101 <sup>c</sup>	1.4	12.2	7.1	0.5	0.6	0.1	0.5
Permanente Creek Channel Improvements	2.2	21.2	10.4	0.5	0.9	0.1	0.8
<b>Year 1 Total Daily Emissions</b>	<b>8</b>	<b>71</b>	<b>38</b>	<b>76</b>	<b>3</b>	<b>16</b>	<b>3</b>
<b>Year 2 Elements</b>							
Hale Creek Channel Improvements <sup>c</sup>	2.2	21.2	10.4	0.5	0.9	0.1	0.8
Cuesta Annex Flood Detention Facility	3.6	55.9	18.3	30.4	1.9	6.4	1.8
McKelvey Park Flood Detention Facility <sup>d</sup>	4.4	69.3	20.7	33.8	2.3	7.7	2.1
<b>Year 2 Total Daily Emissions</b>	<b>10.7</b>	<b>146.1</b>	<b>49.5</b>	<b>65.3</b>	<b>5.4</b>	<b>14.7</b>	<b>5.3</b>
<b>Year 3 Elements</b>							
Hale Creek Channel Improvements <sup>c</sup>	2.2	21.2	10.4	0.5	0.9	0.1	0.8
<b>Year 3 Total Daily Emissions</b>	<b>2</b>	<b>21</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>Year 4 Elements</b>							
Hale Creek Channel Improvements <sup>c</sup>	2.2	21.2	10.4	0.5	0.9	0.1	0.8
<b>Year 4 Total Daily Emissions</b>	<b>2</b>	<b>21</b>	<b>10</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>1</b>

Project Element	Construction Emission (pounds/day)						
	ROGs <sup>a</sup>	NO <sub>x</sub> <sup>a</sup>	CO	PM10 Fugitive Dust	PM10 Exhaust	PM2.5 Fugitive Dust	PM2.5 Exhaust
Significance Thresholds	54	54	-	BMPs	82	BMPs	54
Exceed Thresholds?	No	Yes (Years 1 and 2)	-	-	No	-	No

<sup>a</sup> Reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>) are Ozone precursors.

<sup>b</sup> The estimated construction emissions for Rancho San Antonio Park Flood Detention Facility remain the same as presented in the Draft SEIR because the emissions presented in the Draft SEIR conservatively assumed the maximum haul truck trips occurring through the entire site excavation phase (6 months) instead of the peak construction period (4 months) where all the excavation activities would occur. Therefore, the conservative (higher) truck trips would adequately cover the 30% increase due to soil expansion.

<sup>c</sup> The estimated construction emissions for this project element remain the same as the Draft SEIR because minimal excavation activities and quantities are involved with the project element; therefore, even with the 30% increase to account for soil expansion, the number of haul truck trips for excavated soil remains the same.

<sup>d</sup> The increase in emissions since the Draft SEIR at McKelvey Park Flood Detention Facility reflects the increase in haul truck trips associated with the excavation activities. The volume of the excavated soil has been increased by 30% to account for soil expansion during excavation. See Chapter 8 (*Transportation and Traffic*) for the revised estimated construction trips.

## IMPACTS AND MITIGATION MEASURES

### Impact AQ1—Conflict with or Obstruction of Applicable Air Quality Plan

Summary by Project Element: Impact AQ1—Conflict with or Obstruction of Applicable Air Quality Plan		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	No Impact	No Impact

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan, which, in turn, would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, proposed projects must be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air plans. As discussed in Chapter 16 (*Growth Inducement and Related Impacts*), the Project would not result in population or employment growth. Therefore, there would be no impact related to conflict with or obstruction of air quality plans, and no mitigation is required.

## Impact AQ2—Violation of Any Air Quality Standard or Substantial Contribution to Existing or Projected Air Quality Violation

Summary by Project Element: Impact AQ2—Violation of Any Air Quality Standard or Substantial Contribution to Existing or Projected Air Quality Violation		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Significant and Unavoidable	Less than Significant

Project construction would result in tailpipe emissions from construction equipment, as well as fugitive dust generated by ground-disturbing activities. Estimated construction emission levels are summarized in Table 10-5 for maximum daily emissions. As shown in Table 10-5, project construction would generate the maximum daily emissions of NO<sub>x</sub> in exceeding the significance threshold in the Year 1 and Year 2.

Because construction emissions are predicted to exceed the daily emission threshold for NO<sub>x</sub> (Table 10-4), the impact is considered significant and would require the implementation of Mitigation Measure AQ2.1 below and Mitigation Measures NV1.1 and NV1.3 described below and in Chapter 9 (*Noise*) of this SEIR. With respect to fugitive PM10 and fugitive PM2.5, the BAAQMD CEQA Air Quality Guidelines (2012) consider the dust impacts to be less than significant if BMPs are employed to reduce these emissions. Therefore, the construction dust impact would be less than significant with the implementation of the Mitigation Measure AQ2.2 described further in this section. Mitigation Measure AQ2.1 has been revised since the 2010 FEIR to comply with the latest BAAQMD guidelines.

Table 10-6 summarizes the maximum daily emissions with the mitigation implemented. The input and output data for emissions calculations are included in Appendix D. However, with the implementation of these mitigation measures, NO<sub>x</sub> emissions would still exceed the significance threshold of 54 pounds per day in Years 1 and 2. The construction contractor would be required to implement all feasible, cost-effective mitigation measures to reduce exhaust emissions. Although the maximum emissions present a conservative, worst-case estimation, which assumes that peak construction activity from each project element would occur on the same day, the impact would still be significant and unavoidable.

**Table 10-6. Mitigated Daily Construction Emissions**

Project Element	Construction Emission (pounds/day)						
	ROGs	NO <sub>x</sub>	CO	PM10 Fugitive Dust	PM10 Exhaust	PM2.5 Fugitive Dust	PM2.5 Exhaust
<b>Year 1 Elements</b>							
Rancho San Antonio Park Flood Detention Facility	2.2	17.2	12.2	39.8	0.6	8.3	0.6
New Permanente Diversion Structure	1.7	15.2	8.6	0.3	0.5	0.1	0.4
Floodwalls and Levees downstream of US-101	1.4	10.3	7.1	0.3	0.4	0.1	0.3
Permanente Creek Channel	2.2	18.1	10.4	0.3	0.6	0.1	0.5

Project Element	Construction Emission (pounds/day)						
	ROGs	NO <sub>x</sub>	CO	PM10 Fugitive Dust	PM10 Exhaust	PM2.5 Fugitive Dust	PM2.5 Exhaust
Improvements							
<b>Year 1 Total Daily Emissions</b>	<b>8</b>	<b>61</b>	<b>38</b>	<b>41</b>	<b>2</b>	<b>9</b>	<b>2</b>
<b>Year 2 Elements</b>							
Hale Creek Channel Improvements	2.2	18.1	10.4	0.3	0.6	0.1	0.5
Cuesta Annex Flood Detention Facility	3.6	53.0	18.3	16.3	1.5	3.5	1.4
McKelvey Park Flood Detention Facility	4.4	66.4	20.7	18.3	1.9	3.9	1.7
<b>Year 2 Total Daily Emissions</b>	<b>407</b>	<b>1381</b>	<b>4934</b>	<b>3519</b>	<b>43</b>	<b>74</b>	<b>43</b>
<b>Year 3 Elements</b>							
Hale Creek Channel Improvements	2.2	18.1	10.4	0.3	0.6	0.1	0.5
<b>Year 3 Total Daily Emissions</b>	<b>2</b>	<b>18</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>Year 4 Elements</b>							
Hale Creek Channel Improvements	2.2	18.1	10.4	0.3	0.6	0.1	0.5
<b>Year 4 Total Daily Emissions</b>	<b>2</b>	<b>18</b>	<b>10</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>Significance Thresholds</b>	<b>54</b>	<b>54</b>	<b>-</b>	<b>BMPs</b>	<b>82</b>	<b>BMPs</b>	<b>54</b>
<b>Exceed Thresholds?</b>	<b>No</b>	<b>Yes</b> (Years 1 and 2)	<b>-</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

**Mitigation Measure AQ2.1—Implement Tailpipe Emission Reduction for Project Construction**

The District will require all construction contractors to minimize air quality impacts related to construction activities during site preparation, grading, and construction. Emission reduction will include at least the following measures and may include other measures identified as appropriate by the District and/or contractor.

- Maintain construction equipment in good condition.
- Minimize truck idling.
- Set up stationary equipment as far as possible from residences.

The District will be responsible for proper and effective implementation, including the following specific duties.

- Conduct periodic inspections to confirm that appropriate BMPs are being implemented.
- Take corrective action to resolve issues revealed by either routine inspections or incoming complaints.

According to the BAAQMD guidelines (2012), the District will require all construction contractors to implement the exhaust Basic Construction Mitigation Measures and Additional Construction Mitigation Measures recommended by the BAAQMD to control exhaust

emissions. Emission reduction measures will include at least the following measures and may include other measures identified as appropriate by the District and/or contractor.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes. Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20% NO<sub>x</sub> reduction and 45% PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO<sub>x</sub> and PM.
- Require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

#### **Mitigation Measure AQ2.2— Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust**

The District will require all construction contractors to implement the Basic Construction Mitigation Measures recommended by the BAAQMD to reduce dust emissions. Emission reduction measures will include at least the following measures and may include other measures identified as appropriate by the District and/or contractor.

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

**Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

The District will provide advance written notification of the proposed construction activities to all residences and other noise- and air quality- sensitive uses within 750 feet of the construction site. Notification will include a brief overview of the proposed project and its purpose, as well as the proposed construction activities and schedule. It will also include the name and contact information of the District’s project manager or another District representative or designee responsible for ensuring that reasonable measures are implemented to address the problem (the construction noise and air quality disturbance coordinator; see Mitigation Measure NV1.3).

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

The District will designate a representative to act as construction noise and air quality disturbance coordinator, responsible for resolving construction noise and air quality concerns. The disturbance coordinator’s name and contact information will be included in the preconstruction notices sent to area residents (see Mitigation Measure NV1.1). She or he will be available during regular business hours to monitor and respond to concerns; if construction hours are extended, the disturbance coordinator will also be available during the extended hours. In the event an air quality or noise complaint is received, she or he will be responsible for determining the cause of the complaint and ensuring that reasonable measures are implemented to address the problem.

**Impact AQ3—Exposure of Sensitive Receptors to Substantial Pollutant Concentrations**

<b>Summary by Project Element: Impact AQ3—Exposure of Sensitive Receptors to Substantial Pollutant Concentrations</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant with Mitigation	Less than Significant

**Construction Fugitive Dust**

Dust would be generated during grading and excavations activities. The amount of dust generated would be highly variable and dependent on the size of the disturbed area at any given time, amount of activity, soil conditions, and meteorological conditions. Typical winds during late spring through summer are from the north or northwest. Nearby land uses, especially those residences located to the south could be adversely affected by dust generated during construction activities. The BAAQMD CEQA Air Quality Guidelines consider the dust impacts to be less than significant if BMPs are employed to reduce these emissions. Implementation of Mitigation Measure AQ2.2 would reduce construction-related fugitive dust emissions to less than significant.

### **Mitigation Measure AQ2.2— Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust**

This measure is described in detail above.

#### **Toxic Air Contaminants from Construction Activity**

Diesel particulate matter (DPM), which is classified as a carcinogenic TAC by ARB, and PM<sub>2.5</sub> are BAAQMD's primary pollutants of concern with regard to health risks to sensitive receptors. Cancer health risks associated with exposure to diesel exhaust are typically associated with chronic exposure, in which a 70-year exposure period is assumed. In addition, DPM and PM<sub>2.5</sub> concentrations, and thus cancer health risks, dissipate as a function of distance from the emissions source. BAAQMD has determined that construction activities occurring at distances of greater than 1,000 feet from a sensitive receptor likely do not pose a significant health risk.

There are sensitive land uses (homes, schools, and hospitals) located within 1,000 feet of each project element. Therefore, exposure to construction DPM emissions was assessed by predicting the health risks in terms of excess cancer risk, non-cancer hazard impacts, and elevated PM<sub>2.5</sub> concentrations. The screening-level health risk assessment (HRA) is performed with the following steps:

1. -Estimate the PM<sub>10</sub> and PM<sub>2.5</sub> exhaust emissions from on-site construction equipment operation, based on the results discussed in Impact AQ2. The PM<sub>10</sub> exhaust emission was used to evaluate the increased DPM cancer risk and the DPM non-cancer hazard impact; and the PM<sub>2.5</sub> exhaust emission was used to evaluate the PM<sub>2.5</sub> concentration.
2. Use the SCREEN3 dispersion model to predict the PM<sub>10</sub> and PM<sub>2.5</sub> hourly concentrations at the nearest sensitive land uses based on the maximum daily PM<sub>10</sub> and PM<sub>2.5</sub> exhaust emissions for project element.
3. Calculate the project-level cancer risk, non-cancer hazard index (HI), and annual PM<sub>2.5</sub> concentrations for each project element based on the SCREEN3 hourly concentrations and the construction durations.
4. Identify background stationary and highway sources and within 1,000 feet of each project element through Google Earth map files provided by the BAAQMD. The Google Earth map files include associated estimated risk and hazard impacts at nearby these sources. (Bay Area Air Quality Management District 2011) Where no stationary data is available in the files, BAAQMD is contacted to obtain the data. (Kirk pers. comm.) The cumulative HRA was analyzed by adding the background health risks from these sources to the project-level health risk and hazard impacts estimated for each project element.

The results of the HRA are summarized in Table 10-7 below for the project level analysis and in the Table 10-8 for the cumulative analysis. As shown in the tables, the project would not result in significant increases of the non-cancer HI and cancer risk at the project and cumulative levels nor would the project result in increased annual PM 2.5 concentrations at the cumulative level, as the estimated non-cancer HI, cancer risk, and annual PM 2.5 concentrations at the closest receptors are below the significance thresholds.

However, at the project level, the project would cause an exceedance of significance thresholds for the increased annual PM 2.5 concentrations at the receptors within 1,000 feet of each



project element. The impact is considered significant and would require the implementation of the Mitigation Measure AQ2.1 above and Mitigation Measures NV1.1 and NV1.3.

**Mitigation Measure AQ2.1—Implement Tailpipe Emission Reduction for Project Construction**

This measure is described in detail above.

**Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

This measure is described in detail above.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above.

**Table 10-7. TAC Health Risks—Project Level Analysis**

Project Element	Project Health Risks		
	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m <sup>3</sup> )
Rancho San Antonio Park Flood Detention Facility	0.04	0.91	0.18
New Permanente Diversion Structure	0.13	1.97	<b>0.53</b>
Floodwalls and Levees downstream of US-101	0.04	0.8	0.20
Permanente and Hale Creek Channel Improvements	0.07	3.01	0.30
Guesta Annex Flood Detention Facility	0.05	0.78	0.24
Guesta Annex Inlet/Outlet Culvert	0.08	0.60	<b>0.36</b>
McKelvey Park Flood Detention Facility	0.09	2.86	<b>0.43</b>
McKelvey Park Outlet Pipe	0.03	0.13	0.12
<b>Significance Thresholds</b>	<b>1</b>	<b>10</b>	<b>0.3</b>
<b>Exceed Thresholds?</b>	<b>No</b>	<b>No</b>	<b>Yes</b>

**Table 10-8. TAC Health Risks – Cumulative Analysis**

Project Element	Background Health Risks			Cumulative Health Risks		
	Non-Cancer Hazard Index	Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m <sup>3</sup> )	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m <sup>3</sup> )
Rancho San Antonio Park Flood Detention Facility	0	0	0	0.04	0.91	0.18
New Permanente Diversion Structure	0	0	0	0.13	1.97	0.53
Floodwalls and Levees Downstream of US-101	0.03	28.87	0.18	0.07	29.67	0.38
Permanente and Hale Creek Channel Improvements	0	0	0	0.07	3.01	0.30
Cuesta Annex Flood Detention Facility	0.04	6.54	0.00	0.06	7.33	0.24
Cuesta Annex Inlet/Outlet Culvert	0.04	6.54	0.00	0.09	7.14	0.36
McKelvey Park Flood Detention Facility	0.02	11.68	0.14	0.11	14.53	0.57
McKelvey Park Outlet Pipe	0.02	11.68	0.14	0.04	11.81	0.26
<b>Significance Thresholds</b>	-	-	-	<b>10</b>	<b>100</b>	<b>0.8</b>
<b>Exceed Thresholds?</b>	-	-	-	<b>No</b>	<b>No</b>	<b>No</b>

Table 10-9 summarizes the increased health risks with the mitigation implemented. The increased annual PM2.5 concentrations at the nearest receptors would be reduced to be less than the significance threshold. Therefore, the construction-related health risk impact would be less than significant with mitigation.

**Table 10-9. TAC Health Risks with Mitigation**

Project Element	Project level			Cumulative Level		
	Non-Cancer Hazard Index	Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m <sup>3</sup> )	Non-Cancer Hazard Index	Increased Cancer Risk (per million)	Annual PM2.5 Concentration (µg/m <sup>3</sup> )
Rancho San Antonio Park Flood Detention Facility	0.02	0.50	0.10	0.02	0.50	0.10
New Permanente Diversion Structure	0.07	1.08	0.29	0.07	1.08	0.29
Floodwalls and Levees Downstream of US-101	0.02	0.44	0.11	0.05	29.31	0.29
Permanente and Hale Creek Channel Improvements	0.04	1.66	0.17	0.04	1.66	0.17
Cuesta Annex Flood Detention Facility	0.03	0.43	0.13	0.04	6.97	0.13
Cuesta Annex Inlet/Outlet Culvert	0.04	0.33	0.20	0.05	6.87	0.20
McKelvey Park Flood Detention Facility	0.05	1.57	0.24	0.07	13.25	0.37
McKelvey Park Outlet Pipe	0.01	0.07	0.07	0.03	11.75	0.20
<b>Significance Thresholds</b>	<b>1</b>	<b>10</b>	<b>0.3</b>	<b>10</b>	<b>100</b>	<b>0.8</b>
<b>Exceed Thresholds?</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>	<b>No</b>

### Impact AQ4—Creation of Objectionable Odors

Summary by Project Element: Impact AQ4—Creation of Objectionable Odors		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant with Mitigation	Less than Significant

Like many construction efforts, the proposed project may generate odors associated with diesel exhaust, paving activities, and other construction-related sources. Odors would be temporary and localized but could still result in disturbance, potentially rising to the level of a significant impact, especially where construction takes place in close proximity to residences. Implementation of Mitigation Measure AQ2.1 and NV1.3 would reduce odor-related impacts to a less-than-significant level.

#### Mitigation Measure AQ2.1—Implement Tailpipe Emission Reduction for Project Construction

This measure is described in detail above.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above.

**Impact AQ5—Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is a Non-Attainment Area under NAAQS and CAAQS**

<b>Summary by Project Element: Impact AQ5— Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is a Non-Attainment Area under NAAQS and CAAQS</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Significant and Unavoidable	Less than Significant

The emissions thresholds shown in Table 10-4 take into account of a project’s individual contribution of criteria pollutant emissions to cumulative emissions. Therefore, the project-level criteria pollutant thresholds are used to address both project-level and cumulative impacts. As discussed in Impact AQ2, the project’s construction emissions were estimated to exceed the daily emission threshold for NO<sub>x</sub>. With the implementation of Mitigation Measure AQ2.1 above and Mitigation Measures NV1.1 and NV1.3, NO<sub>x</sub> emissions would still exceed the threshold. Therefore, the Project’s contribution during construction on cumulative air quality impact is considered significant and unavoidable for NO<sub>x</sub>.

**Mitigation Measure AQ2.1—Implement Tailpipe Emission Reduction for Project Construction**

This measure is described in detail above.

**Mitigation Measure NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents**

This measure is described in detail above.

**Mitigation Measure NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns**

This measure is described in detail above.

After the project elements are constructed, the project facilities would be maintained as needed. Maintenance activities of the new project facilities and post-flood cleanup at the detention facilities would occur infrequently and would be restricted in extent and duration, involving comparatively small areas over a period of hours or days. In addition, most maintenance activities are part of the existing environmental baseline and thus would not create a substantial source of new emissions. Therefore, the Project’s maintenance and operational (after construction is completed) activities on cumulative air quality impact is expected to be less than cumulatively considerable. Regardless, the Project’s construction activities would still result in a significant and unavoidable cumulative impact.

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### **PERSONAL COMMUNICATION**

Kirk, Alison. Senior Environmental Planner. Bay Area Air Quality Management District. March 22, 2012—Email message to Kai-Ling Kuo, ICF International, San Jose, CA.

Rouhani, Afshin. Project Manager, Santa Clara Valley Water District. March 5, 2012—Email message to Shilpa Trisal, ICF International, San Jose, CA.

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# CHAPTER 11. HAZARDOUS MATERIALS AND PUBLIC HEALTH

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Public health is protected by numerous federal and state regulations, including the federal Comprehensive Environmental Response, Compensation, and Liability Act (Superfund Act) and Resource Conservation and Recovery Act. Key state regulations include the Hazardous Materials Release Response Plans and Inventory Act (1985), the Hazardous Waste Control Act, the Emergency Services Act, and the Safe Drinking Water and Toxic Enforcement Act (1986). For additional information see Appendix B of this SEIR.

### *EXISTING CONDITIONS*

Information on potential soil and groundwater contamination hazards in the project area was drawn primarily from a Level I Hazardous Materials Investigation completed for the proposed project by D&M Consulting Engineers in 2002, which covered the Permanente Creek alignment from Foothill Expressway to the margins of San Francisco Bay north of Shoreline Park, as well as the entire length of the Permanente Creek Diversion. In addition, a soil sampling report prepared by Light, Air and Space Construction (LA&S) in 2011 for the Rancho San Antonio County Park Flood Detention Facility flood detention site and a Phase I Environmental Site Assessment (ESA) prepared by Partner Engineering and Science in 2011 for the Pearson House location and museum site proposed under separate project in the Cuesta Annex were was used. The D&M Level I report used state and federal database sources and the land use history of the project area to assess the potential for hazardous materials contamination in the project corridor. The Rancho San Antonio soil sampling report used the results of environmental soil sampling and analyses performed for eight sampling locations to determine the potential for hazardous materials contamination at the Rancho San Antonio site. ~~The Cuesta Annex Phase I ESA was prepared for the proposed Pearson House location and museum site, which is a 1.5-acre site south of the proposed detention facility in the Cuesta Annex, but research for the ESA included adjacent areas, including the site of the proposed flood detention facility. The Cuesta Annex Phase I ESA included a site reconnaissance as well as research and interviews with representatives of the public, property owners, the site manager, and regulatory agencies to assess the potential for hazardous materials contamination at the Cuesta Annex site. In addition, the database search in the D&M Level I investigation included McKelvey Park; however, no site-specific historic research or physical reconnaissance was conducted for the site.~~

Information on historical land uses in D&M's report was obtained from a review of historic topographic maps dating from 1899 to 1991, and historical aerial photographs dating from 1939 to 1988. D&M also conducted a search for historic fire insurance maps (Sanborn maps), although none were located that pertained to the project alignment or adjacent properties. Information on the remaining potential sources of hazardous materials was obtained from a review of federal and state environmental databases and local agency records.

~~Information on historical land uses in LS&A's report on the Cuesta Annex was obtained from a review of historic aerial photographs and interviews dating from 1939 to 1982 and historic aerial photographs, interviews, and onsite observations dating from 1994 to 2011. LS&A also conducted a search for historic topographic and Sanborn maps, but historic topographic maps were not available, and there was no Sanborn coverage for the Cuesta Annex property. Information on the remaining potential sources of hazardous materials was obtained from a review of federal and state environmental databases and local agency records.~~

The Rancho San Antonio soil sampling report did not include information on historical land uses because it was strictly a soil sampling report to determine if contaminated soils are present at the Rancho San Antonio Flood Detention Facility.

For project sites not covered by site-specific investigations—the proposed flood detention site facility and outlet pipe at the McKelvey Park site and inlet/outlet culverts—the SEIR team conducted searches of the EPA's *EnviroMapper* database, the California Department of Toxic Substances Control's (DTSC's) Hazardous Waste and Substances Site List, and the State Water Board's list of leaking underground fuel tanks (California Department of Toxic Substances Control 2012; California Water Resources Control Board 2012; U.S. Environmental Protection Agency 2012a). The results of the search are discussed below.

Information on public health and vector-borne diseases was obtained from records of the California Department of Health Services, Vector-Borne Disease Section 2005 and from staff of the Santa Clara County Vector Control District (Tietze pers. comm.).

## Soil and Groundwater Contamination Hazards

Groundwater and surface water in the portion of the project area north of Middlefield Road have been widely affected by regional volatile organic chemical (VOC) plumes thought to be associated mainly with historic industrial uses. Soils and groundwater have also been affected by petroleum hydrocarbons and metals associated with former uses at the Jones Hall U.S. Army Reserve Center. Potential sources of soil and water contamination also include contaminated surface runoff and contamination related to hazardous materials storage at Shoreline Golf Course, the Army Reserve Center, and the Hartzog Property on 1900 Old Middlefield Way in Mountain View (D&M Consulting Engineers 2002).

Soil impacts from pesticides may be concentrated in the portion of the project area between Middlefield Road and Foothill Expressway where historic uses were largely agricultural. The area adjacent to the Permanente Diversion was formerly occupied by orchards, greenhouses, and packing plants, and there is some potential for contamination due to spills at former greenhouses and/or packing plants in the areas adjoining the alignment (D&M Consulting Engineers 2002). ~~In addition, according to historic sources, the Cuesta Annex was occupied by an orchard from at least 1939 until as late as the early 1980s (Partner Engineering and Science 2011).~~

South of Foothill Expressway, cultivation and grazing were historically widespread in areas adjacent to Permanente Creek. As early as 1862, about 500 acres of the original Ranch San Antonio lands in the vicinity of Permanente Creek were under cultivation for grain crops,



vineyards, and orchards (Midpeninsula Regional Open Space District 2012). Subsequent uses in this area are less certain because no known data sources comprehensively address land uses in this area from historic times to the present day.

None of the proposed project element sites, or other portions of the project corridor, are included on a federal, state, or local list of known hazardous materials sites. The D&M hazardous materials investigation for the Project did not identify any known or suspected hazardous materials concerns along Hale Creek (D&M Consulting Engineers 2002). The soil sampling at the Rancho San Antonio site found no indications of potential soil contamination. Although metals were detected in all samples at the site, LA&S found that all metal concentrations were consistent with naturally occurring concentrations for soils in the Bay Area and did not exceed any regulatory standards (Light, Air, and Space Construction 2011). ~~The Cuesta Annex Phase I ESA did not identify any known or suspected hazardous materials concerns at the Cuesta Annex site.~~ In addition, the extended regulatory database search performed for this SEIR did not identify any evidence of prior site contamination within or adjacent to the proposed flood detention facility areas at McKelvey Park. Accordingly, these sites are not discussed further in this section.

However, the D&M Level 1 hazardous materials investigation performed for the Permanente Creek alignment and the Permanente Diversion site (D&M Consulting Engineers 2002) identified eleven sites located adjacent to Permanente Creek as sites of potential concern based on records reviews, interviews, and/or site reconnaissance. Of these, eight are considered relevant to the Project as currently proposed, based on their locations and the locations of the proposed project elements.

### **Shoreline–Mountain View Regional Landfill, 1780 Amphitheatre Parkway, Mountain View**

The project alignment crosses a portion of this former landfill site immediately north of Amphitheatre Parkway. Results of D&M's regulatory database search show that both groundwater and surface water at the site are impacted by VOCs. Generally, concentrations of VOCs were found to be low within and adjacent to the project alignment, but contamination is widespread, particularly in the vicinity of Permanente Creek. For this reason, the VOC impact on groundwater and surface water within the former landfill is considered to be of high concern relative to the project alignment (D&M Consulting Engineers 2002).

### **Shoreline Golf Course**

This site is located immediately north of Amphitheatre Parkway, beyond the northern project limits. The golf course maintenance area, located about 1,800 feet east of the creek, includes underground fuel storage tanks, lawn chemicals, various chemical products used in vehicle maintenance, and a wash rack. City of Mountain View Fire Department records for the facility document a release of 0.65 parts per billion (ppb) of lead that was detected in wash water discharged to the sanitary sewer. Surface runoff of lawn chemicals may have also impacted portions of the creek. D&M evaluated the golf course as being of low concern relative to the project alignment, but recommended a Level II investigation for this site (D&M Consulting Engineers 2002).

**Peery-Arrilaga Company, 1098 Alta Avenue, Mountain View**

The Peery-Arrilaga property adjoins Permanente Creek on the south side of Charleston Road. Soils and groundwater at the site are impacted by VOCs, with the highest concentrations occurring at the northwest corner of the property, approximately 50 feet from the center line of Permanente Creek. In an effort to remediate the contaminants present, separate soil and groundwater extraction systems were operated at the site from 1995 to 1998. A final remedial action plan, approved by the San Francisco Bay RWQCB in 2000, proposed expanding groundwater extraction and air stripping to address elevated concentrations of VOCs in adjacent wells. Extraction is planned to continue from wells on the north side of Charleston Road. This site is considered to be of high concern relative to the project alignment (D&M Consulting Engineers 2002).

**Jones Hall U.S. Army Reserve Center, 1776 Old Middlefield Way, Mountain View**

This site is located on the north side of Old Middlefield Way, adjacent to the east side of Permanente Creek. Low levels of VOCs have been detected at the site. In addition, high levels of petroleum hydrocarbons, which may be attributed to an offsite source, have been detected in groundwater samples taken at the site. Elevated concentrations of lead and chromium have also been detected in site groundwater. The Mountain View Fire Department maintains an environmental compliance file for this site, covering hazardous materials storage and discharge of wastewater from a vehicle wash area that passes through an oil/water separator before discharging to the sanitary sewer. A sketch of the site obtained by D&M shows four sheds used to store oil and grease along the property's fence line, adjacent to the creek. This site is considered to be of moderate concern relative to the project alignment (D&M Consulting Engineers 2002).

**Spectra-Physics and Teledyne, 1300 Terra Bella Avenue, Mountain View**

These sites are located south of US-101, approximately 0.25 mile east of Permanente Creek. The site is a federal Superfund site and is listed on the National Priority List (NPL) maintained by the EPA for trichloroethene (TCE) and vinyl chloride plumes. Both the Teledyne site and the nearby Spectra-Physics site are regulated under a single San Francisco Bay RWQCB order for a commingled groundwater solvent plume more than 1 mile long. To remediate the plume, Teledyne and Spectra-Physics operate an extensive groundwater extraction system north of US-101. Additionally, a groundwater pump and treat system has been in operation at the Teledyne and Spectra-Physics sites since 1986, and a groundwater extractions system located between Spring Street and US-101 has been in operation since 1991. This site is considered to be of moderate concern relative to the project alignment (D&M Consulting Engineers 2002).

**Vivid Inc., 1250 W. Middlefield Road, Mountain View**

This site is located approximately 0.13 mile east of Permanente Creek. EPA's online records indicate that the site is part of the 11.5-acre Spectra-Physics Inc. site, which is listed on the NPL for elevated concentrations of VOCs detected in water samples from Permanente Creek (U.S. Environmental Protection Agency 2012b). Contaminated groundwater from the site has merged with the contaminated plume of the Teledyne site (U.S. Environmental Protection Agency 2012b). The Vivid Inc. site is considered to be of moderate concern relative to the project alignment (D&M Consulting Engineers 2002).

### **Hartzog Property, 1900 Old Middlefield Way, Mountain View**

This site is located south of US-101 adjacent to the west side of Permanente Creek. Records for several current and former auto repair businesses at that location indicate indoor hazardous materials storage, including up to about seven drums of chemicals typically used in automotive repair such as fresh and waste oils, antifreeze, transmission fluid, solvents, and carburetor and brake cleaner, as well as new and used batteries. No spills or leaks or significant housekeeping concerns are noted in Mountain View Fire Department inspection reports for any current or former businesses on the property. This site is considered to be of moderate concern relative to the project alignment (D&M Consulting Engineers 2002).

### **Silicon Graphics Inc./Farmers Field**

This site is located between Charleston Road and Amphitheatre Parkway, on the east side of Permanente Creek. City of Mountain View records indicate that remediation for pesticides and petroleum hydrocarbons was undertaken at the site. The contaminated soil was found beneath and southwest of a former barn located about 700 feet from the project alignment. The Level I investigation prepared for the Project does not indicate a level of concern for this site relative to the project alignment, but does recommend a Level II investigation (D&M Consulting Engineers 2002).

## **Vector-Borne Disease Hazards**

The principal vector-borne disease concern in the project area relates to diseases spread by mosquitoes.

Although 12 mosquito-borne viruses are known to occur in California, only West Nile Virus (WNV), western equine encephalomyelitis virus (WEE), and St. Louis encephalitis virus (SLE) are significant causes of human disease. WNV is having a serious impact upon the health of humans, horses, and wild birds throughout the state. In 2011, there were 158 WNV human cases in the state; one of these cases was in Santa Clara County (California Department of Public Health 2012). Between 1945 and 1984, only two human cases of WEE and one human case of SLE were reported in the County (Reeves 1990). No recent human cases of WEE or SLE have been reported in the County.

### **Mosquito Breeding**

Many mosquitoes lay their eggs on the surface of fresh or stagnant water. Any body of standing water represents a potential breeding habitat for mosquitoes, including water in cans, barrels, horse troughs, ornamental ponds, swimming pools, puddles, creeks, ditches, or marshy areas (American Mosquito Control Association 2012). Within cities and developed areas, runoff from landscape watering, car washing, and storms often collects in retention ponds or catch basins long enough to produce mosquitoes. Mosquito larvae can develop anywhere water stands for at least 5 days (California Department of Public Health 2008).

## Mosquito Control

In California, local vector control agencies have the authority to conduct surveillance for vectors, prevent the occurrence of vectors, and abate production of vectors (California Codes: Health and Safety Code Section 2040). Vector control agencies also have authority to review, comment, and make recommendations for projects with respect to their potential vector production (California Health and Safety Code Section 2041).

To reduce mosquito populations, vector control agencies utilize a combination of abatement procedures tailored to the period in the mosquito life cycle and specific habitat conditions. Mosquito control methods may include the use of biological agents (such as mosquitofish), microbial control agents (such as *Bacillus thuringiensis israelensis* and *B. sphaericus*), pesticides, and source reductions (i.e., draining water bodies that produce mosquitoes) (California Department of Public Health 2008).

All of the project element sites are within the jurisdiction of the Santa Clara County Vector Control District (SCCVCD).

## Wildfire Hazards

Some areas of the County are subject to serious wildfire hazards due to local microclimate conditions, vegetation characteristics, and/or topography. Based on the California Department of Forestry and Fire Protection's wildfire hazard real estate disclosure map for Santa Clara County, the project area is outside areas with substantial forest wildland fire hazards (California Department of Forestry and Fire Protection 2012). Nonetheless, ~~some project elements~~ the Rancho San Antonio County Park Flood Detention Facility would be constructed in ~~areas an area~~ that supports ruderal grassland and woodland, which could pose wildfire risks under dry conditions. Given the nature of ~~the proposed detention sites at Rancho San Antonio County Park and Cuesta Annex~~ this project element, wildland fire may be a concern for ~~these sites~~ this site. The remaining project element sites are surrounded by urban development, and thus are not subject to wildland fire risk.

# IMPACT ANALYSIS

## ***METHODS AND SIGNIFICANCE CRITERIA***

Analysis considered the potential for significant impacts on public health and safety as a result of hazardous materials exposure, vector-borne diseases, and wildland fire. Risks were evaluated qualitatively based on available information. No portion of the project area is included on a federal, state, or local list of sites with known hazardous materials contamination. Accordingly, impacts related to construction on sites with known contamination are not discussed; instead, analysis focused on potential for previously unreported contamination. None of the project element sites is located in close proximity to a public or private airport or within an adopted Airport Land Use Plan area, so impacts related to airport safety hazards are not discussed. The only site subject to potential wildland fire hazard is the proposed detention facility location at Rancho San Antonio; discussion of wildland fire risks focuses on this site.

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Substantially increased hazard to the public or the environment due to the routine transport, use, or disposal of hazardous materials.
- Exposure of workers or the public to existing hazardous materials contamination.
- Generation of hazardous emissions or handling of hazardous or acutely hazardous materials, substances, or wastes within 0.25 mile of an existing or proposed school.
- Impaired implementation of, or physical interference with, an adopted emergency response plan or emergency evacuation plan.
- Increased breeding or harborage of disease vector organisms, leading to elevated public health risk.
- Increased risk of wildland fire; increased exposure of people or structures to substantial risk of loss, injury, or death involving wildland fires or fires in the wildland/urban interface area.

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by text analysis.

## **IMPACTS AND MITIGATION MEASURES**

### **Impact PHS1—Creation of Hazard through Transport, Use, or Disposal of Hazardous Materials**

<b>Summary by Project Element: Impact PHS1—Creation of Hazard through Transport, Use, or Disposal of Hazardous Materials</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant	Less than Significant

#### **Construction**

Construction of all project elements would require the use of hazardous substances such as vehicle fuels and lubricants, solvents, etc. hazardous and potentially hazardous materials used in construction would be transported, stored, and handled in a manner consistent with all relevant regulations and guidelines, including those recommended and enforced by the U.S. Department of Transportation and Santa Clara County Department of Environmental Health. In addition, as discussed in Chapter 2 (*Project Description*) and Chapter 4 (*Hydrology and Water Resources*), the District will require contractors to implement measures to ensure that water quality is protected during construction, specified in the individual SWPPPs prepared for the project elements. These measures would include provisions for appropriate handling of any hazardous materials used on the project sites, as well as a Spill Prevention and Response Plan

to minimize the potential for, and effects of, inadvertent spills occurring during project construction. The District will be responsible for ensuring that all best management practices (BMPs) for hazardous materials handling and use are properly implemented. With these procedures in place, impacts related to hazardous materials use during construction are expected to be less than significant, and no mitigation is required.

**Operation and Maintenance**

Much like construction, periodic activities required to maintain the new project elements would require the use of vehicle fuels, lubricants, etc., and could also require solvents, paints, paving media, and other substances. However, as discussed in Chapter 2 (Table 2-4), the District routinely implements a stringent palette of BMPs for hazardous materials use. With these BMPs in place, impacts related to the necessary use of hazardous materials during maintenance activities are expected to be less than significant. No mitigation is required.

**Impact PHS2—Exposure of Workers or the Public to Existing Hazardous Materials Contamination**

<b>Summary by Project Element: Impact PHS2—Exposure of Workers or the Public to Existing Hazardous Materials Contamination</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant with Mitigation	Less than Significant with Mitigation

The project modifications would not create any new significant hazard or worsen a previously identified hazard through exposure of workers or the public to existing hazardous materials contamination. Impacts would remain less than significant with mitigation for all project elements as identified in the 2010 FEIR.

A regulatory database search conducted for the D&M Level I hazardous materials investigation, ~~the Cuesta Annex Phase I ESA,~~ and this SEIR identified no known hazardous materials contamination within or adjacent to the proposed areas of Project-related ground disturbance at Rancho San Antonio County Park, ~~Cuesta Annex, the Inlet/Outlet Culvert,~~ or McKelvey Park. In addition, the soil sampling at Rancho San Antonio County Park revealed no contamination above naturally occurring levels. However, all of these sites are located in areas with a history of agricultural land uses, so there is a possibility of undocumented soil and/or groundwater contamination with pesticides, fuels, fertilizers, or other compounds used in agriculture. As stated in the FEIR, this translates to some risk that construction workers or the public could be exposed to hazardous substances through accidental disturbance during project construction, potentially constituting a significant impact. Similar concerns would apply to any ground-disturbing maintenance activities. Impacts, if any, would be reduced to a less-than-significant level by implementing Mitigation Measure PHS2.1.

**Mitigation Measure PHS2.1—Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event that Unknown Hazardous Materials Are Encountered**

In the event that unknown hazardous materials are encountered during construction or maintenance activities, all work in the area of the discovery will stop and the District will conduct a Phase II hazardous materials investigation to identify the nature and extent of contamination and evaluate potential impacts on project construction and human health. If no Phase I investigation was previously conducted and is identified as appropriate, it may be done concurrent with or prior to Phase II. If necessary, based on the outcomes of the Phase II investigation, the District will implement Phase III remediation measures consistent with all applicable local, state, and federal codes and regulations. Construction in areas known or reasonably suspected to be contaminated will not resume until remediation is complete. If waste disposal is necessary, the District will ensure that all hazardous materials removed during construction are handled and disposed of by a licensed waste-disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.

Similarly, the D&M Level I hazardous materials investigation (D&M Consulting Engineers 2002) did not identify known or suspected contamination in the vicinity of the channel improvement. All of the contaminated sites identified as posing a particular concern with respect to the Project are located downstream of the channel improvement areas; plumes from these contaminated sites would generally be expected to migrate down gradient towards the Bay, and thus, are unlikely to affect upstream areas. However, like the sites discussed above, the channel improvement alignments are in a former agricultural area with the possibility of undocumented soil and/or groundwater contamination. This translates to some risk that construction workers or the public could be exposed to hazardous substances through accidental disturbance during project construction, potentially constituting a significant impact. Similar concerns would apply to any ground-disturbing maintenance activities. Impacts, if any, would be reduced to a less than significant level by implementing Mitigation Measure PHS2.1.

**Mitigation Measure PHS2.1—Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event that Unknown Hazardous Materials Are Encountered**

This measure is described in detail above.

The D&M Level I hazardous materials investigation prepared for the Project (D&M Consulting Engineers 2002) identified a potential for contamination and recommended Phase II investigation at the sites of the following project elements.

- New Permanente Diversion Structure—arsenic, lead, and chlorinated pesticides related to former greenhouse and packing plant uses.
- Floodwalls and Levees downstream of US-101—widespread soil and groundwater contamination related to high-tech and landfill uses.

Construction activities—in particular, excavation and other ground-disturbing tasks—at these sites would have substantial potential to expose workers and the public to hazardous materials, unless appropriate precautions are taken. The same would be true of ground-disturbing maintenance activities. Such exposure could represent a significant public health impact, but implementation of the following mitigation measures would reduce impacts to a less-than-significant level.

**Mitigation Measure PHS2.2—Implement Recommended Phase II Hazardous Materials Investigation and Any Required Follow-Up (Remediation)**

Prior to groundbreaking at sites for which a Level I/Phase I investigation has identified the need for a Phase II investigation, the District will conduct a Phase II hazardous materials investigation consistent with all applicable federal, state, and local codes and regulations. The District will also be responsible for ensuring that all recommendations of the Phase II investigation, including site remediation and/or additional coordination with regulatory agencies, are implemented consistent with the Phase II and all applicable codes, standards, and regulations. If waste disposal is necessary, the District will ensure that all hazardous materials removed during construction are handled and disposed of by a licensed waste-disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.

**Mitigation Measure PHS2.1—Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event that Unknown Hazardous Materials Are Encountered**

This measure is described in detail above.

**Impact PHS3—Generation of Hazardous Emissions/Use of Hazardous Materials within 0.25 Mile of Schools**

**Summary by Project Element: Impact PHS3—Generation of Hazardous Emissions/Use of Hazardous Materials with 0.25 Mile of Schools**

<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	Less than Significant	Less than Significant
Guesta Annex Flood Detention Facility	Less than Significant	Less than Significant
Channel Improvements: Permanente and Hale Creeks	Less than Significant	Less than Significant
McKelvey Park Flood Detention Facility	Less than Significant	Less than Significant
Floodwalls and Levees downstream of US-101	No Impact	No Impact

The sites of the following project elements are 0.25 mile or more from the nearest school.

- Floodwalls and Levees downstream of US-101.

As such, construction and maintenance of these project elements would have no impacts related to hazardous emissions or hazardous materials use in proximity to a school. No mitigation is required.



The following project elements are located within 0.25 mile of a school.

- Rancho San Antonio County Park Flood Detention Facility (Maryknoll Seminary).
- New Permanente Diversion Structure (Georgina P. Blach Intermediate School and 9 Fruits Learning Center).
- ~~Cuesta Annex Flood Detention Facility (Saint Francis High School, Little Acorn School, and Wedgewood Preschool).~~
- Channel Improvements: Permanente and Hale Creeks (Graham Middle School and St. Joseph Catholic School).
- McKelvey Park Flood Detention Facility (adjacent to St. Joseph Catholic School and Graham Middle School).

Because construction would require the use of a variety of hazardous substances, including vehicle fuels and lubricants, paving media, paints, solvents, etc., there would be some potential for exposure of students, school employees, and the public to hazardous materials. The same would be true for maintenance activities. However, as discussed in Chapter 2 (Table 2-4), all hazardous materials would be handled, stored, and used in a manner consistent with relevant regulations and guidelines. This would reduce risks related to the use of hazardous materials in proximity to school campuses to a level consistent with the current standard of care. Impacts are anticipated to be less than significant. No mitigation is required.

### Impact PHS4—Interference with Emergency Response or Evacuation Plan

Summary by Project Element: Impact PHS4—Interference with Emergency Response or Evacuation Plan		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant with Mitigation	Less than Significant

The project modifications would not create any new significant hazard or worsen a previously identified hazard through interference with emergency response or evacuation plan. Impacts would remain less than significant for all project elements as identified in the FEIR.

The presence of construction equipment and vehicles, worker activities, and materials storage would have the potential to impede emergency access to the project sites and/or interfere with emergency evacuation plans. This would also be true for maintenance activities, although to a lesser degree because fewer pieces of equipment and vehicles would typically be involved. To ensure that project construction does not impede emergency response or evacuations, the District will require contractors to develop and implement a traffic control plan for each site, including a requirement to maintain emergency access to/through the site. Mitigation measures TT1.1 and TT1.3 in Chapter 8 (*Transportation and Traffic*) would reduce impacts on emergency access and evacuations to less than significant. These measures, which are described below, will be implemented.

**Mitigation Measure TT1.1—Require a Site-Specific Traffic Control Plan**

This mitigation measure is described in detail in Chapter 8 (*Transportation/Traffic*).

**Mitigation Measure TT1.3—Provide Detour Plan to Reroute Traffic on Existing Bridges, Bicyclists, and Pedestrians during Construction of Creek Crossings**

This mitigation measure is described in detail in Chapter 8 (*Transportation/Traffic*).

**Impact PHS5—Breeding or Harborage of Disease Vector Organisms**

<b>Summary by Project Element: Impact PHS5—Breeding or Harborage of Disease Vector Organisms</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant with Mitigation
New Permanente Diversion Structure	Less than Significant	No Impact/Beneficial
<del>Guesta Annex Flood Detention Facility</del>	<del>Less than Significant</del>	<del>Less than Significant</del>
Channel Improvements: Permanente and Hale Creeks	Less than Significant	Less than Significant
McKelvey Park Flood Detention Facility	Less than Significant	Less than Significant
Floodwalls and Levees downstream of US-101	Less than Significant	No Impact

The principal concern relative to disease vectors relates to the potential for the Project to create or expand the potential for mosquito breeding in the project area.

During construction, contractors would be required to employ “good housekeeping” measures to prevent the accumulation of standing water on construction sites (Table 2-4). With this requirement in place, construction is not expected to result in a significant increase in mosquito breeding, and no mitigation is required.

Over the long term, most of the project elements would provide no new opportunities for standing water to accumulate and would have no impact on mosquito breeding, as summarized in the table above. Addition of floodwalls and levees to lower Permanente Creek would have no effect on low flows in the channel (those most subject to potential stagnancy). There would be no impact related to these project elements, and no mitigation is required. The improved portions of the Permanente and Hale Creek channels, and new inlet and outlet culverts would be designed consistent with current engineering standards to ensure efficient flow and prevent stagnancy during the summer low-flow months. Impacts, if any, would be less than significant, and no mitigation is required for these elements. The new Permanente Diversion Structure would serve to divert seasonal high flows to Stevens Creek and would not be designed to retain or impound water. It would improve the overall hydraulic function of the Permanente Creek system and if anything would represent a long-term benefit for mosquito control. No mitigation is required for this project element.

~~The Cuesta Annex detention facility would be approximately 8 to 12 feet deep. The Cuesta Annex facility would be designed to receive floodflows from Permanente Creek via an underground inlet culvert running east along Cuesta Drive to the northwest corner of the annex. The outlet would run along a similar path back to Permanente Creek at Miramonte Avenue. Depending on the magnitude of the flood event, the detention area is expected to empty within 1 to 2 days. Mosquito larvae require at least 5 days to mature successfully (California Department of Public Health 2008); thus, it is unlikely that mosquitoes would be able to breed in impounded floodwaters. Therefore, impacts related to postflood mosquito breeding at the Cuesta Annex flood detention facility would be less than significant, and no mitigation is required.~~

The new detention basin at McKelvey would be about 15 feet deep and connected to the Permanente Creek channel. Flows higher than approximately the 50-year flood event would spill into a side channel and then into an energy dissipation area via a short underground pipe. The side channel and energy dissipation area would be constructed on the privately owned parcel adjacent to McKelvey Park. From there, floodwaters would spread into the detention area for temporary storage. Once the flood peak passes, the stored floodflows would drain back into Permanente Creek via gravity flow and pumping. The outlet storm drain pipe would run west along Park Drive from the park to Permanente Creek where there would be a new outlet. Low flow pumps would be installed on the property adjacent to the northwestern corner of the park. Depending on the magnitude of the flood event, the detention area would empty within 1 to 4 days. ~~As described above for the Cuesta Annex detention facility, mosquito~~ Mosquito larvae require at least 5 days to mature successfully (California Department of Public Health 2008). Because the detention basin at McKelvey Park would empty within 1 to 4 days, be designed so there is positive drainage toward the outlets, and have pumps to remove standing water from the basin, sufficient ponding duration to support mosquito breeding at this basin would not occur. Impacts, if any, would be less than significant, and no mitigation is required.

Once constructed, the Rancho San Antonio County Park Flood Detention Facility would occupy an approximately 15-acre area and would have a maximum depth of 15 feet. The deepest portion of the basin would support a natural-appearing central swale expected to retain water longer than the rest of the basin, likely creating seasonal ponding and supporting wetland vegetation. Although the site currently supports a wetland fed largely by storm runoff from the adjacent neighborhood, the new facility may increase the extent and duration of wetland ponding, with the potential to increase mosquito breeding. This could rise to the level of a significant public health impact. To reduce this risk, Mitigation Measure PHS5.1 would be implemented. With this measure in place, potential health risks related to the increased breeding or harborage of disease-carrying mosquitoes would be reduced to a less-than-significant level.

#### **Mitigation Measure PHS5.1—Prepare and Implement a Mosquito and Vector Control Plan**

Prior to construction, the District will retain a qualified professional to prepare a mosquito and vector control plan for the proposed project facility. The plan will be developed in coordination with the SCCVCD and will be subject to SCCVCD approval. The plan will comply with requirements of the County's Integrated Pest Management (IPM) Ordinance (NS-517.70). The approved plan will be implemented as part of the proposed project. The plan will identify areas where mosquito larvae are likely to be present onsite (e.g., in areas with standing water) and will specify mosquito management methods. The management

methods may include the use of chemicals (e.g., pesticides), biological methods (e.g., use of mosquito fish *Bacillus thuringiensis* in water bodies), and/or control of excess runoff and areas where water can accumulate.

Following the infrequent (> 10-year) flood events when the Rancho San Antonio County Park flood detention basin impounds overflow from Permanente Creek, standing water is expected to be present in the basin for a period of 1 to 2 days. As described for the ~~Cuesta Annex and McKelvey Park Flood Detention Facility~~ flood detention facilities, mosquito larvae require at least 5 days to mature successfully (California Department of Public Health 2008); thus, it is unlikely that mosquitoes would be able to breed in impounded floodwaters. Impacts related to postflood mosquito breeding at Rancho San Antonio County Park would, therefore, be less than significant, and no additional mitigation is required.

### Impact PHS6—Exposure of People or Structure to Risk of Wildland Fires

Summary by Project Element: Impact PHS6—Exposure of People or Structure to Risk of Wildland Fires		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant with Mitigation	Less than Significant with Mitigation
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant with Mitigation</del>	<del>Less than Significant with Mitigation</del>
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
McKelvey Park Flood Detention Facility	No Impact	No Impact
Floodwalls and Levees downstream of US-101	No Impact	No Impact

The project modifications would not create any new significant hazard or worsen a previously identified hazard through exposure of people or structure to risk of wildland fires.

The use of construction equipment—in particular, equipment with internal combustion engines, gasoline-powered tools, and equipment or tools that produce a spark, fire, or flame—in grassland and woodland areas at Rancho San Antonio County Park could pose a fire risk. Given the site’s proximity to a large extent of highly flammable grassland, woodland, and chaparral habitat situated at the urban-wildland interface, this could represent a significant wildland and urban fire hazard. Similar concerns would apply to maintenance activities.

~~In addition, although the Cuesta Annex is not wildland in the strict sense, it does support a substantial open expanse of grassland/woodland that would be subject to fire risks similar to those described for Rancho San Antonio. Impacts at the Cuesta Annex site could also be significant.~~

Implementation of the following mitigation measure at the Rancho San Antonio County Park Flood Detention Facility and Cuesta Annex would reduce impacts to a less-than-significant level.

**Mitigation Measure PHS6.1—Implement Wildland Fire Safety Measures**

Consistent with the California Public Resources Code (PRC), the following measures will be implemented. The District will be responsible for ensuring proper implementation.

- All vehicles, heavy equipment, and portable equipment with internal combustion engines will be equipped with properly functioning spark arrestors.
- Appropriate fire suppression equipment will be provided on the job site, and will be kept in a clearly marked and accessible location.
- All personnel will be made aware of the location of fire suppression equipment and trained in its use.
- No portable tools powered by internal combustion engines will be used within 25 feet of any flammable materials unless appropriate fire suppression equipment is provided within 25 feet of the location of the activity.
- Flammable materials will not be stored within 10 feet of any equipment that could produce a spark, fire, or flame.

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## **PERSONAL COMMUNICATION**

Tietze, Noor, Ph.D. Scientific and Technical Services Director. Santa Clara County Vector Control District, San Jose, CA. June 2008—email to Andrew Martin, ICF Jones & Stokes.

# CHAPTER 12. RECREATION

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## ENVIRONMENTAL SETTING

### *REGULATORY CONTEXT*

Public recreation facilities in the project vicinity are provided by the County and area cities, consistent with their land use planning policies. For more information, see Appendix B of this SEIR.

### *EXISTING CONDITIONS*

Information about existing conditions for recreation was gathered from web sites and documents of the City of Mountain View (City of Mountain View 1992, 2008, 2012), the County (County of Santa Clara 1994, 1995; County Department of Parks and Recreation 1995a, 1995b, 2012), and the Midpeninsula Regional Open Space District (MROSD) (1998, 2012b, 2012c). Additional information was collected during a visit to the project area on June 6, 2007.

There are numerous recreational facilities in the project region, managed by a number of local jurisdictions and agencies. This summary focuses on the agencies most relevant to the proposed project: those that manage trails and parks along the Permanente Creek alignment and/or offstream facilities proposed for shared recreational/flood protection use as part of the Project. These include the following.

- The **County Department of Parks and Recreation** owns and/or maintains 28 parks encompassing nearly 45,000 acres (County of Santa Clara Department of Parks and Recreation 2012). County parks located near the project corridor include Stevens Creek County Park and Rancho San Antonio County Park.
- The **Midpeninsula Regional Open Space District** is a public agency that owns and manages over 60,000 acres of land in 26 open space preserves, 24 of which are open to the public. MROSD covers an area of 550 square miles in 17 cities (Atherton, Cupertino, East Palo Alto, Half Moon Bay, Los Altos, Los Altos Hills, Los Gatos, Menlo Park, Monte Sereno, Mountain View, Palo Alto, Portola Valley, Redwood City, San Carlos, Saratoga, Sunnyvale, and Woodside) (Midpeninsula Regional Open Space District 2012b). Rancho San Antonio is co-managed by MROSD and the County of Santa Clara through an Operations and Management Agreement with the Santa Clara County Parks and Recreation Department; this includes MROSD's 3,988-acre open space preserve as well as adjoining 165-acre County park (Midpeninsula Regional Open Space District 2012c). MROSD manages the parking areas and associated facilities immediately northwest of the proposed detention facility location. The current location of the proposed basin is outside of the area managed by the MROSD.
- The **City of Mountain View Parks Division** manages 32 urban parks, as well as 4 miles of bicycle and pedestrian trails along Stevens Creek, Permanente Creek, and the Hetch-Hetchy ROW. It also manages Shoreline at Mountain View Regional Park and other regional open space throughout the city (City of Mountain View 2012).

Table 12-1 lists the recreational facilities in the immediate project area, including the facilities they offer and the uses they support.



**Table 12-1. Recreational Facilities and Uses in the Project Area**

<b>Facility/Managing Agency(ies)</b>	<b>Recreational Facilities</b>	<b>Recreational Uses</b>
Rancho San Antonio <u>County Park</u> (Santa Clara County/ MROSD)	Paved and unpaved multiuse trails, picnic areas, demonstration farm, model plane staging area	Hiking, biking, horseback riding, picnicking, nature viewing, model plane operation
<del>Cuesta Park (City of Mountain View)</del>	<del>Barbeque facilities, bocce ball court, children's playground, horseshoe area, passive areas, picnic areas, tennis courts, volleyball court</del>	<del>Picnicking, bocce ball, volleyball, horseshoes, tennis, children's activities, passive recreational uses</del>
<del>Cuesta Annex (City of Mountain View)</del>	<del>Unpaved trails, passive areas, no designated use</del>	<del>Running, walking, dog walking, nature viewing</del>
McKelvey Park (City of Mountain View)	Baseball field, softball field, <u>paved trail</u>	Youth baseball, softball, <u>walking, dog walking</u>
Permanente Creek Trail (City of Mountain View)	Paved multiuse trail	Walking, bicycling, nature viewing
Shoreline at Mountain View Regional Park (City of Mountain View)	Paved and unpaved multiuse trails, Shoreline Lake, boathouse and boat rentals, 18-hole golf course, clubhouse, historic Rengstorff House, kite flying area, interpretive stations, picnic areas	Hiking, walking, running, bicycling, golfing, picnicking, nature viewing, boating, kite flying

## IMPACT ANALYSIS

### METHODS AND SIGNIFICANCE CRITERIA

Impacts on recreation were assessed based on professional judgment, in consideration of standard land use and recreation planning practices. Analysis included consideration of temporary impacts during construction as well as long-term impacts.

The proposed project focuses on flood protection improvements; it would not increase area population or demand for recreational facilities (see Chapter 1 and Chapter 15). Most of the project elements would have no impact on recreational facilities; only those proposed for construction at sites that currently support recreational uses would affect recreational facilities and/or activities. For this reason, analysis of recreational impacts focused on the three flood detention facilities (proposed for construction at Rancho San Antonio County Park, ~~the Cuesta Annex,~~ and McKelvey Park) and the Floodwalls and Levees downstream of US-101.

For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Need for new parks or recreational facilities or for expansion of existing facilities.
- Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of facilities would occur or be accelerated.
- Substantially reduced access to existing recreational facilities; substantial reduction in availability of existing recreational facilities or uses.

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by text analysis.

## IMPACTS AND MITIGATION MEASURES

### Impact REC1—Need for New Parks or Recreational Facilities or for Expansion of Existing Facilities

Summary by Project Element: Impact REC1—Need for New Parks or Recreational Facilities or for Expansion of Existing Facilities		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	No Impact/Beneficial
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>No Impact</del>	<del>No Impact</del>
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
McKelvey Park Flood Detention Facility	No Impact	No Impact/Beneficial
Floodwalls and Levees downstream of US-101	Less than Significant	No Impact

#### Construction

Construction of the proposed project would result in temporary unavailability of the following project element sites.

- **Rancho San Antonio County Park Flood Detention Facility**—A portion of the Hammond-Snyder Loop Trail and the Coyote Trail pedestrian/equestrian bridge across Permanente Creek.
- ~~**Cuesta Annex Flood Detention Facility**—About one-half of Annex for construction of flood detention facility.~~
- **McKelvey Park Flood Detention Facility** —All facilities.
- **Floodwall and Levees downstream of US-101**—Pedestrian trail on west bank.

Construction of the other proposed facilities would not affect recreational uses and thus would have no potential to result in a need for new or expanded facilities during construction.

Rancho San Antonio’s Hammond-Snyder Trail is a 2.3-mile loop with multiple points of access from the equestrian parking lot and Cristo Rey Drive. The Coyote Trail pedestrian/equestrian bridge allows trail users to cross Permanente Creek. During construction, this bridge would be taken out of service for up to 1 month to allow construction of basin outlet features without risk to trail users. Portions of the Hammond-Snyder Trail not directly affected by construction and staging would remain in use, with fencing and signage provided to ensure that recreational traffic remains safely outside the construction area. In addition, although the Coyote Trail pedestrian/equestrian bridge would be taken out of service, trail users could use other nearby

creek crossings to the north to cross Permanente Creek. The disruption to these park features would be temporary and short term and, therefore, a less-than-significant impact would occur. No mitigation is required.

Similarly, during construction of the Floodwalls and Levees downstream of US-101 along the western side of Permanente Creek, pedestrian access on the eastern side of Permanente Creek would remain open. Thus, there would be no need for new or replacement facilities during construction of the floodwalls and levees, and impacts would be less than significant. No mitigation is required.

Construction-related disruption to recreational uses would be greater ~~at the Cuesta Annex, where approximately half of the Annex would be occupied by construction, and at McKelvey Park, where all facilities would be unavailable during construction.~~ However, given the comparatively short duration of construction (~~6 months for the Cuesta Annex and 8 months for McKelvey Park~~), other area facilities are expected to absorb any additional usage needed to accommodate users displaced from these facilities. As a result, construction at ~~the Cuesta Annex and McKelvey Park~~ would not result in a short-term need for new parks or other recreational facilities. There would be no impact related to such a need, and no mitigation is required. (Separate but related impacts related to reduced availability of recreational opportunities at Rancho San Antonio County Park, ~~Cuesta Annex~~, and McKelvey Park are discussed separately under Impact REC3 below.)

## Operation and Maintenance

Construction of the proposed project would result in the following long-term changes in recreational facilities.

- **Rancho San Antonio County Park Flood Detention Facility**—No significant long-term changes; the Hammond-Snyder Loop Trail and Coyote Trail pedestrian/equestrian bridge across Permanente Creek would be restored to full pre-Project usability following construction of the new detention facility. A vehicular bridge in the vicinity of the cemetery would be replaced; however, this bridge is not used by recreationalists.
- ~~**Cuesta Annex Flood Detention Facility**—Annex would be restored to provide nature-oriented recreation consistent with Annex area's existing undeveloped character, based on designs developed in collaboration with the City of Mountain View and other stakeholders.~~
- **McKelvey Park Flood Detention Facility**—Ball fields and associated facilities would be restored and new facilities would be added, per designs developed in collaboration with the City of Mountain View and other stakeholders.
- **Floodwall and Levees downstream of US-101**—Pedestrian trails on both banks would be restored to full use. Between Charleston Road and US-101, informal access to west bank trail that is currently reported to occur via the levee slope would be restricted due to floodwall design.

Because all affected recreational facilities would be restored to full use following construction of the project elements, the Project would have no long-term effect related to creation of a need for new or expanded park facilities. In addition, the Project would provide additional features at Rancho San Antonio County Park and McKelvey Park. At Rancho San Antonio County Park, the existing parking lot would be expanded into the existing gravel equestrian parking area to

provide additional passenger car parking spaces because existing passenger car parking often spills into the equestrian gravel parking area. The parking lot would be redesigned to provide the same number of passenger car spaces based on current parking demand, and replacement parking would be constructed in advance of disrupting/demolishing the existing parking area. In addition, a new restroom and a new trail spur would be installed from the Hammond Snyder Loop Trail along Cristo Rey Drive, down the slope between the Gate of Heaven Cemetery and the new basin, connecting back to the Hammond Snyder Loop Trail adjacent to the creek. At McKelvey Park, the restored fields and other amenities at the park are being developed cooperatively with park users and the City of Mountain View to ensure that the new facility offers a community benefit and provides needed flood protection. Therefore, the Project could alleviate pressure to expand or improve other facilities in the project area, potentially representing a beneficial impact. No mitigation is required.

### Impact REC2—Increased Use of Existing Parks or Other Recreational Facilities, Resulting in Substantial Physical Deterioration

Summary by Project Element: Impact REC2—Increased Use of Existing Parks or Other Recreational Facilities, Resulting in Substantial Physical Deterioration		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	No Impact
New Permanente Diversion Structure	No Impact	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant</del>	<del>No Impact</del>
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
McKelvey Park Flood Detention Facility	Less than Significant	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant	No Impact

#### Construction

As discussed in Impact REC1, construction at McKelvey Park would result in temporary unavailability of the recreational facilities at this site, and users would likely relocate to other area facilities. ~~Because opportunities at Cuesta Annex would also be substantially curtailed, Annex users might also elect to use other open space areas.~~ Rancho San Antonio County Park users are not expected to relocate, since only a portion of two trails, and a small percentage of the park as a whole, would be affected by construction. Similarly, users of the Permanente Creek Trail are expected to concentrate on the side that remains open rather than relocating to another area trail. The other project elements would not affect recreational uses.

~~No single facility offers the same unique mix of informal uses and undeveloped character as the Cuesta Annex, but as shown in Table 12-2, several facilities offering some similar uses are located within 1 mile of the existing facility. These include the passive open space areas in neighboring Cuesta Park, as well as in Bubb Park, Graham School Park, Cooper Park, Heritage Oaks Park, and McKenzie Park. In addition, Heritage Oaks Park harbors numerous mature oak trees within a large passive recreation area that can accommodate nature and wildlife viewing.~~

**Table 12-2. Recreational Facilities and Associated Uses within 1 Mile of Cuesta Annex**

Facility and Managing Agency	Recreational Facilities	Recreational Uses	Distance
Cuesta Park (City of Mountain View)	Barbeque facilities, bocce ball court, children's playground, horseshoe area, passive areas, picnic areas, tennis courts, volleyball court	Picnicking, bocce ball, volleyball, horseshoes, tennis, informal ("passive") recreation, children's activities	<0.1 mile
Bubb Park	Barbeque facilities, bocce ball court, children's playground, horseshoe area, passive areas, picnic areas, tennis courts, volleyball court	Picnicking, bocce ball, volleyball, horseshoes, tennis, informal ("passive") recreation, and children's activities	0.3 mile
Graham School Park	Soccer/football field, softball field, passive areas	Soccer, football, softball, informal ("passive") recreation	0.5 mile
Cooper Park (City of Mountain View)	Basketball court, children's playground, soccer/football field, passive areas, picnic area, softball field, tennis courts	Basketball, soccer/football, softball, tennis, picnicking, informal ("passive") recreation, children's activities	0.6 mile
Heritage Oaks Park (City of Los Altos)	Barbecue facilities, picnic areas, passive areas, children's playground	Picnicking, informal ("passive") recreation, children's activities	0.8 mile
McKelvey Park (City of Mountain View)	Baseball field, softball field	Youth baseball, softball	0.9 mile
McKenzie Park (City of Los Altos)	Barbecue facilities, picnic areas, tennis courts, passive areas, children's playground	Picnicking, tennis informal ("passive") recreation, children's activities	1.0 mile
Covington Mini-Park	Baseball field, softball field, tennis courts	Baseball, softball, tennis	1.0 mile

Notes: Distances shown represent the most direct linear route from the project site to adjacent facilities. Actual travel distances may vary.

Based on a preliminary review of similar facilities in the project vicinity and on community input at a spring 2008 Mountain View City Council study session regarding the effects of the proposed project on McKelvey Park, there are several alternate fields potentially available for youth baseball, primarily located at schools in the area.

Increased usage at other area parks that absorb users temporarily displaced from construction sites could result in increased "wear and tear" effects. However, the effect would be temporary and short-term (approximately 8 months for McKelvey Park and 6 months for Cuesta Annex) and would likely be spread among several area facilities. Impacts related to the potential for accelerated physical degradation of other recreational facilities in the project area are expected to be less than significant. No mitigation is required.

### Maintenance and Operation

Following construction at Rancho San Antonio County Park, the Cuesta Annex, McKelvey Park, and along the Floodwalls and Levees downstream of US-101, recreational facilities would be restored and improved, as discussed in more detail in Impact REC1 above. Recreational uses are expected to return in full; there would be no long-term transferral of uses or users to other area facilities. Consequently, there would be no long-term impact related to increased use or accelerated physical degradation of other area facilities. No mitigation is required.

## Impact REC3—Reduced Availability of Existing Recreational Facilities or Uses

Summary by Project Element: Impact REC3—Reduced Availability of Existing Recreational Facilities or Uses		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Beneficial
New Permanente Diversion Structure	No Impact	No Impact
Guesta Annex Flood Detention Facility	Less than Significant with Mitigation	Beneficial
Channel Improvements: Permanente and Hale Creeks	No Impact	No Impact
McKelvey Park Flood Detention Facility	Less than Significant with Mitigation	Beneficial
Floodwalls and Levees downstream of US-101	Less than Significant	Less than Significant

### Construction

Construction of the proposed project would result in temporary loss of access to the following recreational facilities; all associated uses would be unavailable for the duration of construction, with the exception of the Coyote Trail pedestrian/equestrian bridge, which would be out of service for up to 1 month.

- **Rancho San Antonio County Park Flood Detention Facility**—A portion of the Hammond-Snyder Loop Trail (affecting hikers, walkers, runners, equestrians, and other trail users) and the Coyote Trail pedestrian/equestrian bridge (affecting hikers, walkers, runners, and equestrians).
- ~~**Cuesta Annex Flood Detention Facility**—Approximately half of the park would be closed for recreational uses.~~
- **McKelvey Park Flood Detention Facility**—All recreational uses (primarily youth baseball and softball; also includes youth soccer).
- **Floodwalls and Levees downstream of US-101**—Use of pedestrian trail on west bank.

Rancho San Antonio County Park's Hammond-Snyder Trail is a 2.3-mile loop with multiple points of access from the equestrian parking lot and Cristo Rey Drive. Portions of the trail not directly affected by construction and staging would remain in use, with fencing and signage provided to ensure that recreational traffic remains safely outside the construction area. Additionally, the portion of the Hammond-Snyder Loop trail between the main entrance off Cristo Rey Drive and the equestrian parking lot would remain open during construction to maintain connectivity between Anza Loop and the equestrian stable. The remainder of the park and open space area would also remain in full use. As described for Impact REC1, the existing Coyote Trail pedestrian/equestrian bridge would be out of service for approximately 1 month during construction, but trail users could use other nearby creek crossings to the north to cross Permanente Creek during that time. The disruption to use would be temporary and short-term,

and there would be no impact related to a need for new or expanded facilities during construction. For the reasons described above, impacts related to temporary reduction in availability of the Hammond-Snyder Loop Trail and Coyote Trail are expected to be less than significant. No mitigation is required.

A replacement parking lot is proposed for the Rancho San Antonio site. The existing parking lot would be expanded into the existing gravel equestrian parking area to provide additional passenger car parking spaces because existing passenger car parking often spills into the equestrian gravel parking area. The parking lot would be redesigned to provide the same number of passenger car spaces based on current parking demand. The replacement parking lot would be constructed before the existing parking lot was removed. A new restroom would also be constructed near the parking lot. Additional parking and a new restroom facility would be a beneficial impact for park users.

The District understands that model airplanes are currently flown by park users over the proposed Rancho San Antonio detention basin area. Construction of the flood detention facility would not prevent park users from continuing to fly model airplanes over this area. No tall structures or vertical elements are proposed as part of the Project that would interfere with the existing use of model airplanes flying over this area. The *Rancho San Antonio County Park Master Plan* (County of Santa Clara 1989) does not contain any policies prohibiting park users from flying model airplanes over the existing or relocated parking area. There is no evidence that the relocated parking lot would result in a substantial safety risk or a substantial reduction in model airplane flying opportunities. Therefore, a less-than-significant impact on existing model airplane recreation would occur. Even though the impacts are less than significant, mitigation measure REC 3.3 is proposed to coordinate with Midpeninsula Regional Open Space District and ensure that no disruption to existing flying activities occurs.

Similarly, during construction of the Floodwalls and Levees downstream of US-101 along the western side of Permanente Creek, pedestrian access would remain open on the eastern side of Permanente Creek. Impacts related to temporary closure of one side of the Permanente Creek Trail in the vicinity of floodwall and levee construction are thus expected to be less than significant, and no mitigation is required.

Impacts related to loss of access and reduced availability of existing facilities would be greater ~~at the Cuesta Annex, where approximately half of the Annex would be occupied by construction, and at McKelvey Park, where all facilities would be unavailable during construction. If necessary, temporary detours would be provided around the area closed to public use in Cuesta Annex, as required by Mitigation Measure TT1.1.~~ The duration of construction would be comparatively short, and, as discussed in Impacts REC1 and REC2, other facilities would be available to accommodate most if not all of the displaced uses. However, the reduction in availability of existing uses would still be substantial (involving extensive facilities over a duration of months), and is considered a significant impact. To address this impact, the District will implement the following measure and continue its efforts to assist the City and stakeholder groups in identifying and accessing alternate opportunities. With these commitments and the following mitigation measures in place, and in light of the temporary nature of the closures, impacts are considered less than significant.

### **Mitigation Measure REC3.1—Provide Advance Notice for Limited Access or Closure of Recreation Facilities**

Prior to the commencement of construction that necessitates limited access or closure of recreational facilities, the District will notify and coordinate with the agency that oversees the affected facilities. The purpose of notification/coordination will be to provide timely notice allowing agencies to provide the public with adequate information on alternate recreational facilities. The District will also post signage at affected facilities to inform the public of alternate recreational facilities.

### **Mitigation Measure REC3.2—Provide Alternate Site for McKelvey Park Sports Activities during Construction**

The District will work with the City of Mountain View and stakeholders to provide an existing alternate site for McKelvey Park sports activities displaced during construction.

### **Mitigation Measure REC3.3—Minimize Disruption or Loss of Flying Recreational Activity**

The District will coordinate with the County of Santa Clara and Midpeninsula Regional Open Space District to avoid disruption of ongoing flying activities and minimize the loss of available flying area.

## **Maintenance and Operation**

Following construction at Rancho San Antonio County Park, the temporarily closed segment of the Hammond-Snyder Loop Trail and adjacent grassland and riparian areas would be reopened and restored to full pre-Project use levels, and a new Coyote Trail pedestrian/equestrian bridge across Permanente Creek would be in place. In addition, a new trail spur would be installed from the Hammond Snyder Loop Trail along Cristo Rey Drive, down the slope between the Gate of Heaven Cemetery and the new basin, connecting back to the Hammond Snyder Loop Trail adjacent to the creek. Consequently, there would be no long-term impact on the availability or quality of recreational uses at the Rancho San Antonio site. No mitigation is required.

As itemized in Impact REC1 above, project construction would result in the following long-term changes at the other detention facility sites.

- ~~**Cuesta Annex**—Annex would be restored to provide nature-oriented recreation consistent with Annex area's existing undeveloped character, based on designs developed in collaboration with the City of Mountain View and other stakeholders.~~
- **McKelvey Park**—Ball fields and associated facilities would be restored and new facilities would be added, per designs developed in collaboration with the City of Mountain View and other stakeholders.

~~At all of these~~ the Rancho San Antonio County Park and McKelvey Park sites, the Project is being designed in collaboration with stakeholders specifically to ensure that it offers long-term benefits to recreational users. Availability of recreational opportunities would remain the same or be increased at ~~all three~~ these two sites, and the quality of the recreational experience would be enhanced due through the addition of new features compatible with existing uses. Impacts would be beneficial. No mitigation is required.



Along the floodwall and levee alignment downstream of US-101, the pedestrian trail would be restored to full use following construction. However, informal access that is currently reported to occur via the levee slopes would be reduced on the west bank between Charleston Road and US-101 where the floodwall design creates a barrier to pedestrians. Because only a portion of the trail's total length would be affected, and all formal access points would remain in operation, this impact is considered less than significant. No mitigation is required.

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# CHAPTER 13. UTILITIES AND SERVICE SYSTEMS AND ENERGY

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## ENVIRONMENTAL SETTING

This section describes the regulatory setting and existing conditions for public utilities and service systems, including water, wastewater/sewer, storm drainage, solid waste, and energy. It also describes the impacts on public utilities and service systems and energy that would result from implementation of the Project.

## *REGULATORY CONTEXT*

No federal plans or policies concerning water, wastewater/sewer, storm drainage, or solid waste apply to the proposed project. Water use and demand is regulated at the state level by the California Urban Water Management Planning Act. In addition, Assembly Bill 939 and the California Integrated Waste Management Board regulate waste reduction and diversion throughout the state. The general plans of the cities of Los Altos, Mountain View, and Cupertino also contain a number of goals, policies, and action items for protection and management of these utilities and service systems. For energy, federal and state regulations require efficient use of energy and reductions in the consumption of electricity. Local policies deal mostly with the construction of energy-efficient buildings and do not directly relate to the project. For additional information on utility regulations, see Appendix B of this SEIR.

## *EXISTING CONDITIONS*

### **City of Mountain View**

#### **Water Service**

The City of Mountain View owns, operates, and maintains a potable water distribution system that serves water throughout Mountain View. Several small pockets within the City are served water by Cal Water. The City's municipal water system services three pressure zones and consists of three wholesale water turnouts, four reservoirs, three pumping stations, seven active groundwater supply wells, and buried pipes of varying composition, ages and sizes (City of Mountain View 2010).

Mountain View provides water service to all of its businesses and residents within the City limits except those in the Cal Water service areas. Mountain View currently serves 17,277 metered service connections. Single-family and multifamily homes account for approximately 81% of all connections, with the remaining connections distributed between commercial/industrial, and landscape customers (City of Mountain View 2010).

#### **Wastewater Service**

The City of Mountain View is the primary provider of sanitary sewer services for the city. Mountain View maintains its own wastewater collection system serving approximately 74,000 people in a 12-square-mile service area (City of Mountain View 2011). The City pumps its wastewater to the Palo Alto Regional Water Quality Control Plant (RWQCP). The RWQCP is an

advanced treatment facility with a designed average dry weather flow capacity of 39 million gallons per day (mgd) and a current average flow of about 22 mgd (City of Palo Alto 2011). The RWQCP uses a multi-step process to filter, clean and disinfect wastewater so that it can safely be discharged to the Bay or used for irrigation and other approved non-potable uses. A schematic of the RWQCP treatment process is provided in Figure 5-3.

### **Stormwater**

The City's storm drainage system consists of a combination of an underground gravity piping network, cross culverts, drywells, a detention facility, and five pump stations. Runoff throughout most of the City is collected via inlets into small diameter pipes that convey the flows to 24-inch-diameter and larger mains. Over 80% of the storm drain system discharges into Stevens Creek and Permanente Creek. According to the Mountain View General Plan Update Current Conditions Report, the storm drain system works adequately, although some localized flooding occurs (City of Mountain View 2009).

### **Solid Waste Service**

The City's landfill at Shoreline Park is closed. The City maintains the SMaRT Station, the materials recovery and refuse transfer facility shared by the cities of Mountain View, Palo Alto, and Sunnyvale. It is located at 301 Carl Road in Sunnyvale. The SMaRT Station processes Mountain View's residential and commercial garbage, yard trimmings, and recyclables.

### **Energy**

Natural gas and electric service for the City of Mountain View is provided by Pacific Gas and Electric Company, commonly known as PG&E. PG&E is one of the largest combination natural gas and electric utilities in the United States, serving approximately 15 million people throughout a 70,000-square-mile service area in northern and central California. PG&E produces and purchases energy from a mix of conventional and renewable generating sources. The energy travels through PG&E's electric transmission and distribution systems to reach customers (PG&E 2012).

## **City of Los Altos**

### **Water Service**

All domestic and commercial water in Los Altos is supplied by Cal Water's Los Altos Suburban District, and financially supported by user fees. Cal Water's Los Altos Suburban District includes a water system of 295 miles of pipeline, 65 booster pumps, and 46 storage tanks (Cal Water 2012). Currently, 28% of the City's water comes from well water, and 72% comes from District sources, which include underground aquifers, reservoirs, and the San Joaquin-Sacramento River Delta. The City does not anticipate a significant increase in water demand and the District has not identified any substantial concerns with water resources (City of Los Altos 2002:3).

### **Wastewater Service**

The City's sewer system consists of approximately 140 miles of pipe, ranging from 6 inches to 42 inches in diameter, and two pump stations (City of Los Altos 2012a). The City provides sewer service to most businesses and residents within the City as well as unincorporated areas within the City's sphere of influence. The City's sewer system also receives some flow from the City of Mountain View and the Town of Los Altos Hills. Collected sewage is conveyed to the Palo Alto Regional Water Quality Control Plant for treatment. In addition to maintaining its own sewer system, the City provides limited maintenance and emergency response services for approximately half of the Town of Los Altos Hills' sewer system (City of Los Altos 2002).

The City's contract is for 3.6 mgd of treatment, which will accommodate future development of vacant sites and the intensification of commercial areas in accordance with the Land Use Element of the General Plan (City of Los Altos 2002:3).

### **Stormwater**

All storm drains in the City of Los Altos drain directly to local creeks and the Bay. Discharge from storm drains is not treated. The City is a part of the Santa Clara Valley Urban Runoff Pollution Program. This program is an association of 13 cities and towns in the Santa Clara Valley that share a common National Pollutant Discharge Elimination System (NPDES) permit to discharge stormwater to San Francisco Bay. This program incorporates regulatory, monitoring, and outreach measures to reduce pollution and improve water quality (City of Los Altos 2012b).

### **Solid Waste Service**

Los Altos Garbage Company provides solid waste collection in the City of Los Altos. There are no existing or planned solid waste facilities within the Los Altos planning area. The Los Altos waste stream is collected by a franchised hauler and transferred to Newby Island landfill in San Jose (City of Los Altos 2002:4).

### **Energy**

The City of Los Altos is within PG&E's service area. PG&E is one of the largest combination natural gas and electric utilities in the United States, serving approximately 15 million people throughout a 70,000-square-mile service area in northern and central California. PG&E produces and purchases energy from a mix of conventional and renewable generating sources. The energy travels through PG&E's electric transmission and distribution systems to reach customers (PG&E 2012).

## **City of Cupertino**

### **Water Service**

A portion of the City's water service is supplied by Cal Water's Los Altos Suburban District, and financially supported by user fees. The majority of the City's water is served by the San Jose Water Company, which serves over 1 million people in the greater San Jose metropolitan area. The San Jose Water Company provides water from groundwater drawn from the Santa Clara Groundwater Basin, imported surface water from the Santa Clara Valley Water Commission (SCVWC), and local mountain water collected in the Santa Cruz Mountains (about 10% of the supply) (San Jose Water Company 2012).

### **Wastewater Service**

The Cupertino Sanitary District provides sewage collection, treatment and disposal services for these areas comprising approximately 15 square miles with a population of over 50,000 residents and more than 20,000 homes and businesses. The Cupertino Sanitary District owns and manages more than one million lineal feet of sewer mains, 500,000 lineal feet of sewer laterals and seventeen pump stations. The collected wastewater from all areas is conveyed to the San Jose/Santa Clara Water Pollution Control Plant through mains and interceptor lines shared with the both the Cities of San Jose and Santa Clara per a joint use agreement (City of Cupertino 2012).

### **Stormwater**

All of the storm drains in the City of Cupertino drain directly to local creeks and the Bay. Discharge from storm drains is not treated. The City of Cupertino has a Stormwater Runoff

Pollution Program to prevent toxic substances and other pollutants from entering the storm drain system. The City's General Plan states that it is estimated that the City's storm drainage system could accommodate the runoff from a 10-year to a 40-year flood in most areas of the City (City of Cupertino 2005).

### **Solid Waste Service**

Los Altos Garbage Company provides solid waste collection in the City of Cupertino. There are no existing or planned solid waste facilities within the City of Cupertino. The nearest landfills include Newby Island Disposal Facility, and Guadalupe Sanitary Landfill, in San Jose.

### **Energy**

Natural gas and electric service for the City of Cupertino is provided by PG&E, one of the largest combination natural gas and electric utilities in the United States. PG&E serves approximately 15 million people throughout a 70,000-square-mile service area in northern and central California. PG&E produces and purchases energy from a mix of conventional and renewable generating sources. The energy travels through PG&E's electric transmission and distribution systems to reach customers (PG&E 2012).

## **IMPACT ANALYSIS**

### ***METHODS AND SIGNIFICANCE CRITERIA***

Impacts on utilities and energy were assessed based on levels of significance and whether mitigation would be required. For the purposes of this analysis, an impact was considered to be significant and to require mitigation if it would result in any of the following.

- Would not comply with the wastewater treatment requirements of the applicable RWQCB.
- Required or resulted in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Required or resulted in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Sufficient water supplies are not available to serve the project from existing entitlements and resources, or new or expanded entitlements would be needed.
- Resulted in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Would not be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs.
- Would not comply with federal, state, and local statutes and regulations related to solid waste.
- Required or result in a use of energy that would result in a demand for the construction of new energy facilities, the construction of which could cause significant environmental effects.

- Encourage activities that would result in the use of large amounts of fuel, water, or energy or use these in a wasteful manner.

Each impact discussion includes a summary table identifying the level of impact associated with the individual project elements, followed by text analysis.

## **IMPACTS AND MITIGATION MEASURES**

### **Impact UT1—Would Not Comply with the Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board**

<b>Summary by Project Element: Impact UT1— Would Not Comply with the Wastewater Treatment Requirements of the Applicable Regional Water Quality Control Board</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant	Less than Significant

#### **Construction**

Project construction would require the use of small amounts of water for dust control and drinking water for construction employees. Water used during dust suppression would be minimal, and because this water would evaporate or be absorbed by the ground, disposal will not be required.

The Rancho San Antonio Park, ~~Cuesta Annex~~, and McKelvey Park work areas would all be large enough that a Stormwater Pollution Prevention Plan (SWPPP) would be required under the federal CWA (see Appendix B for details). The SWPPP would include provisions to control erosion and sedimentation, as well as a Spill Prevention and Response Plan to avoid and, if necessary, clean up accidental releases of hazardous materials. The District would be responsible for ensuring compliance with the requirements of the SWPPP. With the SWPPP in place, impacts related to degradation of water quality during construction are expected to be less than significant, and no mitigation is required. The work areas for the New Permanente Diversion Structure and floodwalls installation would likely be too small to require an SWPPP. However, as discussed in Chapter 2 (*Project Description*), the District has committed to implement the same types of erosion and sediment control and spill prevention measures for all work sites, regardless of whether an SWPPP is required under law. With these measures in place, impacts related to degradation of water quality during construction are expected to be less than significant, and no mitigation is required.

#### **Operation and Maintenance**

A new restroom would be built in Rancho San Antonio County Park. An onsite septic and drain field system would be installed to percolate effluents from the new restroom for land disposal via two drain fields (consisting of four drain lines each). The septic system/drain fields are located west of the equestrian parking area in Rancho San Antonio County Park. The septic system/drain fields would be designed to treat wastewater from the proposed restroom in the



parking area. The other project elements would not involve wastewater and would not affect wastewater treatment requirements. Installation of the restroom would include connection to an existing waterline that supplies water to an onsite drinking water fountain. No groundwater pumping would be required. The wastewater generated from one restroom facility would not affect wastewater treatment requirements. This impact is considered less than significant.

**Impact UT2—Required or Resulted in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects**

**Summary by Project Element: Impact UT2— Required or Resulted in the Construction of New Water or Wastewater Treatment Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects**

Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant	Less than Significant

**Construction**

Project construction would require the use of small amounts of water for dust control and drinking water for construction employees. Water used during dust suppression would be minimal; because this water would evaporate or be absorbed by the ground, disposal would not be required. In addition, construction crews would use portable toilets. No other sources of wastewater are anticipated for construction, and no changes to wastewater treatment facilities would be required because of the small amount of waste generated by construction crews. This impact is considered less than significant.

**Operation and Maintenance**

A new restroom would be built in Rancho San Antonio County Park. An onsite septic and drain field system would be installed to percolate effluents from the new restroom for land disposal via two drain fields (consisting of four drain lines each). The septic system/drain fields are located west of the equestrian parking area in Rancho San Antonio County Park. The septic system/drain fields would be designed to treat wastewater from the proposed restroom in the parking area.

Installation of the restroom would include connection to an existing waterline that supplies water to an onsite drinking water fountain. No groundwater pumping would be required. The wastewater generated from one restroom facility would not result in the construction of new wastewater facilities. This impact is considered less than significant.

### Impact UT3—Required or Resulted in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects

**Summary by Project Element: Impact UT3— Required or Resulted in the Construction of New Stormwater Drainage Facilities or Expansion of Existing Facilities, the Construction of Which Could Cause Significant Environmental Effects**

Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant	Less than Significant

The project would construct new stormwater drainage facilities, the impacts of which are evaluated in this SEIR. Construction- and operation-related impacts of this project are discussed by resource in Chapters 3 through 13 of this Final SEIR.

As stated in Chapter 2 (*Project Description*), the proposed project would be designed to accommodate existing stormwater and utility infrastructure. The District is a co-permittee on the Municipal Regional Stormwater NPDES permit. The provisions specified in Section C.3 of the permit include requirements triggered by the amount of impervious surfaces installed or replaced.

As discussed in Chapter 4 (*Hydrology and Water Quality*), levee construction would not increase the extent of impervious surfaces. The ~~Cuesta Inlet/Outlet Culvert~~, McKelvey Outlet Pipe, and Hale Creek storm drain would be located within existing paved roadways and would not result in an increase in impervious areas. Similarly, the New Permanente Diversion Structure would be located entirely within the existing hardscape footprint of the Diversion Channel and, therefore, would not appreciably increase the extent of impervious surfaces.

The proposed new flood detention basins would have earthen “floors” composed of native substrate materials, so these basins would not increase the extent of impervious surface. However, proposed construction at McKelvey Park and Rancho San Antonio County Park would replace existing paved parking areas and walkways. New paved features at McKelvey Park and Rancho San Antonio County Park would not result in appreciable increases in impervious surfaces.

Replacing existing undersized concrete channels in segments of Permanente and Hale Creeks would result in an increase in the extent of impervious surfaces. It is estimated that Hale Creek channel improvements would add approximately 5,000 square feet of impervious concrete features, and Permanente Creek channel improvements would add approximately 4,000 square feet of impervious concrete surfaces. The increases in impervious material due to channel improvement construction are not considered substantial and would not require construction of new stormwater facilities.

Additionally, as discussed in Chapter 4 (*Hydrology and Water Quality*), the permit requirements under the Municipal Regional Stormwater Permit and SCVURPPP’s Hydromodification Management Plan would include low-impact developments and stormwater treatment control BMPs to reduce stormwater runoff. Therefore, the minor increase of runoff can be accommodated by the existing storm drain system and would not require or result in the

construction of new stormwater drainage facilities or expansion of existing facilities. A less-than-significant impact would result.

### **Impact UT4—Sufficient Water Supplies Are Not Available to Serve the Project from Existing Entitlements and Resources, or New or Expanded Entitlements Would Be Needed**

**Summary by Project Element: Impact UT4— Sufficient Water Supplies Are Not Available to Serve the Project from Existing Entitlements and Resources, or New or Expanded Entitlements Would Be Needed**

<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant	Less than Significant

#### **Construction**

Project construction would require the use of small amounts of water for making for dust control and drinking water for construction employees. The short period of minimal use would negligibly affect local water supplies and would not significantly affect water supply or require new entitlements. In addition, the McKelvey Park Flood Detention Facility would actually reduce water use because lawn watering would no longer be required. Therefore, this impact is considered less than significant.

#### **Operation and Maintenance**

A new restroom would be built in the Rancho San Antonio County Park Flood Detention Facility. Installation of the restroom would include a connection to an existing waterline that supplies water to an onsite drinking water fountain. No groundwater pumping would be required. The water required for this restroom would not significantly affect water supply or require new entitlements. This impact is considered less than significant.

## Impact UT5—Resulted in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that It Has Adequate Capacity to Serve the Project’s Projected Demand in Addition to the Provider’s Existing Commitments

Summary by Project Element: Impact UT5— Resulted in a Determination by the Wastewater Treatment Provider that Serves or May Serve the Project that It Has Adequate Capacity to Serve the Project’s Projected Demand in Addition to the Provider’s Existing Commitments		
Project Element	Construction Impact Level	Operation/Maintenance Impact Level
Rancho San Antonio County Park Flood Detention Facility	Less than Significant	Less than Significant
New Permanente Diversion Structure	Less than Significant	No Impact
<del>Cuesta Annex Flood Detention Facility</del>	<del>Less than Significant</del>	<del>No Impact</del>
Channel Improvement: Permanente and Hale Creeks	Less than Significant	No Impact
McKelvey Park Flood Detention Facility	Less than Significant	No Impact
Floodwalls and Levees downstream of US-101	Less than Significant	No Impact

### Construction

Project construction would negligibly affect wastewater because construction crews would use portable toilets. No other sources of wastewater are anticipated for construction, and the Project would not exceed wastewater treatment by local wastewater treatment providers.

No changes to wastewater treatment facilities would be required because of the small amount of waste generated by construction crews. The Project would not require construction of new wastewater facilities or pipelines and would not require moving any such lines or the extension of any sewer trunk lines. This impact is considered less than significant.

### Operation and Maintenance

A new restroom would be built in Rancho San Antonio County Park. This restroom would flow into a new septic system that would be installed west of the equestrian parking area in Rancho San Antonio County Park. The water required for this restroom would not require changes to wastewater treatment facilities. This impact is considered less than significant.

## Impact UT6—Would Not Be served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project’s Solid Waste Disposal Needs

**Summary by Project Element: Impact UT6— Would Not Be served by a Landfill with Sufficient Permitted Capacity to Accommodate the Project’s Solid Waste Disposal Needs**

Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant	Less than Significant

### Construction

Construction of the proposed project would result in the generation of various waste materials, including, steel, soil, and vegetation. Existing structures would be removed, excavation would take place for building detention facilities and pipe removal, and the Mountain View Avenue Bridge would also be removed. Waste from construction activities would be disposed of at Newby Island Disposal Facility or Guadalupe Sanitary Landfill in San Jose. Newby Island Disposal Facility has a maximum permitted throughput of 4,000 tons per day and a remaining capacity of 18,274,953 cubic yards (Calrecycle 2006). Guadalupe Sanitary Landfill has a maximum permitted throughput of 1,300 tons per day and a remaining capacity of 11,055,000 cubic yards (Calrecycle 2011). Both landfills have sufficient capacity to intake waste materials from the proposed project.

The proposed project would not be served by a landfill with insufficient capacity to accommodate the Project’s solid waste disposal needs during construction. Therefore, construction of the Project would have a less-than-significant impact on the capacity of landfills in the area.

### Operation and Maintenance

A minor amount of solid waste would be generated over the years, such as replacement of worn or damaged equipment. However, this amount of solid waste would be expected to be very similar to the amount of solid waste currently generated. Therefore, this impact is considered less than significant.

## Impact UT7—Would Not Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste

### Summary by Project Element: Impact UT7— Would Not Comply with Federal, State, and Local Statutes and Regulations Related to Solid Waste

Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant	Less than Significant

#### Construction

During project construction, any hazardous materials and wastes would be recycled, treated, and disposed of in accordance with federal, state, and local laws. The proposed project would be in accordance with all published national, state or local standards relating to solid waste or litter control. Therefore, this impact is considered less than significant.

#### Operation and Maintenance

A minor amount of solid waste would be generated over the years, such as replacement of worn or damaged equipment. However, solid waste would be disposed of in the same manner, in accordance with all state and local regulations. Therefore, this impact is considered less than significant.

## Impact UT8—Required or Resulted in a Use of Energy That Would Result in a Demand for Construction of New Energy Facilities, the Construction of which Could Cause Significant Environmental Effects

### Summary by Project Element: Impact UT8— Required or Resulted in a Use of Energy That Would Result in a Demand for Construction of New Energy Facilities, the Construction of Which Could Cause Significant Environmental Effects

Project Element	Construction Impact Level	Operation/Maintenance Impact Level
All Elements	Less than Significant	Less than Significant

#### Construction

Project construction would require the use of small amounts of electricity and fuel for operating construction equipment. Energy would also be used to transport materials and workers to the site. This represents a minor increase in energy use. This use of energy is typical of construction projects that are similar in size and scope to the Project and would not require new energy facilities to be constructed. The impact is considered less than significant.

**Operation and Maintenance**

Operation of the Project would entail on-site electrical consumption from pump operation at the ~~Cuesta Annex and McKelvey Park Flood Detention Facility~~ Facilities during flooding events and the new restroom proposed at the Rancho San Antonio County Park Flood Detention Facility. Electrical use is estimated to be ~~1,000 kWh per year at the Cuesta Annex Flood Detention Facility and~~ 6,000 kWh per year at the McKelvey Park Flood Detention Facility. No pumping would be required at the Rancho San Antonio County Park Flood Detention Facility; however, this facility would include electrical use for the new restroom. The new restroom would connect to an existing water line and be designed to include energy-efficiency features. Given the small increase in electricity use by the pumps from their occasional use (only during flooding events), operation of the pumps would not require construction of new energy facilities. A less-than-significant impact would occur.

**Impact UT9—Encourage Activities That Would Result in the Use of Large Amounts of Fuel, Water, or Energy or Use These in a Wasteful Manner**

<b>Summary by Project Element: Impact UT9— Encourage Activities That Would Result in the Use of Large Amounts of Fuel, Water, or Energy or Use These in a Wasteful Manner</b>		
<b>Project Element</b>	<b>Construction Impact Level</b>	<b>Operation/Maintenance Impact Level</b>
All Elements	Less than Significant	Less than Significant

**Construction**

Project construction would include the use of nonrenewable energy resources, primarily petroleum products and electricity to operate construction equipment. Additional but less intensive uses of nonrenewable resources would include worker commute trips and deliveries throughout construction. PG&E, the electricity provider in the area, uses ~~a mix~~ a mix of energy sources, including renewable sources. Fuel and electricity consumption would be reduced through the implementation of mitigation measures to reduce tailpipe and greenhouse gas emissions (e.g., idling times shall be minimized, construction equipment shall be maintained, low-emission diesel products, alternative fuels, etc., shall be used) (see Chapters 10 and 15). The use of fuel and electricity during construction would be short term and temporary. Therefore, this impact is considered less than significant.

**Operation and Maintenance**

As explained above under Impact UT8, given the small increase in energy use by the pumps from their occasional use (only during flooding events), operation of the pumps would not result in an excessive or wasteful use of energy. The new restroom would include energy-efficient features and therefore would not lead to a wasteful expenditure of energy. Overall, the impact would be less than significant.

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# CHAPTER 14. SUMMARY OF PROJECT IMPACTS

This chapter contains a summary of the Project’s significant impacts and the mitigation measures identified to avoid, reduce, and/or compensate for them. It also briefly discusses the Project’s potential for significant and unavoidable temporary impacts on ~~traffic and transportation~~, noise, and air quality during construction of some elements and the Project’s potential to result in significant, irreversible environmental changes.

## SIGNIFICANT IMPACTS AND PROPOSED MITIGATION MEASURES

Table 14-1 lists significant Project impacts, along with the corresponding mitigation measures proposed by the District. With implementation of these measures, a majority of impacts listed in Table 14-1 would be reduced to less-than-significant levels. A summary of significant and unavoidable impacts is provided following this table.

**Table 14-1. Significant Project Impacts with Mitigation Measures**

Impact	Project Element	Proposed Mitigation Measures
GEO6—Soil Erosion and Loss of Topsoil (p. 3-9)	Rancho San Antonio County Park, <del>Cuesta Annex</del> , and McKelvey Park flood detention facilities (topsoil loss) during construction	<p><u>For Rancho San Antonio County Park and McKelvey Park Flood Detention Facilities:</u></p> <ul style="list-style-type: none"> <li>GEO6.1—Stockpile Topsoil and Reuse Onsite (<del>Rancho San Antonio County Park and Cuesta Annex flood detention sites</del>)</li> </ul> <p><u>For McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li>GEO6.2—Provide Appropriate Topsoil Materials for Site Finishing (<del>McKelvey Park flood detention site</del>)</li> </ul>
HWR2—Effects on Groundwater Supply and Recharge (p. 4-7)	Rancho San Antonio County Park Flood Detention Facility (Septic System/Drain Fields) during construction	<ul style="list-style-type: none"> <li>HWR2.1—Provide Alternate Water Supply during Construction</li> <li>HWR2.2—Replace Groundwater Supply Well Decommissioned to Accommodate Construction</li> </ul>
HWR3—Temporary Degradation of Water Quality (p. 4-10)	Rancho San Antonio County Park (Septic System/Drain Fields) and McKelvey Park (Artificial Turf) flood detention facilities during construction and operation/maintenance	<p><u>For Rancho San Antonio County Park and McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li><b><i>HWR2.3—Septic System and Drain Field Design</i></b></li> </ul> <p><u>For McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li><b><i>HWR2.4—Provide Detailed Material-Specific Information for Ensure that Artificial Turf Infill Composition Meets Water Quality Objectives and Agency Requirements</i></b></li> </ul>

Impact	Project Element	Proposed Mitigation Measures
<p>BIO2—Disturbance, Injury or Mortality to California Red-Legged Frogs and Foothill Yellow-Legged Frogs (p. 5-16)</p>	<p>Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance</p>	<ul style="list-style-type: none"> <li>• BIO2.1—Avoid Work during Active Breeding and Dispersal Period for Special-Status Frogs</li> <li>• BIO2.2—Conduct Preconstruction Surveys at Work Sites in and near Frog-Sensitive Areas; Relocate Individuals as Needed</li> <li>• BIO2.3—Provide Construction Worker Awareness Training for Special-Status Frogs</li> <li>• BIO2.4—Install Exclusion Fencing and Conduct Construction Monitoring for Special-Status Frogs</li> <li>• <b>BIO2.5—Restore Areas of Impact at the Rancho San Antonio County Park <del>to</del> and Provide Suitable Habitat for California Red-Legged Frog</b></li> </ul>
<p>BIO4—Disturbance, Injury, or Mortality of Western Pond Turtles (p. 5-21)</p>	<p>Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance; and <del>Cuesta Annex Flood Detention Facility</del> and Floodwalls and Levees downstream of US-101 during operation/maintenance</p>	<ul style="list-style-type: none"> <li>• BIO4.1—Implement Survey and Avoidance Measures to Decrease Disturbance to Western Pond Turtles</li> </ul>
<p>BIO5—Disturbance of Nesting Migratory Birds and Raptors (p. 5-<del>222</del>3)</p>	<p>All project elements during construction; and Rancho San Antonio County Park, <del>Cuesta Annex</del>, and McKelvey Park flood detention facilities and Floodwalls and Levees downstream of US-101 during operation/maintenance</p>	<ul style="list-style-type: none"> <li>• BIO5.1—Establish Buffer Zones for Nesting Raptors and Migratory Birds</li> </ul>
<p>BIO6—Disturbance of Western Burrowing Owls and Their Habitat (p. 5-<del>242</del>5)</p>	<p>Floodwalls and Levees downstream of US-101 during construction and operation/maintenance</p>	<ul style="list-style-type: none"> <li>• BIO6.1—Implement Survey and Avoidance Measures for Western Burrowing Owls Prior to Construction Activities</li> </ul>
<p>BIO9—Disturbance of Special-Status Bats and Effects on Bat Habitat (p. 5-27)</p>	<p>Rancho San Antonio County Park <del>and Cuesta Annex flood detention facilities</del> Flood Detention Facility, New Permanente Diversion Structure, and Channel Improvements (both creeks) during construction and operation/maintenance</p>	<ul style="list-style-type: none"> <li>• BIO9.1—Implement Survey and Avoidance Measures for Special-Status Bats</li> </ul>
<p>BIO10—Disturbance of Dusky-Footed Woodrats and Their Habitat (p. 5-<del>282</del>9)</p>	<p>Rancho San Antonio County Park Flood Detention Facility during construction and operation/maintenance</p>	<ul style="list-style-type: none"> <li>• BIO10.1—Conduct Surveys for San Francisco Dusky-Footed Woodrat and Protect Nests with Young</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
<p>BIO13—Disturbance or Loss of Riparian Habitat (p. 5-<del>30</del>31)</p>	<p>Rancho San Antonio County Park Flood Detention Facility and Channel Improvements (both creeks) during construction</p>	<ul style="list-style-type: none"> <li>• BIO13.1—Survey, Identify, and Protect Riparian Habitats</li> <li>• BIO13.2—Restore Riparian Habitat in Areas of Impact</li> </ul>
<p>BIO14—Disturbance or Loss of State- or Federally Protected Wetlands and Other Waters (p. 5-<del>32</del>33)</p>	<p>Rancho San Antonio County Park Flood Detention Facility and Floodwalls and Levees downstream of US-101 during construction</p>	<ul style="list-style-type: none"> <li>• BIO14.1—Avoid and Protect Jurisdictional Wetlands during Construction</li> <li>• BIO14.2—Compensate for Temporary Loss of Existing Wetlands and Other Waters, Consistent with State and Federal Agency Requirements</li> </ul>
<p>BIO15—Loss of, or Damage to, Protected Trees (p. 5-<del>34</del>35)</p>	<p>Rancho San Antonio County Park, <del>Cuesta Annex</del>, and McKelvey Park flood detention facilities and Channel Improvements (both creeks) during construction</p>	<ul style="list-style-type: none"> <li>• BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, Consistent with Applicable Tree Protection Regulations</li> <li>• BIO15.2—Protect Remaining Trees from Construction Impacts</li> </ul>
<p>PALEO1—Damage to Significant Paleontological Resources (p. 6-<del>45</del>14)</p>	<p>All project elements during construction</p>	<p>For project elements on Pleistocene substrate (Rancho San Antonio County Park Flood Detention Facility, Hale Creek <u>Channel</u> Improvements, part of Permanente Creek <u>Channel</u> Improvements, <del>and a portion of Cuesta Annex Flood Detention Facility (Inlet/Outlet Culvert)</del>):</p> <ul style="list-style-type: none"> <li>• PALEO1.1—Provide Preconstruction Worker Awareness Training</li> <li>• PALEO1.2—Conduct Preconstruction Survey, with Salvage if Needed</li> <li>• PALEO1.3—Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities</li> <li>• PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate</li> </ul> <p>For project elements on Holocene substrate but requiring substantial excavation to construct (<del>Cuesta Annex and McKelvey Park Flood Detention Facility flood detention facilities</del>):</p> <ul style="list-style-type: none"> <li>• PALEO1.1—Provide Preconstruction Worker Awareness Training</li> <li>• PALEO1.3—Retain a Qualified Professional Paleontologist to Monitor during Ground-Disturbing Activities</li> <li>• PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate</li> <li>• PALEO1.5—Assess Potential for Project Excavation to Disturb Pleistocene Strata</li> </ul> <p>For project elements on Holocene substrate requiring less extensive excavation (remainder of Permanente Creek Channel Improvements, New Permanente</p>

Impact	Project Element	Proposed Mitigation Measures
		<p>Diversion Structure, and a portion of Cuesta Annex Flood Detention Facility (Inlet/Outlet Culvert):</p> <ul style="list-style-type: none"> <li>• PALEO1.1—Provide Preconstruction Worker Awareness Training</li> <li>• PALEO1.4—Stop Work if Vertebrate Remains Are Encountered during Project Activities; Conduct Treatment and Curation as Appropriate</li> </ul>
<p>AES1—Alteration in Existing Visual Character or Quality or Scenic Vistas of the Site and Its Surroundings (p. 7-815)</p>	<p>Rancho San Antonio County Park Flood Detention Facility and McKelvey Park Flood Detention Facilities flood detention facilities during construction and operation/maintenance; Cuesta Annex and McKelvey Park flood detention facilities during construction; and Channel Improvements and Floodwalls and Levees downstream of US-101 during operation/maintenance</p>	<p>For Rancho San Antonio County Park Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• AES1.1—Provide Visual Screening for Affected Construction Area</li> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures to the Extent Feasible</i></b></li> <li>• BIO13.2—Restore Riparian Habitat in Areas of Impact</li> <li>• BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, <u>Consistent with Applicable Tree Protection Regulations</u></li> </ul> <p>For Cuesta Annex Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• <del>AES1.1—Provide Visual Screening for Affected Construction Area</del></li> <li>• <del>BIO13.2—Restore Riparian Habitat in Areas of Impact</del></li> <li>• <del>BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees</del></li> </ul> <p>For McKelvey Park Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• AES1.1—Provide Visual Screening for Affected Construction Area</li> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures</i></b></li> <li>• BIO15.1—Transplant or Compensate for Loss of Protected Landscape Trees, <u>Consistent with Applicable Tree Protection Regulations</u></li> </ul> <p>For Channel Improvements:</p> <ul style="list-style-type: none"> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures to the Extent Feasible</i></b></li> </ul> <p>For Floodwalls and Levees downstream of US-101:</p> <ul style="list-style-type: none"> <li>• <b><i>AES1.2—Apply Aesthetics Design Treatments to All Visible Structures</i></b></li> <li>• AES1.3—Work With Key Viewer Groups to Design Aesthetic Modifications to Floodwall Design</li> </ul>

Impact	Project Element	Proposed Mitigation Measures
AES2—Creation of a New Source of Light or Glare (p. 7-4625)	Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park flood detention facilities, Channel Improvements (both creeks), and Floodwalls and Levees downstream of US-101 during operation/maintenance (glare only)	<ul style="list-style-type: none"> <li>• <del>AES1.2—Apply Aesthetic Design Treatments to Visible Structures to the Extent Feasible</del></li> </ul>
TT1—Potential to Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System (p. 8-1316)	All project elements during construction	<p>For all project elements:</p> <ul style="list-style-type: none"> <li>• TT1.1—Require a Site-Specific Traffic Control Plan</li> </ul> <p>For Channel Improvements (Permanente Creek):</p> <ul style="list-style-type: none"> <li>• TT1.2—Require All Construction Traffic to Avoid Springer Road/El Monte Avenue and Springer Road/Fremont Avenue Intersections at Peak Traffic Hours</li> </ul> <p>For Channel Improvements (Hale Creek):</p> <ul style="list-style-type: none"> <li>• TT1.2—Require All Construction Traffic to Avoid Springer Road/El Monte Avenue and Springer Road/Fremont Avenue Intersections at Peak Traffic Hours</li> <li>• TT1.3—Provide Detour Plan to Reroute Traffic, <u>Bicyclists, and Pedestrians</u> on Existing Bridges during Construction of Creek Crossings</li> </ul> <p>For Cuesta Annex Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• <del>TT1.4—Require All Construction Traffic to Avoid Grant Road at Peak Traffic Hours</del></li> <li>• <del>TT1.5—Require All Construction Traffic to Avoid Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours</del></li> <li>• <del>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</del></li> </ul> <p>For Cuesta Annex Flood Detention Facility (Inlet/Outlet Pipes):</p> <ul style="list-style-type: none"> <li>• <del>TT1.4—Require All Construction Traffic to Avoid Grant Road at Peak Traffic Hours</del></li> <li>• <del>TT1.5—Require All Construction Traffic to Avoid Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours</del></li> <li>• <del>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</del></li> </ul> <p>For McKelvey Park Flood Detention Facility:</p> <ul style="list-style-type: none"> <li>• <del>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</del></li> </ul> <p>For McKelvey Park Flood Detention Facility (Outlet Pipe):</p> <ul style="list-style-type: none"> <li>• <del>TT1.4—Require All Construction Traffic to Avoid</del></li> </ul>

Impact	Project Element	Proposed Mitigation Measures
		<p>Grant Road at Peak Traffic Hours</p> <ul style="list-style-type: none"> <li>● <del>TT1.5—Require All Construction Traffic to Avoid Miramonte Avenue/Marilyn Drive Intersection during Peak Traffic Hours</del></li> <li>TT1.6—Require All Construction Traffic to Avoid Cuesta Drive/Miramonte Avenue Intersection during Peak Traffic Hours</li> </ul>
<p>TT3—Potential to Create Traffic Safety Hazards (p. 8-2427)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>● TT1.1—Require a Site-Specific Traffic Control Plan</li> </ul>
<p>TT4—Potential to Obstruct Emergency Access (p. 8-2427)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>● TT1.1—Require a Site-Specific Traffic Control Plan</li> <li>● TT1.3—Provide Detour Plan to Reroute Traffic, <u>Bicyclists, and Pedestrians</u> on Existing Bridges during Construction of Creek Crossings</li> </ul>
<p>TT5—Potential to Conflict with Alternative Transportation (p. 8-2228)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>● TT1.1—Require a Site-Specific Traffic Control Plan</li> <li>● TT1.3—Provide Detour Plan to Reroute Traffic, <u>Bicyclists, and Pedestrians</u> on Existing Bridges during Construction of Creek Crossings</li> </ul>
<p>NV1—Noise Levels in Excess of Applicable Standards (p. 9-8)</p>	<p><del>Cuesta Annex and McKelvey Park Flood Detention Facility</del> <u>flood detention facilities</u>, New Permanente Diversion Structure, and Channel Improvements (both creeks) during construction</p>	<p><del>For Cuesta Annex and McKelvey Park flood detention facilities, and New Permanente Diversion Structure:</del></p> <ul style="list-style-type: none"> <li>● NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>● NV1.2—Implement Work Site Noise Control Measures</li> <li>● NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> <li>● NV1.4—Install Temporary Noise Barriers (<u>selected project elements; where feasible only</u>)</li> </ul> <p><del>For Channel Improvements (both creeks):</del></p> <ul style="list-style-type: none"> <li>● <del>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li>● <del>NV1.2—Implement Work Site Noise Control Measures</del></li> <li>● <del>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</del></li> </ul> <p><del>For Cuesta Annex Flood Detention Facility (Inlet/Outlet Pipes):</del></p> <ul style="list-style-type: none"> <li>● <del>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li>● <del>NV1.2—Implement Work Site Noise Control Measures</del></li> <li>● <del>NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</del></li> </ul> <p><del>For McKelvey Park Flood Detention Facility (Outlet Pipe):</del></p> <ul style="list-style-type: none"> <li>● <del>NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li>● <del>NV1.2—Implement Work Site Noise Control Measures</del></li> </ul>

Impact	Project Element	Proposed Mitigation Measures
		<ul style="list-style-type: none"> <li><del>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns For Channel Improvements (Hale Creek Bridge Replacements);</del></li> <li><del>• NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</del></li> <li><del>• NV1.2—Implement Work Site Noise Control Measures</del></li> <li><del>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</del></li> </ul>
<p>NV2—Excessive Groundborne Vibration Levels (p. 9-19)</p>	<p>Channel Improvements (both creeks) during construction</p>	<ul style="list-style-type: none"> <li>• NV2.3—Conduct Construction Vibration Assessment and Implement Recommended Vibration Control Approach(es) for Shoring Installation</li> <li>• NV2.4—Conduct Construction Vibration Monitoring for Shoring Installation</li> </ul>
<p>NV4—Substantial Temporary Increase in Ambient Noise (p. 9-22)</p>	<p><del>Cuesta Annex and McKelvey Park Flood Detention Facilities, and</del> New Permanente Diversion Structure, and Channel Improvements (both creeks) during construction</p>	<ul style="list-style-type: none"> <li>• NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>• NV1.2—Implement Work Site Noise Control Measures</li> <li>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> <li>• NV1.4—Install Temporary Noise Barriers (selected project elements; where feasible only)</li> </ul>
<p>AQ2—Violation of Any Air Quality Standard or Substantial Contribution to Existing or Projected Air Quality Violation (p. 10-14)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>• AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li>• <b>AQ2.2—Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust</b></li> <li>• NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>
<p>AQ3—Exposure of Sensitive Receptors to Substantial Pollutant Concentrations (p.10-17)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>• AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li>• <b>AQ2.2— Implement BAAQMD Basic Construction Mitigation Measures to Reduce Construction-Related Dust</b></li> <li>• NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>
<p>AQ4—Creation of Objectionable Odors (p. 10-21)</p>	<p>All project elements during construction</p>	<ul style="list-style-type: none"> <li>• AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>



Impact	Project Element	Proposed Mitigation Measures
AQ5—Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is a Non-Attainment Area under NAAQS and CAAQS (p. 10-22)	All project elements during construction	<ul style="list-style-type: none"> <li>• AQ2.1—Implement Tailpipe Emission Reduction for Project Construction</li> <li>• NV1.1—Provide Advance Notification of Construction Schedule and 24-Hour Hotline to Residents</li> <li>• NV1.3—Designate Noise and Air Quality Disturbance Coordinator to Address Resident Concerns</li> </ul>
PHS2—Exposure of Workers or the Public to Existing Hazardous Materials Contamination (p. 11-8)	All project elements during construction and operation/maintenance	<p><u>For all project elements:</u></p> <ul style="list-style-type: none"> <li>• PHS2.1—Stop Work and Implement Hazardous Materials Investigations and Remediation in the Event that Unknown Hazardous Materials Are Encountered</li> </ul> <p><u>For New Permanente Diversion Structure and Floodwalls and Levees downstream of US-101:</u></p> <ul style="list-style-type: none"> <li>• PHS2.2—Implement Recommended Phase II Hazardous Materials Investigation and Any Required Follow-Up (Remediation)</li> </ul>
PHS4—Interference with Emergency Response or Evacuation Plan (p. 11-11)	All project elements during construction	<ul style="list-style-type: none"> <li>• TT1.1—Require a Site-Specific Traffic Control Plan</li> <li>• TT1.3—Provide Detour Plan to Reroute Traffic, <u>Bicyclists, and Pedestrians</u> on Existing Bridges during Construction of Creek Crossings</li> </ul>
PHS5—Breeding or Harborage of Disease Vector Organisms (p. 11-12)	Rancho San Antonio County Park Flood Detention Facility during operation/maintenance	<ul style="list-style-type: none"> <li>• PHS5.1—Prepare and Implement a Mosquito and Vector Control Plan</li> </ul>
PHS6—Exposure of People or Structure to Risk of Wildland Fires (p.11-14)	Rancho San Antonio County Park <del>and Cuesta Annex</del> <u>Flood Detention Facility</u> <del>and Cuesta Annex flood detention facilities</del> during construction and operation/maintenance	<ul style="list-style-type: none"> <li>• PHS6.1—Implement Wildland Fire Safety Measures</li> </ul>
REC3—Reduced Availability of Existing Recreational Facilities or Uses (p. 12-7)	<del>Cuesta Annex and Rancho San Antonio County Park</del> <u>and McKelvey Park Flood Detention Facilities</u> during construction	<p><u>For McKelvey Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li>• REC3.1—Provide Advance Notice for Limited Access or Closure of Recreation Facilities</li> <li>• REC3.2—Provide Alternate Site for McKelvey Park Sports Activities during Construction</li> </ul> <p><u>For Rancho San Antonio County Park Flood Detention Facility:</u></p> <ul style="list-style-type: none"> <li>• <b><i>REC3.3—Minimize Disruption or Loss of Flying Recreational Activity</i></b></li> </ul>
<p>Note: Mitigation measures HWR2.3, HWR2.4, BIO2.5, AES1.2, <del>and</del> AQ2.2, and REC3.3 (in bold and italicized text) were not previously provided in the <u>2010 FEIR</u>.</p>		

The Project would also contribute to cumulative regional impacts on traffic and transportation, air quality, and climate change-related effects, see Chapter 15 (Cumulative Impacts). In addition

to the mitigation measures shown in Table 14-1, the following additional measures have been identified to address the Project’s contribution to regional cumulative impacts.

**Mitigation Measure CU1—Coordinate Haul Traffic with Local Jurisdictions**

The District will coordinate construction haul and delivery traffic with the affected cities to identify overlap with other area construction and roadway improvement projects. As appropriate, and per agreement with the affected jurisdictions, the District will limit construction haul and delivery trips to off-peak hours and may also require contractors to avoid particular roadways or intersections.

**Mitigation Measure CU2—Implement BMPs to Reduce GHG Emissions**

- Using local building materials.
- Recycling or reusing construction waste or demolition materials.

With these additional measures in place, the Project would not make a considerable contribution to a cumulative traffic and transportation and climate change-related impacts. However, even with implementation of the applicable mitigation measure to reduce air quality impacts during construction, see Chapter 15, the Project’s contribution to a cumulative air quality impact would still be considered significant and unavoidable.

## IMPACT COMPARISON BETWEEN THE FEIR (JUNE 2010) AND THIS FINAL SEIR

Table 14-2 below compares the level of impact significance identified for the original project, as analyzed by the FEIR (June 2010), with the impact significance determined for the modified project, as evaluated by this Final SEIR.

**Table 14-2. Comparison of Revised Project Impacts**

<b>Resource</b>	<b><u>2010</u> FEIR Impact Level</b>	<b><u>Final</u> SEIR Impact Level</b>
Geology, Soils, and Mineral Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Hydrology and Water Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Biological Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Cultural and Paleontological Resources	Less than Significant with Mitigation	Less than Significant with Mitigation
Aesthetics	Less than Significant with Mitigation	Less than Significant with Mitigation
Transportation and Traffic	Significant and Unavoidable	<u>Less than Significant with Mitigation</u> <del>Significant and Unavoidable</del>
Noise and Vibration	Significant and Unavoidable	Significant and Unavoidable
Air Quality	Less than Significant with Mitigation	Significant and Unavoidable
Hazardous Materials and	Less than Significant with Mitigation	Less than Significant with Mitigation

Resource	2010 FEIR Impact Level	Final SEIR Impact Level
Public Health		
Recreation	Less than Significant with Mitigation	Less than Significant with Mitigation
Utilities and Services Systems	Not Applicable (This section was added to the SEIR and was not included in the 2010 FEIR analysis)	Less than Significant

## SIGNIFICANT AND UNAVOIDABLE IMPACTS

The following Project impacts are identified as significant and unavoidable.

- ~~Impact TT1—Conflict with an Applicable Plan, Ordinance, or Policy Establishing Measures of Effectiveness for the Performance of the Circulation System (Cuesta Annex Flood Detention Facility)~~
- Impact NV1—Noise Levels in Excess of Applicable Standards (Channel Improvements, both creeks).
- Impact NV4—Substantial Temporary Increase in Ambient Noise (~~Cuesta Annex Flood Detention Facility~~, Channel Improvements [(both creeks)], and McKelvey Park Flood Detention Facility).
- Impact AQ2—Violation of Any Air Quality Standard or Substantial Contribution to Existing or Projected Air Quality Violation (all project elements).
- Impact AQ5—Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is a Non-Attainment Area under NAAQS and CAAQS (all project elements).

~~As discussed in Chapter 8 (*Transportation and Traffic*), implementation of the proposed project could result in a significant and unavoidable impact on traffic flow in proximity to the Cuesta Annex site. Construction traffic at this site would result in a temporary but potentially substantial impairment of traffic flow on Grant Road, which is already considered to operate in exceedance of City of Mountain View's level of service (LOS) standard. The addition of construction traffic, particularly heavy trucks, could result in further substantial impairment of traffic flow on Grant Road. The District has committed to mitigation requiring development and implementation of a traffic control plan to reduce the impact of construction traffic, but impacts on Grant Road traffic flow are likely to be significant even with this mitigation in place. Because no additional feasible mitigation has been identified for this impact, it is considered unavoidable.~~

As discussed in Chapter 9 (*Noise and Vibration*), implementation of the proposed project could result in significant and unavoidable impacts related to violation of applicable noise standards during construction of certain project elements. The District will implement mitigation to reduce noise impacts, but construction noise levels could still exceed applicable standards at residences closest to the ~~Cuesta Annex inlet and outlet culvert alignment~~, McKelvey Park outlet pipe alignment, and channel improvement alignments. Because no additional feasible mitigation has been identified to further reduce noise levels at these sites, this impact is considered unavoidable.

As discussed in Chapter 10 (*Air Quality*), project-level criteria pollutant thresholds are used to address both project-level and cumulative impacts. The Project's construction emissions were estimated to exceed the daily emissions threshold for NO<sub>x</sub>. With the implementation of Mitigation Measures, NO<sub>x</sub> emissions would still exceed the threshold. Therefore, the Project's contribution during construction on cumulative air quality impact is considered considerable, therefore resulting in a significant and unavoidable cumulative impact for NO<sub>x</sub>.

## IRREVERSIBLE ENVIRONMENTAL CHANGES

Construction of the various project elements would use cement, aggregate, steel, and paving media, all of which are nonrenewable resources. Construction could also use various plastic (PVC) components, produced from petroleum, and some elements would likely require wood, a slowly renewable resource, to create false work for cement pouring and to construct some landscaping elements. Site finishing at ~~Guesta Annex and McKelvey Park~~ would require additional concrete, steel, paving media, wood, and plastic products to construct recreational facilities. ~~A small volume of dimension stone/natural rock would be used for landscaping at the Guesta Annex.~~ Construction at all sites would also require a commitment of energy (petroleum) resources for haulage and equipment operation.

Maintenance of the project would require a small ongoing commitment of energy (petroleum and/or electricity) for vehicle operations. Over the long term, maintenance could also require nonrenewable mineral and petroleum resources to replace and repair Project components.

If the Project is not implemented, flood protection infrastructure in the project corridor would continue to age, requiring maintenance and/or replacement on a piecemeal basis. Consequently, the No Project Alternative would also entail a commitment of material and energy resources.

# CHAPTER 15. CUMULATIVE IMPACTS

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## CEQA REQUIREMENTS

CEQA requires lead agencies to evaluate a proposed undertaking's potential to contribute to cumulative impacts in the project or program area. *Cumulative impacts* refers to the combined effect of "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts" (CEQA Guidelines Sec. 15355). As defined by the State, cumulative impacts reflect the following:

[...]the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time. (CEQA Guidelines Sec. 15355[b])

There are two categories of cumulative impacts: those that represent the additive effect of repeated activities taking place as part of a single proposed undertaking and those that represent the combined effect of activities taking place under more than one proposed undertaking.

CEQA requires that an EIR analyze a proposed undertaking's contribution to a cumulative impact when the existing cumulative impact is significant, and the project's individual contribution to that impact would be *cumulatively considerable*, meaning that it is considerable (significant) when viewed in connection with the effects of other past, current, and probable future projects (CEQA Guidelines Sec. 15130[a], 15065[c]). This ensures that EIRs fully analyze any project effects that are less than significant on an incremental (project-specific) scale but may be considerable in combination with the related effects of other projects. It also serves to focus EIR analysis only on those cumulative impacts to which a proposed undertaking has the potential to make an important contribution.

## APPROACH AND SCOPE

This analysis identifies existing and foreseeable cumulative impacts in the project area, based on the current general plans for Cupertino, Los Altos, Mountain View, and Sunnyvale and prior experience in the vicinity. Analysis focused on the Project's potential to contribute to impacts representing the combined outcome of activities occurring under more than one undertaking. This is because the Project would require very limited, short-term, and intermittent maintenance once it is constructed; project maintenance would be very similar in nature and scope to activities already taking place under the District's maintenance program and would not expand substantially on the District's existing maintenance program. Therefore, over the long-term, the Project is not expected to create new significant cumulative impacts of the "additive effects" type.

Cumulative impacts were analyzed based on professional judgment in light of current standards of care specific to each resource topic. Consistent with the State's CEQA Guidelines, analysis focused on aspects of significant regional cumulative impacts to which the proposed project has the potential to contribute; cumulative effects that are not significant, and those to which the proposed project would not contribute, are not discussed or analyzed in detail.

The first step in analyzing cumulative effects for the proposed project was to identify, for each resource analyzed in this SEIR, whether a regional cumulative effect exists independent of the proposed project. The need to analyze additive effects under the proposed project was then assessed. Table 15-1 summarizes this process and shows the types of analyses needed for the proposed project’s potential contribution to cumulative impacts, by resource topic.

**Table 15-1. Summary of Need for Cumulative Impacts Analysis**

<b>Resource</b>	<b>Is There a Regional Cumulative Impact?</b>	<b>Project Contribution and Need for Analysis in This Document</b>
Aesthetics	None identified. Although the aesthetic character of the Santa Clara Valley continues to evolve as a result of ongoing development (primarily infill and redevelopment in already urbanized areas, with new development along the valley’s growing edges), the County and cities within the county have general plan policies in place to address and preserve visual quality.	No analysis required.
Agricultural Resources	Yes, but impact is not considered significant for all parts of the county. The Santa Clara Valley has undergone progressive urbanization over the past half-century, shifting from a largely rural agricultural economy to suburban and urban uses. Countywide, this represents a cumulatively significant loss of agricultural lands. However, the economic base in the county’s developed areas shifted to high-tech and manufacturing uses several decades ago. Moreover, current development is occurring as planned growth and is strictly regulated under County and city general and specific or area plans. In these areas, loss of agricultural lands is no longer a significant cumulative concern.	As discussed in Chapter 1 ( <i>Introduction</i> ), the proposed project would not affect agricultural uses. No analysis is required.
Air Quality	Yes. Santa Clara County is a nonattainment area for the federal 8-hour ozone standard, the state 1-hour ozone standard, and the state PM10 and PM2.5 standards.	As discussed in Chapter 10 ( <i>Air Quality</i> ), project-level criteria pollutant thresholds are used to address both project-level and cumulative impacts. The Project’s construction emissions were estimated to exceed the daily emission threshold for NO <sub>x</sub> . With the implementation of Mitigation Measure AQ2.1 and Mitigation Measures NV1.1 and NV1.3, NO <sub>x</sub> emissions would still exceed the significance threshold. Therefore, the Project’s cumulative air quality impact associated with construction activities is expected to be significant and unavoidable. After the project elements are constructed, the project facilities would be maintained as needed. Maintenance activities of the new project facilities and post-flood clean-up at the detention facilities would occur as needed and would be restricted in extent and duration, involving comparatively small areas over a period of hours or days. In addition, most maintenance activities are part of the existing environmental baseline and, thus, would not create a substantial source of new

Resource	Is There a Regional Cumulative Impact?	Project Contribution and Need for Analysis in This Document
		<p>emissions. Therefore, the Project's cumulative air quality impact associated with maintenance activities is expected to be less than cumulatively considerable. Regardless, the Project's construction activities would still result in a significant and unavoidable cumulative impact for NO<sub>x</sub> emissions.</p>
<p>Biological Resources</p>	<p>Yes. Typical of the Bay Area and California's other expanding urban centers, the Santa Clara Valley area is subject to significant cumulative impacts related to loss and degradation of natural habitat through urban expansion. In addition, significant cumulative impacts on individual plant and wildlife species are considered to exist where species have been identified as qualifying for federal or state special status. This applies to a number of plant and wildlife species that are known to occur or may occur in the project corridor area, listed in the tables in Chapter 5 (<i>Biological Resources</i>).</p>	<p>As discussed in Chapter 5 (<i>Biological Resources</i>), construction of the proposed project has the potential to result in significant impacts on several special-status species. However, the District has adopted a comprehensive suite of mitigation measures that are expected to reduce the Project's impacts on biological resources to the extent feasible; residual impacts, if any, are not expected to be cumulatively considerable. No further analysis is required.</p>
<p>Cultural Resources</p>	<p>Yes. Throughout California, the Native American cultural legacy, including culturally important sites and traditional cultural practices, has been substantially affected by land management practices and urbanization over the past century and a half. The Santa Clara Valley area, with its long history of human occupation, is no exception, and a significant cumulative impact is considered to exist regarding loss of cultural resources.</p>	<p>As discussed in Chapter 6 (<i>Cultural and Paleontological Resources</i>), the project alignment is considered moderately to highly sensitive for cultural resources. Although the project footprint does not include any known archaeological resources, there is nonetheless some potential that previously unknown buried cultural resources could be present. Damage or disturbance to archaeological resources could rise to the level of a significant impact. However, the District has committed to mitigation consistent with all applicable federal and state regulations for the protection of cultural resources. As a result, the Project's potential to contribute to regional loss of cultural resources would be extremely limited and is evaluated as less than cumulatively considerable. No further analysis is required.</p>
<p>Geology and Soils</p>	<p>Yes. (1) Development in the Santa Clara Valley area has resulted in progressive loss and unavailability of topsoil resources, representing a significant cumulative impact. (2) In the Santa Clara area, as in many other parts of California, extensive development in a seismically active region has put people and structures at risk from earthquake effects. This also represents a significant cumulative impact.</p>	<p>(1) As discussed in Chapter 3 (<i>Geology, Soils, and Seismicity</i>), some of the project elements would have the potential to result in substantial loss of topsoil. However, for these elements (e.g., the Rancho San Antonio County Park and Cuesta Annex Flood Detention Facility <del>flood detention facilities</del>), the District has committed to mitigation requiring topsoil to be stockpiled onsite and reused in site finishing and revegetation. With this measure in place, impacts would be substantially reduced; any residual impact is considered less than cumulatively considerable. No further analysis of this topic is required.</p> <p>(2) All project facilities would be built to meet or exceed current building code requirements. The Project would not make a cumulatively considerable contribution to seismic risk exposure in the Santa Clara Valley. No further</p>

Resource	Is There a Regional Cumulative Impact?	Project Contribution and Need for Analysis in This Document
Hazardous Materials and Public Health	Yes. The project corridor traverses an area containing multiple sites with known hazardous materials contamination, including several federal Superfund sites. This existing contamination represents a significant cumulative impact.	analysis of this topic is required.  As discussed in Chapter 11 ( <i>Hazardous Materials and Public Health</i> ), the proposed project would incorporate mitigation consistent with all applicable federal and state regulations related to hazardous materials. Therefore, the Project is not expected to have significant effects related to creation of new areas of contamination or exposure of workers or the public to existing contamination and would not make a cumulatively considerable contribution to the existing cumulative impact. No further analysis is required.
Hydrology and Water Resources	Yes. Stevens Creek and Permanente Creek have been identified on the State Water Resource Control Board's current Section 303[d] list of "impaired" or water quality limited segments. Section 303[d] of the CWA requires states to identify waters that do not meet applicable water quality standards with technology-based controls alone and prioritize such waters for the purposes of developing Total Maximum Daily Loads (TMDLs). No other streams have been identified within the 303[d] list of "impaired" water bodies in the project site.	The construction for the proposed project is likely to begin during the Summer of 2013. Around the same time, the District will start construction for the Stevens Creek Fish Passage Enhancement Project (construction start date: June 2013).  Construction for the Permanente Diversion Structure will start during 2013 and will be completed within approximately 6 months. It is likely that during this time, the Stevens Creek project will begin construction for a fish ladder structure, natural ramp for other wildlife species, and a low-flow channel. These elements for the Stevens Creek project will be located at Moffett Boulevard, downstream of the Project.  Currently, the existing diversion structure does not function reliably and all of Permanente Creek's flow is diverted to Stevens Creek. Pollutants generated from the construction of the diversion structure and/or the Rancho San Antonio County Park Flood Detention Facility may enter Stevens Creek if proper BMPs are not established. Once completed, the structure will only divert high flows via the existing Diversion Channel into Stevens Creek.  As discussed in Chapter 4 ( <i>Hydrology and Water Resources</i> ), all elements of the project will directly affect Permanente and Hale Creeks. The proposed project would not modify Stevens Creek directly and, therefore, could only affect the degradation of water quality in Stevens Creek indirectly. The project would require an implementation of an SWPPP under the federal CWA. As a result, the project's potential to reduce water quality to Stevens Creek would be extremely limited and is evaluated as less than cumulatively considerable. No further analysis is required.
Mineral Resources	None identified.	No analysis required.



Resource	Is There a Regional Cumulative Impact?	Project Contribution and Need for Analysis in This Document
Noise	None identified.	No analysis required.
Population and Housing	None identified.	No analysis required.
Public Services	None identified.	No analysis required.
Recreation	None identified.	No analysis required.
Transportation and Traffic	Yes. Local jurisdiction general plans identify several locations where traffic conditions are known or predicted to exceed the applicable LOS standard: the intersection of Springer Road and Fremont Avenue in Los Altos exceeds the City of Los Altos standard of LOS D; the intersection of Springer Road and El Monte Avenue in Los Altos also exceeds the City standard of LOS D; and Grant Road in the project vicinity exceeds the City of Mountain View standard of LOS D.	As discussed in Chapter 8 ( <i>Traffic and Transportation</i> ), construction of some project elements would have the potential to generate substantial-haul traffic and could result in significant and unavoidable impacts at the add traffic to congested roadways project element level. Analysis of cumulative traffic impacts is required.
Utilities and Service Systems	None identified.	No analysis required.

The following sections provide detailed cumulative impacts analyses, which were identified as necessary in Table 15-1:

- Air Quality
- Transportation and Traffic

Refer to Table 15-1 for background, including descriptions of existing cumulative impacts on these resources.

In addition to the topics addressed in Table 15-1, the analysis of cumulative impacts included topics related to climate change, which is an inherently cumulative issue. Given our current scientific understanding, global climate may already be changing as a result of many human activities over a long period of time; no single proposed future project is likely to create or arrest climate change independently. However, individual projects have the potential to contribute to climate change or to exacerbate its effects on particular resources. In addition, individual projects may be affected by or interact with specific outcomes of climate change, such as sea level rise. A third section below addresses the following:

- Climate change–related issues.

## PROPOSED PROJECT’S POTENTIAL CONTRIBUTION TO CUMULATIVE IMPACTS

All of the resource topics listed in Table 15-1, except air quality and traffic and transportation, are anticipated to result in impacts that are less than cumulatively considerable. In addition to the topics addressed in Table 15-1, analysis of cumulative impacts included topics related to climate change, which is an inherently cumulative issue. Based on our current scientific

understanding, global climate may already be changing as a result of many human activities over a long period of time; no single proposed future project is likely to independently create or arrest climate change. However, individual projects have the potential to contribute to climate change or to exacerbate its effects on particular resources. In addition, individual projects may be affected by or interact with specific outcomes of climate change, such as sea level rise. The section below addresses these climate-change-related issues.

## **AIR QUALITY (CRITERIA POLLUTANTS)**

As discussed in Chapter 10 (*Air Quality*), project-level criteria pollutant thresholds are used to address both project-level and cumulative impacts (see impact discussion under impacts AQ2 and AQ5 in Chapter 10). As discussed in Impact AQ2, the Project's construction emissions were estimated to exceed the daily emissions threshold for NO<sub>x</sub>. With the implementation of Mitigation Measure AQ2.1 and Mitigation Measures NV1.1 and NV1.3, NO<sub>x</sub> emissions would still exceed the threshold. Therefore, the Project's contribution to a cumulative air quality impact during construction is considered significant and unavoidable for NO<sub>x</sub>.

After the project elements are constructed, the project facilities would be maintained as needed. Maintenance activities at the new project facilities and post-flood cleanup at the detention facilities would occur infrequently and be restricted in extent and duration, involving comparatively small areas over a period of hours or days. In addition, maintenance activities are part of the existing environmental baseline; therefore, they would not create a substantial source of new emissions. Although the Project's cumulative air quality impact from maintenance and operational activities (after construction is completed) is expected to be less than cumulatively considerable, the Project's construction activities would still result in a significant and unavoidable cumulative impact.

The discussion of cumulative air quality impacts has been updated since the 2010 FEIR because regulations governing air quality have changed.

## **TRANSPORTATION AND TRAFFIC**

The principal issue with regard to construction traffic is expected to be heavy haul truck traffic on area roadways, as discussed in Chapter 8. For most project elements, the number of daily truck trips would be small enough that, with the construction traffic control plan (discussed in Chapter 2 [see Best Management Practices section]) in place, pProject construction traffic would not be expected to result in substantial degradation of roadway or intersection conditions. However, construction of the flood detention facilities proposed for the Cuesta Annex could result in significant and unavoidable impacts related to the presence of numerous heavy haul trucks on Grant Road, which is currently understood to operate below the City of Mountain View's required LOS standard. These impacts could also be cumulatively considerable, depending on the route(s) taken by trucks once they leave Grant Road. In addition, However, to the extent that pProject construction overlaps with other projects in the same area, project-related traffic could represent a cumulatively considerable contribution to regional traffic congestion problems. To address ~~these two issues~~ this issue, the District will implement the mitigation measure provided below. With this measure in place, the Project's contribution to cumulative traffic impacts would be expected to be less than cumulatively considerable (Mitigation Measure CU1 was listed as Mitigation Measure CU2 in the FEIR. Mitigation Measure CU1 of the FEIR [for air quality impacts] was eliminated in the SEIR).

**Mitigation Measure CU1—Coordinate Haul Traffic with Local Jurisdictions**

The District will coordinate construction haul and delivery traffic with the affected cities to identify overlap with other area construction and roadway improvement projects. As appropriate, and per agreement with the affected jurisdictions, the District will limit construction haul and delivery trips to off-peak hours and may also require contractors to avoid particular roadways or intersections.

**CLIMATE CHANGE–RELATED ISSUES**

Unlike criteria pollutant and TACs described in Chapter 10 (*Air Quality*), which have local or regional impacts, emissions of greenhouse gases (GHGs) that contribute to global climate change have broader impacts. The principal GHGs of concern with respect to global climate change are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). GHG emissions other than CO<sub>2</sub> are commonly converted into carbon dioxide equivalents (CO<sub>2</sub>e), which takes into account the differing global warming potential (GWP) of different gases.

The Bay Area Air Quality Management District (BAAQMD) considers impacts related to global climate change and GHG emissions to be cumulative in nature. GHG emissions contribute cumulatively to significant adverse environmental effects associated with global climate change. Cumulative climate change impacts could include increased extreme heat days, higher concentrations of criteria air pollutants, sea level rise, water supply and quality impacts, impacts on public health and natural ecosystems, impacts on agriculture, and other environmental impacts. No individual project could generate sufficient GHG emissions on its own to noticeably change average global temperatures. However, the combined GHG emissions from past, present, and future projects can contribute to global climate change and its associated environmental impacts (Bay Area Air Quality Management District 2012).

Appendix B of this SEIR provides additional information regarding GHGs and climate change–related regulations. Chapter 10 (*Air Quality*) provides a detailed discussion of thresholds to determine the air quality and GHG impacts of the project.

**Assessment Methods**

GHG emissions would be generated from construction, maintenance, and operation of the Project. GHG emissions from project construction and maintenance would be generated from fuel usage by on-site equipment and on-road vehicles. GHG emissions from project operation would be generated from electrical consumption by on-site electrical equipment. The primary GHG emissions generated from these sources would be CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O. Models, tools, and assumptions used to calculate the GHG emissions from construction and operation sources are described below.

- **On-Site Equipment:** CO<sub>2</sub> emissions generated from on-site construction equipment were estimated using the URBEMIS 2007 model (Version 9.2.4), following the same assumptions described in Chapter 10 (*Air Quality*). URBEMIS does not quantify CH<sub>4</sub> and N<sub>2</sub>O emissions from off-road equipment. Emissions of CH<sub>4</sub> and N<sub>2</sub>O from off-road diesel-powered equipment were determined by scaling the estimated CO<sub>2</sub> emissions by the CH<sub>4</sub>/CO<sub>2</sub> ratio and N<sub>2</sub>O/CO<sub>2</sub> ratio. The ratios are calculated from CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O emissions expected per gallon of diesel fuel according to the General Reporting Protocol Version 3.1 published by California Climate Action Registry (2009).

- **On-Road Vehicles:** CO<sub>2</sub> emissions generated from the on-road vehicle trips were estimated using the EPA EMFAC 2011 emissions model, following the same assumptions described in Chapter 10 (*Air Quality*). EMFAC does not quantify CH<sub>4</sub> and N<sub>2</sub>O emissions from vehicle trips. Emissions of CH<sub>4</sub> and N<sub>2</sub>O from on-road diesel-powered sources (e.g., haul trucks) were determined using the emission factors published in the General Reporting Protocol Version 3.1 (California Climate Action Registry 2009). GHG emissions from gasoline-powered employee commutes were determined by dividing the CO<sub>2</sub> emissions by 0.95. This statistic is based on EPA's recommendation that CO<sub>2</sub> accounts for 95% of on-road emissions, while CH<sub>4</sub>, N<sub>2</sub>O, and other GHG emissions account for the remaining 5% (U.S. Environmental Protection Agency 2011).
- **Electricity Consumption:** The electricity in the project area is provided by the Pacific Gas & Electric Company (PG&E); therefore, CO<sub>2</sub> emissions generated from electricity consumption at the project facilities are estimated using the emission factor in the 2008 PG&E Annual Emissions Report prepared for the California Climate Action Registry (2010). CH<sub>4</sub> and N<sub>2</sub>O emissions generated from electricity consumption at the project facilities are estimated using the emission factors published by the EPA (2012). The annual on-site electricity consumption from pump operation was estimated to be 1,000 kWh per year at Cuesta Annex and approximately 6,000 kWh per year at McKelvey Park. No pumping would be required at Rancho San Antonio County Park because the new restroom would connect to an existing water pipe. The new restroom would be designed to include water- and energy-efficiency features. At McKelvey Park, turf fields would not require any irrigation, thereby resulting in less water consumption over existing conditions.

## Significance Criteria

For the purposes of this analysis, an impact was considered to be significant and require mitigation if it would result in either of the following.

- Generate GHG emissions that may have a significant impact on the environment.
- Conflict with an applicable plan adopted for the purpose of reducing GHG emissions.

Significant thresholds used to evaluate GHGs impacts for construction activities and stationary sources are shown in Table 10-3 and discussed in Chapter 10 (*Air Quality*). GHG emissions from construction are evaluated on a case-by-case consideration of construction GHG emissions and best management practices. Construction emissions overall make up a small portion of overall emissions in the Bay Area, statewide, and globally; and are temporary in nature (unlike operational emissions). Thus, the significance of construction GHG emissions is evaluated by determining whether or not the project has incorporated feasible reduction measures that can be applied during the construction period. The significance threshold is based on an analysis of future development potential in the land use sector, an estimate of the effectiveness of state-adopted GHG reduction measures, and identification of the amount of reductions needed in the Bay Area in the land use sector to promote overall GHG reductions consistent with AB 32.

## Greenhouse Gas Emissions Impacts

### Impact GHG1—Generate GHG Emissions that may have a Significant Impact on the Environment

Individual projects contribute to the cumulative effects of climate change by directly or indirectly emitting GHGs during construction and operation. Direct operational emissions include GHG emissions from new vehicle trips and area sources (e.g., natural gas combustion). Indirect operational emissions include those from electricity providers; energy generated to pump, treat, and convey water; and landfill operations.

As discussed in Chapter 10 (Air Quality), maintenance activities of the new project facilities and post-flood clean-up at the detention facilities would occur infrequently and would be restricted in extent and duration, involving comparatively small areas over a period of hours or days. Therefore, emissions from maintenance activities are not expected to represent a substantial increase over current levels. This assessment, therefore, focuses exclusively on direct emissions generated during project construction. Table 15-2 summarizes the construction-related GHG emissions from diesel-fueled equipment and vehicles, as well as the gasoline-fueled employee vehicles. The input and output data for emission calculations are included in Appendix D.

For indirect GHG emissions generated from project operation, two submersible pumps would be installed at ~~Cuesta Annex and McKelvey Park~~ as part of the proposed detention ~~facilities~~ facility. ~~No pumps would be required at Rancho San Antonio County Park.~~ The average annual electricity consumption of these pumps is anticipated to be 1,000 kWh at ~~Cuesta Annex~~ and 6,000 kWh at ~~McKelvey Park~~, based on average number of measurable rainfall in the area. Pumps would be installed at the southwest corner of McKelvey Park ~~and the northeast corner of Cuesta Annex.~~ No pumps would be required at Rancho San Antonio County Park. Table 15-3 summarizes the GHG emissions from long-term pump operation. The input and output data for emission calculations are included in the Appendix D. As shown in the table, operation of the pumps would result in GHG emissions of ~~2-1.75~~ MT CO<sub>2</sub>e per year. The new restroom at Rancho San Antonio County Park would tie into an existing water line. Any increase in water usage would be minimal. Because project operation would generate very low GHG emissions, this impact is considered less than significant.

**Table 15-2. Construction GHG Emissions**

<b>Project Elements</b>	<b>GHGs (metric tons of CO<sub>2</sub>e/year)</b>
<b>Year 1 Elements</b>	
Rancho San Antonio County Park Flood Detention Facility <sup>a</sup>	225
New Permanente Diversion Structure <sup>b</sup>	131
Floodwalls and Levees downstream of US-101 <sup>b</sup>	223
Channel Improvements: Permanente Creek <sup>b</sup>	374
<b>Year 1 Annual GHG Emissions</b>	<b>953</b>
<b>Year 2 Elements</b>	
Channel Improvements: Hale Creek <sup>b</sup>	374
<del>Cuesta Annex Flood Detention Facility and Inlet/Outlet Culvert</del>	456

<b>Project Elements</b>	<b>GHGs (metric tons of CO<sub>2</sub>e/year)</b>
McKelvey Park Flood Detention Facility and Outlet Pipe <sup>c</sup>	795912
<b>Year 2 Annual GHG Emissions</b>	<b>1,6251,286</b>
<b>Year 3 Elements</b>	
Channel Improvements: Hale Creek <sup>b</sup>	374
<b>Year 3 Annual GHG Emissions</b>	<b>374</b>
<b>Year 4 Elements</b>	
Channel Improvements: Hale Creek <sup>b</sup>	374
<b>Year 4 Annual GHG Emissions</b>	<b>374</b>

**Table 15-3. Operation GHG Emissions**

<b>Project Elements</b>	<b>GHGs (metric tons of CO<sub>2</sub>e/year)</b>
Cuesta Annex Flood Detention Facility (Pump Operation)	0.29
McKelvey Park Flood Detention Facility (Pump Operation)	1.75
<b>Year 3 and After Annual GHG Emissions</b>	<b>21.75</b>

<sup>a</sup> The estimated construction emissions for Rancho San Antonio Park Flood Detention Facility remain the same as presented in the Draft SEIR because the emissions presented in the Draft SEIR conservatively assumed the maximum haul truck trips occurring through the entire site excavation phase (6 months) instead of the peak construction period (4 months) where all the excavation activities would occur. Therefore, the conservative (higher) truck trips would adequately cover the 30% increase due to soil expansion.

<sup>b</sup> The estimated construction emissions for this project element remain the same as the Draft SEIR because minimal excavation activities and quantities are involved with the project element; therefore, even with the 30% increase to account for soil expansion, the number of haul truck trips for excavated soil remains the same.

<sup>c</sup> The increase in emissions since the Draft SEIR at McKelvey Park Flood Detention Facility reflects the increase in haul truck trips associated with the excavation activities. The volume of the excavated soil has been increased by 30% to account for soil expansion during excavation. See Chapter 8 (*Transportation and Traffic*) for the revised estimated construction trips.

As discussed in Chapter 10 (*Air Quality*), BAAQMD does not recommend a GHG emission threshold for construction-related emissions. However, BAAQMD recommends the incorporation of BMPs to reduce GHG emissions during construction, as feasible and applicable as possible. To ensure that short-term GHG emissions are reduced as much as feasible and the project does not result in a considerable contribution to GHG levels, the District will adopt Mitigation Measure CU1 below, consistent with BMPs recommended by BAAQMD (2012). In addition, Mitigation Measure AQ2.1, as discussed in Chapter 10 (*Air Quality*), would also help reduce construction-related GHG emissions. Mitigation Measure CU2, provided below, was Mitigation Measure CU3 in the FEIR. This measure has been modified since the FEIR because idling activities are already covered under Mitigation Measure AQ2.1 of the SEIR.

#### **Mitigation Measure CU2—Implement BMPs to Reduce GHG Emissions**

The District will require all construction contractors to implement the following measures to the extent they are feasible.

- Using local building materials.
- Recycling or reusing construction waste or demolition materials.

**Mitigation Measure AQ2.1—Implement Tailpipe Emission Reduction for Project Construction**

According to the BAAQMD guidelines (2012), the District will require all construction contractors to implement the exhaust Basic Construction Mitigation Measures and Additional Construction Mitigation Measures recommended by the BAAQMD to control exhaust emissions. Emission reduction measures will include at least the following measures and may include other measures identified as appropriate by the District and/or contractor.

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 2 minutes. Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.
- The Project shall develop a plan demonstrating that the off-road equipment (more than 50 horsepower) to be used in the construction project (i.e., owned, leased, and subcontractor vehicles) would achieve a project wide fleet-average 20% NO<sub>x</sub> reduction and 45% PM reduction compared to the most recent ARB fleet average. Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
- Require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO<sub>x</sub> and PM.
- Require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy duty diesel engines.

**Impact GHG2—Conflict with an Applicable Plan Adopted for the Purpose of Reducing GHG Emissions**

The State has adopted several policies and regulations for the purpose of reducing GHG emissions. The most stringent of these is AB 32, which is designated to reduce statewide GHG emissions to 1990 levels by 2020. As discussed in Impact GHG1, the project would not generate any significant long-term operation-related GHG emissions, and Mitigation Measure CU1 and Mitigation Measure AQ2.1, as discussed in Chapter 10 (*Air Quality*), would help to reduce short-term GHG emissions as much as feasible. Thus, the Project would not conflict with the State goals listed in AB 32 or in any preceding State policies adopted to reduce GHG emissions. This impact is considered less than significant.

**Mitigation Measure CU2—Implement BMPs to Reduce GHG Emissions**

This measure is described in detail above.

**Mitigation Measure AQ2.1—Implement Tailpipe Emission Reduction for Project Construction**

This measure is described in detail above.

## Effects of Climate Change on Project

A growing scientific consensus foresees significant worldwide sea level change over the next century. Sea level rise during the next 50 years is expected to increase dramatically over historical rates. The California Energy Commission predicts that by 2050, sea level rise, relative to the 2000 level, will range from 30 centimeters (cm) to 45 cm (California Energy Commission 2009). If the higher predictions are correct, this could pose a substantial challenge for flood protection efforts, such as those of the proposed project, which involve or border tidal waters. With this in mind, the District has designed the Project with adequate freeboard built into the floodwalls to account for the expected sea level rise. Additionally, the Project's overall contribution to long-term flood safety conditions under all reasonably foreseeable climate change scenarios is evaluated as beneficial.



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## CHAPTER 16. GROWTH INDUCEMENT AND RELATED IMPACTS

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This chapter examines the potential for the proposed project to induce growth. A project is considered *growth inducing* if it directly or indirectly fosters economic or population growth or the construction of additional housing or encourages other activities that could result in significant environmental effects (CEQA Guidelines Sec. 15126.2[d]). A project may also be considered growth inducing if it removes an existing obstacle to growth, such as by improving access in an area with insufficient transportation or providing infrastructure to deliver water supply to an area previously without service.

As discussed in Chapters 1 and 2, the Project focuses exclusively on reducing flood risks to communities along the Permanente Creek corridor. It would not develop new housing, and project construction would draw on the large work force already available in the Bay Area and surrounding area—worker demand would not be large enough to drive substantial relocation to the South Bay. Thus, the proposed project would not directly induce or result in population growth. In addition, the Project was proposed to support and provide improved flood protection for land uses already existing and planned under the cities of Los Altos, Mountain View, and Cupertino General Plans—it would not alter the existing mosaic of land uses, and thus, would not induce population growth indirectly by increasing development density or adding new employment centers. Finally, because lands along the Creek are already densely developed despite the existing insufficient level of flood protection, the Project would not remove an obstacle to growth by providing improved flood protection. The Project would have no impact related to inducement of population growth.

The proposed project is expected to provide some level of long-term benefit for local economies by increasing flood security for residents and businesses and reducing the number of homes required to carry flood insurance to obtain mortgage financing. However, the Project's role should be viewed as protecting economic growth rather than driving it. Thus, although the Project would have a long-term beneficial impact on local economies, it would have no impact related to inducement of economic growth.

# CHAPTER 17. ALTERNATIVES TO THE PROPOSED PROJECT

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CEQA requires that a draft EIR evaluate a “reasonable range” of alternatives to a proposed project. An EIR is not required to consider every conceivable alternative to a project; rather, consideration should focus on alternatives that appear to be feasible, would meet the project objectives, and would avoid or substantially lessen at least one of the proposed project’s significant environmental effects. In addition, although the No Project Alternative is not the baseline for determining whether the impacts of the proposed activities would be significant,<sup>1</sup> an EIR must evaluate the impacts of the No Project Alternative to allow decision makers to compare the impacts of approving the project with the impacts of not approving it.

EIRs are required to include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the proposed project or program (CEQA Guidelines Section 15126.6[a], [d], [f]). This ~~allows~~ requires the lead agency to identify the *environmentally superior alternative*—that is, the alternative that would least affect the environment while still accomplishing project objectives. If the No Project Alternative is identified as environmentally superior, the lead agency must also identify the environmentally superior alternative that would implement the project (CEQA Guidelines Section 15126.6[e]).

This chapter contains the following information:

- Summary of the alternatives development and screening process during preparation of the 2010 Final Environmental Impact Report (FEIR).
- Descriptions of the alternatives identified as feasible during preparation of the 2010 FEIR including the No Project Alternative.
- Description of a newly proposed feasible alternative during preparation of ~~this~~ the Draft Subsequent Environmental Impact Report (SEIR).
- Concise analysis of the alternatives’ environmental impacts.
- Identification of the environmentally superior alternative.

## ALTERNATIVES DEVELOPMENT AND SCREENING PROCESS

The alternatives development and screening process, conducted during project planning, consisted of a series of stages to screen out feasible alternatives from a list of conceptual project elements (CPEs). CPEs are reach-specific approaches that would improve conveyance capacity, ecological function, and/or aesthetics in particular segments of the Permanente Creek corridor. The development and screening of these approaches were based on previous studies conducted by the District and other local agencies; input from agencies, local jurisdictions, and members of the public; and hydraulic, wetland, and planning studies conducted by the District and various consultants to support the project effort. The most appealing CPEs were combined into a variety of conceptual alternatives representing possible overall solutions to the creek’s

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<sup>1</sup> The *baseline* for impact analysis is defined as environmental conditions at the time the NOP was published.

identified flood protection needs. To identify feasible alternatives from this group, the conceptual alternatives were screened based on both engineering and financial standpoints. The feasible alternatives were then further evaluated and ranked to distinguish those most consistent with the natural flood protection approach required by the Clean, Safe Creeks Plan (this stage identified the District's preferred approach, which was analyzed in the 2010 Final EIR as the proposed project). Next, several of the remaining feasible alternatives were refined through dialogue with the communities in which key project elements would be located. Lastly, the remaining feasible alternatives were screened once more to identify those that should undergo detailed EIR analysis to meet the dual CEQA mandate to (1) reduce or avoid significant impacts associated with the proposed project, and (2) represent a reasonable range of feasible project approaches.

Details on the alternatives development and screening process including a complete list of conceptual alternatives are provided in Chapter 16 (*Alternatives to the Proposed Project*) of the 2010 Final EIR. The analysis below provides a summary of the feasible alternatives and their environmental impacts as analyzed in the 2010 Final EIR, plus a description and environmental assessment of a newly proposed feasible alternative, Alternative AAAB.

## **POTENTIALLY FEASIBLE ALTERNATIVES**

Feasible alternatives of the proposed project that were analyzed in the 2010 Final EIR include the following:

- **Alternative G:** Instream detention (dam) at Lehigh Southwest Cement Company Permanente Quarry, offstream detention at Rancho San Antonio County Park and McKelvey Park, channel improvements in selected areas, installation of floodwalls and levees north of U.S. Highway 101 (US-101).
- **Alternative S:** Offstream detention at Rancho San Antonio County Park, McKelvey Park, and Cuesta Annex, channel improvements in selected areas, installation of floodwalls and levees north of US-101.
- **Alternative X:** Instream detention (dam) at Lehigh Southwest Cement Company Permanente Quarry, offstream detention at Cuesta Annex, channel improvements in selected areas, installation of floodwalls and levees north of US-101.

For this SEIR, the analysis for Alternative S was omitted. The key difference between Alternative S and the initial proposed project was that under the alternative, the use of the Blach Intermediate School site would not be included as part of the Cuesta Annex Flood Detention Facility project element. However, the proposed project as amended does not incorporate the use of the Blach Intermediate School site into its design and, therefore, there is no longer a comparison to analyze between the amended proposed project and Alternative S.

The following alternative was introduced during preparation of ~~this the Draft~~ SEIR, and was identified as an additional feasible alternative to the proposed project environmentally superior among the potentially feasible alternatives evaluated in the Draft SEIR:

- **Alternative AA:** Offstream detention at Rancho San Antonio County Park and McKelvey Park, a New Permanente Diversion Structure, channel improvements in selected areas, and installation of Floodwalls and Levees north of US-101.

Following the 45-day public review period of the Draft SEIR, the District decided to designate the environmentally superior alternative (Alternative AA) as the new proposed project. The former project, as proposed in the Draft SEIR, is now “Alternative AB” in this Final SEIR:

- **Alternative AB:** Offstream detention at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park; a New Permanente Diversion Structure; channel improvements in selected areas; and installation of Floodwalls and Levees north of US-101.

## **POTENTIALLY FEASIBLE ALTERNATIVES TO THE PROPOSED PROJECT**

### ***PROJECT ALTERNATIVES***

In addition to the proposed project and the No Project Alternative, this Final SEIR analyzes three project alternatives (Table 17-1).

**Table 17-1. Overview of Project Alternatives**

<b>Alternative</b>	<b>Elements</b>
G	<ul style="list-style-type: none"> <li>• Instream detention (dam) at Lehigh Southwest Cement Company Permanente Quarry</li> <li>• Offstream detention at Rancho San Antonio County Park and McKelvey Park</li> <li>• New Permanente Diversion Structure</li> <li>• Channel improvements in selected areas</li> <li>• Floodwalls and levees north of US-101</li> </ul>
X	<ul style="list-style-type: none"> <li>• Instream detention (dam) at Lehigh Southwest Cement Company Permanente Quarry</li> <li>• Extended Hale Creek Bypass</li> <li>• Offstream detention at <del>Rancho San Antonio County Park and Cuesta Annex</del></li> <li>• Channel improvements in selected areas</li> <li>• Floodwalls and levees north of US-101</li> </ul>
AA	<ul style="list-style-type: none"> <li>• <del>Offstream detention at Rancho San Antonio County Park and McKelvey Park</del></li> <li>• <del>New Permanente Diversion Structure</del></li> <li>• <del>Channel improvements in selected areas</del></li> <li>• <del>Floodwalls and levees north of US-101</del></li> </ul>
<u>AB</u> <u>(The</u> <u>previously</u> <u>proposed</u> <u>project in the</u> <u>Draft SEIR)</u>	<ul style="list-style-type: none"> <li>• <u>Offstream detention at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park</u></li> <li>• <u>New Permanente Diversion Structure</u></li> <li>• <u>Channel improvements in selected areas</u></li> <li>• <u>Floodwalls and levees north of US-101</u></li> </ul>

Note that all of the project alternatives have elements in common with the proposed project, although the phasing and some of the details would vary somewhat.

Table 17-2 provides brief descriptions for the project elements included in the alternatives. Most of these elements would be the same under the project alternatives as under the proposed

project; however, there are some differences. For instance, Alternatives G and X would include additional project elements not included in the proposed project: instream detention at the Lehigh Southwest Cement Company Permanente Quarry site (“South Branch Dam”), and/or an underground Hale Creek bypass culvert. All project alternatives would incorporate the same BMPs as the proposed project (see Chapter 2).

**Table 17-2. Project Elements As Used in Project Alternatives**

Element	Overview
Floodwalls and levees north of US-101	<ul style="list-style-type: none"> <li>• Floodwalls and levees along the western side of Permanente Creek from US-101 to Amphitheatre Parkway</li> <li>• Floodwalls would be constructed on a spread footing foundation at existing top of bank and would be 2–4 feet high</li> <li>• Foundations would be designed to allow floodwall height to be raised by up to 2 feet if needed in future years</li> </ul>
Channel improvements	<ul style="list-style-type: none"> <li>• Existing concrete channel reconfigured as larger-capacity U-shaped concrete channel (vertical walls and flat channel bottom)</li> <li>• Channel walls would range in height from 7 feet above adjacent ground at the downstream end to 2 feet at the upstream end of Permanente Creek. In addition, a 7-foot headwall would be constructed on the upstream side of the Mountain View Avenue bridge</li> </ul>
Offstream detention at McKelvey Park	<ul style="list-style-type: none"> <li>• Offstream flood detention basin at City of Mountain View's McKelvey Park; basin would be approximately 15 feet deep</li> <li>• Following construction, upgraded playing fields and amenities would be restored at new ground surface</li> </ul>
Offstream detention at Cuesta Annex	<ul style="list-style-type: none"> <li>• Detention area in north portion of Cuesta Annex, 8–12 feet deep, with gentle side slopes contoured to resemble natural topography and planted with native vegetation</li> <li>• Deepest portion of detention basin landscaped to simulate natural seasonal stream</li> <li>• At 12 acres, the detention basin included in the alternatives would be larger and deeper than the one described for the proposed project. The additional capacity could be provided by recontouring the existing parking lot area to accommodate infrequent flood detention, as well as ongoing parking use</li> </ul>
Offstream detention at Rancho San Antonio County Park	<ul style="list-style-type: none"> <li>• Offstream detention basin in central, undeveloped portion of park, in an area that now consists of ruderal fields</li> <li>• New basin would have an area of approximately 15 acres and would be approximately 8–15 feet deep with gently sloped sides</li> <li>• Basin floor would be contoured to create a natural-appearing central swale designed to retain water longer than the rest of the basin, creating temporary ponding and supporting wetland vegetation</li> </ul>
Instream detention at Lehigh Southwest Cement Company Permanente Quarry	<ul style="list-style-type: none"> <li>• Instream detention facility on South Branch of Permanente Creek adjacent to existing Lehigh Southwest Cement Company Permanente Quarry</li> <li>• Detention facility created by constructing a concrete arch dam with the natural stream valley upstream of the dam providing detention capacity</li> <li>• Dam structure would be approximately 100 feet high and 500 feet wide at the top.</li> <li>• Dam outlet would be constructed to pass flows below 50 cfs; only flows above 50 cfs would be retained</li> </ul>

Element	Overview
New Permanente Diversion Structure	<ul style="list-style-type: none"> <li>New diversion structure constructed in approximately the same location as the existing structure, serving to divert flows higher than the downstream capacity from the Permanente mainstem into Stevens Creek while allowing low flow to continue in the mainstem</li> </ul>
New Permanente Creek Bypass and Cuesta Annex Outlet Culvert	<ul style="list-style-type: none"> <li>Bypass system consisting of a concrete bridge installed underground in existing road ROWs</li> <li>Routing of Cuesta Annex Outlet Culvert could be different from that incorporated in the proposed project</li> </ul>

## ***NO PROJECT ALTERNATIVE***

Under the No Project Alternative, no new flood protection infrastructure would be installed in Permanente or Hale Creeks. For the immediately foreseeable future, the channels would remain in their present condition, and operations and maintenance (i.e., sediment removal and vegetation management) would be similar to what now occurs. Over the longer term, existing concrete facilities in the Permanente mainstem, as well as Hale Creek and the Permanente Diversion Channel, would be repaired or replaced under separate projects, as the need arises.

## **IMPACTS OF ALTERNATIVES**

Table 17-3, at the end of this chapter, describes and compares the anticipated impacts of Alternatives G, X, and AAAB, as well as the No Project Alternative.

## **IDENTIFICATION OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE**

### ***APPROACH***

A detailed analysis of the proposed project's impacts is presented in Chapters 3 through 13, and the matrix in Table 17-3 summarizes the environmental outcomes expected for the four project alternatives including the No Project alternative, and compares them with those anticipated under the proposed project. The analysis and comparison in Table 17-3 were used to identify the alternative that would be environmentally superior for each resource considered. Resource-specific results were then integrated to identify the alternative offering the best overall outcome across all resources.

### ***RESULTS***

Table 17-4 presents a summary comparison of the proposed project and the four project alternatives on a resource-by-resource basis. Where the No Project alternative is identified as environmentally superior, Table 17-4 also identifies the environmentally superior alternative that would implement the project.

**Table 17-4. Environmentally Superior Alternative by Resource**

Resource	Environmentally Superior Alternative	Comments
Geology, Soils, and Mineral Resources	No Project, Alternative <u>AAAB</u>	<p>Under the proposed project and all project alternatives, impacts related to geology and geologic hazards could be mitigated to a less-than-significant level. The No Project Alternative would entail no change from existing conditions and thus would have no impact related to geology or geologic hazards.</p> <p>Impacts on mineral resources would be less under Alternative <u>AA-AB</u> than under Alternatives G and X because Alternative <u>AA-AB</u> would not use the dam site, which is located adjacent to a regionally important mineral source. The No Project Alternative would entail no change from existing conditions and thus would have no impact related to geology or geologic hazards.</p>
Hydrology and Water Quality	No Project, Alternative <u>AAAB</u>	<p>The proposed project would improve flood conveyance while avoiding flooding, and thus are considered beneficial overall for surface hydrology. Alternative <u>AA-AB</u> would provide <del>lesser</del> <u>even greater</u> flood protection <del>in with the inclusion of the Cuesta Annex area since a Flood Detention Facility would not be constructed.</del> Alternatives G and X would also improve flood safety but would create a temporary instream impoundment in the upper Permanente Creek watershed, which represents a more substantial modification to surface hydrologic function and could also affect local shallow groundwater hydrology.</p> <p><u>Because Alternative AB involves more construction (at Cuesta Annex), its water quality impacts would be greater than those of the proposed project.</u> Under the proposed project and Alternative <u>AAAB</u>, all impacts on water quality would be temporary (construction related) and would be mitigated to a less-than-significant level by implementation of standard construction water quality BMPs. This would also be true of Alternatives G and X, but more extensive in-channel work would be required to construct the South Branch Dam, making it more difficult to control impacts to a less-than-significant level.</p> <p>The No Project Alternative would entail no change from existing conditions and thus would have no impact on hydrologic function or water quality. Impacts on water resources under Alternative <u>AA-AB</u> would be <del>very similar</del> <u>slightly greater to than</u> those described for the proposed project, <del>but and would be</del> less than <u>the impacts</u> under Alternatives G and X <del>since because</del> Alternative <u>AA-AB</u> would not use the dam site.</p>
Biological Resources	No Project, Alternative <u>AAAB</u>	<p>All project alternatives would have some potential to disturb biological resources. As summarized in Table 17-3, alternatives involving the South Branch Dam (<u>Alternatives G and X</u>) would have the potential for greater short- and long-term effects on biological resources than the approaches that do not require the dam (proposed project, Alternative <u>AAAB</u>). Impacts on biological resources under Alternative <u>AA-AB</u> would be <del>less to</del> <u>greater than</u> those described for the proposed project. The construction footprint under Alternative <u>AA-AB</u> would be <del>smaller</del> <u>larger</u> than the proposed project (would <del>not</del> include the Cuesta Annex Flood Detention Facility), which would result in <del>less a</del> <u>greater</u> disturbance to special-status species and removal of <del>fewer</del> <u>more</u> mature trees. The No Project Alternative would result in no new impacts on biological resources.</p>



Resource	Environmentally Superior Alternative	Comments
Cultural and Paleontological Resources	No Project, Alternative <u>AA<del>X</del></u>	<p>All project alternatives would have some potential to result in ground disturbance that could affect cultural and/or paleontological resources, potentially resulting in significant, but mitigable, impacts. <u>As identified for the proposed project, all of the areas subject to ground disturbance under Alternative X have some level of sensitivity for buried cultural resources; significant impacts on cultural resources are possible under this alternative and would be mitigated by the same strategy identified for the Project.</u> However, under Alternative <u>AA<del>X</del></u>, the potential for impacts would be <del>slightly less</del> than that of <del>the proposed project or the project alternatives</del> because disturbances would be reduced by one site, <del>(no disturbance to Cuesta Annex site)</del>. The No Project Alternative would result in no immediate project-related ground disturbance. Therefore, it is considered superior with respect to cultural and paleontological resources.</p>
Aesthetics	No Project, Alternative <u>AA<del>AB</del></u>	<p>The No Project Alternative would not alter the visual characteristics of the project corridor.</p> <p>Alternatives G and X would have greater aesthetic impacts than the proposed project. Implementation of these alternatives would construct a dam adjacent to extensive areas of open space; the new dam would represent an additional built element in a generally natural landscape, and further visual alteration could result from vegetation changes due to modification of shallow hydrology.</p> <p>Implementation of Alternative <u>AA-<del>AB</del></u> would also result in <del>fewer a</del> <u>greater number of</u> visual impacts than the proposed project. Under Alternative <u>AA-<del>AB</del></u> <del>there would be no installation of a detention facility would be constructed at the Cuesta Annex site, which, as identified for the proposed project, would include</del> result in significant visual resources impacts associated with light and glare during <u>construction and operation</u>. <del>Additionally</del> <u>However</u>, implementation of Alternative <u>AA-<del>AB</del></u> would not involve development of the South Branch Dam and, thus, is considered superior to the other project alternatives for visual resources.</p>
Transportation and Traffic	No Project, Alternative <u>AA<del>G</del></u>	<p>As discussed in Table 17-3, Alternatives <u>AA-<del>X</del></u> and <u>AB</u> would result in <del>slightly less</del> traffic impacts that would be greater than those <del>as</del> identified for the proposed project <del>since because there would not be of</del> construction of the Cuesta Annex Flood Detention Facility. <u>Traffic impacts related to Cuesta Annex construction traffic's use of Grant Road would be considered significant and unavoidable.</u> Impacts under Alternatives G and X would <u>also likely</u> be greater than those <u>identified</u> under <del>Alternative AA and</del> the proposed project, because of the longer construction <u>duration period</u> and <u>the additional haul traffic</u> required by dam construction. <u>Although implementation of an instream dam would entail substantial construction and haul traffic, the traffic impacts of Alternative G would not be expected to reach significant and unavoidable levels like Alternatives X and AB.</u> The No Project Alternative would have no short-term impact on traffic.</p>
Noise and Vibration	No Project, Alternatives G and X	<p>As discussed in Table 17-3, Alternatives G and X would affect the fewest "key noise impact sites" compared with the proposed project and <del>Alternative AA</del> Alternative <u>AB</u>. The No Project Alternative would entail no change from the current noise baseline. <u>None of the alternatives, other than the No Project Alternative, would completely avoid the proposed project's significant and unavoidable noise impacts (NV 1 and NV 4) or reduce those impacts to less-than-significant levels.</u></p>

Resource	Environmentally Superior Alternative	Comments
Air Quality	No Project, Alternative <del>AA</del> X	Air quality impacts would most likely be greater under Alternatives G and <del>X</del> AB because dam construction <u>under Alternative G</u> would entail more extensive and prolonged construction activity, <u>and Alternative AB would result in significant and unavoidable impacts at the Cuesta Annex Flood Detention Facility. Although Alternative X would include dam construction, air quality impacts under Alternative AA-X would be slightly less similar</u> to those identified for the proposed project because the <del>Cuesta Annex</del> Rancho San Antonio County Park and McKelvey Park Flood Detention Facilities would not be implemented. The No Project Alternative would entail no change from the current air quality baseline. <u>None of the alternatives, other than the No Project Alternative, would avoid the proposed project's significant and unavoidable air quality impacts (AQ 2 and AQ 5) or reduce those impacts to less-than-significant levels.</u>
Hazardous Materials and Public Health	No Project, <del>impacts under all project alternatives would be comparable</del> Alternative X	As discussed in Table 17-3, impacts involving known hazardous materials and vector breeding impacts would be very similar under <del>all</del> project Alternatives <u>G and AB</u> to those expected for the proposed project, and would be mitigable through the same strategies identified for the proposed project. <u>Alternative X would result in slightly fewer impacts because there would be no detention facility constructed at Rancho San Antonio County Park, which has identified vector breeding and wildland fire impacts.</u> The No Project Alternative would not entail any activities that would be expected to have impacts relevant to public health.
Recreation	No Project, Alternative X	As discussed in Table 17-3, short-term impacts on recreation under Alternative <del>AA</del> X would be less than those of the proposed project because no disruption of recreational activities at <del>Cuesta Annex</del> Rancho San Antonio County Park and McKelvey Park would be required. Impacts would be <del>reduced</del> similar under Alternatives G (which would use <del>only two</del> recreational facilities) and <u>greater under Alternative X/AB</u> (which would use <del>only one</del> three facilities). The No Project Alternative would not affect recreation.
Utilities and Service Systems	No Project; Alternative X	As discussed in Table 17-3, the proposed project <del>evaluated</del> <u>would result in impacts on utilities and service systems because a restroom would be installed on-site at the Rancho San Antonio County Park Flood Detention Facility. Alternatives G and AA-AB would result in a similar level of impact because they include the restroom as part of their project; however, Alternative X would not include the Rancho San Antonio County Flood Detention Facility and, thus, would not include the installation of a restroom. Therefore, the level of impact on utilities for Alternative X would be less than compared to the proposed project.</u>

Based on the comparison in Table 17-3 and additional analysis in Table 17-4, the No Project Alternative was identified as environmentally superior because it would not change baseline conditions in the project corridor. However, the No Project Alternative would not satisfy project goals and objectives. As stated in the State CEQA Guidelines (Section 15126.6 [e][2]), if the No Project Alternative is identified as the environmentally superior alternative, the EIR must also identify an environmentally superior alternative among the other alternatives. Therefore, of the alternatives that would implement a project, ~~Alternative AA~~ Alternative X would be superior because it would reduce impacts for more resource areas than the other project alternatives. Therefore, ~~Alternative AA~~ Alternative X is identified as the environmentally superior alternative among the identified feasible alternatives.

## **COMPARISON OF ENVIRONMENTALLY SUPERIOR ALTERNATIVE WITH OTHER POTENTIALLY FEASIBLE ALTERNATIVES AND PROPOSED PROJECT**

During preparation of the Draft SEIR, Alternative AA was found to be environmentally superior to the other alternatives. Following the 45-day public review period of the Draft SEIR, in the Final SEIR, the District decided to designate the Draft SEIR environmentally superior alternative (Alternative AA) as the proposed project. The Final SEIR's proposed project, although no longer a CEQA "alternative," continues to be environmentally superior to the three Final SEIR alternatives, other than the No Project Alternative (see Draft SEIR Chapter 17 for detailed rationale).

As discussed in Table 17-3, impacts on hazardous materials/public health and population/housing would be very similar under Alternative AA to those described for the proposed project. Impacts on geological hazards/minerals, biological resources, cultural/paleontological resources, aesthetics, traffic, noise, air quality, and recreation would somewhat decrease under Alternative AA because the overall construction footprint of this alternative would be smaller than the proposed project with the omission of the Cuesta Annex Flood Detention Facility. Among the three Final SEIR alternatives, Alternative X is environmentally superior because it would reduce impacts for more resource areas than Alternatives G or AB. As discussed in Tables 17-3 and 17-4, impacts related to cultural/paleontological resources, noise/vibration, air quality, hazardous materials/public health, recreation, and utilities would decrease somewhat under Alternative X, mainly because the overall construction footprint of this alternative would be smaller than that of Alternatives G and AB the proposed project with the exclusion of the Rancho San Antonio County Park and McKelvey Park Flood Detention Facilities. Similarly, a comparison of Alternative X with the proposed project shows that impacts related to hazardous materials/public health, recreation, and utilities would decrease somewhat under Alternative X, mainly because, as described above for the other alternatives, the overall construction footprint of this alternative would be smaller than that of the proposed project with the exclusion of the Rancho San Antonio County Park and McKelvey Park Flood Detention Facilities. Alternative X would avoid all of the proposed project's significant impacts at Rancho San Antonio County Park and McKelvey Park; however, because this alternative would include construction of the South Branch Dam and Cuesta Annex Flood Detention Facility, impacts related to geology/soils, hydrology/water resources, biological resources, aesthetics, and traffic would increase, and some would increase to a level of significant and unavoidable.

In summary, compared with the proposed project, Alternative X would avoid all impacts associated with use of the Rancho San Antonio County Park and McKelvey Park sites but would increase several key impacts associated with the South Branch Dam and Cuesta Annex Flood Detention Facility. Consequently, although Alternative X would accomplish project goals and objectives, reduce impacts on several resources, and be considered the environmentally superior alternative among the three project alternatives, other than the No Project Alternative, it is not considered environmentally superior to the project as proposed in this Final SEIR.

It should be noted that, compared to the proposed project and the other alternative, Alternatives AB and X could have beneficial impacts on land use for properties near the Cuesta Annex Flood Detention Facility included in these alternatives. Under these alternatives, the District would need to acquire easements that would preserve properties near the Cuesta Annex Flood

Detention Facility for open space, precluding their development. However, this beneficial impact is considered speculative because the potential for future development of these properties in the absence of such easements is speculative.

~~In summary, a comparison of the proposed project with Alternative AA shows that all impacts identified for the proposed project would either be similar or reduced with implementation of Alternative AA. Therefore, Alternative AA was identified as the environmentally superior alternative. However, although Alternative AA was identified as the environmentally superior alternative, the District will be proceeding with the proposed project because it provides flood protection to 500 more parcels (i.e., protection from a 100-year [1%] flood event). The proposed project would also provide flood protection to El Camino Hospital, a critical local facility that would not be protected under Alternative AA. Alternative AA would provide less flood control protection compared with the proposed project and therefore would not meet the objectives of the project to the same degree as the project.~~

## REFERENCES

ICF International. 2010. Permanente Creek Flood Protection Project: Final Environmental Impact Report. (*SCH No. 2007052074*). (July). San Jose, CA. Prepared for Santa Clara Valley Water District, San Jose, CA.

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**Table 17-3. Anticipated Environmental Impacts—Alternatives G, X, AAAB, and No Project**

Alternative G	Alternative X	Alternative AA	Alternative AB (Proposed Project from Draft SEIR)	No Project	
<ul style="list-style-type: none"> <li>Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>Offstream detention at Rancho San Antonio County Park and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>Hale Creek bypass</li> <li>Offstream detention at Rancho San Antonio County Park and Cuesta Annex</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Offstream detention at Rancho San Antonio County Park, and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel Improvements: Permanente and Hale creeks</li> <li>Floodwalls and Levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Offstream detention at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	<p>No flood protection improvements to Permanente or Hale Creek.</p>	
<b>Approach to Analysis</b>	<b>Approach to Analysis</b>	<b>Approach to Analysis</b>	<b>Approach to Analysis</b>	<b>Approach to Analysis</b>	
<p>The key differences between Alternative G and the proposed project are that Alternative G would include a dam at the Lehigh Southwest Cement Company Permanente Quarry site.</p> <p>For the most part, impact mechanisms would be very similar under Alternative G to those identified for the proposed project. Impacts of the following elements would be the same under Alternative G as those described for the proposed project: detention facilities at Rancho San Antonio County Park and McKelvey Park, the New Permanente Diversion Structure, channel improvements, and floodwalls and levees downstream of US-101.</p> <p>Analysis is therefore concentrated on the difference in impacts created by inclusion of the dam.</p>	<p>The key differences between Alternative X and the proposed project are that Alternative X would include a dam at the Lehigh Southwest Cement Company Permanente Quarry site <u>and a detention facility at Cuesta Annex</u>; would not use the McKelvey Park site; and would construct a Hale Creek bypass not included in the proposed project. In addition, under Alternative X, the new diversion structure would be deferred to a later phase of the project.</p> <p>Despite these differences, for the most part, impact mechanisms would be very similar under Alternative X to those identified for the proposed project. Impacts of the following elements, when constructed, would be the same under Alternative X as those described for the proposed project: <u>detention facilities at Rancho San Antonio County Park and Cuesta Annex</u>, the New Permanente Diversion Structure (construction deferred), channel improvements (Phase 1 and Phase 2), and floodwalls and levees downstream of US-101.</p> <p>Analysis therefore concentrated on new impacts created by inclusion of the dam, <u>Cuesta Annex Flood Detention Facility</u>, and Hale Creek bypass, along with impacts that would be avoided by not using the <u>Rancho San Antonio County Park and McKelvey Park sites</u>.</p>	<p>The key difference between Alternative AA and the proposed project is that Alternative AA would not include the Cuesta Annex flood detention facility.</p> <p>Impacts that would result from the following elements would be the same under Alternative AA as identified for the proposed project: <u>detention facilities at Rancho San Antonio County Park and McKelvey Park</u>; the New Permanente Diversion Structure; channel improvements; and floodwalls and levees downstream of US-101.</p> <p>Analysis is therefore concentrated on impacts that would be avoided by not installing the <u>Cuesta Annex Flood Detention Facility</u>.</p>	<p>The key difference between Alternative AB and the proposed project is that <u>Alternative AB would include the Cuesta Annex Flood Detention Facility</u>.</p> <p><u>Impacts that would result from the following elements would be the same under Alternative AB as those identified for the proposed project: detention facilities at Rancho San Antonio County Park and McKelvey Park, the New Permanente Diversion Structure, channel improvements, and floodwalls and levees downstream of US-101. Therefore, the analysis concentrates on the differences in impacts created by inclusion of the Cuesta Annex Flood Detention Facility.</u></p>	<p>Under the No Project Alternative, no new flood protection infrastructure would be installed in Permanente or Hale Creek.</p> <p>For the immediately foreseeable future, the channel would remain in its present condition, and operations and maintenance (i.e., sediment removal and vegetation management) would be similar to what now occurs. Over the longer term, existing concrete facilities in the Permanente mainstem, as well as Hale Creek and the Permanente Diversion Channel would be repaired or replaced under separate projects, as the need arises. The timing, details, and outcomes of such projects are not foreseeable at this time.</p> <p>Analysis therefore concentrated primarily on the impacts that would be avoided by not constructing new flood protection infrastructure.</p>	
<b>Resource</b>					
<p>Geology, Soils, and Mineral Resources</p>	<p>Impacts for most of the individual elements that make up Alternative G would be the same as those described for the proposed project, and the same mitigation approaches would apply. Similar concerns—and similar mitigation approaches—would apply for the South Branch Dam. In addition, the dam site is located immediately adjacent to a regionally important source of limestone for Portland cement and construction aggregate; construction of the dam, and use of the dam footprint for intermittent flood detention, could reduce the availability of these resources. This would likely represent a significant impact on mineral resources, and could be unavoidable.</p>	<p>Impacts for most of the individual elements that make up Alternative X would be the same as those described for the proposed project, and the same mitigation approaches would apply. Similar concerns—and similar mitigation approaches—would apply for the South Branch Dam. In addition, the dam site is located immediately adjacent to a regionally important source of limestone for Portland cement and construction aggregate; construction of the dam, and use of the dam footprint for intermittent flood detention, could reduce the availability of these resources. This would likely represent a significant impact on mineral resources, and could be unavoidable.</p> <p><u>Also, construction earthwork would require removal of topsoil where it is present. Removal of topsoil from the 4.5-acre project footprint at Cuesta Annex would constitute a significant impact.</u></p>	<p>Overall, impacts related to geology, soils, and geologic hazards would be slightly less under Alternative AA than the proposed project. The significant but mitigable impact identified for top soil loss at the Cuesta Annex site would not occur. Impacts on mineral resources would be less under Alternative AA than under Alternatives G and X, since Alternative AA would not use the dam site.</p>	<p>Overall, impacts related to geology, soils, and geologic hazards would be very similar to the proposed project, with one notable exception. Construction earthwork would require removal of topsoil where it is present. <u>Removal of topsoil from the 4.5-acre project footprint at Cuesta Annex would constitute a significant impact. Impacts would be less under Alternative AB than they would under Alternatives G and X because Alternative AB would not use the dam site.</u></p>	<p>Under the No Project Alternative, no new flood protection infrastructure would be installed in Permanente or Hale Creeks. There would be no impact related to geology, soils, or mineral resources under the No Project Alternative.</p>
<p>Hydrology and Water Quality</p>	<p>The potential for temporary construction-related impacts on water quality would be greater under Alternative G than under the proposed project because dam construction would require more extensive and prolonged in-channel work.</p> <p>In addition, over the long-term, the new dam would substantially alter local hydrology during high-flow events.</p>	<p>As discussed for Alternative G, the potential for temporary construction-related impacts on water quality would be greater under Alternative X than under the proposed project because dam construction would require more extensive and prolonged in-channel work.</p> <p>Over the longer term, temporary impoundment</p>	<p>Overall, impacts related to hydrology and water quality would be very slightly greater under Alternative AA than those described for the proposed project. No significant impacts were identified for the proposed project's implementation of the Cuesta Annex Flood Detention Facility; however, the beneficial</p>	<p>Overall, impacts related to hydrology and water quality would be similar to the proposed project. In fact, under Alternative AB, beneficial impacts would result from implementation of the Cuesta Annex Flood Detention Facility. <u>Construction of the Cuesta Annex facility would provide flood protection for 350 additional parcels, including protection of El Camino Hospital, a critical medical facility that would not</u></p>	<p>Under the No Project Alternative, no new flood protection infrastructure would be installed in Permanente or Hale Creeks. There would be no new or substantially altered impact on hydrologic function or water quality under the No Project Alternative. Under the No Project Alternative, flood protection would not be</p>

	<b>Alternative G</b>	<b>Alternative X</b>	<b>Alternative AA</b>	<b>Alternative AB (Proposed Project from Draft SEIR)</b>	<b>No Project</b>
	<ul style="list-style-type: none"> <li>Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>Offstream detention at Rancho San Antonio County Park and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>Hale Creek bypass</li> <li>Offstream detention at Rancho San Antonio County Park and Cuesta Annex</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Offstream detention at Rancho San Antonio County Park, and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel Improvements: Permanente and Hale creeks</li> <li>Floodwalls and Levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Offstream detention at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	No flood protection improvements to Permanente or Hale Creek.
	<p>Flows above 50 cfs would be held at the dam, creating a temporary impoundment. Depending on the duration of flooding in the impoundment area, this could alter patterns of recharge to shallow groundwater. Impacts could be significant, and because feasible mitigation is unlikely to be available, they would be unavoidable.</p> <p>In addition, although impoundments would be temporary and short-term and the new dam would be built to meet or exceed all applicable codes and standards, there would be some potential for seismically induced dam failure and associated flooding. <u>However, implementation of Alternative G would provide flood protection for 350 more parcels than the proposed project, including El Camino Hospital, a critical medical facility.</u></p> <p>Overall, Alternative G would have greater hydrologic impacts than the proposed project.</p>	<p>associated with the new dam could alter patterns of recharge to shallow groundwater. Impacts could be significant, and because feasible mitigation is unlikely to be available, they would be unavoidable. In addition, although impoundments would be temporary and short-term and the new dam would be built to meet or exceed all applicable codes and standards, there would be some potential for seismically induced dam failure and associated flooding.</p> <p>Overall, Alternative X would have greater hydrologic impacts than the proposed project.</p>	<p>impacts identified for the site in regards to flood protection would not occur. Impacts would be less under Alternative AA than under Alternatives G and X, since Alternative AA would not use the dam site.</p>	<p>occur under the project as proposed. Impacts would also be less under Alternative AB than they would be under Alternatives G and X because Alternative AB would not use the dam site.</p>	improved, and the 1% flood event would remain at risk.
Biological Resources	<p>Permanente Creek offers suitable habitat for California red-legged frog and California tiger salamander in the vicinity of the dam site, as discussed in Chapter 5 (<i>Biological Resources</i>). The dam site also offers habitat for a variety of special-status birds, including migratory species and raptors. Dam construction thus would have the potential to result in disturbance, injury, or mortality of listed amphibians (red-legged frog, tiger salamander). If construction takes place during the nesting period, there would also be the potential for disturbance of migratory birds and raptors to result in reproductive failure. These impacts could be significant and would likely be more extensive under Alternative G than under the proposed project because of the greater extent of habitat involved (Alternative G would involve both the Rancho San Antonio County Park and the Permanente Quarry site; the proposed project would involve only Rancho San Antonio County Park).</p> <p>Upstream of the Permanente Quarry, Permanente Creek offers high-quality habitat for resident rainbow trout (note that Permanente Creek upstream of the existing Lehigh Plant is not connective with the Bay and does not support anadromous species). Construction at the dam site thus could also result in disturbance to fisheries, potentially rising to the level of a significant impact.</p> <p>Over the long-term, changes in creek hydrology as a result of intermittent impoundments could affect vegetation patterns in high-quality riparian and forested areas along the Creek, with corollary potential for loss or degradation of habitat for several special-status plant species as well as red-legged frog, tiger salamander, migratory birds, and raptors. Long-term degradation of coldwater native trout habitat is also likely within and adjacent to the impound footprint.</p> <p>Overall, the short- and long-term potential for adverse impacts on biological resources would be greater under</p>	<p>As discussed for Alternative G, dam construction under Alternative X would have the potential to result in disturbance, injury, or mortality of listed amphibians (red-legged frog, tiger salamander). Additionally, if construction takes place during the nesting period, there would also be the potential for disturbance of migratory birds and raptors to result in reproductive failure. Above the Lehigh Southwest Cement Company Permanente Quarry, Permanente Creek offers high-quality habitat for resident rainbow trout, so construction at the dam site could also result in disturbance to fisheries. All of these impacts could be significant and would likely be more extensive under Alternative X than under the proposed project because of the greater extent of habitat involved (Alternative X would involve both the Rancho San Antonio County Park Cuesta Annex and the Permanente Quarry site; the proposed project would involve only Rancho San Antonio County Park).</p> <p>Over the long-term, changes in creek hydrology as a result of intermittent impoundments could affect vegetation patterns in high-quality riparian and forested areas along the Creek, with corollary potential for loss or degradation of habitat for several special-status plant species as well as red-legged frog, tiger salamander, migratory birds, and raptor. Long-term degradation of coldwater native trout habitat is also likely within and adjacent to the impound footprint.</p> <p>Overall, the short- and long-term potential for adverse impacts on biological resources would be greater under Alternative X than under the proposed project.</p>	<p>Impacts on biological resources would be less under Alternative AA than those identified for the proposed project. Impacts identified for the proposed project at the Cuesta Annex site, including disturbance to special-species and damage to protected trees, would not occur.</p>	<p><u>Impacts on biological resources would be greater under Alternative AB than they would be under the proposed project. Impacts would occur at the Cuesta Annex site, including disturbances to special-species and damage to protected trees. Impacts would be less under Alternative AB than they would be under Alternatives G and X because Alternative AB would not use the dam site.</u></p>	Under the No Project Alternative, no new flood protection infrastructure would be installed in Permanente or Hale Creeks. There would be no new or substantially altered impact on biological resources under the No Project Alternative.



	<b>Alternative G</b>	<b>Alternative X</b>	<b>Alternative AA</b>	<b>Alternative AB (Proposed Project from Draft SEIR)</b>	<b>No Project</b>
	<ul style="list-style-type: none"> <li>Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>Offstream detention at Rancho San Antonio County Park and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul> <p>Alternative G than under the proposed project.</p>	<ul style="list-style-type: none"> <li>Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>Hale Creek bypass</li> <li>Offstream detention at Rancho San Antonio County Park and Cuesta Annex</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Offstream detention at Rancho San Antonio County Park, and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel improvements: Permanente and Hale creeks</li> <li>Floodwalls and Levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>Offstream detention at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park</li> <li>New Permanente Diversion Structure</li> <li>Channel improvements: Permanente and Hale Creeks</li> <li>Floodwalls and levees downstream of US-101</li> </ul>	No flood protection improvements to Permanente or Hale Creek.
Cultural Resources	<p><u>Overall, impacts on cultural resources under Alternative G would be greater than they would be under the proposed project. Construction activities under Alternative G would occur at one more site (South Branch Dam) than they would under the proposed project. Therefore, there would be more areas with some level of sensitivity for buried cultural resources that would be subject to ground disturbance under Alternative G. Alternative G would have a broadly similar disturbance footprint to the proposed project, with the exception that it would avoid the Cuesta Annex site, substituting an instream detention above the Lehigh Southwest Cement Company Permanente Quarry. As identified for the proposed project, all of the areas subject to ground disturbance under Alternative G have some level of sensitivity for buried cultural resources; significant impacts on cultural resources are possible under this alternative and would be mitigated by the same strategy identified for the Project. Overall, impacts on cultural resources would be very similar to those identified for the proposed project.</u></p>	<p>Alternative X would have a similar overall footprint to the proposed project, with the exception that it would avoid the Rancho San Antonio County Park and McKelvey Park sites, substituting instream detention above the Lehigh Southwest Cement Company Permanente Quarry, detention at the Cuesta Annex, and a Hale Creek Bypass facility. As identified for the proposed project, all of the areas subject to ground disturbance under Alternative X have some level of sensitivity for buried cultural resources; significant impacts on cultural resources are possible under this alternative and would be mitigated by the same strategy identified for the Project. Overall, impacts on cultural resources would be very similar to those identified for the proposed project. <u>Impacts would be less under Alternative X than they would be under Alternatives G and AB because Alternative X proposes construction at fewer sites.</u></p>	<p>Overall, impacts on cultural resources under Alternative AB would be greater than those identified for the proposed project. Construction activities under Alternative AB would occur at one more site (Cuesta Annex) than under the proposed project. Therefore, there would be more areas subject to ground disturbance under Alternative AB than they would be under the proposed project. <u>Therefore, there would be more areas with some level of sensitivity for buried cultural resources that would be subject to ground disturbance under Alternative AB. The project construction footprint under Alternative AB would be similar in size to that of Alternative G. Therefore, the level of impact on cultural resources would be similar to that of Alternative G. Alternative X would have the smallest project construction footprint of all alternatives and, therefore, would result in fewer impacts on cultural resources than Alternative AB.</u></p>	<p>Under the No Project Alternative, there would be no immediate project-related ground disturbance. Over the long-term, repair and/or piecemeal replacement of aging flood protection infrastructure could result in ground disturbance, with some potential to disturb buried cultural resources. The extent and severity of disturbance are not foreseeable at this time, but there would likely be some potential for significant impacts on cultural resources, although it is unclear whether this potential would increase relative to the current baseline.</p>	
Paleontological Resources	<p>The South Branch dam site is situated on rocks of the Franciscan complex (Brabb et al. 2000), which have not been identified as sensitive for paleontological resources in this vicinity. However, alluvial deposits of Pleistocene age are present along the Creek channel (Brabb et al. 2000); as discussed for the proposed project, these deposits are highly sensitive for fossil resources, and in particular for vertebrate remains. Impacts on paleontological resources at the dam site could thus be significant but would be fully mitigated through the same approach discussed for the proposed project. <u>However, with inclusion of this additional site, the overall footprint of this alternative would be greater, resulting in a higher potential for disturbing paleontological resources than that of the proposed project. Overall, impacts on paleontological resources would be very similar under Alternative G to those described for the proposed project.</u></p>	<p>As discussed for Alternative G, impacts on paleontological resources could be significant at the dam site and would be mitigated by the same strategy applied to the proposed project. Overall, impacts on paleontological resources would be very similar under Alternative X to those described for the proposed project. <u>Impacts would be less under Alternative X than they would be under Alternatives G and AB because Alternative X proposes construction at fewer sites.</u></p>	<p>Overall, potential impacts related to paleontological resources would be greater under Alternative AB than the proposed project. <u>With inclusion of an additional site (Cuesta Annex), the overall footprint of this alternative is greater, resulting in a higher potential to disturb paleontological resources than the proposed project.</u></p>	<p>Overall, potential impacts related to paleontological resources would be greater under Alternative AB than they would be under the proposed project. <u>With the inclusion of an additional site (Cuesta Annex), the overall footprint of this alternative would be greater, resulting in a higher potential for disturbing paleontological resources than that of the proposed project. The project construction footprint under Alternative AB would be similar in size to that of Alternative G. Therefore, the level of impact on paleontological resources would be similar to that of Alternative G. Alternative X would have the smallest project construction footprint of all alternatives and, therefore, would result in fewer impacts on paleontological resources than Alternative AB.</u></p>	<p>Under the No Project Alternative, there would be no immediate project-related ground disturbance. Over the long-term, repair and/or piecemeal replacement of aging flood protection infrastructure could result in ground disturbance, with some potential to disturb paleontological resources. The extent and severity of disturbance are not foreseeable at this time, but there would likely be some potential for significant impacts on paleontological resources, although it is unclear whether this potential would increase relative to the current baseline.</p>
Aesthetics	<p>Over the short-term, construction activities and earthwork would alter the appearance of the dam site, and the presence of equipment and vehicles could create additional glare due to reflections from metal, glass, and painted surface. Construction-related visual disturbance at the dam site would be visible to a relatively small viewer population, the majority of whom would be quarry staff and thus would not be considered highly sensitive. Moreover, this type of disturbance would be generally consistent with quarrying activities already in progress at the neighboring Permanente Quarry facility. Nonetheless, because of its extent and duration, dam construction could result in significant visual impacts.</p> <p>Over the long-term, the new dam would represent an additional built element in a generally natural landscape, and additional visual changes could result</p>	<p>As discussed for Alternative G, construction activities and earthwork over the short-term would alter the appearance of the dam site, and the presence of equipment and vehicles could create additional glare due to reflections from metal, glass, and painted surface. Construction-related visual disturbance at the dam site would be visible to a relatively small viewer population, the majority of whom would be quarry staff and thus would not be considered highly sensitive, and this type of disturbance would be generally consistent with quarrying activities already in progress at the neighboring Permanente Quarry facility. Nonetheless, because of its extent and duration, dam construction could result in significant visual impacts.</p> <p>Over the long-term, the new dam would represent an additional built element in a generally natural landscape,</p>	<p>Alternative AB would result in more visual impacts as those identified for the proposed project. <u>With implementation of the Cuesta Annex flood detention facility, there would be visual impacts associated with surrounding views and glare. Therefore, overall visual impacts of Alternative AB would be greater than the proposed project. Implementation of Alternative AB would not involve development of the South Branch Dam and, thus, is considered superior to the other alternatives for visual resources.</u></p>	<p>Alternative AB would result in more visual impacts than the proposed project. <u>With implementation of the Cuesta Annex Flood Detention Facility, there would be visual impacts associated with surrounding views. Therefore, overall visual impacts under Alternative AB would be greater than they would be under the proposed project. Implementation of Alternative AB would not involve development of the South Branch Dam and, thus, is considered superior to the other project alternatives with respect to visual resources.</u></p>	<p>The No Project Alternative would not alter the visual characteristics of the project corridor. If the proposed project is not implemented, existing infrastructure in the project corridors would continue to age, becoming less visually intact and eventually requiring repair or replacement under separate project efforts. However, although it is reasonable to project that repairs or replacements may be needed, the timing, details, and visual outcomes of such projects cannot be foreseen at this time.</p>

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	<p>from alterations in vegetation mosaic as a result of changed site hydrology. Despite the limited viewer population, these changes would be substantial enough that they could constitute a significant adverse impact.</p> <p>Aesthetic impacts related to the other elements used in Alternative G would be the same as under the proposed project.</p> <p>Overall, Alternative G would have more extensive visual impacts than the proposed project because of its inclusion of the South Branch Dam.</p>	<p>and additional visual changes could result from alterations in vegetation mosaic as a result of changed site hydrology. Despite the limited viewer population, these changes would be substantial enough that they could constitute a significant adverse impact.</p> <p>Alternative X would not use <u>Rancho San Antonio County Park</u> or <u>McKelvey Park</u> and thus would avoid visual impacts at <u>this/these sites</u>. Aesthetic impacts related to the other elements used in Alternative X would be the same as under the proposed project.</p> <p>Overall, Alternative X would have more extensive visual impacts than the proposed project because of its inclusion of the South Branch Dam.</p>			
Transportation and Traffic	<p>In general, impacts on traffic and transportation would be similar under Alternative G to those described for the proposed project. Impacts related to construction at Cuesta Annex would be avoided, including the proposed project's significant and unavoidable impacts associated with construction traffic on Grant Road. However, <u>Traffic impacts would be greater under Alternative G than they would be under the proposed project</u>. Construction of the South Branch dam would entail additional, longer-term construction and haul traffic, some of which would travel via arterial routes in a residential area to access the dam site. Consequently, <u>although impacts on Grant Road would be avoided Alternative G could/would result in a somewhat greater overall level of impact compared with the proposed project</u>.</p> <p><u>However, as described under Alternatives X and AB, implementation of construction at the Cuesta Annex would result in significant and unavoidable traffic impacts. Although implementation of an instream dam would entail substantial construction and haul traffic, the traffic impacts of Alternative G would not be expected to reach significant and unavoidable levels like Alternatives X and AB.</u></p>	<p><u>Traffic impacts would be greater under Alternative X than they would be under the proposed project</u>. In general, impacts on traffic and transportation would be very similar under Alternative X to those described for the proposed project, although Alternative X would avoid some impacts associated with inlet and outlet culvert construction while introducing new impacts related to the Hale Creek Bypass culvert. <u>Although, impacts related to construction at Rancho San Antonio County Park and McKelvey Park would be avoided, but construction of the South Branch Dam would entail additional, longer term construction and haul traffic, some of which would travel via arterial routes in a residential area to access the dam site. Furthermore, there would be additional traffic impacts associated with the Cuesta Annex site. Traffic flow impacts related to Cuesta Annex construction traffic use of Grant Road would be considered significant and unavoidable.</u> Consequently, although some traffic impacts would be avoided, Alternative X is likely to result in a somewhat greater overall level of impact compared with the proposed project <u>and the other alternatives</u>.</p>	<p>Overall, impacts on traffic and transportation would be greater under Alternative AB than those identified for the proposed project. Under Alternative AB, significant and unavoidable traffic impacts due to the implementation of the Cuesta Annex Flood Detention Facility would occur. Therefore, Alternative AB would result in greater traffic impacts by comparison with the proposed project.</p>	<p>Overall, impacts on traffic and transportation would be greater under Alternative AB than they would be under the proposed project. Under Alternative AB, significant and unavoidable traffic impacts due to implementation of the Cuesta Annex Flood Detention Facility would occur. <u>Traffic flow impacts related to Cuesta Annex construction traffic use of Grant Road would be considered significant and unavoidable. Therefore, Alternative AB would result in greater traffic impacts than the proposed project. Also, Alternative AB would have traffic impacts similar to those of Alternative G because both alternatives would affect the same number of sites. However, Alternative AB would result in significant and unavoidable traffic impacts whereas traffic impacts from implementation of Alternative G would likely be mitigable due to lack of effect on a severely impacted roadway (i.e., Grant Road). Alternative AB would result in fewer traffic impacts compared with Alternative X because Alternative X would include the Cuesta Annex site and the dam site.</u></p>	<p>Over the short-term, the No Project Alternative would have no impact on traffic or transportation because there would be no new construction and thus no construction-related traffic. Over the longer term, as existing infrastructure continues to age, more extensive and frequent maintenance, repairs, and/or replacement are likely to be needed, so traffic related to flood protection operations could increase by comparison with the current baseline condition. Increases could be less than under the proposed project, until or unless replacement of facilities becomes necessary. Future replacement of aging facilities could generate enough construction traffic to result in significant impacts on traffic and transportation, but details are not foreseeable at this time.</p>
Noise and Vibration	<p>Under all alternatives, noise impacts associated with each <u>individual</u> project element would be the same as those described for the proposed project. <u>However, not all alternatives would include the same project elements</u>. For all alternatives, the greatest concern with regard to noise would arise where construction takes place over an extended period (weeks to months) in close proximity to sensitive receptors; the detention facility sites are thus considered key noise impact sites.</p> <p>Construction noise at the South Branch Dam site would primarily affect quarry workers and would not be out of character with noise generated by quarry work. However, the extended construction period and increased haul traffic on arterial routes in a residential area could be a concern for residents. Nonetheless, because Alternative G would use only two key noise impact sites by comparison with the <u>four/three</u> used in the proposed</p>	<p>Under all alternatives, noise impacts associated with each <u>individual</u> project element would be the same as those described for the proposed project. <u>However, not all alternatives would include the same project elements</u>. For all alternatives, the greatest concern with regard to noise would arise where construction takes place over an extended period (weeks to months) in close proximity to sensitive receptors; the detention facility sites are, thus, considered key noise impact sites.</p> <p>Construction noise at the South Branch Dam site would affect primarily quarry workers and would not be out of character with noise generated by quarry work, although the extended construction period and increased haul traffic on arterial routes in a residential area could be a concern for residents. Nonetheless, because Alternative X would use two key noise impact sites (i.e., the Cuesta</p>	<p>Under all alternatives, noise impacts associated with each project element would be the same as those described for the proposed project. For all alternatives, the greatest concern with regard to noise would arise where construction takes place over an extended period (weeks to months) in proximity to sensitive receptors; the detention facility sites are thus considered key noise impact sites.</p> <p>Alternative AA would result in fewer noise impacts than the proposed project because it would affect three key noise impact sites (identified for the New Permanente Diversion Structure, McKelvey Park, and Channel Improvements sites) compared to four used in the proposed project (New Permanente</p>	<p><u>Under all alternatives, noise impacts associated with each individual project element would be the same as they would be under the proposed project. However, not all alternatives would include the same project elements. For all alternatives, the greatest concern with regard to noise would arise where construction takes place over an extended period (i.e., weeks to months) in proximity to sensitive receptors; the detention facility sites are thus considered key noise impact sites.</u></p> <p><u>Alternative AB would result in greater noise impacts than the proposed project because it would affect four key noise impact sites (i.e., the New Permanente Diversion Structure, Cuesta Annex, McKelvey Park, and the channel improvements sites) compared with three under the proposed project (i.e., the New Permanente Diversion Structure, McKelvey Park, and the channel improvements sites). Therefore, overall Alternative AB noise impacts would be greater than the impacts of the proposed project. Also,</u></p>	<p>Over the short-term, there would be no new construction and thus no impact on noise generation under the No Project Alternative. Over the longer term, as existing infrastructure continues to age, more extensive and frequent maintenance, repairs, and/or replacement are likely to be needed, and noise generation would increase. As with traffic, increases could be less than under the proposed project, until or unless replacement of facilities becomes necessary.</p>

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	project (i.e., the New Permanente Diversion Structure, Cuesta Annex, McKelvey Park, and the channel improvements sites); overall construction noise impacts under Alternative G would most likely be somewhat reduced compared with the proposed project, and similar to Alternative X.	Annex and channel improvements sites) compared with four <u>three</u> under the proposed project (i.e., the New Permanente Diversion Structure, Cuesta Annex, McKelvey Park, and the channel improvements sites); overall construction noise impacts under Alternative X would most likely be reduced compared by comparison with the proposed project, and similar to Alternative G.	Diversion Structure, Cuesta Annex, McKelvey Park, and Channel Improvements sites). Therefore, overall Alternative AA noise impacts are less than the overall impacts for the proposed project. Also, noise impacts would be greater under this alternative as compared to Alternative G and X.	compared with Alternatives G and X, Alternative AB would have greater noise impacts because implementation of Alternative AB would occur at more key noise impact sites than the other alternatives.	
Air Quality	The overall air quality impacts would be the same <u>greater</u> under Alternative G as <u>than</u> they would be under the proposed project. Alternative G would avoid the project element-specific impacts associated with detention facility construction at the Cuesta Annex. However, the increased construction period required to build the South Branch Dam could translate to a net increase in construction emissions by comparison with proposed project; air quality impacts could be greater than under the proposed project. Air pollutant emissions at the other project sites would remain the same.	The overall nature of air quality impacts would be the same under Alternative X as under the proposed project. Alternative X would avoid the project element-specific impacts associated with detention facility construction at Rancho San Antonio County Park and McKelvey Park; however, the increased construction period required to build the South Branch Dam could translate to a net increase in construction emissions by comparison with proposed project. Therefore, overall air quality impacts could be greater <u>similar</u> than under <u>to</u> those of the proposed project.	Air quality impacts would be very slightly less under Alternative AA to those described for the proposed project. Under Alternative AA, the Cuesta Annex Flood Detention Facility would not be constructed, and, therefore, the significant air quality impacts identified for this site under the proposed project would not occur. Air quality impacts at the other project sites would remain the same.	Air quality impacts would be greater under Alternative AB than they would be under the proposed project because of the additional construction-period emissions associated with the Cuesta Annex Flood Detention Facility. Air quality impacts under Alternative AB would be similar to those of Alternative G because the size of the project construction footprints under both alternatives would be similar. Alternative X would have the smallest project construction footprint; therefore, the air quality impact would be smaller than that of Alternative AB.	Under the No Project Alternative, no new flood protection infrastructure would be installed in Permanente or Hale Creeks. There would be no new or substantially altered impact on air quality under the No Project Alternative.
Hazardous Materials and Public Health	Under this project alternative, potential impacts related to mosquito breeding would be generally similar to those identified for the proposed project, and the same mitigation strategies would apply. The principal concerns related to known hazardous materials contamination focus on the area north (downstream) of Middlefield Road, and Alternative G would entail the same activities in this area as the proposed project. Consequently, public health and safety impacts under Alternative G would be essentially the same under Alternative G as those described for the proposed project.	The principal concerns related to known hazardous materials contamination focus on the area north (downstream) of Middlefield Road, and Alternative X would entail the same activities in this area as the proposed project. However, under this alternative, potential impacts related to mosquito breeding and wildland fires at the Rancho San Antonio County Park site would not occur because this facility would not be developed. Public health and safety impacts under Alternative X would therefore be less than those described for the proposed project.	Under Alternative AA, potential impacts related to mosquito breeding would be generally similar to those identified for the proposed project, and the same mitigation strategies would apply. The principal concerns related to known hazardous materials contamination focus on the area north (downstream) of Middlefield Road, and Alternative AA would entail the same activities in this area as the proposed project. Consequently, public health and safety impacts under Alternative AA would be essentially the same under Alternative AA as those described for the proposed project.	Under Alternative AB, potential impacts related to mosquito breeding would be generally similar to those identified for the proposed project, and the same mitigation strategies would apply. The principal concerns related to known hazardous materials contamination focus on the area north (downstream) of Middlefield Road; Alternative AB would entail the same activities in this area as those of the proposed project. Consequently, public health and safety impacts under Alternative AB would be essentially the same as they would be under the proposed project. Similarly, impacts on public health and safety under Alternative AB would be comparable to impacts under Alternative G because both alternatives would include implementation of the Rancho San Antonio County Park project element. Alternative X does not include the Rancho San Antonio County Park project element and, therefore, would result in fewer overall impacts on public health and safety than Alternative AB.	The No Project Alternative would not result in any foreseeable activities expected to change public health conditions relative to the current baseline.
Recreation	Under the alternatives, as for the proposed project, all recreational uses at the facilities proposed for flood detention would be restored following construction, so impacts on recreation would relate primarily to disruption during construction. <u>Similar to the proposed project</u> , Alternative G would involve construction at two recreational facilities (Rancho San Antonio County Park and McKelvey Park), whereas the proposed project would involve three parks. Overall impacts on recreation under Alternative G would, therefore, be less <u>similar</u> to those identified for the proposed project.	Under the alternatives, as for the proposed project, all recreational uses at the facilities proposed for flood detention would be restored following construction; therefore, impacts on recreation would relate primarily to disruption during construction. Alternative X would involve construction at one recreational facility (Cuesta Annex). Impacts at Rancho San Antonio County Park and McKelvey Park would be avoided. Because two fewer park facilities would be affected, overall impacts on recreation under Alternative X would be reduced by comparison with the proposed project. Alternative X would also impact fewer parks than Alternatives G and AAAB.	Under the alternatives, as for the proposed project, all recreational uses at the facilities proposed for flood detention would be restored following construction; therefore, impacts on recreation would relate primarily to disruption during construction. Alternative AA would involve construction at two recreational facilities (Rancho San Antonio County Park and McKelvey Park), whereas the proposed project would involve three parks. Overall impacts on recreation under Alternative AA would, therefore, be less than those identified for the proposed project.	Under the alternatives, as well as the proposed project, all recreational uses at the facilities proposed for flood detention would be restored following construction; therefore, impacts on recreation would be related primarily to disruptions during construction. Alternative AB would involve construction at three recreational facilities (i.e., Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park), whereas the proposed project would involve two parks (i.e., Rancho San Antonio County Park and McKelvey Park). Overall impacts on recreation under Alternative AB would, therefore, be greater than they would be under the proposed project. Similarly, because Alternative AB would involve project elements on more park sites than Alternatives G (two park sites) and X (one park site), impacts on recreational resources would be greater.	The No Project Alternative would have no foreseeable impact on recreational facilities or uses and thus would reduce recreational impacts by comparison with the proposed project.

	<b>Alternative G</b>	<b>Alternative X</b>	<b>Alternative AA</b>	<b>Alternative AB (Proposed Project from Draft SEIR)</b>	<b>No Project</b>
	<ul style="list-style-type: none"> <li>• Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>• Offstream detention at Rancho San Antonio County Park and McKelvey Park</li> <li>• New Permanente Diversion Structure</li> <li>• Channel improvements: Permanente and Hale Creeks</li> <li>• Floodwalls and levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>• Instream detention at Lehigh Southwest Cement Company Permanente Quarry ("South Branch Dam")</li> <li>• Hale Creek bypass</li> <li>• Offstream detention at Rancho San Antonio County Park and Cuesta Annex</li> <li>• Channel improvements: Permanente and Hale Creeks</li> <li>• Floodwalls and levees downstream of US-101</li> </ul>	<ul style="list-style-type: none"> <li>• <del>Offstream detention at Rancho San Antonio County Park, and McKelvey Park</del></li> <li>• <del>New Permanente Diversion Structure</del></li> <li>• <del>Channel Improvements: Permanente and Hale creeks</del></li> <li>• <del>Floodwalls and Levees downstream of US-101</del></li> </ul>	<ul style="list-style-type: none"> <li>• <u>Offstream detention at Rancho San Antonio County Park, Cuesta Annex, and McKelvey Park</u></li> <li>• <u>New Permanente Diversion Structure</u></li> <li>• <u>Channel improvements: Permanente and Hale Creeks</u></li> <li>• <u>Floodwalls and levees downstream of US-101</u></li> </ul>	No flood protection improvements to Permanente or Hale Creek.
Utilities and Service Systems	In general, impacts on utilities and service systems would be similar under Alternative G to those described for the proposed project. Utility impacts were evaluated by the proposed project due to a new restroom proposed on site at the Rancho San Antonio County Park Flood Detention Facility. Because the Rancho San Antonio County Flood Detention Facility is part of this alternative, Alternative G would result in a similar level of impact as the proposed project.	Impacts on utilities and service systems would be less under Alternative X compared to the proposed project. Utility impacts were evaluated by the proposed project because a new restroom would be installed at the Rancho San Antonio County Park Flood Detention Facility. Because the Rancho San Antonio County Flood Detention Facility is not included in this alternative, impacts under Alternative X would be less than those described for the proposed project.	<del>Generally, impacts on utilities and service systems would be similar under Alternative AA to those described for the proposed project. Impacts on utilities were evaluated by the proposed project because a new restroom would be installed at the Rancho San Antonio County Park Flood Detention Facility. The Rancho San Antonio County Flood Detention Facility is part of this alternative and, therefore, Alternative AA would result in a similar level of impact compared with the proposed project.</del>	<u>Generally, impacts on utilities and service systems would be similar under Alternative AB to those described for the proposed project. Impacts on utilities were evaluated by the proposed project because a new restroom would be installed at the Rancho San Antonio County Park Flood Detention Facility, which is part of this alternative. Therefore, Alternative AB would result in a level of impact similar to that of the proposed project. Utility impacts under Alternative G would be similar to those under Alternative AB because both alternatives would involve the Rancho San Antonio County Park project element. Alternative X would not involve this project element and, therefore, would result in fewer impacts on utilities than Alternative AB.</u>	Under the No Project Alternative, no new flood protection infrastructure would be installed in Permanente or Hale Creeks. There would be no new or substantially altered impacts on utilities and service systems under the No Project Alternative.

# CHAPTER 18. LIST OF SEIR PREPARERS

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