LOWER BERRYESSA CREEK PROGRAM

Final Environmental Impact Report
SCH #2007092084

Prepared for
Santa Clara Valley Water District

December 2011



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Post Screencheck Final EIR

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CHAPTER S
Executive Summary

S.1 Introduction

The Santa Clara Valley Water District (District) is the primary water resources agency for Santa Clara County (County). The District is charged with local flood protection in the 322-square-mile Coyote Creek Watershed, the largest of the County's five watersheds. Sixteen major creeks drain the Coyote Creek Watershed, including Coyote Creek as its main waterway and the four creeks associated with the proposed Lower Berryessa Creek Program (Program): Lower Berryessa Creek, Calera Creek, Tularcitos Creek, and Lower Penitencia Creek. The following six reaches of the four creeks in the Program area are included in the Lower Berryessa Creek Program: one element on the main stem of Lower Berryessa Creek; three elements on Calera Creek (Lower, Upper Element 1, and Upper Element 2); one element on Tularcitos Creek; and one element on Lower Penitencia Creek.

The District determined that implementation of the Program could have a significant effect on the environment and, therefore, required preparation of an Environmental Impact Report (EIR) in compliance with the California Environmental Quality Act (CEQA). This EIR is intended to:

- provide the public, as well as responsible and trustee agencies, with information about the potentially significant impacts of the Program;
- identify feasible ways to avoid, minimize, or otherwise mitigate the potentially significant effects; and,
- describe and evaluate feasible alternatives to the Program.

According to CEQA Guidelines, Section 15168(a), a program EIR is one type of environmental review document that may be used to evaluate a plan or program that has multiple components (projects and actions) or to address a series of actions that are related. The proposed Program includes multiple projects and actions that are related geographically, and are logical parts in the chain of contemplated actions. This EIR provides a foundation for any necessary future environmental review documents that focus on the individual elements of the Program.

This document analyzes the potential environmental impacts of each of the six elements of the Program at either the project level or program level, depending on the element (CEQA Guidelines § 15168(a)). It analyzes, at a project level, those elements that have clearly-defined construction methods and operational requirements at the time of the EIR's

preparation (Lower Berrryessa Creek and Lower Calera Creek elements). Additionally, the EIR provides a program-level evaluation of the environmental impacts of the elements that are less well defined at the time of its preparation. Pursuant to CEQA Guidelines Section15168(c), the District will prepare additional CEQA documents for those elements analyzed at a program-level once they become further defined (i.e., Upper Calera Element 1, Upper Calera Element 2, Tularcitos Creek Element, and Lower Penitencia Creek Element). In that case, the District will use this EIR as a first-tier CEQA document.

S.2 Program Objectives and Background

S.2.1 Program Objectives

The District's objectives for the Program are as follows:

- Provide flood protection for the design flows;
- Improve access for long-term channel maintenance;
- Incorporate opportunities to integrate levees with the City of Milpitas' trail system;
- Identify opportunities for riparian and stream habitat enhancement and/or restoration; and,
- Complete construction prior of the two project-level elements to completion of construction of the joint USACE/SCVWD Upper Berryessa Creek Project.

S.2.2 Background

The District is proposing flood control improvements that would result in the containment of the flow in the channel with adequate freeboard requirements in Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks[1]. The District constructed the levees on Lower Berryessa Creek in 1976 to provide flood protection. In 1997, based on hydrology and hydraulic data available at the time, the District implemented a levee restoration project, raising the levees by up to 1.5 feet.

In February 2001, the District initiated an engineering planning study to: investigate the condition of levees and channel capacity of Lower Berryessa Creek and its tributaries; develop solutions to improve flood protection; and, achieve other program objectives such as improved maintenance access. The 2010 Lower Berryessa Creek Planning Study Report (PSR) details the findings from this study and presents the recommended solutions to address the deficiencies in containment of design flows (Winzler and Kelly, 2010). As described in the PSR, Lower Berryessa Creek, downstream of East Calaveras Boulevard to the confluence with Lower Penitencia Creek (approximately 8,700 linear feet), currently does not have adequate capacity to convey the design flow with appropriate freeboard. Therefore, the Program includes modifications to ensure that the creeks within the program area would contain the channel flow with required freeboard.

[1] Freeboard is the vertical distance between the high water level within the channel and the top of bank of the channel, levee, or floodwall.

In addition, the District and the U.S. Army Corps of Engineers (USACE) are planning a joint flood protection project in the upper reaches of Upper Berryessa Creek, upstream of East Calaveras Boulevard. The proposed joint USACE/SCVWD Upper Berryessa Creek project would increase flows in the lower portions of Berryessa Creek (i.e., within the program area). Therefore, the Program, as described in this EIR, also includes design accommodations to ensure that the increased flow associated with the potential future joint USACE/SCVWD Upper Berryessa Creek Project would be contained with appropriate freeboard within the program area.

Lower Berryessa and Calera creeks frequently require sediment removal from the channel bottoms to maintain design capacity flow. This process is currently burdened by a lack of suitable access for equipment. Therefore, improvements to existing maintenance roads are necessary to access the existing and future facilities to ensure proper maintenance.

S.3 Summary of Program Description

The majority of program facilities would be within the District's existing right-of-way (ROW). A summary of each element is provided below.

S.3.1 Lower Berryessa Creek Element

The improvements along Lower Berryessa Creek would include reconstructing levees and replacing existing levees with floodwalls[2]. Levees along the northeast side of the channel would be raised for the entire length of this element, with the exception of a small segment where levees on both sides would be replaced with floodwalls. Floodwalls would be constructed along the southwest side of the channel along the entire length of this element. This element would include construction of a low bench within the channel and adjacent to the levee that would help create and maintain the low flow channel within the creek.

To improve access for ongoing maintenance measures, the existing maintenance roads would be improved to accommodate an 18-foot-wide access road along the inside of the floodwall and on top of the reconstructed levee, with turnouts included along the lower maintenance road.

S.3.2 Lower Calera Creek Element

Proposed improvements for the Lower Calera Creek Element would include widening and reconfiguring the channel and constructing concrete floodwalls along each side of the existing channel. From the confluence with Lower Berryessa Creek to North Milpitas Boulevard, improvements would include extending the existing channel walls by up to 4 feet and constructing new headwalls at the culverts under the railroad crossing and under North Milpitas Boulevard.

[2] The Valley Transit Authority (VTA) is currently implementing a channel realignment and culvert construction project where Lower Berryessa Creek crosses under the UPRR bridges along Reach C. It is anticipated that the VTA project, including new box culverts and associated channel improvements, would be complete prior to commencement of the District's Lower Berryessa Creek Project.

Downstream of Arizona Avenue, new floodwalls would be constructed on both sides of the channel and would vary in height from approximately 3 feet to 6.5 feet. Upstream of Arizona Avenue, floodwalls would range from 3.5 feet to almost 6 feet on the south side of the channel, and from 2 feet to 5 feet on the north side of the channel. The levee on the south bank would be slightly raised and the levee on the north bank would be removed to accommodate a wider channel. New headwalls would be constructed at the upstream face of the culvert under North Milpitas Boulevard and at the upstream and downstream faces of the culvert under Arizona Avenue.

This element would include construction of a low bench on the north side of the channel near the existing low-flow channel that would help maintain the low-flow within the creek. To improve access for ongoing maintenance measures, a permanent 18-foot-wide access road would be constructed on the top of the levee on the south side of the channel upstream of North Milpitas Boulevard.

S.3.3 Upper Calera Creek Element 1 and Upper Calera Creek Element 2

At this time, the proposed improvements for the Upper Calera Creek Element 1 and Upper Calera Creek Element 2 are preliminary and discussed at a program level in this EIR. The preliminary concept for these elements includes construction of concrete floodwalls along the Upper Calera Creek banks from Milpitas High School to Founders Lane. Raised headwalls would be constructed at the downstream and upstream faces of Escuela Parkway.

The Upper Calera Creek Element 2 would include an approximately six-foot-wide and five-foot-deep open concrete box culvert within the Thomas Russell Middle School ROW, from Founders Lane to I-680, which would accommodate excess flows from the main channel. Upstream of I-680, an existing drop structure would be removed and a short floodwall would be constructed on the west side of the creek.

S.3.4 Tularcitos Creek Element

As with the Upper Calera Creek elements, proposed improvements for the Tularcitos Creek Element are preliminary and are discussed at a program-level in this EIR. The preliminary concept for this element includes construction of a new stormwater pump station just upstream of Paseo Refugio on Tularcitos Creek. As currently proposed, the new pump station would include diesel engine-driven pumps that would be used to prevent high flows from Lower Berryessa Creek from entering Tularcitos creek and would only be activated in the event that the Berryessa Creek water surface level would create backwater effects in Tularcitos Creek. The Tularcitos Creek element also would include construction of floodwalls along the channel that would vary in height and extend up to approximately 3 feet above existing grade. New headwalls would also be required at the downstream and upstream faces of the North Hillview Drive and Tramway culvert crossings. Two permanent access roads, approximately 18 feet wide, would be constructed on either side of the channel to match the alignment of the existing access roads and to meet District maintenance standards.

S.3.5 Lower Penitencia Creek Element

The Lower Penitencia Creek Element is discussed at the program level in this EIR. As currently proposed, improvements to this element include removing sediment and vegetation to return the channel to design capacity. The bench within the channel would be lowered and a new, widened floodplain would be constructed near I-880.

S.3.6 Program Construction

Program construction would include reconstructing levees, constructing floodwalls and headwalls, excavating sediment, installing a new stormwater pump station, installing a concrete box culvert, revegetation, and raising pedestrian bridges. Program design and permitting for individual elements would be completed in an approximately two to four year timeframe, beginning in 2011. Construction activities would occur during dry season months (mid-April to mid-October) with in-channel work typically occurring between mid-June and mid-October. Construction of the Lower Berryessa Creek and Lower Calera Creek Elements would not be concurrent. Major construction activities spanning seven months or greater would be implemented over two construction seasons. All program activities would occur between the hours of 8 a.m. and 5 p.m., Monday through Friday, with the exception of state and federal holidays as recognized by the District and City of Milpitas.

S.3.7 Maintenance

In addition to continuing the maintenance activities currently required for existing facilities, program improvements would require additional structural maintenance activities for the floodwalls, new box culvert, and pump station. Anticipated maintenance activities associated with the operation of the Program include inspection, sediment removal, bank protection, vegetation management, and minor maintenance; such as trash and debris removal, graffiti abatement, maintenance road grading, rodent control, and installation and repair of fences[3]. These activities would be implemented regularly to maintain channels and facilities at design conditions. Mowing of levee banks for fire safety purposes would continue; however the adjacent riparian vegetation strips would be protected and would not be subject to vegetation management.

S.4 Summary of Impacts and Mitigation Measures

Table S-1 (located at the end of this chapter) identifies the *less than significant* and *significant* impacts that would result from the program activities, identified by area of environmental concern. With the exception of the identified significant and unavoidable impacts, all significant impacts would be reduced to less-than-significant levels through implementation of the mitigation measures described in this EIR.

[3] In addition to routine maintenance of District facilities under the Stream Maintenance Program (see Section 2.D.2, the Milpitas Municipal Code Title V (Public Health, Safety and Welfare), Chapter 203, Section 5), requires removal of graffiti within 10 days of application. Both the City of Milpitas and the District hotlines/websites for reporting trash, graffiti, or other unsafe conditions (408.586.3079 [City of Milpitas] or https://clients.comcate.com/newrequest.php [District]).

S.5 Summary of Program Alternatives

Four alternatives, including the No Project Alternative are evaluated in Chapter 4 of this EIR:

- Alternative 1: No Project Alternative
- Alternative 2: Floodplain Alternative
- Alternative 3: Raised Levees outside the ROW and Sediment Removal
- Alternative 4: Floodwalls and Sediment Removal

These alternatives were selected and analyzed according to CEQA Guidelines Section 15126.6. These alternatives represent a reasonable range of alternatives to the proposed project that, preliminarily, would feasibly attain most of the program's basic objectives and would avoid or substantially lessen one or more significant adverse environmental effects of the Program.

The CEQA Guidelines require the identification of an environmentally superior alternative (Section 15126.6[e]). Based on the evaluation presented in Chapter 4, the Program is considered the environmentally superior alternative. Compared with Alternative 2, the Program has a smaller construction area and timeframe and is able to meet the Program objectives identified in Section 2.C.2. Alternatives 3 and 4, while meeting Program objectives, result in slightly greater impacts associated with aesthetics, biological resources, and recreation. When compared to Alternatives 3 and 4, the Program has fewer overall environmental impacts while meeting all Program objectives.

S.6 Other CEQA Topics

Implementation of the Program would not remove an obstacle to growth, or directly or indirectly foster economic or population growth or the construction of housing, as discussed in Chapter 6, Other Topics Required by CEQA. Therefore, the Program would not have a growth-inducing impact. Potentially significant cumulative impacts, also discussed in Chapter 5, are identified in Section S.4, Summary of Impacts and Mitigation Measures.

S.7 Areas of Controversy and Issues to Be Resolved

The proposed Program is not associated with any areas of controversy.

If the analysis completed in this document is reviewed and approved (or modified and subsequently approved) by the District Board of Directors there would be subsequent environmental review for facilities evaluated at a program level of detail in this document. This second tier of environmental review would include a greater level of detail regarding the design of project facilities and the potential impacts resulting from implementation of the detailed project. As further details are known about the elements and site-specific information is refined, it is possible that individual project effects indentified in this document might not occur or that

additional project effect not identified in the document would occur. Such changes in project details will be addressed during project-specific environmental review.

Additionally, consultation with agencies including the U.S. Army Corps of Engineers (Clean Water Act Section 404 permit), California Department of Fish and Game (CDFG) (Streambed Alteration Agreement), California Public Utilities Commission (Application for General Order 88-B Approval and compliance with CPUC General Order 26-D), and the San Francisco Bay Region Water Quality Control Board (SFBRWQCB) (Clean Water Act Section 401 certification of Section 404 permit), and CalTrans (encroachment and Right of Way) would be required for implementation of the Program. The Program would also require temporary construction easements from the City of Milpitas, the Milpitas Unified School District, the Thomas Russell Middle School, and the property owner adjacent to the east bank of Upper Calera Creek Element 2, Reach B, and property owners along Lower Penitencia Creek. Permanent easements from the City of Milpitas and property owners as well as encroachment permits from the City of Milpitas and VTA would also be required to implement the Program.

S.8 References

Santa Clara Valley Water District (SCVWD), Lower Berryessa Creek Project – Planning Study Report, prepared by Winzler & Kelly, March 2010.

TABLE S-1
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.B AESTHETICS						
Impact 3.B-1: Damage to scenic resources, including trees, of the built or natural environment that contribute to a scenic public setting.	SM	–	–	LTS	–	SM
Mitigation Measures						
M-3.D-6a: Tree and Shrub Replacement	✓	–	–	–	–	✓
Impact 3.B-2: Temporary or permanent impacts on the existing visual character or quality of the site and its surroundings.	SM	LTS	LTS	LTS	SM	SM
Mitigation Measures						
M-3.D-6a: Tree and Shrub Replacement	✓	–	–	–	–	✓
M-3.B-2: Aesthetically Compatible Design	–	–	–	–	✓	–
Impact 3.B-3: Adverse effects on daytime or nighttime views due to new sources of substantial light or glare.	LTS	LTS	LTS	LTS	SM	LTS
Mitigation Measures						
M-3.B-2: Aesthetically Compatible Design	–	–	–	–	✓	–
M-3.B-3: Placement and Design of Nighttime Security Lighting.	–	–	–	–	✓	–
3.C AIR QUALITY						
Impact 3.C-1: Generation of fugitive inhalable particulate matter that could result in the violation of an air quality standard or contribute substantially to an existing or projected air quality violation.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.C-1: Dust Control Measures	✓	✓	✓	✓	✓	✓
Impact 3.C-2: Generation of criteria pollutants associated with equipment exhaust that could result in the violation of an air quality standard or contribute substantially to an existing or projected air quality violation.	SU	SU	SU	SU	SU	SU
Mitigation Measures						
M-3.C-2a: Exhaust Emissions Reduction Measures	✓	✓	✓	✓	✓	✓
M-3.C-2b: Emissions Reduction Plan	✓	✓	✓	✓	✓	✓
M-3.C-2c: Air Pollutant Emissions Plan	–	–	–	–	✓	–

SU = Significant and Unavoidable
SM = Significant Impact, Can Be Mitigated
LTS = Less-than-Significant Impact
– = No Impact
✓ = Applicable Impact

TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.C AIR QUALITY (cont.)						
Impact 3.C-3: Cumulatively considerable increases in criteria pollutant emissions for which the area is in non-attainment of standards.	SU	SU	SU	SU	SU	SU
Mitigation Measures						
M-3.C-1: Dust Control Measures	✓	✓	✓	✓	✓	✓
M-3.C-2a: Exhaust Emissions Reduction Measures	✓	✓	✓	✓	✓	✓
M-3.C-2b: Emissions Reduction Plan	✓	✓	✓	✓	✓	✓
M-3.C-2c: Air Pollutant Emissions Plan	–	–	–	–	✓	–
Impact 3.C-4: Expose sensitive receptors to substantial pollutant concentrations.	SU	SM	SU	SU	SU	SU
Mitigation Measures						
M-3.C-1: Dust Control Measures	✓	✓	✓	✓	✓	✓
M-3.C-2c: Air Pollutant Emissions Plan	–	–	–	–	✓	–
Impact 3.C-5: Expose sensitive receptors to objectionable odors.	LTS	LTS	LTS	LTS	SM	LTS
Mitigation Measures						
M-3.C-2c: Air Pollutant Emissions Plan	–	–	–	–	✓	–
3.D BIOLOGICAL RESOURCES						
Impact 3.D-1: Potential for adverse effects on special-status species including California red-legged frog and western pond turtle.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.D-2: Adverse effects on special-status birds or bats.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.D-3: Adverse effects on San Francisco dusky footed woodrat habitat.	LTS	LTS	SM	SM	LTS	LTS
Mitigation Measures						
M-3.D-3: Protection of San Francisco Dusky-footed Woodrat	–	–	✓	✓	–	–

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.D BIOLOGICAL RESOURCES (cont.)						
Impact 3.D-4: Adverse effects on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.D-4a: Wetland Avoidance and Riparian Habitat Avoidance and Minimization	~~–~~ ~~✓~~	~~–~~ ~~✓~~	✓	✓	✓	✓
M-3.D-4b: Compensate for Wetland and Riparian Habitat Loss	✓	✓	✓	✓	✓	✓
Impact 3.D-5: Impacts on movement corridors for migratory fish or wildlife species.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.D-6: Conflict with local policies or ordinances protecting biological resources, including tree preservation policies or ordinances.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.D~~3~~-6a: Tree and Shrub Replacement	✓	✓	✓	✓	✓	✓
M-3.D~~3~~-6b: Tree Protection Measures	✓	✓	✓	✓	✓	✓
3.E CULTURAL RESOURCES						
Impact 3.E-1: Potential impacts on unknown historical resources, archaeological resources and/or human remains.	LTS	LTS	SM	SM	SM	SM
Mitigation Measures						
M-3.E-1: Cultural Resources Survey and Impact Assessment for Program-level Elements	–	–	✓	✓	✓	✓
Impact 3.E-2: Potential impacts on known archaeological materials associated with CA-SCL-37 and P-43-000432.	–	–	–	SM	–	–
Mitigation Measures						
M-3.E-2: Extended Archaeological Survey	–	–	–	✓	–	–
Impact 3.E-3: Potential impacts on known historical resources.	–	–	–	SM	–	–
Mitigation Measures						
M-3.E-3: Vibration Monitoring	–	–	–	✓	–	–

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.E CULTURAL RESOURCES (cont.)						
Impact 3.E-4: Potential impacts on paleontological resources.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
3.F GEOLOGY AND SOILS						
Impact 3.F-1: Expose people or structures to potential substantial adverse affects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground-shaking, or secondary ground-shaking effects such as liquefaction or landslides.	SM	SM	SM	SM	SM	LTS
Mitigation Measures						
M-3.F-1: Geotechnical Investigations	✓	✓	✓	✓	✓	–
Impact 3.F-2: Substantial erosion or loss of topsoil.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.F-3: Slope instability and potential for on- or off-site landslide, lateral spreading, subsidence, or collapse.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.F-4: Expansive soils.	SM	SM	SM	SM	SM	LTS
Mitigation Measures						
M-3.F-4: Geotechnical Explorations	✓	✓	✓	✓	✓	–
3.G GREENHOUSE GASES						
Impact 3.G-1: Cumulatively considerable increase in GHG emissions and conflict with the state goal of reducing GHG emissions in California to 1990 levels by 2020, as set forth by the timetable established in AB 32, California Global Warming Solutions Act of 2006.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.H HAZARDS AND HAZARDOUS MATERIALS						
Impact 3.H-1: Create a hazard to construction workers, the public, or the environment through exposure to or release of hazardous materials encountered during excavation or grading.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.H-1: Soil and Groundwater Management Plan	✓	✓	✓	✓	✓	✓
Impact 3.H-2: Improper storage or accidental release of hazardous materials during construction or operations of the Program.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.H-3: Emit hazardous emissions or involve handling hazardous materials within ¼-mile of an existing or proposed school.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.H-4: Impair implementation of an adopted emergency response or evacuation plan.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.M-1 Traffic Control Plan	✓	✓	✓	✓	✓	✓
Impact 3.H-5: Expose people or structures to risk of loss, injury, or death involving wildland fires.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
3.I HYDROLOGY AND WATER QUALITY						
Impact 3.I-1: Increased erosion and sedimentation and/or pollutant (e.g., fuels and lubricants) loading to surface waters, which could subsequently result in violation of water quality standards or otherwise degrade water quality.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.I-2: Violation of water quality standards, and impacts on groundwater supplies and recharge due to dewatering activities.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.I HYDROLOGY AND WATER QUALITY (cont.)						
Impact 3.I-3: Alter the existing drainage pattern and potentially result in downstream erosion or siltation on- or off-site.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.I-4: Alter the existing drainage pattern and potentially result in downstream flooding.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
3.J LAND USE AND PLANNING						
Impact 3.J-1: Physical division of an established community.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.J-2: Conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
3.K NOISE						
Impact 3.K-1: Short-term and permanent increases in ambient noise levels at nearby noise receptors that could exceed established standards and ordinances.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.K-1a: Noise Control Techniques	✓	✓	✓	✓	✓	✓
M-3.K-1b: Minimize Noise from Impact Equipment	✓	✓	✓	✓	✓	✓
M-3.K-1c: Minimize Noise from Stationary Sources	✓	✓	✓	✓	✓	✓
M-3.K-1d: Tularcitos Creek Noise Study	–	–	–	–	✓	–
Impact 3.K-2: Exposure to or generation of excessive groundborne vibration or groundborne noise levels in the vicinity of the Program.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.L RECREATION						
Impact 3.L-1: Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.L-2: Indirect impacts on the recreational experience during construction.	SM	LTS	LTS	LTS	LTS	SM
Mitigation Measures						
M-3.D-6a: Tree and Shrub Replacement	✓	–	–	–	–	✓
3.M TRANSPORTATION AND TRAFFIC						
Impact 3.M-1: Conflict with local plans and policies related to the City's existing transportation and circulation system (including mass transit, and non-motorized travel) as well as the Santa Clara County CMP.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.M-1: Traffic Control Plan	✓	✓	✓	✓	✓	✓
Impact 3.M-2: Increase potential traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.M-2: Road Repair	✓	✓	✓	✓	✓	✓
Impact 3.M-3: Impair access to adjacent roadways and land uses for both general and emergency response traffic.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.M-1: Traffic Control Plan	✓	✓	✓	✓	✓	✓
3.N UTILITIES AND SERVICE SYSTEMS						
Impact 3.N-1: Adequate landfill capacity to accommodate the Program's solid waste disposal needs.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.N-1: Appropriate Landfill Use	✓	✓	✓	✓	✓	✓

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
3.N UTILITIES AND SERVICE SYSTEMS (cont.)						
Impact 3.N-2: Potential to interfere with existing utilities.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.N-2a: Preconstruction Utility Identification and Coordination	✓	✓	✓	✓	✓	✓
M-3.N-2b: Protection of Other Utilities During Construction	✓	✓	✓	✓	✓	✓
M-3.N-2c: Advance Notification	✓	✓	✓	✓	✓	✓
M-3.N-2d: Emergency Response Plan and Notification	✓	✓	✓	✓	✓	✓
Impact 3.N-3: Impacts related to compliance with federal, state, and local statutes and regulations related to solid waste.	SM	SM	SM	SM	SM	SM
Mitigation Measures						
M-3.N-3: Waste Management Plan	✓	✓	✓	✓	✓	✓
3.0 ENERGY CONSERVATION						
Impact 3.O-1: Effects on energy resources such as fuel (including transportation energy) and electricity.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.O-2: Effects on regional and local energy supplies and capacities of fuel and electricity.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
Impact 3.O-3: Conflicts with existing energy conservation standards.	LTS	LTS	LTS	LTS	LTS	LTS
Mitigation Measures						
None Required						
5.0 CUMULATIVE IMPACTS						
Impact 5.A: Cumulative impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the program area and immediate vicinities.	SM					
Mitigation Measures						
M-5.CA-1: Tree and Shrub Replacement	✓	–	–	–	–	✓
M-5.A-12: Aesthetically Compatible Design	–	–	–	–	✓	–
M-5.A-23: Placement and Design of Nighttime Security Lighting	–	–	–	–	✓	–

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
5.0 CUMULATIVE IMPACTS (cont.)						
Impact 5.B: Cumulative construction and operations emissions of criteria pollutants.	SU					
Mitigation Measures						
M-5.B-1: Dust Control Measures	✓	✓	✓	✓	✓	✓
M-5.B-2a: Exhaust Emissions Reduction Measures	✓	✓	✓	✓	✓	✓
M-5.B-2b: Emissions Reduction Plan	✓	✓	✓	✓	✓	✓
M-5.B-2c: Air Pollutant Emissions Analysis	–	–	–	–	✓	–
Impact 5.C: Cumulative loss of sensitive biological resources during construction and operations.	SM					
Mitigation Measures						
M-5.C~~E~~-1: Protection of San Francisco Dusky-footed Woodrat	–	–	✓	✓	–	–
M-5.C~~E~~-2a: Wetland and Riparian Habitat Avoidance and Minimization	–	–	✓	✓	✓	✓
M-5.C~~E~~-2b: Compensate for Wetland and Riparian Habitat Loss	✓	✓	✓	✓	✓	✓
M-5.C~~E~~-3a: Tree and Shrub Replacement ~~and Compensation~~	✓	✓	✓	✓	✓	✓
M-5.C~~E~~-3b: Tree Protection Measures	✓	✓	✓	✓	✓	✓
Impact 5.D: Cumulative increase in impacts on archaeological, paleontological, and historical resources.	SM					
Mitigation Measures						
M-5.D-1: Cultural Resources Survey and Impact Assessment	–	–	✓	✓	✓	✓
M-5.D-2: Extended Archaeological Survey	–	–	–	✓	–	–
M-5.D-3: Vibration Monitoring	–	–	–	✓	–	–
Impact 5.E: Cumulative exposure of people or structures to geologic and seismic hazards.	SM					
Mitigation Measures						
M-5.E-1: Geotechnical Investigations	✓	✓	✓	✓	✓	–
M-5.E-2: Geotechnical Explorations	✓	✓	✓	✓	✓	–
Impact 5.F: Cumulative construction effects related to greenhouse gas emissions.	LTS					
Mitigation Measures						
None Required						

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	Lower Calera Creek Element	Upper Calera Creek Element 1	Upper Calera Creek Element 2	Tularcitos Creek Element	Lower Penitencia Creek Element
5.0 CUMULATIVE IMPACTS (cont.)						
Impact 5.G: Cumulative effects related to hazardous conditions and exposure to or release of hazardous materials.	SM					
Mitigation Measures						
M-5.G-1: Soil and Groundwater Management Plan	✓	✓	✓	✓	✓	✓
M-5.L-1: Traffic Control Plan	✓	✓	✓	✓	✓	✓
Impact 5.H: Cumulative impacts related to the degradation of water quality, depletion of groundwater resources, alteration of drainage patterns and erosion or siltation, and alteration of drainage patterns and flooding hazards.	LTS					
Mitigation Measures						
None Required						
Impact 5.I: Cumulative disruption of established communities and changes in existing land patterns.	LTS					
Mitigation Measures						
None Required						
Impact 5.J: Cumulative increases in construction noise in the program area and along construction haul and delivery routes.	SM					
Mitigation Measures						
M-5.J-1a: Noise Control Techniques	✓	✓	✓	✓	✓	✓
M-5.J-1b: Minimize Noise from Impact Equipment	✓	✓	✓	✓	✓	✓
M-5.J-1c: Minimize Noise from Stationary Sources	✓	✓	✓	✓	✓	✓
M-5.J-1d: Tularcitos Creek Noise Study	–	–	–	–	✓	–
Impact 5.K: Cumulative effects on recreational resources during construction.	SM					
Mitigation Measures						
M-5.C-3a~~A-1~~: Tree Replacement	✓	–	–	–	–	✓
Impact 5.L: Cumulative traffic increases on local and regional roads.	SM					
Mitigation Measures						
M-5.L-1: Traffic Control Plan	✓	✓	✓	✓	✓	✓
M-5.L-2: Road Repair	✓	✓	✓	✓	✓	✓

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TABLE S-1 (Continued)
SUMMARY OF IMPACTS AND MITIGATION MEASURES

IMPACT	Project-Level Elements		Program-Level Elements			
	Lower Berryessa Creek Element	**Lower Calera Creek Element**	**Upper Calera Creek Element 1**	**Upper Calera Creek Element 2**	**Tularcitos Creek Element**	**Lower Penitencia Creek Element**
5.0 CUMULATIVE IMPACTS (cont.)						
Impact 5.M: Cumulative impacts related to disruption of utility service or relocation of utilities.	SM					
Mitigation Measures						
M-5.M-1: Appropriate Landfill Use	✓	✓	✓	✓	✓	✓
M-5.M-2a: Preconstruction Utility Identification and Coordination	✓	✓	✓	✓	✓	✓
M-5.M-2b: Protection of Other Utilities During Construction	✓	✓	✓	✓	✓	✓
M-5.M-2c: Advance Notification	✓	✓	✓	✓	✓	✓
M-5.M-2d: Emergency Response Plan and Notifications	✓	✓	✓	✓	✓	✓
M-5.M-3: Waste Management Plan	✓	✓	✓	✓	✓	✓
Impact 5.N: Cumulative increases in the use of nonrenewable energy resources.	LTS					
Mitigation Measures						
None Required						

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CHAPTER 1
Introduction

The Santa Clara Valley Water District (District) is proposing the Lower Berryessa Creek Program (Program) to implement flood control improvements along portions of four creeks: Lower Berryessa Creek, Calera Creek, Tularcitos Creek, and Lower Penitencia Creek. The Program would include the construction of flood-protection-related elements to be implemented on portions of the four creeks and would result in the containment of the channels' design flow with adequate freeboard requirements[1]. The Program is divided by geography and implementation sequence into six elements, each located in the City of Milpitas in Santa Clara County. One element would be located on Lower Berryessa Creek (Lower Berryessa Creek Element); three elements would be located on Calera Creek (Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2); one element would be located on Tularcitos Creek (Tularcitos Creek Element); and one element would be located on Lower Penitencia Creek (Lower Penitencia Creek Element). The six elements are further divided into a total of 15 stream reaches, each of which poses conditions to be addressed on a reach-by-reach basis, i.e., with reach-specific solutions.

Some of the improvements include:

- Raising creek levees;
- Constructing floodwalls along existing creek levees;
- Constructing an underground concrete box culvert;
- Constructing a high-flow pump station;
- Improving maintenance access; and
- Removal of sediment and vegetation to return to design capacity.

The creek reaches to be included in the Program are all under the jurisdiction of the District.

[1] Freeboard is the vertical distance between the high water level within the channel and the top of bank of the channel, levee, or floodwall.

1.A Purpose of the EIR

The California Environmental Quality Act (CEQA) requires that, before a decision can be made to approve a project or set of related projects (i.e., program) with potentially significant environmental effects, an environmental impact report (EIR) must be prepared that fully describes the environmental effects of the project or program (CEQA Guidelines §15063). The EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental consequences of a proposed project or program, to identify mitigation measures to lessen or eliminate significant adverse impacts, and to examine feasible alternatives to the project or program. The information contained in the EIR is reviewed and considered by the lead and responsible agencies prior to the ultimate decision to approve, disapprove, or modify the proposed project or program.

CEQA states that a lead agency, and in this case, the District, shall not "approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects…" (Public Resource Code § 21002). The lead agency shall neither approve nor implement a project or program as proposed unless the significant environmental effects of that project have been reduced to a less-than-significant level, essentially "eliminating, avoiding, or substantially lessening" the expected impacts (Public Resource Code § 21081). If the lead agency approves the project or program despite residual significant adverse impacts that cannot be mitigated to less-than-significant levels, the agency must state the reasons for its action in writing. This "statement of overriding considerations" must be included in the record of project or program approval.

According to the CEQA Guidelines, Section 15168(a), a program EIR is one type of EIR which may be prepared on a series of actions that can be characterized as one large project and are related:

- Geographically;
- As logical parts in the chain of contemplated actions;
- In connection with the issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or
- As individual actions carried out under the same authorizing statutory or regulatory authority and having generally similar environmental impacts that can be mitigated in similar ways.

The proposed Program includes multiple actions that are related geographically, and are logical parts in the chain of contemplated actions. This EIR provides a foundation for any necessary future environmental review documents that focus on the individual elements of the Program. This program EIR also provides the following advantages (CEQA Guidelines, §15168[b]):

- Provides for a more exhaustive consideration of effects and alternatives than would be practical in an EIR on an individual action;
- Ensures consideration of cumulative impacts that might not be evident in a case-by-case or project-by-project analysis;
- Avoids duplicative consideration of basic policy issues;
- Allows the lead agency to consider broad policy alternatives and program-wide mitigation measures early in the process when the agency has greater flexibility to address basic cumulative impacts; and
- Allows a reduction in paperwork.

A program EIR may be prepared before the details of every component of the program have been developed, as is the case for the Lower Berryessa Creek Program. This EIR analyzes the environmental impacts of implementing the overall Program to provide flood protection in Lower Berryessa Creek, and several tributaries. To accomplish this, the EIR includes a combination of *program-level* and *project-level* analyses.

This EIR evaluates the environmental effects of implementing proposed flood control improvements from a broad perspective; this evaluation is a *program-level* analysis. This EIR also includes *project-level* impact analysis of implementing two elements that have clearly defined construction methods and operational requirements at the time of the EIR's preparation. This project-level analysis is intended to address these elements without the need for additional environmental review. For the elements evaluated at a program level pursuant to CEQA Guidelines §15168(c), the District will prepare future CEQA documents once these elements become further defined. In that case, the District will use this EIR as a first-tier CEQA document.

1.B EIR Process

1.B.1 Notice of Preparation and Scoping

In accordance with Section 15082 of the CEQA Guidelines, the District, as the CEQA lead agency, prepared a notice of preparation (NOP) for this EIR. The NOP contained a description of the Program, a discussion of possible alternatives, a map of the program area, and a summary of the probable environmental effects of the Program to be addressed in the EIR. On September 19, 2007, the NOP was mailed to ten interested parties, including local, state, and federal agencies; to the State Clearinghouse; and to news publications. Copies of the NOP were made available for public review at the Santa Clara County Public Library in Milpitas, at the County Clerk's office, and on the District's website. The 30-day scoping period for the Program remained open through November 24, 2007. On October 11, 2007, the District held a public scoping meeting in the Milpitas City Council Chambers. An invitation to the scoping meeting was mailed to approximately 3,000 area residents, placed as an advertisement in two newspapers, and posted on the District website.

The District received four unique comment letters from state and local agencies during the comment period, and approximately 15 questions from attendees during the scoping meeting. The NOP, comment letters, and oral questions are included in a scoping report, which is appended to this EIR (see Appendix A). The major environmental concerns raised during the scoping period and the EIR sections where the comments are addressed are summarized in Table 1-1.

TABLE 1-1
COMMENTS ON THE NOTICE OF PREPARATION

Commenter	Comments	EIR Chapter/Section
California Department of Fish and Game (CDFG)	EIR should specifically address potential impacts on California red-legged frog and nesting migratory birds, in addition to impacts on the burrowing owl and western pond turtle.	Section 3.D, Biological Resources
	Recommend that the District investigate program alternatives that include reducing the number of maintenance roads along the channel.	Chapter 4, Alternatives
	Discourage the use of floodwalls in favor of softer approaches, such as widening of the floodplain.	Chapter 4, Alternatives
	CDFG may require a Lake and Streambed Alteration Agreement.	Chapter 2, Program Description
California Department of Transportation (Caltrans)	Analysis must include a current archaeological record search if construction activities are proposed within the state right-of-way.	Section 3.E, Cultural Resources
	Any work or traffic control within the state right-of-way will require an encroachment permit.	Section 3.M, Transportation and Traffic
California Public Utilities Commission (CPUC)	Plan Program with consideration to the safety of the nearby rail corridor and include impacts on the rail corridor in environmental documents.	Chapter 3, various sections
California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region (SFBRWQCB)	Clarify changes in conditions that occurred between the implementation of the 1997 levee improvement project and the 2001 study resulting in the Program.	Chapter 2, Program Description
	Explain why the Program is being evaluated separately from the joint USACE/SCVWD Upper Berryessa Creek Project and describe potential cumulative impacts for both proposed projects.	Chapter 2, Program Description Chapter 5, Cumulative
	Describe how the proposed alternatives will affect existing maintenance activities in the program vicinity. (RWQCB supports the removal of excess maintenance roads.)	Chapter 2, Program Description Chapter 4, Alternatives
	Consider program alternatives that would enhance and expand wetland habitats, including riparian woodland habitat, and include avoidance measures, best management practices (BMPs), and compensatory mitigation to address any unavoidable impacts.	Section 3.D, Biological Resources Chapter 4, Alternatives
	Consider alternatives with setback levees in the EIR.	Chapter 4, Alternatives
	Describe potential impacts from hazardous materials that may be exposed in soils or groundwater during construction.	Section 3.H, Hazards and Hazardous Materials
	Only consider Program alternatives that will provide long-term positive impacts to water quality and beneficial uses of the Program reaches.	Chapter 2, Program Description

TABLE 1-1 (Continued)
COMMENTS ON THE NOTICE OF PREPARATION

Commenter	Comments	EIR Chapter/Section
California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region (SFBRWQCB) (cont.)	Be sure to include impact assessment for aesthetics, biological resources, hazards and hazardous materials, hydrology and water quality, and cumulative impacts.	Chapter 3, various sections Chapter 5, Cumulative
	Describe baseline monitoring that will be used to determine Program impacts and monitoring to assess post-construction and compensatory mitigation performance.	Section 3.D, Biological Resources
Scoping Meeting Attendee	Regarding floodwalls (from alternatives) with walkways for people: will graffiti-free paint be used?	Chapter 3, Program Description
Scoping Meeting Attendee	Will the District be willing to provide the Neighborhood Association (Park Row) with paint so that they can take care of painting the walls themselves?	Chapter 3, Program Description
Scoping Meeting Attendee	Regarding the alternatives with vegetation: great idea, but as it grows will it present a problem with falling over or will it block creek flow?	Chapter 4, Alternatives
Scoping Meeting Attendee	Regarding circulation of the EIR: when/how are residents informed when the document is available? Can it be posted in the newspaper, such as the Milpitas Post?	Chapter 1, Introduction
Scoping Meeting Attendee	Are communities/businesses taken into account when considering alternatives?	Chapter 2, Program Description Chapter 4, Alternatives
Scoping Meeting Attendee	Would construction take place during the daytime?	Chapter 2, Program Description
Scoping Meeting Attendee	When working on alternatives, are underground facilities (e.g., pipes and other utilities) taken into consideration?	Section 3.N, Utilities and Service Systems
Scoping Meeting Attendee	For Upper Berryessa: how will this have an impact on schools? The school is right along the creek. If kids are in session and construction happens during school hours, how will that have an impact on children to have access to site?	Section 3.H, Hazards and Hazardous Materials Section 3.J, Land Use and Planning Section 3.M, Traffic and Transportation

1.B.2 Draft EIR

The District ~~will be~~ circulated~~ing~~ the~~is~~ draft EIR (DEIR) for review and comment by the public and other interested parties, agencies, and organizations for a 45-day period of June 28, 2011 to August 12, 2011 ~~identified on the notice that is inside the front cover of the document~~. Notice of the ~~this~~ DEIR ~~will be~~ was sent directly to every agency, person, or organization that commented on the NOP. During the public comment period, written comments on the adequacy of the DEIR ~~may be~~ were submitted to:

David Dunlap
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118

Comments were also ~~may also be~~ submitted electronically at~~by visiting~~ the District website at www.valleywater.org, ~~and clicking~~ on the Access Valley Water link.

1.B.3 Final EIR

All substantive written and oral comments received on the adequacy of ~~this~~the DEIR during the public review period ~~will be~~ were addressed in a "response-to-comments" document~~which, together with this DEIR, will constitute the final EIR (FEIR)~~. The response-to-comments document will also present any changes to the DEIR resulting from public and agency input ~~and District staff initiated changes~~. This Final EIR (FEIR) also incorporates all changes to the DEIR from public and agency input, as well as staff-initiated text changes. Additions to the EIR are shown as underlined text, while deleted text is shown in ~~strikethrough~~ text.

Prior to any decision to approve, revise, or reject the Program, the District Board of Directors will review the FEIR and consider EIR certification at a regularly-scheduled board meeting. Upon EIR certification, the District may proceed with program approval actions. Approval of the Program would be preceded by written findings for each significant adverse environmental effect identified in the EIR (CEQA Guidelines § 15091). At the time that CEQA findings are adopted, the District will also adopt a mitigation monitoring and reporting program (MMRP) for adopted mitigation measures (further discussed below).

1.B.4 Mitigation, Monitoring, and Reporting

Although CEQA Guidelines do not require that the specific reporting or monitoring program be included in the EIR, California law requires lead agencies to adopt a MMRP for those mitigation measures that are conditions of program approval and that are necessary to reduce or avoid significant effects on the environment. All adopted measures will be included in a MMRP to ensure CEQA compliance during program implementation (CEQA Guidelines § 15097(a)).

1.C Organization of the ~~Draft~~ EIR

Prior to this chapter, this ~~D~~EIR contains a summary section which provides a concise overview of the document. The Executive Summary allows the reader to review a summary of the analysis of potentially significant effects, proposed mitigation measures, residual environmental impacts after mitigation, and alternatives to the Program that reduce or avoid effects on the environment. The Executive Summary culminates with Table S-1, Summary of Environmental Impacts and Mitigation Measures. This table lists each identified environmental impact, associated mitigation measures, and the level of significance following mitigation. Those individuals who wish to read them in greater detail are directed to the main body of the document.

Following this chapter, this ~~D~~EIR has been organized as follows:

Chapter 2, Program Description. This chapter provides a detailed description of the Program, including a description of the program vicinity, existing facilities, construction information, and anticipated maintenance requirements. It includes a discussion of the program background, program need, and program objectives as well as a brief overview of the District's process to consider whether to approve the Program.

Chapter 3, Environmental Setting, Impacts, and Mitigation Measures. Each environmental topic is discussed in a separate section within this chapter. Each section contains a discussion of the setting (existing environmental and regulatory setting), and the environmental impacts that could result from the Program; this analysis includes specific District "best management practices" (BMPs) incorporated in the Program that would serve to avoid or minimize impacts. Each section also presents feasible mitigation measures for significant adverse impacts. The criteria used to assess the significance of adverse environmental effects are identified, and the significance of the impact both prior to and following mitigation is reported.

Chapter 4, Alternatives. This chapter evaluates a range of alternatives to the Program. These alternatives include the No Project Alternative, which is required by CEQA, one managed floodplain alternative; and two engineered alternatives.

Chapter 5, Cumulative Impacts. This chapter describes the impacts of the Program in combination with impacts of past projects, current, and reasonably foreseeable probable future projects that could potentially result in impacts similar to those resulting from construction and/or operation of the Program.

Chapter 6, Other CEQA Requirements. This chapter describes the Program's growth-inducement potential, and summarizes the significant and unavoidable effects of the Program and the significant and irreversible environmental changes of the Program.

Chapter 7, Report Preparers. This chapter lists persons, and affiliations of those persons who prepared this EIR.

Appendix A, NOP Scoping Report. Scoping report for the NOP.

Appendix B, Santa Clara Valley Water District, List of Applicable BMPs

Appendix C, Air Quality Calculations (Road Mod)

Appendix D, Health Risk Assessment (HRA) Calculations

Appendix E, Special-Status Species Lists

Appendix F, Public and Agency Draft EIR Comment Letters

Appendix G, Draft EIR Response to Comments

Appendix H, Mitigation Monitoring and Reporting Program

CHAPTER 2
Program Description

2.A Introduction

The Santa Clara Valley Water District (District) is the primary water resources agency for Santa Clara County (County). The District serves as the County's water wholesaler and provides stream stewardship and flood protection for Santa Clara Valley residents, businesses, and transportation networks. As such, the District is charged with local flood protection in the 322 square mile Coyote Watershed, the largest of the County's five watersheds. This watershed extends from the urbanized valley floor upward to the vast natural areas of the Diablo Range. Sixteen major creeks drain the Coyote Watershed, including Coyote Creek as its main waterway and the creeks associated with the proposed Lower Berryessa Creek Program (Program): Lower Berryessa Creek, Calera Creek, Tularcitos Creek, and Lower Penitencia Creek.

The District is proposing flood control improvements that would result in the containment of the flow in the channel with adequate freeboard requirements in Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks[1]. The Program would include the construction of flood protection related elements to be implemented on the four creeks identified above. The Program is divided by geography, and implementation sequence, into six program elements. These elements are further divided by treatment type into 15 stream reaches.

Each of the six elements would be located in the City of Milpitas in Santa Clara County, specifically: one element on the main stem of Lower Berryessa Creek; three elements on Calera Creek (Lower, Upper Element 1, and Upper Element 2); one element on Tularcitos Creek; and one element on Lower Penitencia Creek. In general, the improvements include:

- Raising creek levees;
- Constructing floodwalls along existing creek levees;
- Constructing an underground concrete box culvert;
- Constructing a stormwater pump station;
- Improving maintenance access;
- Sediment and vegetation removal, and
- Floodplain construction

[1] Freeboard is the vertical distance between the high water level within the channel and the top of bank of the channel, levee, or floodwall.

The creek reaches to be included in the Program are all under the jurisdiction of the District.

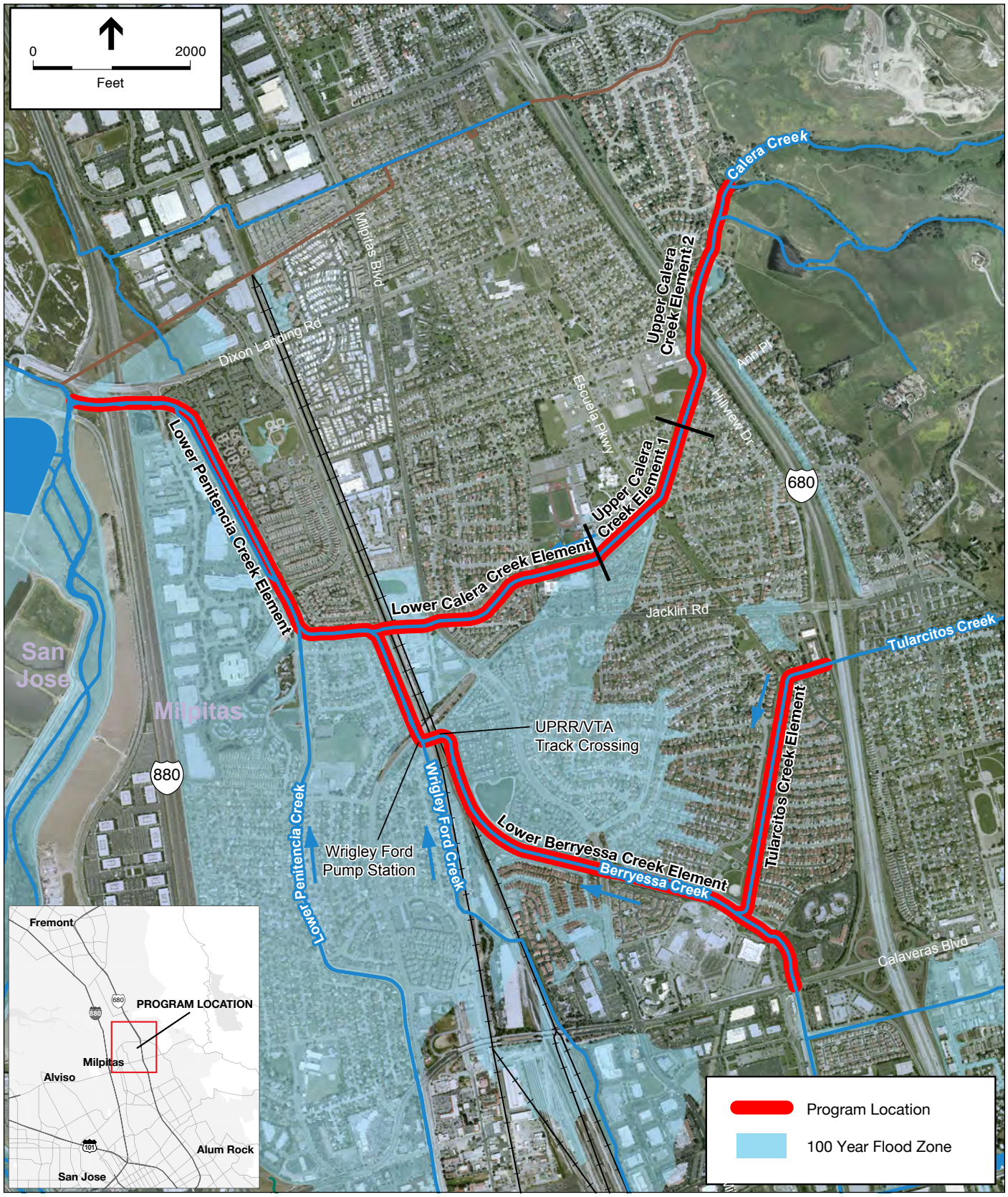
As described in Chapter 1, this EIR serves both as a project-level EIR and as a program-level EIR. This chapter presents an overview of the Program, its goals, and its objectives for all six program elements. It then includes a project-level description of the Lower Berryessa Creek and Lower Calera Creek improvements. The project-level discussion focuses on construction elements for which site specific construction information and methods have been developed. Finally, this chapter provides a program-level description of the Upper Calera Creek, Tularcitos Creek, and Lower Penitencia Creek elements, each of which is currently in the preliminary planning phase.

2.B Program Location and Existing Facilities

The Program is located in a developed portion of eastern Santa Clara County within the City of Milpitas. Creeks within the program vicinity include portions of Berryessa Creek and four of its tributaries: Wrigley Ford, Calera, Tularcitos, and Lower Penitencia Creeks (Figure 2-1). Berryessa Creek is a part of the Coyote Watershed and is a major tributary of Coyote Creek. Berryessa Creek has a drainage area of approximately 22 square miles, draining a large area of the City of Milpitas and a portion of the City of San José. Berryessa Creek originates in the Los Buellis Hills of the Diablo Range, between Ed R. Levin County Park and Alum Rock Park, east of the City of San José. It flows westerly to Interstate 680 (I-680), then northward through the City of Milpitas to its confluence with Lower Penitencia Creek. Lower Penitencia Creek flows northward to Coyote Creek and ultimately drains into San Francisco Bay. Upstream of the program area (south of Montague Expressway), Berryessa Creek is typically dry during the summer months. However, within the program area the creek is perennial, mainly due to urban runoff. With the exception of its furthest upstream reaches in the hills, Berryessa Creek has been modified throughout its length, and it is contained primarily in either engineered-earth trapezoidal, or concrete, channels.

The Program's approximate 25,000 linear feet fall entirely within the City of Milpitas city limits, generally within the area bounded by East Calaveras Boulevard to the south, I-880 to the west, Dixon Landing Road to the north, and within 1,000 feet of I-680 to the east. Surrounding land uses include the Milpitas Town Center, low and medium density, single-family homes, office parks, school campuses, and open space. The Union Pacific Railroad (UPRR) tracks run in a north-south direction in the western portion of the program area and cross program reaches in two locations. The San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy Aqueduct also runs in a north-south direction through the program vicinity and crosses Berryessa Creek just north (downstream) of North Hillview Drive.

To characterize the program activities, needs, and implementation schedule effectively, the Program is divided into six program elements, each associated with one or more stream reaches, as described below.



SOURCE: ESA

Lower Berryessa Creek Program . 201425

Figure 2-1
Program Alignment

2.B.1 Lower Berryessa Creek Element

The Lower Berryessa Creek Element extends upstream from the confluence of Lower Penitencia and Berryessa Creeks (the western end of Reach A), approximately 8,700 feet, to the downstream face of the bridge crossing of Calaveras Boulevard (the southeastern end of Reach G) (Figure 2-2A). With the exception of the Milpitas Town Center to the south, this element is surrounded by single-family homes. Within this element, six bridges cross the creek. The East Calaveras Boulevard bridge and the railroad bridges currently impede flows during periods of high water flow.

Within this element, Berryessa Creek is a managed flood control channel, contained mostly in human made, earthen, trapezoidal channels within levees. Exceptions include a 210-foot long concrete lined section at the Tularcitos Creek confluence and the SFPUC Hetch Hetchy Aqueduct crossing (Reach F), and a 700-foot long concrete lined section at the UPRR crossings under North Abel Street (Reach C). The Santa Clara Valley Transportation Authority (VTA) recently implemented a channel realignment and culvert construction project, in partnership with the District near Able Street Bridge (Reach C.). The VTA project includes new box culverts and associated channel improvements. The work was completed in the Fall 2010.

Both concrete lined channel lengths (reaches C and F) exhibit a simple trapezoidal channel cross section with no maintenance roads. The side slopes of the banks are no steeper than 2:1 slope[2], and the widths between the top of the banks range from 130 to 150 feet. The channel narrows to 65 feet in width between the North Hillview Drive bridge and the East Calaveras Boulevard bridge crossings.

Reaches A, B, D, E, and G exhibit a simple trapezoidal channel with bank slopes no steeper than 2:1, and with maintenance roads ranging in width between 10 to 18 feet that are located on both sides of the creek channel, on the top of bank and within the channel. (One exception is the stretch between the Calera Creek and Wrigley Ford Creek confluences [Reach B], where maintenance roads are located on the west levee only.) Ramped access roads are located upstream and downstream of the North Milpitas Boulevard bridge, upstream and downstream of the North Hillview Drive bridge, and upstream of the Tularcitos Creek confluence. These roads provide access for the District to conduct routine maintenance activities, including sediment and vegetation removal, along the banks and in the channel.

[2] A 2:1 slope has a ratio of two horizontal feet to one vertical foot.



0 1000
Feet

SOURCE: GlobeXplorer; ESA

Lower Berryessa Creek Program . 201425

Figure 2-2A
Lower Berryessa Creek Element

2.B.2 Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2

Calera Creek originates northeast of the City of Milpitas, in the Diablo Range in the northern part of the Ed R. Levin County Park. It flows westward to its confluence with Berryessa Creek and drains a watershed with an area of less than three square miles. Land uses surrounding the Calera Creek elements include single-family homes, schools, open space, and commercial or office parks. Within the program area, Calera Creek is primarily a managed flood control channel, the majority of which is an earthen, trapezoidal channel. Channel width between the top of the banks is approximately 50 feet, with side slopes no steeper than 2:1. The creek is contained in culverts under the UPRR tracks and under Arizona Avenue, North Milpitas Boulevard, Escuela Parkway, and North Park Victoria Parkway / I-680. From the UPRR tracks to North Milpitas Boulevard (approximately 470 feet), the channel is a concrete flood control channel with vertical concrete banks. Upstream of North Milpitas Boulevard, the bottom channel width is approximately ten feet.

The Calera Creek portion of the Program is divided into three separate elements: Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2. The Lower Calera Creek Element begins at the confluence of Berryessa Creek and extends upstream approximately 3,000 linear feet to the drop structure behind Milpitas High School (Figure 2-2B). The Upper Calera Creek Element 1 begins at the drop structure behind Milpitas High School and extends approximately 2,300 feet to the downstream face of the pedestrian bridge near Founders Lane (Figure 2-2C). Upper Calera Creek Element 2 begins at the upper limits of the Upper Calera Creek Element 1 and extends approximately 3,000 upstream, crossing both I-680 and North Park Victoria Drive (Figure 2-2D).

Maintenance roads that are between eight and 12 feet wide occur along the channel top of bank between North Milpitas Boulevard and the drop structure behind Milpitas High School (Lower Calera Creek Element). A single access road, that is approximately 12 feet in width, runs parallel along the south side of the channel from the drop structure upstream to Escuela Parkway (Upper Calera Creek Element 1, Reach A). Upstream of the Escuela Parkway, 12-foot wide access roads are located on both sides of the channel (Upper Calera Creek Element 1, Reach B). From Founders Lane to I-680, vehicle access is limited by narrow shoulders and mature trees (Upper Calera Creek Element 2, Reach A). Upstream of I-680, an 18-foot wide access road is located along the west side of the channel (Upper Calera Creek Element 2, Reach B).

2.B.3 Tularcitos Creek Element

Tularcitos Creek originates in the foothills of the Diablo Range, northeast of the City of Milpitas, where it flows westward to its confluence with Berryessa Creek. The Tularcitos Creek Watershed comprises less than two square miles. It is a seasonal stream at its headwaters near the Tularcitos Golf and Country Club. The element begins at the confluence with Berryessa Creek at Paseo Refugio and extends approximately 4,000 linear feet upstream to the upstream face of



SOURCE: GlobeXplorer; ESA

Lower Berryessa Creek Program . 201425

Figure 2-2B
Lower Calera Creek Element



SOURCE: GlobeXplorer; ESA

Lower Berryessa Creek Program . 201425

Figure 2-2C

Upper Calera Creek Element 1



SOURCE: GlobeXplorer; ESA

Lower Berryessa Creek Program . 201425

Figure 2-2D
Upper Calera Creek Element 2

the culvert under I-680. Surrounding land uses include single-family homes and a linear park that overlies the SFPUC Hetch Hetchy Aqueduct (Figure 2-2E).

Upstream of Paseo Refugio, Tularcitos Creek is an earthen, trapezoidal, managed flood control channel. The channel has a bottom width of 21 feet and a width of about 50 feet between the tops of the banks. Side slopes are approximately 1.5:1. A short concrete section exists beneath Paseo Refugio, at the confluence with Berryessa Creek. Within this element, there are four pedestrian bridge crossings and four road culvert undercrossings located at I-680, North Hillview Drive, Tramway Drive, and Paseo Refugio. Upstream of I-680 and beyond the program area, Tularcitos Creek is mostly contained within a concrete pipe, except for the reach near its headwater. Maintenance roads, ranging in width from eight to 14 feet, occur along the top of bank on both sides of the channel along most of the creek.

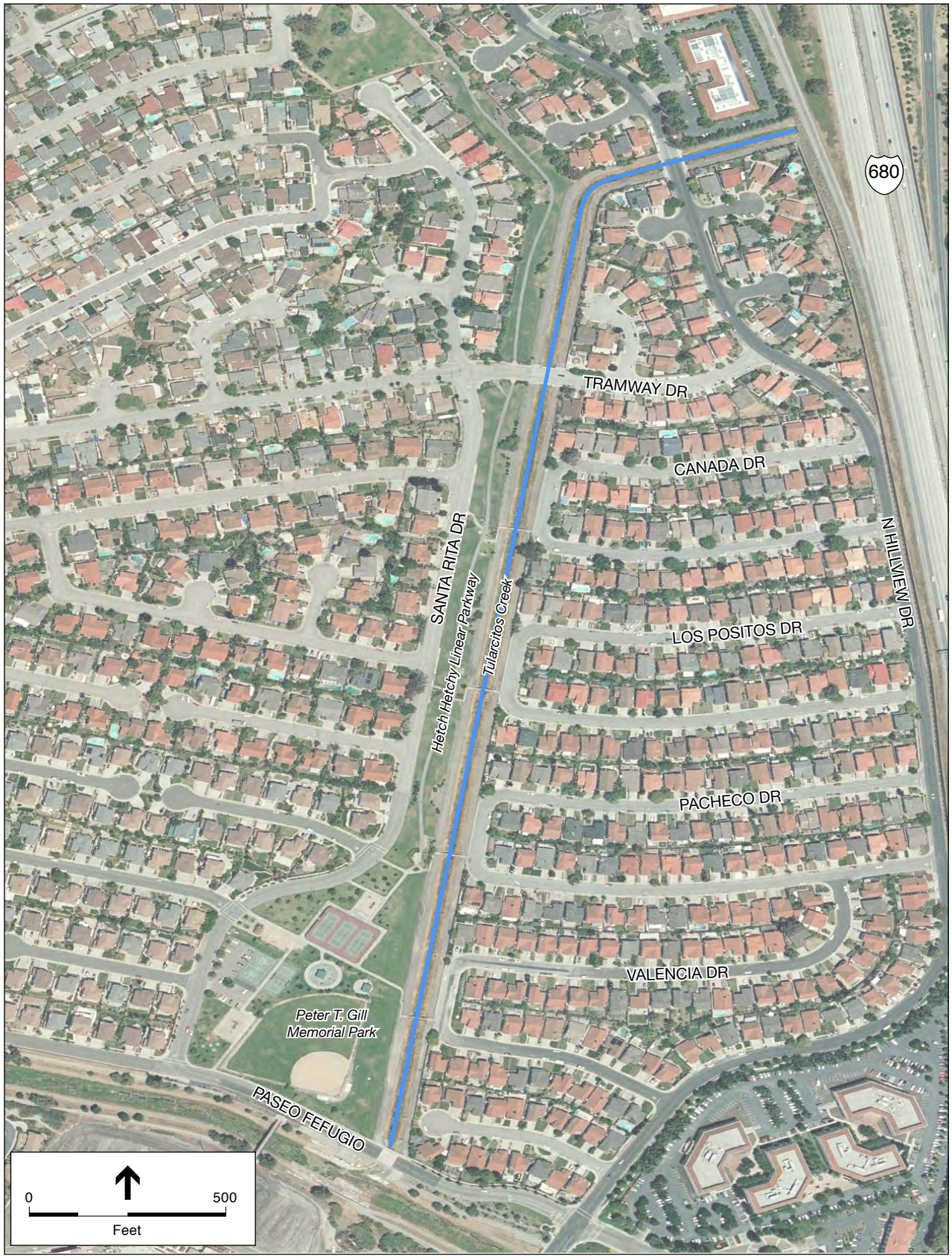
2.B.4 Lower Penitencia Element

The Lower Penitencia Creek Watershed drains approximately 30 square miles; half on the western slopes of the Diablo Range on the east side of the Santa Clara Basin and the other half on the valley floor. The main tributaries are East Penitencia channel and Berryessa Creek. Lower Penitencia Creek flows from the foothills of the Diablo Range, through undeveloped, unincorporated county land and continues westerly through residential neighborhoods in the cities of Milpitas and San José, transitioning to higher density residential neighborhoods and industrial areas west of I-680.

The Lower Penitencia Creek Element begins at the confluence with Lower Berryessa approximately 500 feet upstream of the Milmont Drive and extends approximately 500 linear feet to the confluence of Coyote Creek (Figure 2-2F). For most of its length, Lower Penitencia is a trapezoidal managed flood control channel. From the confluence with Lower Berryessa to the California Circle bridge, the bottom width of the creek is approximately 100 feet and side slopes are 2:1. Downstream of the California Circle Bridge to I-880 the creek narrows to approximately 70 feet. Downstream of the California Circle Bridge to its confluence with Coyote Creek, Lower Penitencia Creek is approximately 35 feet wide and has a more natural bank.

The banks of Lower Penitencia Creek are concrete-lined from its confluence with Lower Berryessa Creek for approximately 625 feet downstream. The creek is concrete lined from California Circle downstream to I-880 for approximately 600 linear feet.

There are maintenance roads on both side of the creek from the confluence with Lower Berryessa to just downstream of the I-880 bridge. Downstream of the bridge to its confluence with Coyote Creek there is a singular access road on the left bank of the creek. Downstream of I-880 to its confluence with Coyote Creek, Lower Penitencia is a narrow earthen channel. There are no access roads on the creek banks downstream of I-880.



SOURCE: GlobeXplorer; ESA

Lower Berryessa Creek Program . 201425

Figure 2-2E
Tularcitos Creek Element



SOURCE: GlobeXplorer; ESA

Lower Berryessa Creek Program . 201425

Figure 2-2F
Lower Penitencia Creek Element

2.C Program Background and Need, and Objectives

2.C.1 Program Background and Need

The District has been implementing flood protection improvements to contain the one percent flood, also known as the 100-year flood[3], with adequate freeboard to meet the District's requirements. The District requires three feet of freeboard in the majority of the program area. The exception is at bridges where four feet of freeboard is required 100 feet upstream and downstream of bridge (Ndah, 2011). The District constructed the levees on Lower Berryessa Creek in 1976 to provide flood protection. In 1997, based on hydrology and hydraulic data available at the time, the District implemented a levee restoration project by raising levees by up to 1.5 feet. The increased levee heights provided 100-year flood protection based on hydrology and hydraulics available at the time. However, flooding in 1998 resulted in significant damage to homes and automobiles within the Lower Berryessa Creek Watershed. Recent studies indicate that there continue to be severe flow restrictions in Lower Berryessa Creek, such as bridges and culverts, that prevent the existing 100-year flood from passing without overtopping the existing levees (District, 2002; NHC, 2003; NHC, 2006; District, 2010a).

In February 2001, the District initiated an engineering planning study to investigate the condition of levees and channel capacity, develop solutions to improve flood protection, and achieve other program objectives such as improved maintenance access. The 2010 Lower Berryessa Creek Project Planning Study Report (PSR) details the findings from this study and presents the recommended solutions to address the design flows within Berryessa Creek (SCVWD, 2010a). Currently, the Lower Berryessa Creek channel cannot contain the design flow with appropriate freeboard. As stated in the PSR, a hydrologic study was completed in 2003 that provides information on the hydrology methodology and design flow calculations.

As indicated in the PSR, the baseline hydraulic analysis for the elements shows severe flow restrictions exist in the Lower Berryessa Creek channel, preventing the design flows from passing without overtopping the existing levees. The channel realignment and flood control improvements conducted by the VTA have alleviated major restrictions at the concrete sections of creek channels at two railroad crossings: where the Lower Berryessa Creek channel crosses the railroad just upstream of its confluence with Wrigley Ford Creek.

Implementation of improvements required to contain the design flows along the Lower Berryessa Creek Element would result in backwater effects on Calera Creek and Tularcitos Creek[4] and downstream flooding effects in Lower Penitencia Creek. In Calera Creek, the

3 A one-percent or 100-year flood is the calculated maximum level of floodwater with a one-percent probability of occurring in any given year.

4 Improvements would result in backwater effects or an obstruction of flow resulting in the raising of surface water elevations upstream in Calera and Tularcitos creeks.

backwater effects would extend from the confluence with Berryessa Creek to the existing drop structure at Milpitas High School. In Tularcitos Creek, the backwater effects would extend from the confluence with Berryessa Creek upstream to I-680. Without the improvements proposed along the Calera and Tularcitos Creek tributaries, these backwater effects would result in flooding in the program area. Both Upper Calera Creek Element 1 and Upper Calera Creek Element 2, from Milpitas High School to approximately 1,000 feet upstream of Calera Creek's intersection with I-680, are also subject to flooding. These elements consist of a narrow low flow channel and a flood plain. Calera Creek becomes narrower and steeper as it nears I-680, and maintenance access is limited.

Under existing conditions, the capacity of Lower Penitencia Creek is below the estimated 100-year design flow (FEMA, 2009; Winzler & Kelley, 2010). Areas adjacent to the western side of Lower Penitencia Creek would experience significant flooding, while areas on the eastside of the creek would be protected from flooding by an existing levee that provides adequate freeboard height, as determined and required by FEMA (Schaaf & Wheeler, 2008).[Lower Berryessa and Calera Creeks frequently require sediment removal from the channel bottoms to maintain design flow capacity; however, this process is currently burdened by a lack of suitable access for equipment. Improvements to existing maintenance roads are necessary to access the existing and future facilities to ensure proper maintenance.

In 2006, the Corps of Engineers and the District modified the design flows for Lower Berryessa Creek as developed by the 2003 hydrology study to account for flood control improvements to tributaries of Berryessa Creek upstream of East Calaveras Boulevard. Therefore, the Program, as described in this EIR, addresses: 1) the currently inadequate flow capacity of Lower Berryessa Creek and its tributaries; and 2) ensures that the increased flow associated with the potential, future, joint USACE/SCVWD Upper Berryessa Creek Project would also be contained with appropriate freeboard within the program area.

2.C.2 Program Objectives

The District's objectives for the Program include the following:

- Provide flood protection for the design flow;
- Improve access for long term channel maintenance;
- Incorporate opportunities to integrate levees with the City of Milpitas' trail system;
- Identify opportunities for riparian and stream habitat enhancement and/or restoration; and
- Complete Program construction of the two project-level elements prior to completion of construction of the potential, future, joint USACE/SCVWD Upper Berryessa Creek Project

2.D Relationship to Other District Activities

In an ongoing effort to ensure flood protection in the five watersheds under its jurisdiction, the District is currently engaged in a number of flood protection projects. Including the Lower Berryessa Creek Program, there are currently nine flood protection projects in various stages of development on the Coyote Watershed. Flood protection activities most closely associated with the Program include the joint USACE/SCVWD Upper Berryessa Creek Project and the Stream Maintenance Program as described below. Additionally, the District has developed best management practices (BMPs) which it incorporates into the design and implementation of its projects.

2.D.1 Joint USACE/SCVWD Upper Berryessa Creek Project

The District and the U.S. Army Corps of Engineers (USACE) are implementing the joint USACE/SCVWD Upper Berryessa Creek Project to ensure flood protection from the 100-year flood event. The project begins at East Calaveras Boulevard (the upstream limit of the Lower Berryessa Creek Project) in the City of Milpitas and ends 600 feet upstream of Old Piedmont Road in San José, stretching a distance of about 4.3 miles.

Berryessa Creek floods approximately every four years. The most recent flood occurred in 1998 and resulted in significant damage to homes and automobiles. Because flooding is still a major problem in this area, the District asked that the Corps evaluate alternatives that would provide improved flood protection in a manner that is both sensitive to the environment and acceptable to the local community. The Corps is anticipating completing a General Re-evaluation Report (GRR) and an Environmental Impact Report / Environmental Impact Statement (EIR/EIS) in 2012. The construction phase of the joint USACE/SCVWD Upper Berryessa Creek Project is scheduled to begin in 2013.

Although the joint USACE/SCVWD Upper Berryessa Creek project has independent utility, it would increase flows in the lower portions of Berryessa Creek (i.e., within the program area). Therefore, the Program, as described in this EIR, also includes design accommodations to ensure that the increased flow associated with the potential future joint USACE/SCVWD Upper Berryessa Creek Project would be contained with appropriate freeboard within the program area.

2.D.2 Stream Maintenance Program

The District's Stream Maintenance Program (SMP) is related to the proposed Program in that it guides maintenance standards and activities within the District's jurisdiction. The SMP is an ongoing program that is included in the Program EIR cumulative impact analysis (Chapter 5).

The SMP provides support for District implementation of routine stream and canal maintenance activities in a manner that allows the District to meet designed flood protection mandates in an environmentally sensitive manner. The SMP applies to three major activities—sediment removal, vegetation management (including mowing of levee banks for fire safety purposes),

and bank protection—and a group of minor activities: including trash removal; fence and access repair; as well as maintenance and management of vegetation. SMP activities do not allow for the increase in channel design capacity, but are activities necessary to maintain existing facilities. In 2001, the District prepared an EIR for the SMP (District, 2001). The final EIR was certified and the SMP project was approved on August 21, 2001.

Three addenda to the SMP project were prepared to address the project's compensatory mitigation for tidal wetlands, acquisition of property and easement necessary for stream maintenance, and the addition of burrow levee protection improvements at various creeks. These addenda were approved in February 2006, June 2009, and November 2010, respectively. The burrow levee protection improvements are intended to address rodent damage on levees, which is required by the USACE for levees under its jurisdiction. The District is currently in the process of renewing the RWQCB permit for the SMP for the years 2012 through 2017.

2.D.3 District Best Management Practices

The District developed, and regularly updates, the Santa Clara Valley Water District Best Management Practices Handbook (Handbook) which provides a comprehensive list of District best management practices (BMPs) that are consistently applied to design, development, and implementation of District projects with the purpose of avoiding or minimizing adverse environmental effects (District, 2010b). Relevant BMPs have been incorporated into the Program, and are identified in the impact analyses in Chapter 3.

The individual BMPs are organized into environmental categories consistent with the California Environmental Quality Act (CEQA) Environmental Review Checklist[5]. The Handbook also includes sets of activity based suites of BMPs designed to avoid and minimize the potential environmental effects of commonly conducted activities such as vegetation management and removal, stormwater management, discharge activities, sediment removal and storage, and grading and excavation. Most of the BMPs were designed using the technical guidance of other agencies and organizations.

2.E Program Description

Activities at the six proposed elements, respectively, include:

Project-level Elements

- *Lower Berryessa Creek Element*: raising the existing levee on the southwest bank, replacing existing levee on the northeast bank with concrete floodwalls, constructing headwalls, and raising and reconstructing a pedestrian bridge.
- *Lower Calera Creek Element*: reconfiguring and widening the channel and constructing floodwalls and headwalls.

5 California Environmental Quality Act Guidelines §15000 *et seq.* Appendix G.

Program-level Elements

- *Upper Calera Creek Element 1*: constructing floodwalls and headwalls.
- *Upper Calera Creek Element 2*: constructing floodwalls and an concrete box culvert, reconstructing the channel and a pedestrian bridge.
- *Tularcitos Creek Element*: constructing a new stormwater pump station and short floodwalls, reconstructing pedestrian bridges, and constructing new headwalls.
- *Lower Penitencia Creek Element*: sediment removal to restore design conditions and construction of a floodplain. The majority of program facilities would be within the District's existing right of way (ROW).

Program design and permitting for individual elements would be completed in an approximately two to four year timeframe, beginning in 2011. Construction activities would occur during dry season months (mid April to mid October) with in-channel work typically occurring between mid-June and mid-October. Construction of the Lower Berryessa Creek and Lower Calera Creek Elements would not be concurrent and would require approximately two construction seasons.

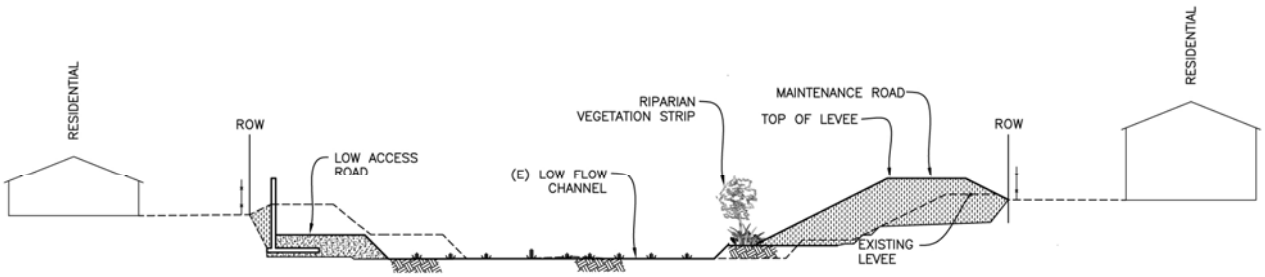
2.E.1 Project-Level Elements

Lower Berryessa Creek Element

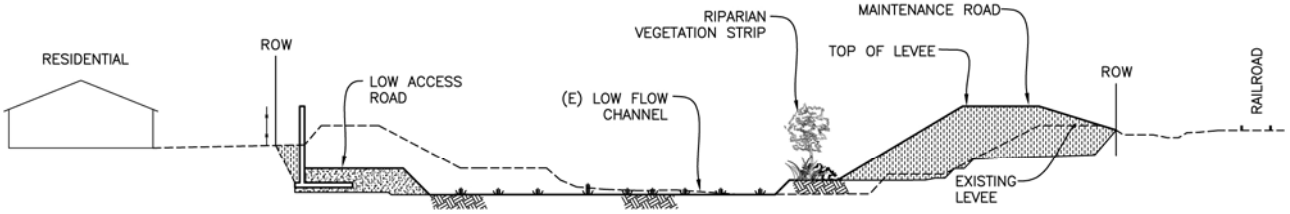
The Lower Berryessa Creek Element would provide improvements along Lower Berryessa Creek (see Figures 2-3A through Figure 2-3C). Improvements would include reconstructing levees and replacing existing levees with floodwalls. Levees along the northeast side of the channel would be raised for the entire length of this element, with the exception of Reach C where levees on both sides would be replaced with floodwalls. Reconstructed levees would be up to 12 feet higher than the adjacent outside elevation. Floodwalls would be constructed along the southwest side of the channel along the entire length of this element. The height of the floodwalls would vary from approximately five to eight feet above the adjacent elevation along the outside face of the walls. A short segment of levee slope near Abel Street would include boulders that are buried or keyed into the bank, to provide additional bank stability. The element would also include hydroseeding[6] of levee slopes.

Floodwalls would be constructed at the mouth of Tularcitos Creek at the confluence of Lower Berryessa and Tularcitos creeks. Along Lower Berryessa Creek at the Hetch-Hetchy ROW, floodwalls would be constructed at the top of the existing concrete levee. Modifications to levees and floodwalls within approximately 30 feet of Lower Penitencia Creek at its confluence with Lower Berryessa Creek would occur, including raising of the east bank and the existing guide vane along Lower Penitencia Creek such that the transition between Lower Penitencia Creek and the proposed modified flood control improvements along Lower Berryessa Creek is improved.

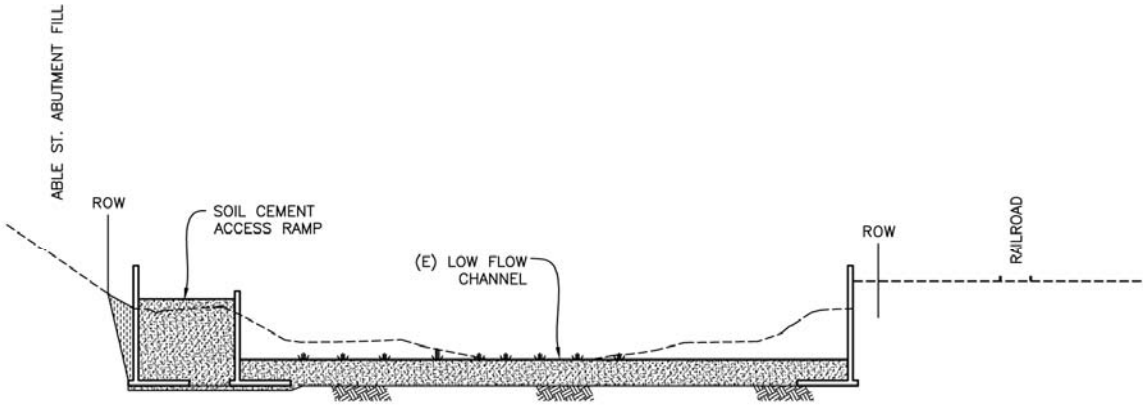
6 Hydroseeding is a high-pressure spray technique for applying seed, mulch, and fertilizer in a water slurry over a seedbed.



TYPICAL SECTION REACH A
Looking Downstream



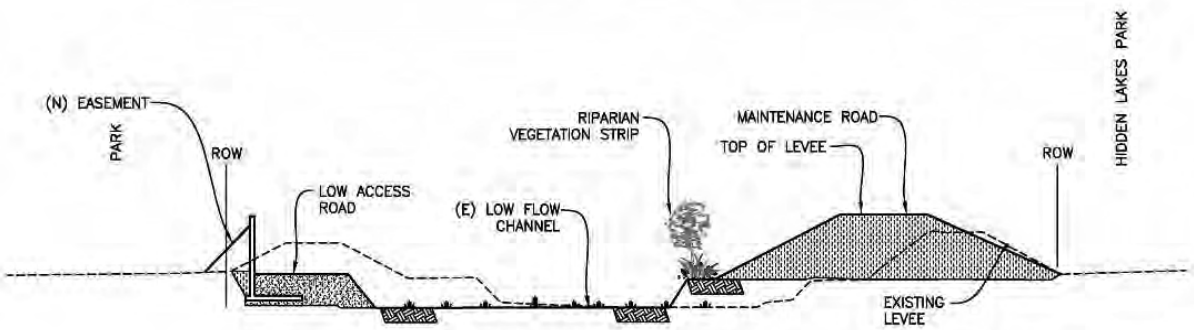
TYPICAL SECTION REACH B
Looking Downstream



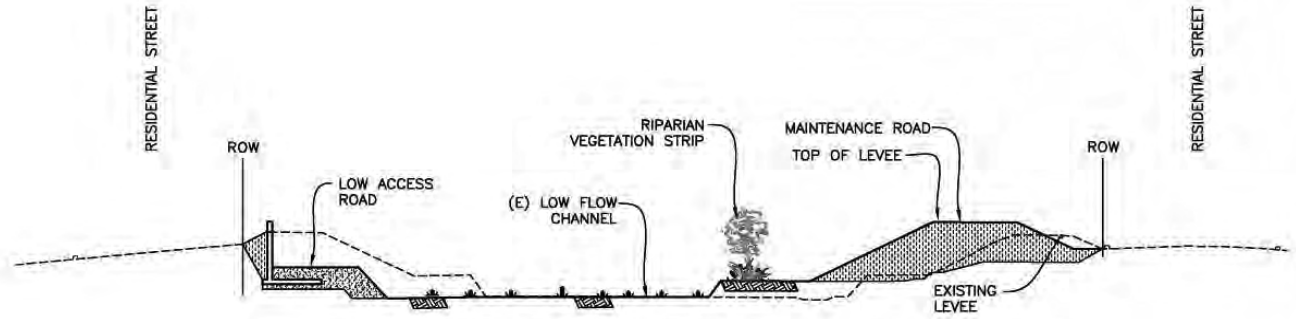
TYPICAL SECTION REACH C
Looking Downstream

SOURCE: Winzler & Kelly

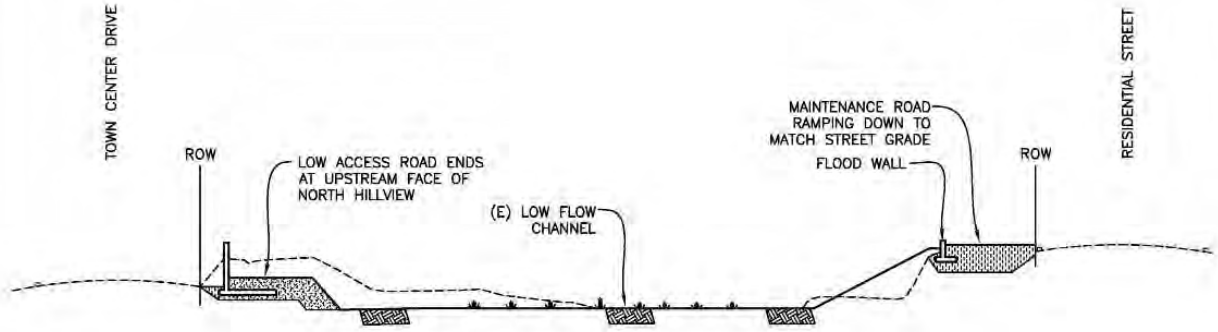
Figure 2-3A
Lower Berryessa Creek Element
Typical Sections



TYPICAL SECTION REACH D
Looking Downstream



TYPICAL SECTION REACH E
Looking Downstream

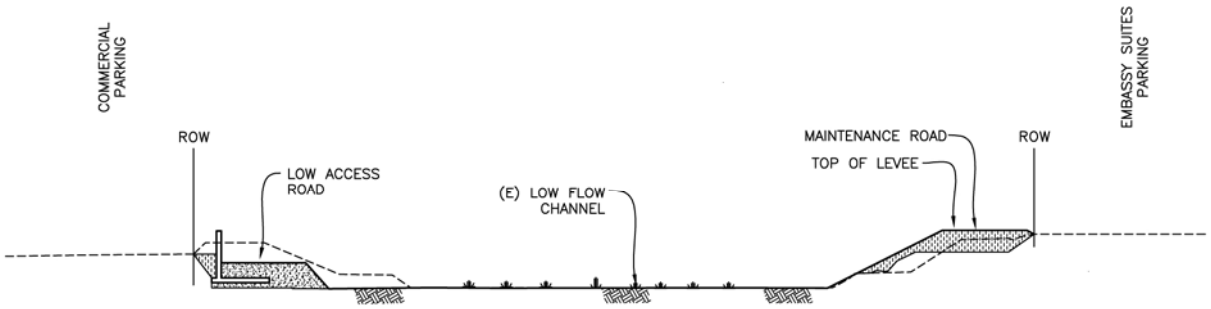


TYPICAL SECTION REACH F
Looking Downstream

Lower Berryessa Creek Program . 201425

SOURCE: Winzler & Kelly

Figure 2-3B
Lower Berryessa Creek Element
Typical Sections



TYPICAL SECTION REACH G
Looking Downstream

SOURCE: Winzler & Kelly

Figure 2-3C
Lower Berryessa Creek Element
Typical Sections

The Lower Berryessa Creek Element would include construction of a low bench within the channel that would help create and maintain the low flow channel within the creek. The District would allow the low bench to revegetate naturally; or, plant the bench with native herbaceous wetlands species. The low bench would range in width from six to 18 feet, and would be installed following construction of facility components. Maintenance of the benches and ROW would include removal of woody vegetation within ~~15 feet of~~ the levee slope within the District ROW that could reduce channel capacity. Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements.

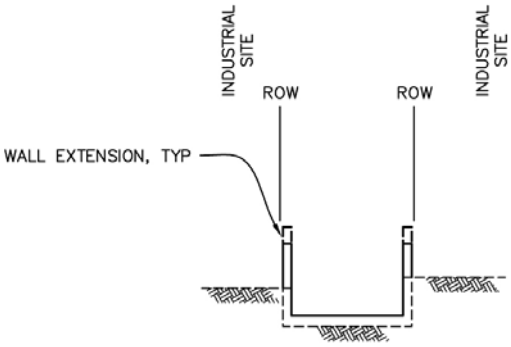
To improve access for ongoing maintenance measures, the existing maintenance roads would be improved to accommodate an 18-foot wide access road along the inside of the floodwall and on top of the reconstructed levee. The lower maintenance road would be improved to include 30-foot wide by 70-foot long turnouts. The turnouts would be spaced at approximately every 500 feet over the length of the channel. The lower maintenance road would ramp up for access from Abel Street, North Milpitas Boulevard, North Hillview Drive, and the pedestrian bridge across from Peter T. Gill Park. The upper maintenance road located on the top of the reconstructed levee could serve as a portion of the trail system identified in the City of Milpitas Trail Master Plan.

To match new maintenance road elevation at the top of the reconstructed levee, the existing bridge across Lower Berryessa Creek would be raised, the abutments would be replaced, and the railroad–car bridge super structure would be raised. Construction of this element would also include raising the pedestrian bridge across from Peter T. Gill Park, adding a ramp from this bridge to the Town Center retail development, and a new headwall along the upstream face of the North Milpitas Boulevard Bridge.

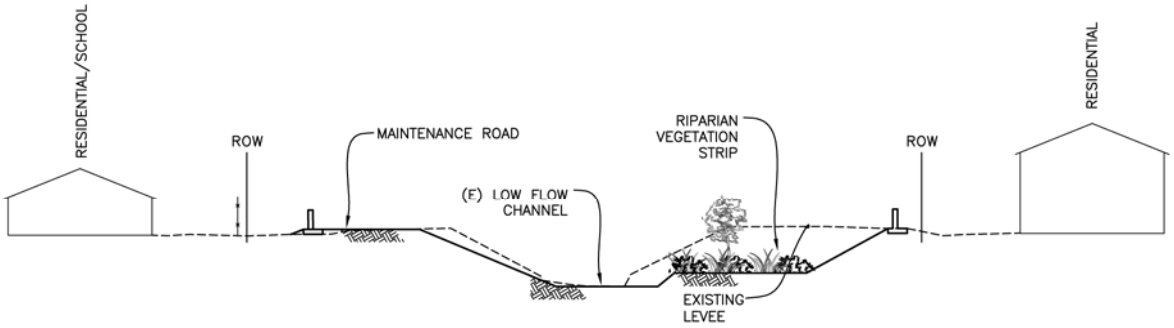
The Lower Berryessa Creek Element would require temporary construction easements and permanent easements from the UPRR, the SFPUC, City of Milpitas, and private property owners. Construction and operation of the maintenance roads in this element would require access easements from the City of Milpitas. Permanent easements from the City of Milpitas would be required for construction of the new floodwalls. Reconstruction of the pedestrian bridge access ramps at Town Center and Paseo Refugio would require permanent easements from the City of Milpitas and private property owners. Maintenance road access at the ~~Embassy Suites~~ former Mervyn's parking area would also require a temporary access easement.

Lower Calera Creek Element

Proposed improvements for the Lower Calera Creek Element would include widening and reconfiguring the channel and constructing concrete floodwalls along each side of the existing channel (see Figure 2-4). Along Reach A, from the confluence with Lower Berryessa Creek to North Milpitas Boulevard, improvements would include extending the existing channel walls by up to four feet and constructing new headwalls at the culverts under the railroad crossing and under North Milpitas Boulevard.



TYPICAL SECTION REACH A
Looking Downstream



TYPICAL SECTION REACH B
Looking Downstream

Lower Berryessa Creek Program . 201425

SOURCE: Winzler & Kelly

Figure 2-4
Lower Calera Creek Element
Typical Sections

Along Reach B, downstream of Arizona Avenue, new floodwalls on both sides of the channel would vary in height from approximately 3 feet to 6.5 feet. Upstream of Arizona Avenue, floodwalls would range from three and one half feet to almost six feet on the south side of the channel, and from two feet to five feet on the north side of the channel. The levee on the south bank would be slightly excavated and the levee on the north bank would be removed to accommodate a wider channel. New headwalls would be constructed at the upstream face of the culvert under North Milpitas Boulevard and at the upstream and downstream faces of the culvert under Arizona Avenue.

This element would include a 15 to 30-foot wide low bench on the north side of the channel near the existing low flow channel that would be constructed to help maintain the low flow channel. The District would allow the low bench to revegetate naturally or could plant the bench with native herbaceous wetlands species. Levee slopes would be hydroseeded. Maintenance of the benches and ROW would include removal of woody vegetation within ~~15 feet of~~ the levee slope within the District ROW that could reduce channel capacity. Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements. To improve access for ongoing maintenance measures, a permanent 18-foot wide access road would be constructed on the south side of the channel upstream of North Milpitas Boulevard. Access to this road would be provided at each street crossing via ramped sections over floodwalls. A 5-foot wide access path would also be provided on the north side of the channel upstream of North Milpitas Boulevard.

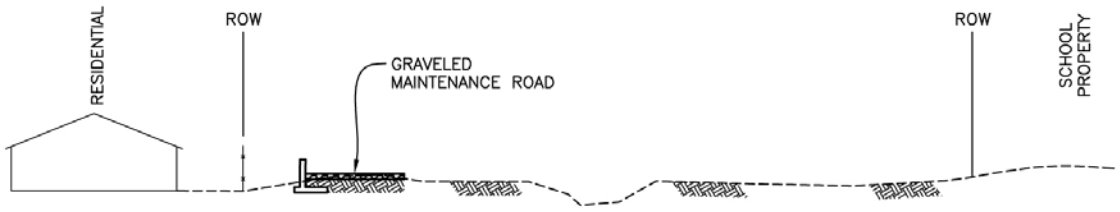
The Lower Calera Creek Element would require permanent easements from the UPRR and the City of Milpitas for construction of the headwalls. A permanent and temporary construction easement from private property owners along Reach A would also be required. Some permanent easements could be required along this reach as well for maintenance access.

2.E.2 Program-Level Elements

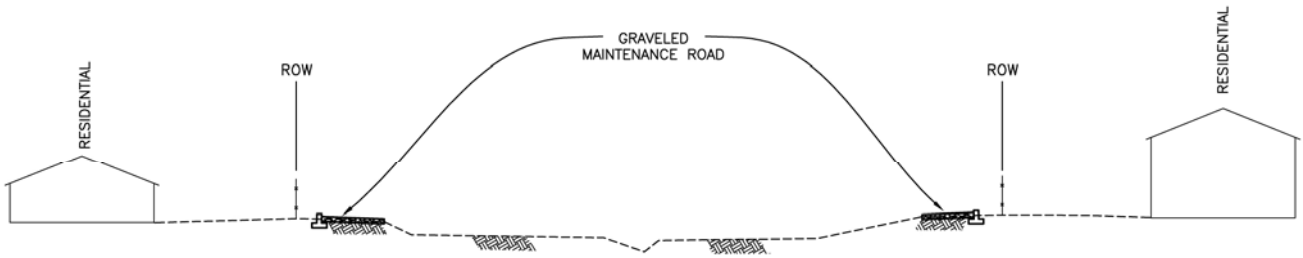
Upper Calera Creek Element 1 and Upper Calera Creek Element 2

At this time, the proposed improvements for the Upper Calera Creek Element 1 and Upper Calera Creek Element 2 are preliminary and discussed at a program level in this EIR. The preliminary concept for these elements includes construction of concrete floodwalls along the Upper Calera Creek bank from Milpitas High School to Founders Lane. The floodwalls would vary in height, extend up to six feet above the existing creek bank, and would be located approximately five feet inside the existing ROW. Raised headwalls would be constructed at the downstream and upstream faces of Escuela Parkway. A typical cross section for this element is shown in Figure 2-5.

The Upper Calera Creek Element 2 would include an approximately open six-foot wide and five-foot deep concrete box culvert within the Thomas Russell Middle School ROW, from Founders Lane to I-680, which would accommodate excess flows from the main channel. The pedestrian bridge in Reach A would be replaced and the channel beneath widened. In Reach B, upstream of I-680, the drop structure would be removed and a short floodwall would be



TYPICAL SECTION REACH A
Looking Downstream



TYPICAL SECTION REACH B
Looking Downstream

Lower Berryessa Creek Program . 201425

SOURCE: Winzler & Kelly

Figure 2-5
Upper Calera Creek Element 1
Typical Sections

constructed on the west side of the creek. Existing vegetation along this reach would be preserved in areas where vegetation does not affect the function of the improvements. A typical cross section for Upper Calera Element 2 is shown in Figure 2-6.

Upper Calera Creek Element 1 would require a temporary construction easement from Milpitas High School and a permanent easement from the City of Milpitas for construction of headwalls in Reach B. Upper Calera Creek Element 2 would require a permanent drainage easement on the Thomas Russell Middle School property for the proposed concrete box culvert. In addition, floodwall construction and removal of the drop structure upstream of I-680 would require temporary construction and permanent easements from the City and the adjacent property owner.

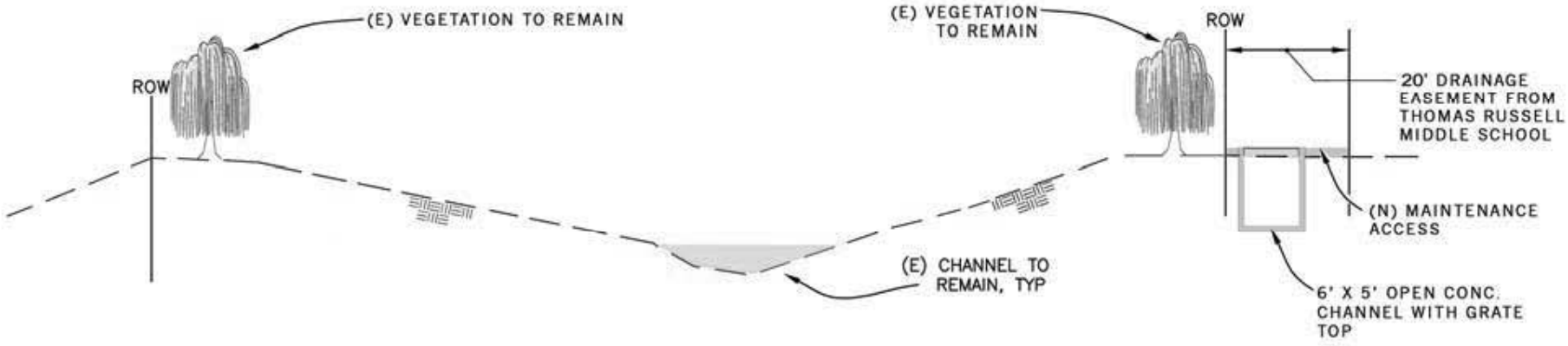
Tularcitos Creek Element

As with the Upper Calera Creek elements, proposed improvements for the Tularcitos Creek Element are preliminary and are discussed at a program level in this EIR. The preliminary concept for this element includes construction of a new stormwater pump station just upstream of Paseo Refugio on Tularcitos Creek. As currently proposed, the new pump station would include diesel engine driven pumps, which would provide the capacity to convey approximately 845 cubic feet per second of flows from Tularcitos Creek into Berryessa Creek. The pumps would reduce high flows from Lower Berryessa Creek from entering Tularcitos creek and would only be activated in the event that the Berryessa Creek water surface level would create backwater effects in Tularcitos Creek. The pump station would be a masonry building of approximately 100 feet by 75 feet in area with a roof height of about 30 feet above the existing creek banks.

The Tularcitos Creek Element also would include construction of floodwalls along the channel that would vary in height and extend up to approximately three feet above existing grade (see Figure 2-7). New headwalls would also be required at the downstream and upstream faces of the North Hillview Drive and Tramway culvert crossings. The two pedestrian bridges in this element would be raised. Two permanent access roads would be constructed on either side of the channel to match the alignment of the existing access roads and to meet District maintenance standards. Access roads would be up to 18 feet wide but would vary in width to accommodate the District's ROW. Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements. The Tularcitos Creek Element would require access and construction easements from the City of Milpitas, as well as permanent easements from the City of Milpitas for new headwalls. In addition, a 50-foot wide by 130-foot long easement from the City of Milpitas would be required to accommodate access to the pump station.

Lower Penitencia Element

As with the Upper Calera Creek and Tularcitos Creek elements, proposed improvements for the Lower Penitencia Creek Element are preliminary and are discussed at a program level in this EIR. As part of detailed project-specific planning for the Lower Penitencia Creek

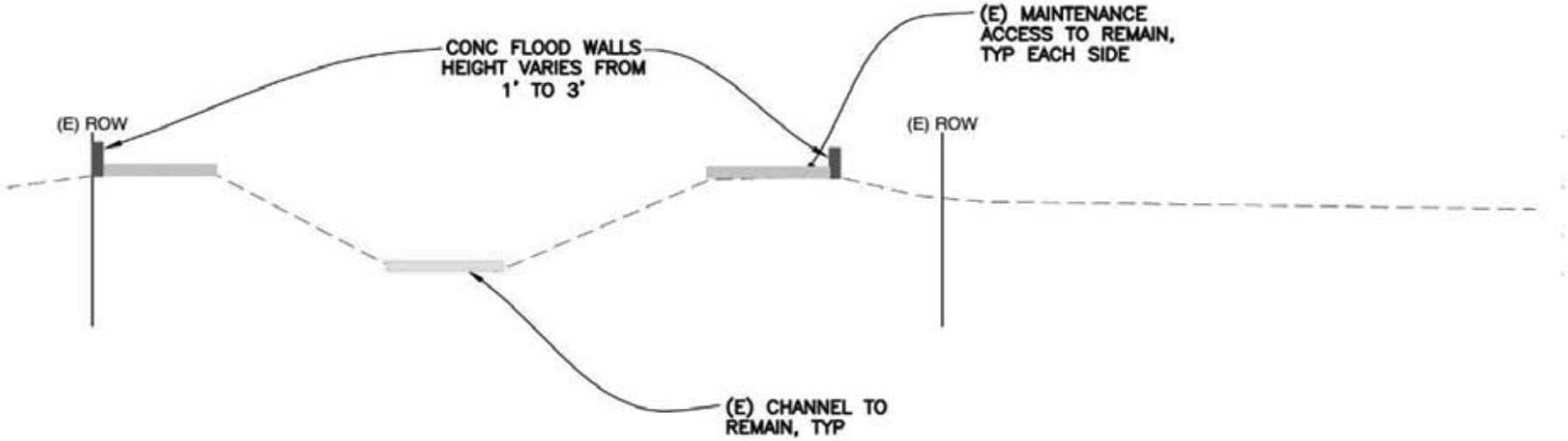


SOURCE: Winzler & Kelly

Lower Berryessa Creek Program . 201425

Figure 2-6

Upper Calera Creek Element 2
Typical Sections



SOURCE: Winzler & Kelly

Figure 2-7

Tularcitos Creek Element Typical Section

Element, the District would perform a hydrologic and hydraulic analysis of the creek from just upstream of the Lower Berryessa Creek confluence downstream to I-880) in order to determine the 100-year water surface elevation and hydraulic grade line (HGL) throughout the reach that would result from the upstream elements. With respect to inflows from Lower Berryessa Creek, the hydraulic analysis would use the design flows calculated for the Program. The hydraulic analysis would include a minimum of 10 cross-sections on Lower Penitencia Creek. If the calculated change (i.e., compared to the information published by FEMA [2009]) in the water surface elevation or the HGL in Lower Penitencia Creek is greater than one foot, at any point, or any new areas are predicted to experience flooding, then the District would design and implement the Lower Penitencia Creek Element to fully contain the design flow rate. The preliminary concept of this element includes returning the channel to design capacity by removing in-channel sediment and vegetation. From the confluence with Lower Berryessa Creek to California Circle, the in-channel bench would be lowered to increase channel capacity. Sediment and vegetation would also be removed within this reach. Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements. Between California Circle and I-880, the accumulated sediment within the channel would be excavated to return it to design conditions. Downstream of I-880, the channel would be excavated to provide flood capacity. Near I-880 and outside of the District ROW, a new floodplain would be constructed.

Construction of this element would include excavation of accumulated sediment and vegetation currently forming an in-channel bench in the center of the Lower Penitencia Creek channel.

2.F Construction

2.F.1 Construction Overview

Program construction would include reconstructing levees, constructing floodwalls and headwalls, excavating sediment, installing a new stormwater pump station, installing a concrete box culvert, revegetation, and raising pedestrian bridges (see Table 2-1).

2.F.2 Summary of Construction Activities

Dewatering Activities

As described above, in channel work would typically occur between mid-June and mid-October when channel flow is low or not present. However, some dewatering could be required. All dewatering activities would be temporary in nature, confined to a small area, and occur only during dry season months (mid-June to mid-October). All water which accumulates in program excavations would be removed and creek flows and runoff diverted around the work areas. The creek flow in the program area would be temporarily diverted around the work area by using one of the following types of diversions: temporary durable plastic K-rail barrier system, water-tight cofferdam, or inflatable bladder dam. These diversions would remain in place throughout the in-stream construction period.

TABLE 2-1
SUMMARY OF IMPROVEMENTS BY ELEMENT

Improvement Type / Construction Activity	Project-level Elements		Program-level Elements			
	Lower Berryessa Creek Element	Lower Calera Creek Element	Upper Calera Creek Element 1	Upper Calera Creek Element 2	Tularcitos Creek Element	Lower Penitencia Creek Element
Creek Levee Raising/Reconstruction	●	●				
Floodwall Construction	●	●	●	●	●	
Maintenance Road Improvements		●	●		●	
Maintenance Road Improvements to Accommodate Milpitas Trail Plan	●					
Low Bench	●	●				
Headwall Construction / Installation / Reconstruction	●	●	●		●	
Pedestrian Bridge Reconstruction	●			●	●	
Stormwater Pump Station Construction					●	
Concrete Box Culvert Construction				●		
Sheetpile Installation					●	
Sediment and vegetation removal						●
Construction of widened floodplain						●

Creek Levee Raising/Reconstruction

Construction of the new raised levees would entail at least partial excavation of the existing levees, as well as preparation of the levees to receive new embankment fill. Where no new floodwalls are planned, the existing levee material would be removed down to grade level. Where floodwalls would be installed and levees retained, the excavation of the existing levees would accommodate the floodwall footings and supports below existing grade. Where floodwalls replace levees entirely, the entire levee would be excavated. The new raised levees would be reconstructed using lime treated stockpiled soils, imported fill, or a combination of the two. To the extent feasible, material excavated from the existing levees would be used to reconstruct the new levees. However, it is anticipated that additional fill material would be needed. Once the levees are reconstructed, they would be contoured to a 2:1 slope and compacted to ensure the levees' structural stability. The levee slopes would be hydroseeded for erosion protection.

Floodwall Construction

Prior to the construction of the new floodwalls, the existing levees under proposed floodwalls would be completely removed as described above. Floodwalls and floodwall support footings would be constructed of reinforced concrete and would be installed using pour in place methods. The concrete floodwalls would entail construction of concrete forms constructed from steel rebar. Once floodwall forms are in place, concrete would be delivered to the site

and would be poured into the forms. Once the concrete has set, the forms would be removed and disposed.

Maintenance Road Improvements

Improvements to the existing maintenance roads would include regrading and recontouring to provide increased access along the program reaches. Maintenance roads would be constructed of soil cement using stockpiled soil, aggregate base course, or paved with asphalt. Maintenance roads in the project-level elements would be designed to the District standard with a minimum width of 18 feet. Along Lower Berryessa Creek, construction of maintenance road improvements would include turnouts that would be 30 feet wide by 70 feet long and constructed approximately every 500 feet. Maintenance road improvements would be designed to accommodate City of Milpitas trail design guidelines, including surface material and width/grade of the maintenance road.

Low Bench

As described above for the description of Lower Berryessa and Calera creeks improvements, a low bench would be constructed within the channel. The purpose of the bench is to help create and/or maintain the low flow channel within the creek. The District would allow the bench to revegetate or could plant the bench with native species.

Headwall Construction

New headwalls would be constructed within the Lower Berryessa Creek Element, the Lower Calera Creek Element, the Upper Calera Creek Element 1, and the Tularcitos Creek Element. The headwalls would be installed using concrete forms and concrete equipment.

Pedestrian Bridge Reconstruction

The program area includes several existing pedestrian bridges that would need to be reconstructed to accommodate the height of the proposed levees. At these locations, the existing bridges (including bridge footings and abutments) would be removed prior to levee construction and the bridge crossing would be stored. New concrete abutments would be constructed to match the height of the proposed levees and the bridges would be replaced on new concrete abutments upon completion of levee construction at their existing locations.

Stormwater Pump Station Construction

Construction of the pump station at Tularcitos Creek would involve excavating the creek bed for the wet well and inlet channel. Excavated materials would be hauled offsite. Reinforced concrete would be placed for the base slab, wet well walls, inlet channel, and outlet structure. The final stage would involve construction of the pump station building and installation of the pump equipment.

Concrete Box Culvert Construction

To construct the concrete box culvert, a trench would be excavated along the alignment while protecting the existing channel and mature trees on both sides of the creek. The culvert would be cast in place and covered with a galvanized steel grate capable of supporting truck traffic loads.

Sheetpile Installation

Work at Upper Calera Creek Element 2 Reach B would require a short sheetpile wall, approximately seven to ten feet high, along the eastern edge to protect an existing large tree.

2.F.3 Summary of Construction Materials and Disposal

Construction materials for all elements would be obtained primarily from local sites and suppliers. Excess material not used onsite as fill would be hauled and disposed of at an appropriate disposal site (see Section 3.N, Utilities and Service Systems).

Lower Berryessa Creek Element

Reconstructing the levees along Lower Berryessa Creek would result in approximately 164,000 cubic yards of material cut from the existing levee on the floodwall side (southwest) and a portion of the existing levee on the reconstructed levee side (northeast). Some of this material would be used onsite as fill to increase the height and width of the existing levee. The Lower Berryessa Creek Element would require an estimated 20,300 truck loads of imported fill, cement, soil treatment, concrete, and other construction supplies.

Lower Calera Creek Element

The Lower Calera Creek Element would result in approximately 2,200 cubic yards of material that would be cut from one side of the creek upstream of Milpitas Boulevard and approximately 2,000 cubic yards of material that would be excavated for floodwalls. Minor quantities of this material would be used onsite as fill. The Lower Calera Creek Element would require an estimated 700 truckloads of imported fill, cement, soil treatment, concrete, and other construction supplies.

Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Tularitos Creek Element

Preliminary information on construction material and disposal requirements for program-level sites has not been developed. However, it is anticipated that the transport, use, and disposal of construction materials required for these program-level elements would be similar to those described for the project-level elements.

2.F.4 Summary of Construction Equipment/ Crews/Duration

The construction equipment required for construction of each reach would depend on the improvement type and construction activity proposed. The following is a summary of the equipment types that could be used during construction of the overall Program:

- Articulated trucks
- Backhoes
- Bulldozers
- Crane
- Compactors
- Concrete trucks
- Excavators
- Fence post auger
- Gradeall
- Graders
- Hand equipment
- Loaders
- Paver
- Pumps
- Pugmill
- Scrapers
- Soil stabilizer

The type of construction activity would dictate the number of workers required and the duration of activities. Major construction activities spanning seven months or greater would be implemented over two construction seasons, typically from mid April to mid October. Table 2-2 summarizes each construction activity, as well as estimated timeframes, crew size, and equipment requirements for each project-level element, by activity Table 2-2 also provides the estimated areas of ground disturbance and estimated truck loads for each project-level element. Preliminary information on construction duration, crew, and equipment needs for program-level elements has not been developed. However, it is anticipated that the requirements for program-level elements would be similar to those described for the project-level elements. All construction activities would occur between the hours of 7 a.m. and 7 p.m., Monday through Friday, with the exception of state and federal holidays as recognized by the City of Milpitas.

2.F.5 Staging Areas and Access

Construction access and staging areas would be established for each element. Minor vegetation removal and grading could occur at staging areas to provide room for equipment, materials, and construction personnel parking. The staging and storage areas identified for the project-level elements (Lower Berryessa Creek and Lower Calera Creek elements) are shown on Figure 2-8. Table 2-3 provides a summary of the location and area for construction staging for Lower Berryessa Creek and Lower Calera Creek elements. Storing and staging would occur in four areas: 1) an area on the south side of Abel Street, 2) an area on Hanson Court at the end of the cul-de-sac, 3) an area in a 30-foot strip along Arizona Avenue along the north bank of Calera Creek, and 4) an area within the ~~Embassy Suites~~ former Mervyn's parking lot on the east bank of Lower Berryessa Creek. Worker and equipment parking would be provided within District ROW and within staging and storage areas only. Worker access would be provided to the site via the existing levee maintenance roads and two 15-foot wide, approximately 8,500-foot long temporary access roads along both sides of the Lower Berryessa Creek channel. Construction material and equipment haul routes could include East

TABLE 2-2
CONSTRUCTION DURATION, CREW, AND EQUIPMENT BY ELEMENT[a]

Element/ Construction Activity	Description	Ground Disturbance Area (square feet and acres)	Truck Loads and Excavation Quantities (cubic yards)	Estimated Construction Duration	Estimated Construction Crew Size	Estimated Number and Type of Construction Equipment
Lower Berryessa Creek Element						
Site Prep	Clear all vegetation on site, site demolition			2 months		Bulldozer (2) Loader (2) Articulated truck (10)
Earthwork	Clear and grub, excavate, haul and spoil, backfill, soil cement, shoring, grading, erosion control, rip rap			4 months		Excavator (2) Articulated truck (12) Bulldozer (2) Scraper (2) Compactor (2) Grader (2) Pugmill (1) Soil stabilizer (1) Pumps (2) Gradeall (1)
Site Improvements and Amenities	Base courses, flexible paving, fences and gate, fabricated bridges, landscape grading			2 months		Truck (8) Fence post auger (1) Soil stabilizer (1) Crane (1)
Planting	Hydroseeding			4 months		Truck (8) Backhoe (2)
Concrete Placement	Construct the floodwall, trapezoidal channel, channel transitions and miscellaneous concrete improvements			4 months		Excavator (1) Concrete truck (4) Loader (1) Compactor (1) Hand equipment (2) Pump (2)
TOTAL		923,450 square feet 21.2 acres	20,300 truck loads and 164,000 cubic yards of exported fill	16 months	50 contractor and contract workers	
Lower Calera Creek Element						
Site Prep	Clear site, site demolition			1 month		Bulldozer (1) Loader (1) Articulated truck (8)
Earthwork	Clear and grub, excavate, haul and spoil, backfill, grading, erosion control			2 months		Excavator (1) Articulated truck (10) Bulldozer (1) Compactor (1) Pump (2)

TABLE 2-2 (Continued)
ESTIMATED CONSTRUCTION DURATION, CREW AND EQUIPMENT BY CREEK REACH

Element/ Construction Activity	Description	Ground Disturbance Area (square feet and acres)	Truck Loads and Excavation Quantities (cubic yards)	Estimated Construction Duration	Estimated Construction Crew Size	Estimated Number and Type of Construction Equipment
Lower Calera Creek Element (cont.)						
Site Improvements	Install vegetated strip, aggregate base placement along the Calera Creek alignment for the North access road in some locations, hydroseeding, fences and gates			2 months		Articulated truck (8) Loader (1) Gradeall (1) Compactor (1) Soil stabilizer (1) Truck (8) Backhoe (1)
Concrete Placement	Construct concrete floodwalls, headwalls, and bridge slabs			3 months		Excavator (1) Articulated truck (8) Gradeall (1) Concrete truck (3) Compactor (1) Hand equipment (2)
TOTAL		206,700 square feet 4.74 acres	700 truck loads and 4,200 cubic yards of exported fill	8 months	40 contractor and contract workers	

[a] Information presented in Table 2-2 is specific to the two program elements for which sufficient detail is available for project level evaluation.

SOURCE: Santa Clara Valley Water District, 2010a.



SOURCE: District, 2010; GlobeXplorer; ESA

Lower Berryessa Creek Program . 201425

Figure 2-8
Staging Areas for Lower Berryessa Creek and Lower Calera Creek Elements

TABLE 2-3
SUMMARY OF STAGING AREAS

Staging Area	Location	Total Area (square feet)	Element
A	~~Embassy Suites~~Former Mervyn's Parking Lot	~~13,250~~9,600	Lower Berryessa Creek
B	Abel Street	16,875	Lower Berryessa/Lower Calera Creek
C	Hanson Court	33,750	Lower Berryessa Creek/Lower Calera Creek
D	Arizona Ave	20,250	Lower Calera Creek

Calaveras Boulevard, State Route 237, Interstate 880, and local roadways (see Section 3.M, Transportation and Traffic).

The preliminary information on construction staging areas and access requirements for program-level elements has not been developed. However, it is anticipated that the activities associated with staging areas and access for the program-level elements would be similar to those described for the project-level elements.

2.G Maintenance

2.G.1 Required Maintenance Activities

In addition to continuing the maintenance activities currently required by existing facilities, program improvements would require additional structural maintenance activities for the floodwalls, new box culvert, and pump station. Anticipated maintenance activities associated with the operation of the Program include: inspection, sediment removal, bank protection, vegetation management, and minor maintenance, such as trash and debris removal, graffiti abatement, maintenance road grading, rodent control, and installation and repair of fences[7]. These activities would be implemented regularly to maintain channels and facilities at design conditions.

Annually performed vegetation management activities would include:

- *Levees*: Vegetation growth along the top of levee maintenance roads would be prevented. Woody vegetation establishment and growth on the levee slopes or top would be consistent with US Army Corps of Engineers maintenance policy.

- *Floodwalls*: The adjacent ROW would be kept clear of weeds, and woody vegetation would be removed from within five feet of floodwalls, except areas where vegetation was included as part of the Program.

[7] In addition to routine maintenance of District facilities under the Stream Maintenance Program (see Section 2.D.2, the Milpitas Municipal Code Title V (Public Health, Safety and Welfare), Chapter 203, Section 5, requires removal of graffiti within 10 days of application. Both the City of Milpitas and the District hotlines/websites for reporting trash, graffiti, or other unsafe conditions (408.586.3079 [City of Milpitas] or https://clients.comcate.com/newrequest.php [District]).

- *Natural and Low flow Channels*: Natural and low flow channels would be monitored for hazardous tree conditions, channel blockages, and other conditions that would impede flow or create local drainage problems.

Structural maintenance activities would include:

- *Levees*: Levee tops and slopes would be monitored for erosion damage and repaired as needed. Every five years, the top of levee elevations would be monitored and restored to design elevations if the measured elevations differed from design elevations by more than one foot.

- *Floodwalls*: Floodwalls would be visually inspected on a monthly basis and graffiti removed if necessary. Every five years, floodwall elevations would be monitored through surveying identified control points. In the case that the measured elevations vary from the as-built elevations by more than six inches, the floodwalls would be analyzed by a competent structural engineer for foundation problems. Top of wall elevations would be restored to design elevations if measured elevations differ from design elevations by more than one foot.

- *Maintenance Access Roads*: Asphalt paved, concrete paved, and soil cement roads would be monitored for cracking and potholes and repaired as needed. Aggregate base roads would be monitored for erosion and potholes and repaired as needed, and measures would be taken to prevent vegetation growth. Specifically, field staff would drive maintenance roads regularly to inspect facilities; and remove any trash, debris, or graffiti, if present. Flood patrol teams would drive maintenance roads during storm events and District staff would use these roads when accessing creeks for maintenance activities.

- *Concrete Channels*: Exposed and accessible channel walls would be visually inspected on a monthly basis and graffiti removed if necessary. Inlet and outlet structures would be monitored and maintenance activity would be triggered if any erosion damage, structural damage, or sediment depths greater than one foot above design conditions were observed.

Consistent with current practice, the need for sediment maintenance activity or sediment removal would be triggered by the accumulation of more than one foot of average sediment depth in creek channels, culverts, and hydraulic structures. Sediment removal could require a variety of heavy equipment, as well as temporary cofferdams and diversion structures when flows must be bypassed around the maintenance site. These activities generally would occur between July 1 and October 15 with an average duration of 10 days. Excavated sediment would be disposed at a landfill or other suitable site and reused when feasible.

In addition to routine vegetation and structural maintenance activities, and regular sediment removal, the program infrastructure improvements would eventually require structural rehabilitation and/or replacement. The details of these activities are not known, and they may require future CEQA review when the details become available.

2.G.2 Newly Required Maintenance Activities

Most of the maintenance activities described above are currently ongoing within the program creeks, and impacts of these maintenance activities are generally addressed in the SMP EIR. It is anticipated that sediment flow through creeks in the program area would not change with implementation of the Program. As such, the District would continue the existing sediment removal schedule of one half of the channel annually for Lower Berryessa Creek and periodically for Lower Calera Creek. Mowing of levee banks for fire safety purposes would continue; however the adjacent riparian vegetation strips would be protected and would not be subject to vegetation management. Further, the Program would construct levees and maintenance roads with improved and more durable materials which would likely result in a decrease in the required routine maintenance to these structures.

However, maintenance activities specific to Program facilities would include activities associated with the new floodwalls (see above), concrete box culvert, and pump station. Specifically, the concrete box culvert proposed for the Upper Calera Creek Element 2 would accumulate sediment over time, requiring periodic removal to preserve the channel capacity.

The new pump station proposed for the Tularcitos Creek Element would require the following maintenance activities:

- Annual visual inspection;
- Monthly testing and exercise of the pump station;
- Service of pumps, engines, gears and linkages;
- Sediment removal in the wet well, outlet structure, and outlet channel;
- Monitoring of building finishes and fixtures; and
- Repairs as needed.

Following construction, the District intends to transfer operation and maintenance responsibility for the pump station to the City of Milpitas, and the City of Milpitas would either incorporate these required maintenance activities into an existing operations and maintenance plan or develop a new plan.

As noted above in Section 2.D.3, the applicable District BMPs are incorporated into the program design for operation. These BMPs specify procedures for maintenance, design and field operations with respect to the routine stream and canal maintenance activities, including sediment removal, vegetation management, and bank protection.

2.H Intended Uses of the EIR and Required Permits and Approvals

The information contained in the EIR and the administrative record will be reviewed and considered by the District Board of Directors prior to the ultimate decision to approve, disapprove, or modify the Program. When the District undertakes subsequent environmental

review for facilities evaluated at a program level of detail in this document, this EIR will serve as the first-tier CEQA review.

Agencies expected to use this EIR in their decision making for permits required for implementation of the Program include the U.S. Army Corps of Engineers (Clean Water Act Section 404 permit), California Department of Fish and Game (CDFG) (Streambed Alteration Agreement), California Public Utilities Commission (Application for General Order 88-B Approval and compliance with CPUC General Order 26-D), and the San Francisco Bay Region Water Quality Control Board (SFBRWQCB) (Clean Water Act Section 401 certification of Section 404 permit). The Program would require temporary construction easements from the City of Milpitas, the Milpitas Unified School District, the Thomas Russell Middle School, property owners adjacent to the east bank of Upper Calera Creek Element 2, Reach B, and property owners along Lower Penitencia Creek. Permanent easements from the City of Milpitas and property owners as well as encroachment permits from the City of Milpitas and VTA would be required to implement the Program. The District and the City of Milpitas would develop an agreement for the ROW and the pump station along Tulcaritos Creek.

2.I References

Federal Emergency Management Agency (FEMA), 2009. Flood Insurance Study, Santa Clara County, California, and Incorporated Areas, Volumes 1 through 4, May 18, 2009.

Ndah, Tony, personal communication, e-mail, February 9, 2011.

Northwest Hydraulic Consultants, Inc. (NHC), Berryessa Creek Watershed Hydrology Report, prepared for Santa Clara Valley Water District, April 2003.

Northwest Hydraulic Consultants, Inc. (NHC), Berryessa Creek Watershed Hydrology Report Addendum 1, prepared for Santa Clara Valley Water District, October 2006.

Santa Clara Valley Water District (District), Final Environmental Impact Report for the Multi-Year Stream Maintenance Program, SCH # 2001052013, August 2001.

Santa Clara Valley Water District (District). Coyote Watershed Stream Stewardship Plan, February 2002.

Santa Clara Valley Water District (SCVWD), Lower Berryessa Creek Project – Planning Study Report, prepared by Winzler & Kelly, March 2010a.

Santa Clara Valley Water District (District), Best Management Practices Handbook, August 2010b.

Schaaf & Wheeler. Freeboard Evaluation for Lower Penitencia Creek Levee in Milpitas, California (Task C4). Prepared for Santa Clara Valley Water District, October 15, 2008.

CHAPTER 3
Environmental Setting, Impacts, and Mitigation Measures

3.A Overview

This chapter describes the physical environmental effects of implementing the Lower Berryessa Creek Program (Program), as described in Chapter 2, Program Description.

The Program impact analysis provides an evaluation of the potential environmental effects of six elements on the Lower Berryessa Creek Program: Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, Tularcitos Creek Element, and the Lower Penitencia Creek Element. As described in Chapter 1, Introduction, this environmental impact report (EIR) serves both as a project-level EIR and as a program-level EIR. For the Lower Berryessa Creek and Lower Calera Creek elements, which have sufficiently defined improvement activities and construction methods, the analysis is presented at a project level. For remaining elements, which have been developed at the conceptual level only, a program-level evaluation is presented that addresses these elements from a broad, overview perspective. For these program-level elements, owing to the limited information available, project-level analysis cannot be provided at this time.

3.A.1 Scope of Analysis

Chapter 3 is organized by environmental resource topic, as follows:

Chapter 3 Sections	
3.A Overview	3.I Hydrology and Water Quality
3.B Aesthetics	3.J Land Use and Planning
3.C Air Quality	3.K Noise
3.D Biological Resources	3.L Recreation
3.E Cultural Resources	3.M Transportation and Traffic
3.F Geology and Soils	3.N Utilities and Service Systems
3.G Greenhouse Gases	3.O Energy Conservation
3.H Hazards and Hazardous Materials	(References included under each section)

Each section of Chapter 3 contains the following components, based on CEQA requirements:

- **Setting.** This subsection presents a description of the existing physical environmental conditions in the program vicinity with respect to each resource topic. Setting is presented at an appropriate level of detail to allow the reader to understand the impact analysis.

- **Regulatory Setting.** This subsection describes the laws and regulations that apply to the protection of the environmental resource being evaluated and the governmental agencies responsible for enforcing those laws and regulations.

- **Impacts and Mitigation Measures.** This subsection presents an evaluation of the potential for the Program to adversely affect the physical environment described in the setting. The significance criteria used to analyze the environmental impacts are defined at the beginning of each impact section, and a discussion of the approach and methodology explains how the significance criteria are applied in evaluating the Program. Significance criteria are generally based on Appendix G of the CEQA Guidelines. The conclusion of each impact analysis is expressed in terms of the impact significance, which is discussed further in Section 3.A.2 below. Mitigation measures are identified for any impacts considered significant and the effectiveness of mitigation measures in reducing significant impacts to less than significant levels is judged.

Mitigation measures are identified for any impacts considered significant or potentially significant, consistent with the CEQA Guidelines, which state than an EIR "shall describe all feasible measures which could minimize significant adverse impacts."

In the course of the EIR evaluation it was determined that the Program would have no potentially or less than significant impacts in the following resource areas: agriculture and forestry resources, mineral resources, population and housing, and public services. In accordance with CEQA Guidelines §15128, an EIR does not need to provide a detailed discussion of effects determined not to be significant. The subsections below explain why the Program would not result in significant impacts related to these topics.

Agriculture and Forest Resources

The Program would be located primarily on urban and built-up land and would not be located on land used for agricultural or forestry activities (CDC, 2010; CDF, 2010). Furthermore, the program area is not zoned for agricultural use, nor is it subject to a Williamson Act contract. The program area is not designated as prime farmland, unique farmland, or farmland of statewide importance. The Program would not involve changes that would result in the conversion of farmland or forest land to non-agricultural or non-forestry uses. In addition, the Program would not conflict with the existing zoning or cause rezoning of forest land (as defined in Public Resources Code [PRC] §12220(g)), timberland (as defined by PRC§4526), or timberland zoned Timberland Production. Thus, the Program would have no impacts on agriculture and forest resources.

Mineral Resources

The program area does not contain significant mineral, oil, or gas resource-producing areas. Classification performed by the California Division of Mines and Geology under the Surface Mining and Reclamation Act of 1975 indicates there are no mineral resources in the program area (Stinson et al., 1987). Therefore, the Program would have no impacts on mineral resources.

Population and Housing

The Program would provide flood protection for adjacent land uses and would occur within the District's right of way. In-channel construction activities would occur from mid April to mid October over two construction seasons. Throughout the construction period, approximately 90 construction workers would be employed for the two project-level elements. A similar workforce is anticipated to be employed for the program-level elements. It is expected that the construction workforce requirements could be met with the local labor force within the Bay Area. While some workers might relocate from other areas, the increase would be minor (fewer than 90 workers) and temporary (up to two years). Long-term operation and maintenance of the Program would be conducted by the District's existing workforce and would not require additional personnel.

The Program does not include any proposal to construct new homes or businesses in the area or to extend new roads or other infrastructure into undeveloped areas. Therefore, construction and operational activities associated with the Program would not induce substantial population growth. Furthermore, the Program would not displace any housing units or people. Therefore, the Program would have no impacts on population and housing.

Public Services

The Program is located in an urbanized area within the City of Milpitas. The Program would entail flood control improvements on existing creeks and would not directly affect the need for public services or governmental facilities, including fire protection, police protection, schools, parks, or other services. Potential incidents requiring law enforcement, fire protection, or emergency services could occur during construction; however, the potential temporary increase in incidents would not exceed the capacity of local law enforcement, fire protection, and emergency facilities such that new or expanded facilities would be required. Operations and post-construction maintenance activities would be similar to existing operations including fire protection, police protection, schools, parks, or other services. Therefore, the Program would have no impacts on public services.

3.A.2 Significance Determinations

The significance criteria used in this EIR are based on the CEQA Guidelines Appendix G, with some modifications. The significance criteria used to analyze each environmental resource

topic are presented in each section of Chapter 3 before the discussion of impacts. The categories used to designate impact significance are described below:

- **No Impact (-).** A project is considered to have no impact if there is no potential for impacts, or if the environmental resource does not exist within the project area or the area of potential effect. For example, there would be no impacts related to wastewater disposal if the project would not involve the production of wastewater.

- **Less than Significant (LTS).** This determination applies if there is a potential for some limited impact, but not a substantial adverse effect that qualifies under the significance criteria as a significant impact. No mitigation is required for impacts determined to be LTS.

- **Less than Significant with Mitigation (SM).** This determination applies to impacts that either could be or are significant and likely to occur, but for which feasible mitigation is available to reduce the impacts to a less-than-significant level. Some of the determinations are conservative in that there is no known information suggesting a definite significant impact, but for the purpose of this EIR, those impacts are conservatively treated as significant and mitigation measures are proposed to reduce those impacts to less than significant.

- **Significant, Unavoidable (SU).** This determination applies to impacts that either could be or are significant but for which no feasible mitigation has been identified reduce the impacts to a less-than-significant level. There might be some mitigation available to lessen the impact, but the residual effect remains significant and therefore the impact is considered unavoidable.

In determining the significance of a program impact, the analysis first describes the nature, frequency, magnitude, and/or severity of a potential effect and then determines whether it is significant, potentially significant, or less than significant, or that no impact would occur, based on the appropriate significance criteria.

The District developed, and regularly updates, the Santa Clara Valley Water District Best Management Practices Handbook (Handbook) which provides a comprehensive list of District best management practices (BMPs) that can be consistently applied to design, development, and implementation of District projects with the purpose of minimizing or avoiding adverse environmental effects. The individual BMPs are organized into environmental categories consistent with the CEQA Environmental Checklist Form (CEQA Guidelines, Appendix G). BMPs that apply to specific environmental impacts will be included in the Program, and are incorporated into the impact analyses prior to determining significance level and the need for mitigation.

Within each section in this chapter, a summary table is provided at the beginning of the impact discussion to summarize the potential impacts and indicate the level of impact significance. A summary table is also provided at the beginning of the impact discussion to summarize applicable mitigation measures.

3.A.3 References

California Department of Conservation (CDC), Division of Land Resource Protection, Farmland Mapping and Monitoring Program, Santa Clara County Important Farmland 2008, available online at: http://redirect.conservation.ca.gov/DLRP/fmmp/county_info_results.asp, accessed March 30, 2010.

California Department of Forestry and Fire Protection (CDF), Fire and Resource Assessment Program, The Management Landscape Map, available online at http://frap.cdf.ca.gov/data/frapgismaps/download.asp, accessed May 10, 2010.

Stinson, M.C., Manson, M.W., and Plappert, J.J., Mineral Land Classification: Aggregate Minerals in the San Francisco Bay Area, Special Report 146, California Division of Mines and Geology, 1987.

3.B Aesthetics

This section provides an assessment of the visual character of the program vicinity and evaluates the potential visual impacts that could result from implementation of the Program. This analysis describes the existing visual setting and sensitive viewer groups and evaluates the impacts of the program elements on views from local roads, public parks, off street trails, and residences. Applicable Santa Clara Valley Water District (District) best management practices (BMPs) that are designed to avoid or minimize impacts are identified. If program-related impacts are found to exceed CEQA thresholds of significance, mitigation measures are identified.

3.B.1 Environmental Setting

The study area for visual resources encompasses the Santa Clara Valley Water District's (District's) right of way (ROW) for the six elements, as well as the areas from which the elements are visible. The visual analysis focuses on travel route views, residential views, and views from parks and recreational routes.

Definitions Related to Visual Resources

An aesthetic resource is a combination of numerous elements, such as landforms, vegetation, water features, urban design, and/or architecture that impart an overall visual impression that is pleasing to, or valued by, its observers. Several factors important in describing the aesthetic resources of an area include visual character, visual quality, and visual sensitivity. These factors together not only describe the intrinsic aesthetic appeal of an area, but also communicate how much value is placed upon a landscape or scene by its observers. These terms and others are defined as follows:

- *Visual character* broadly describes the unique combination of aesthetic elements that characterize a particular landscape, neighborhood, or city. In urban settings, the visual character is primarily influenced by the land use type and density, urban landscaping and design, topography, and background setting.

- *Visual quality* is a qualitative assessment of the overall visual impression or attractiveness of an area as determined by the particular landscape characteristics, including landforms, water features, vegetation patterns, and built features. For the purposes of this analysis, visual quality is defined according to three levels:

    - Indistinctive, or industrial – defined as generally lacking in natural or cultural visual resource amenities typical of the region
    - Representative – defined as visual resources typical or characteristic of the region's natural and/or cultural visual amenities
    - Distinctive – defined as visual resources that are unique or exemplary of the region's natural or cultural scenic amenities

- *Viewer Types and Volumes* of use pertain to the types and amounts of use that various land uses receive. Land uses that derive value from the quality of their settings (e.g.,

residential, tourism, recreation) are considered potentially sensitive to changes in visual setting conditions.

- *Viewer Exposure* addresses the variables that affect viewing conditions from potentially sensitive areas. Viewer exposure considers factors such as viewing distance, angle of view, the extent to which views are screened or open, and duration of view.

- *Visual Sensitivity* combines visual quality, viewer types and volumes, and viewer exposures to describe the level of interest or concern that viewers may have for the quality of a particular view or visual setting.

Visual sensitivity is rated in this analysis as low, low-to-moderate, moderate, moderate-to-high, and high, based on reference photographs from key viewing points along with knowledge of the area's land uses, recreational amenities, and road characteristics.

Visual Character of the Region

The City of Milpitas' image is of an urban community located at the foot of a large section of the Diablo Range. The foothills, representing a sparsely settled semi-wilderness of rugged terrain, create the backdrop for many of the views within the City. The program area is mostly in an urban setting dominated by single-family suburban-style homes, with intermittent school campuses, parks, and open space areas. Several linear alignments occur in the program vicinity, including the Union Pacific Railroad (UPRR) tracks, the San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy Aqueduct, Interstate 680 (I-680), and the creeks that form the limits of the Program (Lower Berryessa Creek, Calera Creek, Tularcitos Creek, and Lower Penitencia Creek). Linear alignments and parks are important visual features of the program vicinity because they introduce an element of variety into an otherwise homogenous urban landscape. Land uses along portions of Lower Berryessa Creek also include commercial and industrial uses.

Scenic Resources

The City of Milpitas General Plan (General Plan) designates specific hillsides, ridges, visually significant vegetation and scenic routes that are critical in shaping the City's scenic identity. The purpose of these designated resources is to maintain and improve the character and views of scenic resources from streets; maximize access to parks, open space and other resources; and preserve visually distinctive features and vegetation. Another source of scenic resources information is the California Department of Transportation (Caltrans) scenic highway system. Scenic elements and their relevance to the Program are summarized below:

Scenic Corridors are located along designated streets that pass through an area of scenic value and are subject to special development controls for the purpose of retaining and enhancing nearby views or maintaining unobstructed distant views. None of the program activities would occur within or along designated scenic corridors.

Scenic Connectors are designated streets connecting or providing access to scenic corridors or distant views. A scenic connector may not necessarily traverse an area of scenic value, and the abutting land is not subject to the Scenic Corridor land use

controls. However, special design treatment, which may include roadside landscaping, undergrounding of utility lines, and street furnishings are recommended to provide a visual continuity with the scenic corridors. East Calaveras Boulevard, I-680, and North Park Victoria Drive are scenic connectors that either cross or mark the outer limits of the program area. I-880 is a designated scenic connector in the vicinity of Lower Penitencia Creek; however, views of the creek from I-880 are obscured by the highway itself. Of these scenic connectors, the program area is visible from East Calaveras Boulevard and North Park Victoria Drive only.

Visually Significant Vegetation represents vegetated areas that are considered critical in shaping the City's scenic identity. Most of this vegetation occurs east of the urbanized portion of Milpitas, and consists of widely scattered patchworks of trees within hills that are otherwise mantled with non-native grasses. Preservation of such vegetation is considered important because of its uniqueness and the visual variety it adds to the hillside. A portion of the Upper Calera Creek Element 2, Reach B, which runs through Higuera Adobe Park, is within an area mapped as containing visually significant vegetation.

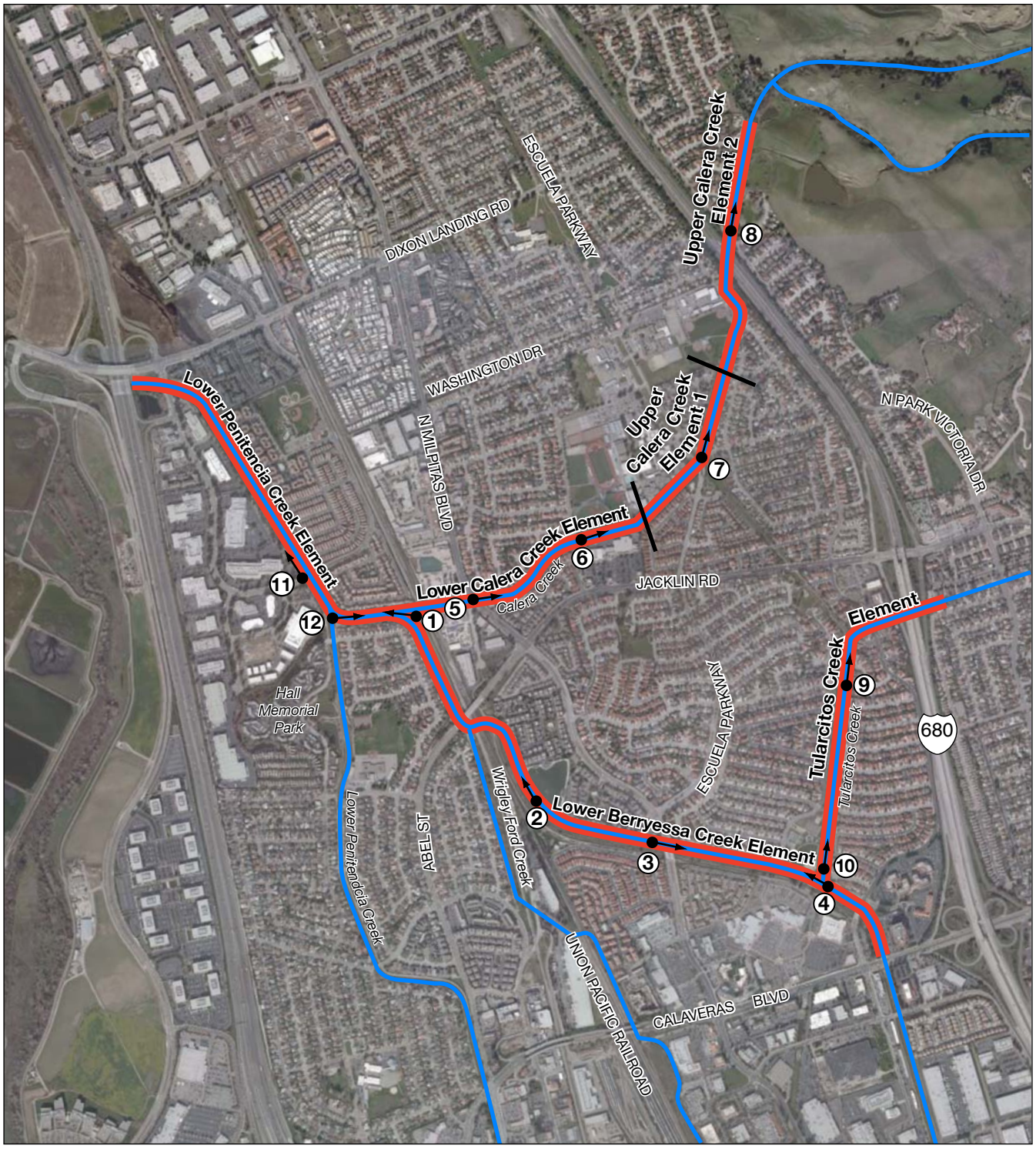
Visually Significant Hillsides and Ridges located east of the City are also considered critical in shaping the City's scenic identity; however, the Program is not located in these areas.

Scenic Highways: The closest officially designated scenic highway is the portion of I-680 north of Mission Boulevard in Fremont (Caltrans, 2009). The elements would not be visible from this part of the highway because it is over three miles to the north. Views from that section of the highway in the direction of the elements are dominated by urban development, trees, and topographic elements in the foreground and middleground that block any potential view of the elements.

Summary of Scenic Resources: The Program would be within view of: (1) visually significant vegetation on the upper reaches of Calera Creek within and adjacent to Higuera Adobe Park; and, (2) East Calaveras Boulevard and North Park Victoria Drive, which are designated as scenic collector roads.

Visual Quality and Viewer Exposure

The visual quality, viewer types and volumes, and viewer exposures associated with the Program are discussed in this section. A set of photographs is included to document the existing visual conditions of the program area and adjacent areas. Figure 3.B-1 provides an overview of photo locations, and Figures 3.B-2 through 3.B-6 depict views of the program area and the surrounding areas. The views shown in the figures are referred to as Viewpoints 1 though 12 in the discussion below. View exposure was assessed based on the photo viewpoints. Viewer volumes are based on traffic volumes as reported in Section 3.M, Transportation and Traffic, as well as park type (neighborhood, regional, etc.). A description of each element is provided below.



SOURCE: GlobeXplorer; ESA

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Figure 3.B-1
Location and Direction of Photo Viewpoints



1. West view of Lower Berryessa Creek (Reach A), looking downstream, from an access road.



2. Northwest view of Lower Berryessa Creek (Reach D), looking downstream from a pedestrian trail, with the Abel Street Bridge in the background.

SOURCE: ESA

Lower Berryessa Creek Program . 201425

Figure 3.B-2a
Views of Lower Berryessa Creek



3. East-southeast view of Lower Berryessa Creek (Reach E), looking upstream, from a pedestrian trail, with N. Milpitas Drive in the middleground.



4. Northwest view of Lower Berryessa Creek (Reach F), looking downstream near a pedestrian trail off of Paseo Refugio.

Lower Berryessa Creek Program . 201425

SOURCE: ESA

Figure 3.B-2b
Views of Lower Berryessa Creek (continued)



5. East view of Lower Calera Creek (Reach A), looking upstream from sidewalk on N. Milpitas Blvd.



6. East view of Lower Calera Creek (Reach B), looking upstream from Arizona Ave.

SOURCE: ESA

Lower Berryessa Creek Program . 201425

Figure 3.B-3
Views of Lower Calera Creek



7. Northeast view of Upper Calera Creek (Project Element 1, Reach B) looking upstream from southbound lane of Escuela Pkwy.



8. Northeast view of Upper Calera Creek (Project Element 2, Reach B) looking upstream in Higuera Adobe Park.

SOURCE: ESA

Lower Berryessa Creek Program . 201425

Figure 3.B-4
Views of Upper Calera Creek



9. North view of Tularcitos Creek (looking upstream) from Tramway Drive



10. North view of Tularcitos Creek, looking upstream, from Paseo Refugio

SOURCE: ESA

Lower Berryessa Creek Program . 201425

Figure 3.B-5
Views of Tularcitos Creek



11. North view of Lower Penitencia Creek looking downstream from Milmont Dr.



12. South view of Lower Penitencia Creek looking upstream from Milmont Dr Bridge.

SOURCE: ESA

Lower Berryessa Creek Program . 201425

Figure 3.B-6
View of Lower Penitencia Creek

Lower Berryessa Creek Element

Viewer Types and Exposures

The most accessible views of Lower Berryessa Creek Element are available from the bridges crossing over the creek, such as at Abel Street, North Milpitas Boulevard, and East Calaveras Boulevard, as well as dirt roads along the levee that are accessible to the public. The existing levees along the creek and various perimeter walls often result in blockage of creek views from relatively proximal locations such as from adjacent roads and residential uses.

In addition, the view angle of the creek corridor from many common viewpoints is highly oblique, diminishing its prominence in many visual settings. Views of the Lower Berryessa Creek Element are more prominent from the road overcrossings, which are used by numerous motorists that experience the views for short durations. The most dominant and long lasting views of the program area are experienced by pedestrians along maintenance access roads accessed by the public. For this reason, photo viewpoints focus on portraying the area from levees.

Visual Quality

Four photographs taken from trails along Lower Berryessa Creek are shown in Viewpoints 1 through 4. Viewpoint 2 was photographed in March 2010 whereas Viewpoints 1, 3 and 4 were photographed in October 2009. Levee slopes and trail margins are mantled with dry grass in the fall, but winter rains prompt the growth of fresh, green, non-native grasses in the winter and spring. The seasons also prompt changes in flow volume within the creek-bed; but year-round, it is composed of freshwater marsh vegetation.

The Lower Berryessa Creek corridor provides open views of the sky and the hills to the east from the pedestrian pathways. All four viewpoints contain isolated to scattered patchwork of shrubby trees; with several creek reaches featuring a greater abundance of trees, such as reaches E, F, and G upstream of the North Milpitas Boulevard crossing (Viewpoints 3 and 4). In addition, as evident from Viewpoint 3, certain portions of the lower trails remove urban elements from view, increasing the natural “feel” of the creek trail. While Lower Berryessa Creek has natural elements such as water and vegetation, the dirt roads, engineered earthen berms, and uniform constructed slopes impart an engineered and utilitarian quality to the view. In addition, from the top of the levees, housing developments and other urban structures are visible, and these represent adjacent views that detract from the natural setting.

The creek corridor is not landscaped or maintained for the purpose of providing a visual amenity, nor does it present a pristine scenic natural landscape. In the urbanized context of the general area, however, it does provide a vegetated open space that is in pleasing visual contrast with the surrounding urban environment, similar to other parks or open spaces in the City. For these reasons, the Lower Berryessa Creek Element is considered as having *representative* visual quality from the perspective of the pedestrian trails. The view for motorists on North Milpitas Boulevard also provides a representative visual quality, because

of the wide area of open and vegetated space. The view of Reach B from the Abel Street Bridge, however, is indistinctive due to the industrial uses and the presence of the UPRR tracks, both of which influence the view and generally lack in natural or cultural visual resource amenities typical of the region.

Lower Calera Creek Element

Viewer Types and Exposures

Views of Lower Calera Creek are limited to street crossings that include North Milpitas Boulevard and Arizona Avenue, as well as adjacent residences. The Lower Calera Creek Element is within view of single-family homes and Milpitas High School along Reach B as well as light industrial uses along Reach A. For the most part, existing structures and landscaping, as well as topography, limit views of the creek corridor. As shown in Viewpoints 5 and 6, fences, walls, and trees block the creek corridor from potential observers unless viewed directly from a street crossing or, in some cases, the second floor window of a residence. Further, views of the Lower Calera Creek Element from street crossings are short in duration, and may be scarcely noticed by the typical motorist.

Visual Quality

As shown in Viewpoints 5 and 6 (Figure 3.B-3), the visual quality of the element is similar to that described for Lower Berryessa Creek, although narrower in width. As discussed for the Lower Berryessa Creek Element, views of the creek impart an engineered and utilitarian quality to the view but also display vegetation and water features that are uncommon in the urban setting. In addition, views of the creek corridor provide a visual connectivity with the background hills, which is particularly evident in Viewpoint 6. For these reasons, the Lower Calera Creek Element is considered as having *representative* visual quality.

Upper Calera Creek Element 1

Viewer Types and Exposures

The major street crossing along this element is at Escuela Parkway; in addition, the Hetch Hetchy Linear Parkway and Sandlewood Park also cross the element at this location. Viewer types and exposures are similar to those described in the Lower Calera Creek Element. Unless viewed directly from a street crossing or, in some cases, the second floor window of a residence, views of the element are blocked, obscured, or oblique in angle such that the study area is subordinate to other elements of the view, as shown in Viewpoint 7 (Figure 3.B-4).

Visual Quality

As shown in Viewpoint 7, the view of the creek corridor is oblique, partially obstructed due to fencing/signage, and is subordinate to other elements, such as the background hills. However, the vegetation growth within the program corridor is characteristic of the region's natural and/or cultural visual amenities, resulting in a *representative* visual quality.

Upper Calera Creek Element 2

Viewer Types and Exposures

Upper Calera Creek Element 2 is crossed by I-680 and North Park Victoria Drive. South of I-680 is a middle school and residential uses, and north of I-680 is Higuera Adobe Park. Views from I-680 are blocked by sound walls. Motorist's views from North Park Victoria Drive would be short in duration, obscured by vegetation, and subordinate to other elements in the view such as Higuera Adobe Park itself. The view of the creek corridor within the park (Figure 3.B-4, Viewpoint 8) represents a prominent and publically accessible foreground view and would likely be long in duration when enjoyed by park visitors.

Visual Quality

While the visual quality of this element may be judged as greater than the other Calera Creek elements, it nonetheless has a visual quality that is representative of the regions typical cultural and aesthetic resources amenities. As shown in Viewpoint 7, heavy vegetation cover limits views of the sky and horizon, and the creek corridor is natural in appearance and has pleasing aesthetic elements. However, the view is not particularly unique or distinctive from an aesthetic standpoint when compared to other parks and amenities in the region.

Tularcitos Creek Element

Viewer Types and Exposures

The course of Tularcitos Creek can be seen from I-680, Paseo Refugeo, Tramway Drive, and North Hillview Drive, as well as two pedestrian bridges that cross the channel. While Santa Rita Drive parallels the creek, views are obscured by vegetation, utility fencing, and the narrow angle of view, which diminishes the prominence of the creek in most scenes. The mouth of the creek is visible when it reaches its confluence with Lower Berryessa Creek near Paseo Refugio. Single-family homes and park facilities are the dominant adjacent land uses. Peter T. Gill Memorial Park is situated at the northwest quadrant of the Tularcitos Creek/Berryessa Creek confluence and the Hetch Hetchy Linear Parkway has a trail that lines the length of the Tularcitos Creek Element. For motorists, this element is visible for only short periods, but for users of the Hetch Hetchy Linear Parkway, Tularcitos Creek may be visible for the duration of their park use, although such views are typically obscured (or partially obscured) by the elements mentioned above. For residents, views are typically blocked by fencing, although the creek corridor may be visible from second floor windows.

Visual Quality

Viewpoints 9 and 10 show the views of Tularcitos Creek from Tramway Drive and Paseo Refugio, respectively. The visual quality of these scenes is judged to be characteristic of the region's natural and/or cultural visual amenities, resulting in a representative visual quality, for the same reasons as the other elements. However, the visual quality of the Tularcitos Creek Element as seen from I-680 is judged to be indistinctive. From the elevated viewpoint, the Tularcitos Creek Element has more of a linear, utilitarian, almost industrial character that distracts from the well vegetated, suburban character of the surroundings.

Lower Penitencia Creek Element

Viewer Types and Exposures

Lower Penitencia Creek can be seen from Milmont Drive/California Circle, California Circle, and Dixon Landing Road. North McCarthy Boulevard parallels the creek near its confluence with Coyote Creek and the creek is visible for a short length from this road. The view from I-880 (a City of Milpitas designated scenic collector) is obscured by the highway exit ramp. The view of the creek from Dixon Landing Road is obscured by the I-880 highway. The view from California Circle just south of Dixon Landing Road is mostly obscured by railings adjacent to sidewalks. Lower Penitencia Creek is visible from Milmont Drive/California Circle Bridge and by the single- and multi-family homes on the eastern bank of the creek. The creek is also visible from the businesses on the western bank and from the creek levee trails that occur on both creek banks. The view of the creek from the ground floor of businesses and residences would be of the levee banks with some taller vegetation being visible. The creek would be directly visible from second floors of both businesses and residences and from the creek levee trails. The view of the creek would be the prominent visual resource for pedestrians or bicyclists using the creek levee trails.

Visual Quality

Viewpoints 11 and 12 show the views of Lower Penitencia Creek from Milmont Drive/ California Circle upstream and downstream, respectively. The visual quality of these scenes is judged to be characteristic of the region's natural and/or cultural visual amenities resulting in a representative visual quality, for the same reason as the other elements. Lower Penitencia Creek has the widest ROW of all of the program elements and the creek channel supports dense vegetation with numerous waterfowl inhabitating the creek. The view from the creek levee trails is dominated by residential areas, commercial development, and transmission towers/lines in background views, which distract somewhat from the characteristics of the creek setting. However, in the urbanized context of the general area, the creek does provide a vegetated open space that is in pleasing visual contrast with the surrounding urban environment, similar to other parks or open spaces in the City. For these reasons, the Lower Penitencia Creek Element is considered as having representative visual quality from the perspective of the pedestrian trails. The view from North McCarthy Boulevard and I-880 would be considered indistinctive because the view of the creek is either limited or obscured by the highway.

Visual Sensitivity

As defined above, visual sensitivity is a composite measurement of the overall susceptibility of an area or viewer group to adverse visual or aesthetic impacts given the combined factors of landscape visual quality, viewer types, and exposure conditions. Table 3.B-1 summarizes the visual sensitivity of the major viewer types that would be affected by the Program. The visual sensitivity of the elements from the motorist's perspective ranges from low to moderate, although primarily on the low side. However, the visual sensitivity of the Program as viewed from parks and trails is generally in the moderate-to-high range due to the change

TABLE 3.B-1
SUMMARY OF VISUAL SENSITIVITY FINDINGS:
VIEWER TYPES, VISUAL EXPOSURES, AND VISUAL QUALITY

Viewer Type	Visual Quality	View Exposure	Visual Sensitivity	Visible Elements
Motorists				
I-680	Indistinctive	Foreground/Middleground Distance Unobstructed View High Number of Viewers Short View Duration	Low to Moderate	Northern portion of Tularcitos Creek
East Calaveras Boulevard	Representative	Foreground Distance Partially-obstructed View Moderate Number of Viewers Short View Duration	Low to Moderate	Reach G of Lower Berryessa Creek
North Park Victoria Drive	Representative	Foreground Distance Partially-obstructed View Low Number of Viewers Short View Duration	Low	Reach B of Upper Calera Creek Element 2
North Milpitas Boulevard (Berryessa Creek crossing)	Representative	Foreground/Middleground Distance Unobstructed View Moderate Number of Viewers Short View Duration	Moderate	Reach E of Lower Berryessa Creek
North Milpitas Boulevard (Calera Creek crossing)	Representative	Foreground Distance Partially-obstructed View Moderate Number of Viewers Short View Duration	Low to Moderate	Reach B of Lower Calera Creek
Abel Street	Indistinctive	Foreground/Middleground Distance Unobstructed View Moderate Number of Viewers Short View Duration	Low to Moderate	Reaches B, C, and D of Lower Berryessa Creek
Arizona Avenue	Representative	Foreground Distance Partially-obstructed View Low Number of Viewers Short View Duration	Low to Moderate	Reach B of Lower Calera Creek
North Hillview Drive	Representative	Foreground/Middleground Distance Unobstructed View Moderate Number of Viewers Short View Duration	Low to Moderate	Reaches G and F of Lower Berryessa Creek
Escuela Parkway	Representative	Foreground Distance Partially-obstructed View Low Number of Viewers Short View Duration	Low to Moderate	Upper Calera Creek Element 1
Paseo Refugio	Representative	Foreground Distance Partially-obstructed View Low Number of Viewers Short View Duration	Low to Moderate	Tularcitos Creek and reaches E, F, and G of Lower Berryessa Creek
Millmont Drive/California Circle	Representative	Foreground Distance Unobstructed View Low Number of Viewers Short View Duration	Low to Moderate	Lower Penitencia Creek
California Circle	Representative	Foreground Distance Partially-obstructed View Low Number of Viewers Short View Duration	Low to Moderate	Lower Penitencia Creek
Recreationalists				
Lower Berryessa Creek Trail	Representative	Foreground/Middleground Distance Unobstructed View Moderate Number of Viewers Moderate to Long View Duration	Moderate to High	Lower Berryessa Creek

TABLE 3.B-1 (Continued)
SUMMARY OF VISUAL SENSITIVITY FINDINGS:
VIEWER TYPES, VISUAL EXPOSURES, AND VISUAL QUALITY

Viewer Type	Visual Quality	View Exposure	Visual Sensitivity	Visible Elements
Recreationalists (cont.)				
Lower Penitencia Creek Trail	Representative	Foreground/Middleground Distance Unobstructed View Moderate Number of Viewers Moderate to Long View Duration	Moderate to High	Lower Penitencia Creek
Hetch Hetchy Linear Parkway	Representative	Foreground/Middleground Distance Partially obstructed View Moderate Number of Viewers Moderate to Long View Duration	Moderate to High	Tularcitos Creek and Reach F of Lower Berryessa Creek
Peter T. Gill Memorial Park	Representative	Foreground Distance Partially obstructed View Moderate Number of Viewers Moderate to Long View Duration	Moderate to High	Tularcitos Creek and reaches F and E of Lower Berryessa Creek
Hidden Lake Park	Representative	Foreground Distance Obstructed View Moderate Number of Viewers Moderate View Duration	Moderate	Reach D of Lower Calera Creek
Higuera Adobe Park	Representative	Foreground Distance Partially-obstructed View Moderate Number of Viewers Moderate to Long View Duration	Moderate-to-High	Reach B of Upper Calera Creek Element 2
Residences				
	Indistinctive to Representative	Foreground to Background Distance Obstructed to Unobstructed View Long View Duration	Variable, based on proximity and exposure	All elements

in viewer type/concern, increased view duration, and proximity of common viewpoints to the creek elements.

3.B.2 Regulatory Setting

Federal Regulations

No federal visual quality regulations apply to the Program.

State Regulations

The California Scenic Highway Program, governed by the Streets and Highways Code, §260 et seq., was created in 1963 to preserve and protect highway corridors in areas of outstanding natural beauty from changes that would diminish the aesthetic value of the adjacent lands. Caltrans designates highways as scenic based on how much of the landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which views are compromised by development. There are no Caltrans-designated scenic highways in proximity to the program area (Caltrans, 2009); thus, construction and operation of the Program would not be subject to the requirements of the Scenic Highway Program.

Local Plans and Policies

The primary scenic resources defined in the General Plan are the foothills to the east of the City of Milpitas and the Coyote Creek corridor. The scenic routes identified in the General Plan include scenic corridors, which are designated streets passing through scenically valuable areas, and scenic connectors, which are designated streets that connect or provide access to scenic corridors or distant scenic views. The Program would not be visible from any of the designated scenic corridors; however, portions of the program area intersect or terminate on streets and highways designated as scenic collectors. These include: (1) East Calaveras Boulevard, which passes the southern program limit of the Lower Berryessa Creek Element, (2) I-680, which marks the eastern limit of the Tularcitos Creek Element and crosses Upper Calera Creek Element 2, (3) North Park Victoria Drive, which crosses Upper Calera Creek Element 2, and (4) I-880, which marks the western limit of the Lower Penitencia Creek Element. However, views of the program area from I-880 and I-680 are obscured by the highways.

The Guiding Principles listed in the Scenic Resources and Routes section of the General Plan Open Space and Environmental Conservation Element emphasize the preservation and enhancement of visual resources and encourage activities that facilitate viewing access of these resources. The Implementing Policies that support the Guiding Principles generally focus on imposing restrictions to new development projects, guiding landscaping activities and signage along scenic corridors and routes, and other site-specific policies. No Implementing Policies are specifically applicable to routes designated as scenic collectors. Otherwise, the Implementing Policy addressing creeks encourages development of the section of Berryessa Creek that runs through the Town Center into a scenic as well as a recreation resource for the Town Center. Reach G, Reach F, and the east end of Reach E of the Lower Berryessa Creek Element are within the Town Center.

3.B.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on aesthetic resources if it were to:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and other features of the built or natural environment that contribute to a scenic public setting;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area or substantially affect people or properties.

Approach to Analysis

The visual impacts analysis is based on field observations conducted by ESA in September 2009, October 2009, March 2010, scenic resources and route information from the City of Milpitas General Plan and Caltrans (City of Milpitas, 1994; Caltrans, 2009), as well as proposed flood control activities described in Chapter 2, Program Description. The analysis identifies potential temporary and permanent visual impacts of the Program on scenic resources, as seen from scenic collector roads, recreational trails and routes, and local roads, as well as from sensitive observer points such as proximal residences. Information from the Caltrans list of designated scenic highways and the Milpitas General Plan is used to inform the analysis of the Program's potential impacts on scenic vistas and other aesthetic resources.

Program elements are evaluated for their effects on the aesthetic resources using the CEQA significance criteria above. While the effect of the Program on aesthetics can involve direct impacts on readily identifiable scenic resources, amenities, or features, often a project or program may result in indirect effects on the visual quality or character of an area.

Table 3.B-2 provides guidelines to assist in evaluating effects of the Program on the visual character or quality of an area (the third CEQA criterion), and is based on the visual sensitivity of an area and the degree of ***overall visual change*** introduced by the Program. The key factors in determining the overall visual change are visual contrast, dominance, and view blockage. Specifically, an adverse visual impact may occur when: (1) an action perceptibly and substantially changes the existing physical features of the landscape that are characteristic of the region or locale; (2) an action introduces new features to the physical landscape that are perceptibly uncharacteristic of the region or locale, or become visually dominant from common viewpoints; or (3) an action blocks or totally obscures aesthetic features of the landscape. The degree of visual impact depends on how noticeable the adverse change is and the related visual sensitivity (established in the setting).

No Impact Significance Determinations

Due to the nature of the Program, there would be no impact related to the following criterion for the reason stated below:

> *Substantial Adverse Effect on a Scenic Vista.* There are no scenic vistas in the vicinity of the Program as designated by Caltrans or the City of Milpitas. Thus, the Program would have no impact on scenic vistas, and no further discussion of these criteria is presented.

Impact Summary

Table 3.B-3 provides a summary of visual quality impacts by program element and implementation phase (construction and operations). Table 3.B-4 provides a summary of applicable mitigation measures by program element and implementation phase (construction and operations).

TABLE 3.B-2
GUIDELINES FOR DETERMINING AESTHETIC IMPACT SIGNIFICANCE

Overall Visual Sensitivity	Overall Visual Change[a]				
	Low	Low to Moderate	Moderate	Moderate to High	High
Low	Not Significant	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Low to Moderate	Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant
Moderate	Adverse, but Not Significant	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant
Moderate to High	Adverse, but Not Significant	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant
High	Adverse, but Not Significant	Adverse and Potentially Significant	Adverse and Potentially Significant	Significant	Significant

[a] Aesthetic impact significance is defined as:

Not Significant impacts may or may not be perceptible but are considered minor in the context of existing landscape characteristics and view opportunity.
Adverse but Not Significant Impacts are perceived as negative but the perceived change is not substantial.
Adverse and Potentially Significant Impacts are perceived as negative and may be considered substantial depending on project- and site-specific circumstances.
Significant impacts would be substantial.

Impacts and Mitigation Measures

Impact 3.B-1: Damage to scenic resources, including trees, of the built or natural environment that contribute to a scenic public setting. (Less than Significant with Mitigation)

Construction and Operations Impacts

The Program may affect the trees north of North Park Victoria Drive along Reach B of Upper Calera Creek Element 2, which are identified as "visually significant vegetation." In addition, Program actions are visible from two scenic collector roads: East Calaveras Boulevard (in the vicinity of the Lower Berryessa Creek Element) and North Park Victoria Drive (in the vicinity of Upper Calera Creek Element 2). The Program would also result in removal of trees along portions of Lower Berryessa Creek and Lower Penitencia Creek. While not specifically identified as a scenic resource in the General Plan, the trees along Lower Berryessa Creek and Lower Penitencia Creek would be considered an important component of the scenery along the creek levee trails. In addition, one of the long-term goals stated in the General Plan is to develop portions of the Lower Berryessa Creek within the program area into a scenic resource. This impact discussion thus focuses on the Upper Calera Creek Element 2, the Lower Berryessa Creek Element, and the Lower Penitencia Creek Element and considers all other elements as resulting in no impact to scenic resources because they do not include

TABLE 3.B-3
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL AESTHETIC RESOURCES IMPACTS

	Impact 3.B-1		Impact 3.B-2		Impact 3.B-3	
	Damage to scenic resources		Impacts on the existing visual character or quality of the site and its surroundings		New sources of substantial light or glare	
	construction	operations	construction	operations	construction	operations
Project-Level Elements						
Lower Berryessa Creek Element	SM	SM	LTS	SM	LTS	LTS
Lower Calera Creek Element	–	–	LTS	LTS	LTS	LTS
Program-Level Elements						
Upper Calera Creek Element 1	–	–	LTS	LTS	LTS	LTS
Upper Calera Creek Element 2	LTS	LTS	LTS	LTS	LTS	LTS
Tularcitos Creek Element	–	–	LTS	SM	LTS	SM
Lower Penitencia Element	SM	SM	LTS	SM	LTS	LTS

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact
– = No Impact

TABLE 3.B-4
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.D-6a		Measure 3.B-2		Measure 3.B-3	
	Tree and Shrub Replacement		Aesthetically Compatible Design		Placement and Design of Nighttime Security Lighting	
	construction	operations	construction	operations	construction	operations
Project-Level Elements						
Lower Berryessa Creek Element	✓	✓	–	–	–	–
Lower Calera Creek Element	–	–	–	–	–	–
Program-Level Elements					–	–
Upper Calera Creek Element 1	–	–	–	–	–	–
Upper Calera Creek Element 2	–	–	–	–	–	–
Tularcitos Creek Element	–	–	–	✓	–	✓
Lower Penitencia Creek Element	✓	✓	–	–	–	–

✓ = Applicable Impact
– = No Impact

visually significant vegetation, scenic collector roads, or other designated scenic resources and do not include tree removal in the vicinity of trails or other recreation uses.

Lower Berryessa Creek Element and Upper Calera Creek Element 2 – Scenic Collector Roads

East Calaveras Boulevard, which is a scenic collector road, crosses the southern end of the Lower Berryessa Creek Element. As defined in the setting, scenic collectors are a scenic resource only in terms of providing visual continuity with the scenic corridors through good streetscape design. The Program primarily involves levee improvements which would modify embankments, levee maintenance roads, and other features located beneath the road crossing, and would not modify or otherwise affect the street, sidewalks, street landscaping, or other aesthetic features of the streetscape. Since the Program would not affect the streetscape, there would be a less-than-significant effect on the scenic collector roads.

Upper Calera Creek Element 2 is crossed by North Park Victoria Drive, which is a scenic collector road. As defined in the setting, the scenic collectors are a resource only in terms of providing visual continuity with the scenic corridors through good streetscape design. The Program primarily involves levee improvements which would modify embankments, levee maintenance roads, and other features located beneath the road crossing, and would not modify or otherwise affect the street, sidewalks, street landscaping, or other aesthetic features of the streetscape. Since the Program would not affect the streetscape, there would be a less-than-significant effect on the scenic collector roads.

Lower Berryessa Creek Element and Lower Penitencia Creek Element – Trees

Trees and large shrubs located along levee slopes within the District's ROW would be removed in order to construct the proposed levee improvements. Construction activities along Lower Penitencia Creek would mostly be within the existing flood channel; however, some tree and large shrub damage, and removal, would occur. Avoidance of all trees directly on the existing levee slopes would be infeasible, due to the excavation and earthwork required for levee-raising. Many of the trees are not protected by the City of Milpitas tree ordinance (described in Section 3.D, Biological Resources). However, even smaller trees and shrubs located along both sides of the creeks in reaches E, F, and G of the Lower Berryessa Creek Element, as well as along Lower Penitencia Creek Element, are a major contributing factor to the scenic quality of the creek corridors (see Figure 3.B-2b, Viewpoints 3 and 4; and Figure 3.B-6, Viewpoint 11). The trees and shrubs add a natural and scenic quality to views that would otherwise appear largely industrial or indistinctive, because the creeks are, essentially, constructed conveyance structures for stormwater and creek flows. Due to the removal of trees and shrubs, significant damage to scenic resources of the Lower Berryessa Creek Element would occur; and, likely in the Lower Penitencia Creek Element.

As described in Chapter 2, Program Description, following grading and earthwork the ground surface would be hydroseeded and landscaped. Along Lower Berryessa Creek, no woody vegetation within ~~15 feet of~~ the levee slope within the District ROW would be included that could reduce channel capacity. Existing vegetation along this reach would be preserved

where vegetation does not affect the function of the improvements. Without specific provisions for tree and shrub replacement, however, the removal of the trees would have a substantial long-term impact on the visual resources of the pedestrian paths along the Lower Berryessa Creek Element and would result in a potentially significant impact on the aesthetic enjoyment of the levee trail for regular users of the Lower Penitencia Creek Element.

Upper Calera Creek Element 2 – Visually Significant Vegetation

The proposed activities along Reach B of Upper Calera Creek Element 2 would consist of maintenance road improvements. It is not known whether tree removal would be required for the element. However, in the event maintenance road improvements require the removal of trees, the location of trees to be removed would be on the southeastern side of the access road, at the margin of a stand of existing trees associated with Calera Creek and Higuera Adobe Park. The "visually significant vegetation" in this area is a scenic resource in terms of its contribution to the scenic background setting from viewpoints along major thoroughfares and developed areas in Milpitas. From most common viewpoints within the City (distant roads and developed areas), the action would not be noticeable because the stand of trees would be in the background. From Higuera Adobe Park, the removed trees would not be noticed because the trees along the creek corridor and within the park would remain and occupy the intervening space. From North Park Victoria Drive, the removed trees would be minimally noticed, if at all, because the trees would only slightly decrease the size and dominance of the existing stand of trees. The visual resource would remain intact, and the potential removal of trees along Upper Calera Creek Element 2, Reach B, would thus be a less than significant impact.

Best Management Practices: None applicable.

Mitigation Measures

> **Mitigation:** Implement Mitigation Measure 3.D-6a (Lower Berryessa Creek Element and Lower Penitencia Creek Element).

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.D-6a would reduce impacts on scenic resources to less-than-significant levels by restoring the visual resources of the pedestrian paths along Lower Berryessa Creek and Lower Penitencia Creek.

Impact 3.B-2: Temporary or permanent impacts on the existing visual character or quality of the site and its surroundings. (Less than Significant with Mitigation)

The potential impact on visual character or quality is evaluated with the support of the significance matrix presented in Table 3.B-2. An adverse visual impact may occur when: (1) an action perceptibly and substantially changes the existing physical features of the landscape that are characteristic of the region or locale; (2) an action introduces new features to the physical landscape that are perceptibly uncharacteristic of the region or locale, or

become visually dominant from common viewpoints; or (3) an action blocks or totally obscures aesthetic features of the landscape. The degree of visual impact depends on how noticeable the adverse change is. The noticeability of a visual impact is a function of the program features, context, and viewing conditions (angle of view, distance, and primary viewing directions). The key factors in determining the overall visual change are visual contrast, program dominance, and view blockage.

Construction Impacts

The proposed levee improvements could result in impacts on the visual character and quality from the viewpoints described in Table 3.B-1 due to construction staging, clearing, and earth moving, as well as the presence of associated vehicles and equipment. For each of the elements, construction would occur in phases, individually up to four months in duration as shown in Table 2-2 in Chapter 2, Program Description. The most conspicuous construction phase from a visual standpoint would be the site preparation and earthwork phases. During that time, vegetation would be stripped and excavators and bulldozers would be moving large quantities of soil. While these activities are likely to be noticed from local roads, overpasses, and adjacent sidewalks, publically accessible trails along Lower Berryessa Creek and Lower Penitencia Creek (which would be most sensitive) would be closed for the duration of the associated construction activities (see Section 3.L, Recreation, for a discussion of impacts to recreational facilities). The remaining views would only be affected temporarily, and temporary construction activity from an aesthetics standpoint is not out of character for a typical urban environment.

The most affected viewers could be residents who have a direct line of sight onto the construction from elevated windows. However, most residential views of the elements would be from elevated second-floor windows, since first-floor or backyard views are typically screened by vegetation or fencing. From such elevated perspectives, construction of elements would not dominate or block background or middleground views, and the existing views from most residences are either blocked by adjacent development or are typical of an urban environment. Due to the temporary nature of construction activities and the limited viewer exposures, temporary, construction-related impacts on the existing visual character or quality of the site and its surroundings are considered less than significant.

Operations Impacts

Lower Berryessa Creek Element

Permanent changes along the Lower Berryessa Creek Element are illustrated in Figures 2-3A though 2-3C in Chapter 2, Program Description. The primary permanent visual change would be in the cross sectional shape of the creek corridor. A floodwall would replace the earthen berms along the left side of the stream reaches (if looking downstream), and a new levee up to 12 feet taller than the adjacent elevation would replace the existing levee on the right side of the creek. As described in Chapter 2, Program Description (Section 2.D.2, Stream Maintenance Program, and Section 2.G.1, Required Maintenance Activities), the District

would perform routine maintenance to remove weeds and woody vegetation, remove trash and debris, and remove graffiti within the program area.

While the Program would change the existing topography of the creek corridor substantially, the visual change would be moderate because the character, color, and landforms of the setting would not be in contrast to existing conditions. Earthen berms would be hydroseeded to restore the vegetation and access roads would be built to comply with City of Milpitas trail standards. In addition, because Lower Berryessa Creek is already a prominent feature in the urban landscape, levee heightening would not have a substantial effect on the dominance of the creek as observed from common viewpoints. Changes in mass and height would be most noticeable from the most proximal locations. Because levees would be heightened, partial view blockage from adjacent streets could occur as the result of the Program. However, adjacent residences would not be substantially affected by the Program because they would be located far enough away from the levee tops that the increase in height would be minimally noticeable. In addition, views of the creek from most residences are already blocked or partially obscured by backyard walls, fences, and vegetation.

As shown in Table 3.B-1, the visual sensitivity is low-to-moderate from the perspective of motorists but is moderate to high from the perspective of recreationalists that use the trail. For the reasons stated above, primarily due to tree removal, the level of visual change of the Lower Berryessa Creek Element is moderate. Based on Table 3.B-2, the impact on the surrounding visual quality and character is adverse, but less than significant for motorists. However, this impact would be adverse and potentially significant for recreational users of the trail. The impact from the perspective of recreational users of the Berryessa Creek Trail would be significant because of the moderate to high visual sensitivity. This impact would occur as a result of tree and shrub removal along the levee slopes.

Lower Calera Creek Element

Along Reach A, from the confluence with Lower Berryessa Creek to North Milpitas Boulevard, improvements would include extending the existing channel walls up to four feet and constructing new headwalls at the culverts under the railroad crossing and North Milpitas Boulevard. Along Reach B, new floodwalls on both sides of the channel would vary in height from approximately three to six and one half feet, as shown on Figure 2-5. Reach A is flanked on both sides by industrial uses and is minimally visible from public viewpoints. The creek corridor itself is not open to the public. As noted above, the District would perform routine maintenance to remove weeds and woody vegetation, remove trash and debris, and remove graffiti within the program area.

The floodwalls along Reach B may be noticeable by motorists and pedestrians on North Milpitas Avenue and Arizona Avenue, as well as the second floor of single-family homes. The addition of floodwalls would not substantially change the overall character of the Lower Calera Creek Element because they would be along existing linear landforms, would be placed on the outside of the creek corridor, and in many places would be adjacent to existing fences, walls and

screening vegetation. The visual contrast, view blockage, and dominance would be low. For these reasons, the degree of visual change for the Lower Calera Creek Element would be low.

The level of visual change of the Lower Calera Creek would be low, and the visual sensitivity of the element is low to moderate. When the degree of visual change and the visual sensitivity of the area are considered together, the change to the surrounding visual quality and character would not be substantial and the impact would be less than significant.

Upper Calera Creek Element 1

Changes to Upper Calera Creek Element 1 would be minor, and are illustrated in Figure 2-6. The new floodwalls would be up to five feet in height, and the maintenance roads would be resurfaced with gravel. Such changes would be along existing linear landforms, placed on the outside of the creek corridor, and, in many places, would be adjacent to existing fences, walls, or screening vegetation. Furthermore, the height of the levee wall would be dominant only from up close, and would not block or obscure common public views or views from second floor windows of residences. The access roads along the existing creek corridor are not publically accessible. For these reasons, the degree of visual change would be low. As noted above, the District would perform routine maintenance to remove weeds and woody vegetation, remove trash and debris, and remove graffiti within the program area.

The level of visual change of the Upper Calera Creek Element 1 would be low, and the visual sensitivity of the element is low to moderate. When the degree of visual change and the visual sensitivity of the area are considered together, the change the surrounding visual quality and character would not be substantial and the impact would be less than significant.

Upper Calera Creek Element 2

The Upper Calera Creek Element 2 would include an underground concrete box culvert within the Thomas Russell Middle School ROW, from Founders Lane to I-680, which would accommodate excess flows from the main channel. In addition, existing maintenance roads would be widened and improved to District maintenance standards. Existing vegetation along this reach would be preserved in areas where vegetation does not affect the function of improvements. As noted above, the District would perform routine maintenance to remove weeds and woody vegetation, remove trash and debris, and remove graffiti within the program area. Public views of Reach A are limited, as it is not open to the public, and the creek itself is screened by vegetation. Reach B is partially located within the Higuera Adobe Park, but the only proposed action within this reach is maintenance road improvement. Considering the proposed changes, the degree of visual change along this element would be low.

The level of visual change of Upper Calera Creek Element 2 would be low, and the visual sensitivity from the perspective of motorists is also low. When the degree of visual change and the visual sensitivity of the area are considered together, the change of the surrounding visual quality and character would not be substantial and the impact would be less than significant. Although the visual sensitivity of the Upper Calera Creek Element 2 for users of Higuera Adobe Park is moderate-to-high, based on Table 3.B-2, the impact would be

adverse but would not be substantial. The impact of potential tree removal at this site is addressed in Impact 3.B-1 and the impact would be less than significant.

Tularcitos Creek Element

The Tularcitos Creek Element consists of construction of short floodwalls up to four feet in height and a new stormwater pump station just upstream of Paseo Refugio Court along Tularcitos Creek. As noted above, the District would perform routine maintenance to remove weeds and woody vegetation, remove trash and debris, and remove graffiti within the program area. Construction of the floodwalls would result in a low degree of visual change. When the degree of visual change and the visual sensitivity of the area are considered together, the change to the surrounding visual quality and character would not be substantial and the impact would be less than significant.

Although the pump station design has not been determined, the structure would be above the existing creek banks. Construction of the pump station could cause a significant impact on the visual character of the site's surroundings. The surrounding land uses include open spaces, parks, and well-maintained residential areas. If the pump station were to significantly contrast with its surroundings it could cause a moderate to high degree of visual change due to the utility/industrial character of the structure, which could be in sharp contrast to its surroundings, and it could partially block or impair views of Calera Creek from the roadway and pedestrian pathways.

Without mitigation, the pump station could result in a moderate to high degree of visual change and would thus have a substantial adverse and potentially significant effect on the visual quality of the surroundings.

Lower Penitencia Creek Element

Changes to the Lower Penitencia Creek Element would be minor, consisting primarily of sediment and vegetation/tree removal to restore the channel to design capacity. In addition, an existing in-channel bench would be lowered to increase channel capacity and a new floodplain would be constructed near I-880. Such changes would be along existing linear landforms. The height of levees would not change and existing views would not be blocked or obscured. As noted above, the District would perform routine maintenance to remove weeds and woody vegetation, remove trash and debris, and remove graffiti within the program area.

As shown in Table 3.B-1, the visual sensitivity is low-to-moderate from the perspective of motorists but is moderate to high from the perspective of recreationalists that use the trail. For the reasons stated above, primarily due to the potential for tree and shrub removal, the level of visual change of the Lower Penitencia Creek Element would be moderate. Based on Table 3.B-2, the impact on the surrounding visual quality and character would be adverse, but less than significant for motorists. However, this impact would be adverse and potentially significant for recreational users of the trail. The impact from the perspective of recreational users of the Lower Penitencia Creek Trail would be potentially significant because of the moderate to high visual sensitivity to vegetation removal along the levee slopes.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.D-6a: *Tree and Shrub Replacement (Lower Berryessa Creek Element and Lower Penitencia Creek Element)*.

Mitigation Measure 3.B-2: *Aesthetically Compatible Design (Tularcitos Creek Element)*. The District shall implement architectural features into the pump station design that complement the building styles of the community and minimize visual mass. Building materials and exterior finishes shall avoid reflective surfaces and colors shall be chosen to increase compatibility with the visual setting. Structures shall combine multiple complementary colors such as browns, tans, greys, greens, or other colors that reflect the building styles of the surrounding community. If security or access fencing is proposed, applicant shall design fencing to be minimally intrusive to the community yet complementary to the architectural character of the facility and the community. Fencing shall be coordinated with landscaping and facility design to help further enhance the local aesthetics and to blend the facility with the surrounding community and/or natural setting. Vegetative screening using native plants, trees, or shrubs shall be used if it is not out of character with the site setting, and walled perimeters shall be avoided to minimize the dominance of structures in the scene. If location of the facility is flexible, it shall be placed to minimize its prominence in the landscape and proximity to roads, publicly accessible viewpoints, and residences.

Significance after Mitigation: Less than Significant. Mitigation measures 3.D-6a and 3.B-2 would reduce the Program impacts on visual character to a less-than-significant level by ensuring that the visual character of the area would be restored after completion of construction through tree replacement, such that substantial permanent damage to scenic resources does not occur as a result of Program implementation, and that the pump station would not contrast substantially with the existing character of the neighborhood.

Impact 3.B-3: Adverse effects on daytime or nighttime views due to new sources of substantial light or glare. (Less than Significant with Mitigation)

Construction Impacts

The fourth significance criterion for this analysis focuses on light and glare sources and evaluates the potential nuisance or distraction that such sources may cause for sensitive observers including residents and motorists. All program activities would occur between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday, and thus would not occur at night. During winter months, nighttime construction lighting could be required from dusk until 7:00 p.m. However, construction lighting would not occur after 7:00 p.m. and, therefore, there would be no adverse effects on nighttime views due to construction lighting. Any glare from construction equipment or vehicles would be subordinate to glare from numerous urban sources that pervade the urban environment, such as windows,

vehicles, metallic fencing, and building sidings. Therefore, light or glare effects associated with construction activities would be considered less than significant.

Operations Impacts

At this time, it is unknown whether the pump station at the confluence of Tularcitos and Lower Berryessa Creek, which is analyzed herein at a program level, would include nighttime security lighting. None of the other elements would involve additional sources of light or glare.

The proposed pump station would be located somewhere in the foreground of Figure 3.B-5, Viewpoint 10. From this viewpoint it is likely that if nighttime lighting were to be required for the pump station, the resulting glare could be noticed by several residences on the east side of the creek. Because the lighting would be in the foreground of second floor views, the proposed pump station could result in a distraction or nuisance for the residences. If the light sources were not adequately placed or designed, the pump station could result in a potentially significant impact on nighttime views. If reflective building materials are used as part of the pump station design, daytime glare could also occur, and could be distracting to motorists, recreationalists at Peter T. Gill Memorial Park, or residences with foreground views of the pump station. This effect would be a potentially significant impact.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.B-2: ***Aesthetically Compatible Design (Tularcitos Creek Element)***

Mitigation Measure 3.B-3: ***Placement and Design of Nighttime Security Lighting (Tularcitos Creek Element).*** Outdoor light intensity shall be limited to that necessary for adequate security and safety and all outside lighting shall be directed or shielded to prevent spillage onto adjacent properties.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measures 3.B-2 and 3.B-3 would adequately reduce the impact to a less-than-significant level by ensuring that the pump station would prohibit reflective finishes and that nighttime lighting is shielded from nearby residences.

3.B.4 References

California Department of Transportation (Caltrans), “California Scenic Highway Mapping System,” http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm, accessed March 19, 2009.

City of Milpitas, General Plan, 1994, as amended through 2002.

3.C Air Quality

This section describes the environmental and regulatory setting of the program area with respect to ambient air quality and the exposure of people, especially sensitive individuals, to unhealthful pollutant concentrations. Pollutant emissions that would be generated by the construction and operation of the Program are analyzed. District best management practices (BMPs) and mitigation measures to reduce significant impacts are also identified.

3.C.1 Environmental Setting

Air quality is affected by both the rate and location of pollutant emissions and by meteorological conditions that influence movement and dispersal of pollutants. Atmospheric conditions such as wind speed, wind direction, and air temperature gradients, along with local topography, provide the link between air pollutant emissions and air quality.

Regional Topography, Meteorology and Climate

The program area is located in the Santa Clara Valley, which lies within the San Francisco Bay Area Air Basin (Basin). The Santa Clara Valley is bounded by the Bay to the north and by mountains to the east, south, and west. Temperatures are warm on summer days and cool on summer nights, and winter temperatures are fairly mild. At the northern end of the valley, mean maximum temperatures are in the low 80's (Fahrenheit) during the summer and the high 50's during the winter, and mean minimum temperatures range from the high 50's in the summer to the low-40's in the winter. Further inland, where the moderating effect of the Bay is not as strong, temperature extremes are greater. For example, in San Martin, located 27 miles south of the San José Airport, temperatures can be more than ten degrees Fahrenheit warmer on summer afternoons and more than ten degrees Fahrenheit cooler on winter nights.

Winds in the valley are greatly influenced by the terrain, resulting in a prevailing flow that roughly parallels the valley's northwest-southeast axis. A north-northwesterly sea breeze flows through the valley during the afternoon and early evening, and a light south-southeasterly drainage flow occurs during the late evening and early morning. In the summer, the southern end of the valley sometimes becomes a "convergence zone," when air flowing from the Monterey Bay gets channeled northward into the southern end of the valley and meets with the prevailing north-northwesterly winds.

Wind speeds are greatest in the spring and summer and weakest in the fall and winter. Nighttime and early morning winds are frequently calm during all seasons, while summer afternoons and evenings tend to be breezy. Strong winds are rare, and are primarily associated with the occasional winter storm.

The air pollution potential of 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 valley tends

to channel pollutants to the southeast. In addition, on summer days with low level inversions[1], ozone can be recirculated by southerly wind flows in the late evening and early morning and by the prevailing northwesterlies in the afternoon. A similar recirculation pattern occurs in the winter, affecting levels of carbon monoxide and particulate matter. This movement of the air up and down the valley can increase the concentration of the pollutants significantly.

Pollution sources are plentiful and complex in the Santa Clara Valley. The valley has a high concentration of industry at the northern end, in the area known as Silicon Valley. Some of these industries are sources of air toxics as well as criteria air pollutants. (See Section 3.C.2, below, for an explanation of criteria air pollutants.) In addition, Santa Clara Valley's large population and many work-site destinations generate the highest mobile source emissions of any subregion in the Basin (BAAQMD, 2010a).

Existing Air Quality

The Bay Area Air Quality Management District (BAAQMD) is the regional agency with jurisdiction over the nine-county region located in the Basin (see discussion in Section 3.C.2, below). The BAAQMD operates a regional monitoring network that measures ambient concentrations of criteria pollutants. Background ambient concentrations of pollutants are determined by pollutant emissions in a given area, as well as wind patterns and meteorological conditions for that area. As a result, background concentrations can vary among different locations within an area. However, areas located close together and exposed to similar wind conditions can be expected to have similar background pollutant concentrations.

Existing levels of air quality in the program area can generally be inferred from ambient air quality measurements conducted by BAAQMD at its closest station, the San José – Jackson Street Station. Table 3.C-1 shows a five year (2004-2008) summary of monitoring data collected at the San José – Jackson Street monitoring station. The data are compared with the California Ambient Air Quality Standards (CAAQS) and the National Ambient Air Quality Standards (NAAQS). These standards are discussed in Section 3.C.2 (under the Criteria Air Pollutants subheading) and listed in Table 3.C-2.

Sensitive Receptors

Sensitive receptors are land uses that are considered to be more sensitive than others to air pollutants. The reasons for greater than average sensitivity include preexisting health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, which generally

[1] A temperature inversion occurs when a layer of warmer air forms between two layers of cooler air, preventing the lower layer of cool air from mixing with air above it. This traps the pollutants in the lower layer of cool air and limits dispersion.

TABLE 3.C-1
SAN JOSÉ – JACKSON STREET MONITORING STATION -
AIR QUALITY DATA SUMMARY (2004-2008)

Pollutant	Standard[a]	Monitoring Data by Year				
		2004	2005	2006	2007	2008
Ozone						
Highest 1-hour average, ppm		0.090	**0.113**	**0.118**	0.083	**0.118**
Days over state standard	0.09 ppm	0	1	5	0	1
Highest 8-hour average, ppm		0.069	**0.080**	**0.087**	0.068	**0.080**
Days over state standard	0.070 ppm	0	1	5	0	3
Days over national standard	0.075 ppm	0	1	3	0	2
Nitrogen Dioxide (NO_2)						
Highest 1-hour average, ppm		0.073	0.074	0.074	0.065	0.080
Days over state Standard	0.18 ppm	0	0	0	0	0
Annual Average (ppm)		--	0.019	0.018	0.017	0.017
Carbon Monoxide						
Highest 8-hour average, ppm		2.96	3.11	2.92	2.71	2.48
Days over state/national standard	9.0/9	0	0	0	0	0
PM_{10}						
Highest 24-hour average, state/ national, $\mu g/m^3$		**58.1**/55.4	**53.5**/49.9	**73.2**/68.9	**69.1**/64.7	**57.3**/55.0
Estimated days over state/national standard[b]	50/150	24.5/0	11.5/0	11.5/0	18.1/0	6.1/0
$PM_{2.5}$						
Highest 24-hour average, $\mu g/m^3$		**51.5**	**54.6**	**64.4**	**57.5**	**41.9**
Estimated days over national standard[b]	35	14.4	16.2	7.6	9.1	5.1

[a] Generally, state standards are not to be exceeded and federal standards are not to be exceeded more than once per year.
[b] Measurements are collected every six days. "Estimated days" represent an estimated number of days that the standard would have been exceeded if levels were sampled every day of the year.

NOTES: ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter
Bold values are in excess of applicable standards.
-- There was insufficient data available to determine this value.

SOURCE: California Air Resources Board (CARB), 2010a.

results in a greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with some forms of recreation places a high demand on the human respiratory system.

Lower Berryessa Creek Element

The Lower Berryessa Creek Element is almost entirely surrounded by single-family homes. In addition to residential receptors, two parks, Peter T. Gill Memorial Park and Hidden Lake Park, are situated along the creek's eastern and northern banks, and the Curtner Elementary School is located approximately 750 feet west of this element.

TABLE 3.C-2
STATE AND FEDERAL CRITERIA AIR POLLUTANT STANDARDS

Pollutant	Averaging Time	State Standard	Federal Standard
Ozone	1 Hour 8 Hour	0.09 ppm 0.070 ppm	– 0.075 ppm
Carbon Monoxide	1 Hour 8 Hour	20 ppm 9.0 ppm	35 ppm 9 ppm
Nitrogen Dioxide	1 Hour Annual	0.18 ppm 0.030 ppm	0.100 ppm[a] 0.053 ppm
Sulfur Dioxide	1 Hour 3 Hour 24 Hour Annual	0.25 ppm – 0.04 ppm –	– 0.5 ppm 0.14 ppm 0.03 ppm
Respirable Particulate Matter (PM_{10})	24 Hour Annual	50 µg/m^3 20 µg/m^3	150 µg/m^3 –
Fine Particulate Matter ($PM_{2.5}$)	24 Hour Annual	– 12 µg/m^3	35 µg/m^3 15.0 µg/m^3
Lead	Monthly Quarterly	1.5 µg/m^3 –	– 1.5 µg/m^3

ppm = parts per million
µg/m^3 = micrograms per cubic meter

[a] To attain this standard, the three-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).

SOURCE: CARB, 2010b.

Lower and Upper Calera Creek Elements

The Calera Creek portion of the Program is divided into three elements: the Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2. All three program elements are primarily surrounded by single-family residences. The Lower Calera Creek Element and Upper Calera Creek Element 1 are both located adjacent to Milpitas High School. Thomas Russell Middle School is located adjacent to Upper Calera Creek Element 2, while Marshall Pomeroy Elementary is located approximately 1,000 feet northwest of the this element. The Jensen School for the Performing Arts is located approximately 1,000 feet north of the Lower Calera Creek Element and the Lang Learning Center is approximately 1,000 feet east of Upper Calera Creek Element 1. The Higuera Adobe Park is adjacent to and west of Reach B of this element.

Tularcitos Creek Element

The Tularcitos Creek Element is surrounded by single-family homes as well as the Hetch Hetchy Linear Parkway and the Peter T. Gill Memorial park. The Kinder Care Learning Center is less than 500 feet north of the northern stretch of the element.

Lower Penitencia Creek Element

The east side of the Lower Penitencia Creek Element is surrounded by single- and multi-family homes. Dixon Landing Park is approximately 400 feet east of the element, just north of Jurgens Drive.

3.C.2 Regulatory Setting

Criteria Air Pollutants

Regulation of air pollution is achieved through both federal and state ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act, the U.S. Environmental Protection Agency (USEPA) has identified criteria pollutants and has established NAAQS to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

Ozone

Ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and that can cause substantial damage to vegetation and other materials. Ozone is not emitted directly into the atmosphere, but is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and nitrogen oxides (NO_x). ROG and NO_x are known as precursor compounds for ozone. Significant ozone production generally requires ozone precursors to be present in a stable atmosphere with strong sunlight for approximately three hours.

Ozone is a regional air pollutant because it is not emitted directly by sources, but is formed downwind of sources of ROG and NO_x under the influence of wind and sunlight. Ozone concentrations tend to be higher in the late spring, summer, and fall, when the long sunny days combine with regional subsidence inversions to create conditions conducive to the formation and accumulation of secondary photochemical compounds such as ozone.

Carbon Monoxide

CO is a non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicle traffic. High CO concentrations develop primarily during winter when periods of light winds combine with the formation of ground level temperature inversions (typically from the evening through early morning). These conditions result in reduced dispersion of vehicle emissions. Motor vehicles also exhibit increased CO emission rates at low air temperatures. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart, and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia.

Particulate Matter

PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into air passages and the lungs and can cause adverse health effects. Particulate matter in the atmosphere results from many kinds of dust and fume producing industrial and agricultural operations, fuel combustion, and atmospheric photochemical reactions. Some sources of particulate matter, such as demolition and construction activities, are more local in nature, while others, such as vehicular traffic, have a more regional effect. Very small particles of certain substances (e.g., sulfates and nitrates) can cause lung damage directly or can contain adsorbed gases (e.g., chlorides or ammonium) that may be injurious to health. Particulates can also damage materials and reduce visibility.

Diesel exhaust is a growing concern in the San Francisco Bay Area (Bay Area) and throughout California. The California Air Resources Board (CARB) identified diesel engine particulate matter as a toxic air contaminant (TAC). The exhaust from diesel engines includes hundreds of different gaseous and particulate components, many of which are toxic. Many of these toxic compounds adhere to the diesel particles, which are very small and can penetrate deeply into the lungs. Diesel engine particulate matter has been identified as a human carcinogen. Mobile sources such as trucks, buses, and automobiles are some of the primary sources of diesel emissions. Studies show that diesel particulate matter concentrations are much higher near heavily traveled highways and intersections. BAAQMD analysis shows that the cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other toxic air pollutant routinely measured in the region (BAAQMD, 1999).

Other Criteria Pollutants

SO_2 is a combustion product of sulfur or sulfur containing fuels such as coal. SO_2 is also a precursor to the formation of atmospheric sulfate and particulate matter (both PM_{10} and $PM_{2.5}$) and contributes to potential atmospheric sulfuric acid formation that could precipitate downwind as acid rain.

Lead has a range of adverse neurotoxin health effects, and was formerly released into the atmosphere primarily via leaded gasoline. The phase out of leaded gasoline in California resulted in decreasing levels of atmospheric lead.

To protect human health and the environment, the USEPA has set “primary” and “secondary” maximum ambient thresholds for each of the criteria pollutants. Primary thresholds were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent deterioration of crops, vegetation, and buildings.

The NAAQS are defined as the maximum acceptable concentration that may be reached, but it may not be exceeded more than once per year. California has adopted more stringent ambient air quality standards for most of the criteria air pollutants. California has also established state ambient air quality standards for sulfates, hydrogen sulfide, and vinyl chloride. Sulfates

are generally formed by the combustion of petroleum-derived fuels that contain sulfur and their subsequent conversion to sulfate compounds in the atmosphere. Hydrogen sulfide is primarily generated by the decomposition of sulfur-containing organic substances and vinyl chloride, a chlorinated hydrocarbon, is typically detected near landfills, sewage plants, and hazardous waste sites due to microbial breakdown of chlorinated solvents. Emissions of these pollutants are not expected to result from program implementation and, thus, there is no further mention of these pollutants in this EIR.

The USEPA has classified air basins or portions thereof as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. Table 3.C-2 presents both sets of ambient air quality standards (i.e., federal and state). The Basin is currently classified as non-attainment for the one-hour state ozone standard as well as the federal and state eight-hour ozone standards. Additionally, the Basin is classified as non-attainment for the state 24-hour and annual PM_{10} standards as well as the state annual and federal 24-hour $PM_{2.5}$ standards (BAAQMD, 2010a). The Basin is currently in attainment and/or unclassified status for all other criteria pollutant standards.

Federal Regulations

The USEPA is responsible for implementing the programs established under the federal Clean Air Act, such as establishing and reviewing the NAAQS and judging the adequacy of state implementation plans (SIPs). The USEPA has delegated the authority to implement many of the federal programs to the states while retaining an oversight role to ensure that the programs continue to be implemented.

State Regulations

CARB is responsible for establishing and reviewing the state standards, compiling the California SIP, securing approval of the SIP from the EPA, conducting research and planning, and identifying TACs. CARB also regulates mobile sources of emissions in California, such as construction equipment, trucks, and automobiles, and oversees the activities of California's air quality management districts, which are organized at the county or regional level. Air quality management districts are primarily responsible for regulating stationary sources at industrial and commercial facilities within their geographic areas. These districts are also responsible for preparing the air quality plans that are required under the federal Clean Air Act and the California Clean Air Act.

Local Regulations

BAAQMD is the regional agency with jurisdiction over the nine-county region located in the Basin. The Association of Bay Area Governments (ABAG) and the Metropolitan Transportation Commission (MTC), county transportation agencies, cities and counties, and various non-governmental organizations also join in the efforts to improve air quality through a variety of programs. These programs include the adoption of regulations and policies, as well as implementation of extensive education and public outreach programs.

Bay Area Air Quality Management District

BAAQMD is responsible for bringing and/or maintaining air quality in the Basin within federal and state air quality standards. Specifically, BAAQMD has the responsibility to monitor ambient air pollutant levels throughout the Basin and to develop and implement strategies to attain the applicable federal and state standards.

In June 2010, BAAQMD updated its CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans (2010 BAAQMD CEQA Guidelines) and adopted new significance thresholds. The 2010 BAAQMD CEQA Guidelines is a guidance document that provides lead government agencies, consultants, and project proponents with uniform procedures for assessing air quality impacts and preparing the air quality sections of environmental documents for projects subject to CEQA. The 2010 BAAQMD CEQA Guidelines is an advisory document and local jurisdictions are not required to utilize the methodology outlined therein. The document describes the criteria that BAAQMD uses when reviewing and commenting on the adequacy of environmental documents. It recommends thresholds for use in determining whether projects would have significant adverse environmental impacts, identifies methodologies for predicting project emissions and impacts, and identifies measures that can be used to avoid or reduce air quality impacts.

Air quality plans developed to meet federal requirements are referred to as SIPs. The federal Clean Air Act and the California Clean Air Act require plans to be developed for areas designated as non-attainment (with the exception of areas designated as non-attainment for the state PM_{10} standard). For state air quality planning purposes, the Bay Area is classified as a serious non-attainment area for the 1-hour ozone standard. The "serious" classification triggers various plan submittal requirements and transportation performance standards. One such requirement is that the Bay Area update the Clean Air Plan (CAP) every three years to reflect progress in meeting the air quality standards and to incorporate new information regarding the feasibility of control measures and new emission inventory data. The Bay Area's record of progress in implementing previous measures must also be reviewed. Bay Area plans are prepared with the cooperation of the MTC, and the ABAG. On September 15, 2010, the BAAQMD adopted the most recent revision to the CAP – the *Bay Area 2010 Clean Air Plan* (BAAQMD, 2010b). The *Bay Area 2010 Clean Air Plan* serves to:

- Update the *Bay Area 2005 Ozone Strategy* in accordance with the requirements of the California Clean Air Act to implement "all feasible measures" to reduce ozone;
- Consider the impacts of ozone control measures on particulate matter, air toxics, and greenhouse gases in a single, integrated plan;
- Review progress in improving air quality in recent years; and
- Establish emission control measures to be adopted or implemented in the 2010 – 2012 timeframe.

In addition to the plans described above, the BAAQMD also develops and enforces regulations to improve air quality and protect the health and welfare of Bay Area residents and their environment. With regard to the Program, the design for the Tularcitos Creek Element, which is currently in a preliminary planning phase and has been developed at a conceptual level only, includes a pump station that would be powered by diesel-powered pumps. Diesel-powered pumps would constitute a new source of emissions and hence would be subject to the requirements of BAAQMD rules and regulations, particularly Regulation 2: Permits; Rule 1: General Requirements; Rule 2: New Source Review; and Rule 5: New Source Review of Toxic Air Contaminants. Operation of the pump station as currently proposed would also be required to comply with the BAAQMD-administrated Statewide Air Toxics Control Measure (ATCM) for Stationary Diesel Engines.

3.C.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on air quality if it were to:

- Conflict with or obstruct implementation of the applicable air quality plan(s);
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations; or
- Create objectionable odors affecting a substantial number of people.

Significance determinations for criteria 2, 3, and 4 above were made using thresholds developed by the BAAQMD (see below discussion).

Approach to Analysis

Construction

As discussed previously, BAAQMD adopted the 2010 BAAQMD CEQA Guidelines in June 2010, which includes a set of recommendations that provide specific guidance on evaluating projects relative to CEQA (BAAQMD, 2010a). The analysis used in this document relies on methodologies provided in the updated 2010 BAAQMD CEQA Guidelines. Significance determinations were made according to the thresholds contained in this document.

For criteria pollutant construction-phase-related impacts, the 2010 BAAQMD CEQA Guidelines contain quantitative thresholds for construction-related exhaust emissions. Therefore, criteria pollutant construction exhaust emissions were calculated and compared to the following significance thresholds:

- ROG: 54 average pounds per day;
- NOx: 54 average pounds per day;
- PM_{10} (exhaust only): 82 average pounds per day;
- $PM_{2.5}$ (exhaust only): 54 average pounds per day; and
- $PM_{10}/PM_{2.5}$ (fugitive dust): implement BMPs.

The BAAQMD TAC threshold is an increased cancer risk of more than 10 in 1,000,000 for a person with maximum exposure potential and increased non-cancer risk of 1.0 Hazard Index (chronic or acute). The BAAQMD also has a concentration threshold of 0.3 $\mu g/m^3$ for $PM_{2.5}$. These thresholds are applicable to both construction emissions and operations emissions.

Construction emissions were estimated using the Road Construction Emissions Model (RoadMod), Version 6.3.2, as recommended in the 2010 BAAQMD CEQA Guidelines (see Appendix C). RoadMod was developed by the Sacramento Metropolitan Air Quality Management District to evaluate emissions from construction projects that are linear in nature. This program quantifies fugitive PM_{10} and $PM_{2.5}$, exhaust, and off-gas emissions from the following construction-related activity phases: grubbing/land clearing, grading/excavation, drainage/utilities/sub-grade, and paving.

Operations

The operational air quality significance thresholds contained in the 2010 BAAQMD CEQA Guidelines are shown below.

TABLE 3.C-3
OPERATIONAL AIR QUALITY SIGNIFICANCE THRESHOLDS

Significance Thresholds Source	Criteria Pollutant Emissions (average pounds/day)			
	ROG	NOx	PM_{10}	$PM_{2.5}$
2010 BAAQMD CEQA Guidelines	54	54	82	54

The majority of the maintenance activities required by program operations, including periodic maintenance of program facilities and periodic sediment removal, are continued activities currently required by existing facilities. Newly required maintenance activities, including activities associated with the new floodwalls, the concrete box culvert, and the pump station, would not substantially increase emissions. As such, impacts for program operations are discussed qualitatively and have not been quantified.

The 2010 BAAQMD CEQA Guidelines recommend analyzing localized CO concentrations for projects that would increase traffic volumes at affected intersections to more than 44,000 vehicles per hour. However, given the minimal increase in vehicle trips due to newly required maintenance activities, the Program would not affect local CO concentrations during

operations (see Section 3.M, Transportation and Traffic). Therefore, CO concentrations have not been quantified in this analysis.

Project-level thresholds of significance set by BAAQMD reflect the level at which a project's individual contribution would result in a cumulatively considerable contribution to an existing air quality problem; therefore, if impacts identified are as significant, impacts would also be cumulatively considerable. If a project's individual contribution is less-than significant, the cumulative impact of that project would also be considered less-than-significant.

As noted in Chapter 2, Program Description, the District's air quality related BMPs are incorporated into the program design for both construction and operations for the purpose of minimizing or avoiding adverse environmental impacts (see Appendix B). Where an air quality impact is significant notwithstanding implementation of BMPs, specific mitigation measures have been developed.

The Program would not include uses that have been identified by BAAQMD as potential sources of objectionable odors. Sources of odors include restaurants, manufacturing plants, and agricultural operations, as well as industrial operations such as wastewater treatment plants, solid waste transfer stations, or landfills. However, the Program's potential to result in objectionable odors is addressed qualitatively, considering the type and duration of the odor that could be associated with the Program.

No Impact Significance Determinations

Based on the nature of the Program, there would be no impact related to the following criterion:

> *Conflict with or obstruct implementation of the applicable air quality plan(s).* BAAQMD develops AQMPs based on projected population growth and associated increases in emissions. BAAQMD generally considers projects consistent with the AQMP as long as they would not induce population growth beyond that included in projections used to formulate the AQMP. Additionally, BAAQMD suggests that projects which increase vehicle-miles traveled (VMT) at a greater rate than population growth be considered inconsistent with the AQMP. Given that the Program would not induce population growth, nor would it result in a substantial increase in VMT, it can be assumed that the Program would not conflict with the applicable AQMP and no impact would occur (see Sections 3.A, Overview, and 3.M, Transportation and Traffic).

Impact Summary

Table 3.C-4 provides a summary air quality impacts by program element and implementation phase (construction and operations). Table 3.C-5 provides a summary of applicable mitigation measures by program element and implementation phase.

TABLE 3.C-4
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL AIR QUALITY IMPACTS

	Impact 3.C-1		Impact 3.C-2		Impact 3.C-3		Impact 3.C-4		Impact 3.C-5	
	Generate emissions of fugitive dust		Generate emissions of criteria pollutants		Result in cumulatively considerable increase of criteria pollutants		Expose sensitive receptors to criteria pollutant emissions		Expose sensitive receptors to objectionable odors	
	construction	operations	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements										
Lower Berryessa Creek Element	SM	LTS	SU	LTS	SU	LTS	SU	LTS	LTS	LTS
Lower Calera Creek Element	SM	LTS	SU	LTS	SU	LTS	SM	LTS	LTS	LTS
Program-Level Elements										
Upper Calera Creek Element 1	SM	LTS	SU	LTS	SU	LTS	SU	LTS	LTS	LTS
Upper Calera Creek Element 2	SM	LTS	SU	LTS	SU	LTS	SU	LTS	LTS	LTS
Tularcitos Creek Element	SM	LTS	SU	SM	SU	SM	SU	SM	LTS	SM
Lower Penitencia Creek Element	SM	LTS	SU	LTS	SU	LTS	SU	LTS	LTS	LTS

SU = Significant and Unavoidable
SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact

TABLE 3.C-5
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.C-1		Measure 3.C-2a		Measure 3.C-2b		Measure 3.C-2c	
	Dust Control Measures		Exhaust Emissions Reduction Measures		Emissions Reduction Plan		Air Pollutant Emissions Analysis	
	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements								
Lower Berryessa Creek Element	✓	–	✓	–	✓	–	–	–
Lower Calera Creek Element	✓	–	✓	–	✓	–	–	–
Program-Level Elements								
Upper Calera Creek Element 1	✓	–	✓	–	✓	–	–	–
Upper Calera Creek Element 2	✓	–	✓	–	✓	–	–	–
Tularcitos Creek Element	✓	–	✓	–	✓	–	–	✓
Lower Penitencia Creek Element	✓	–	✓	–	✓	–	–	–

✓ = Applicable Impact
– = No Impact

Impacts and Mitigation Measures

Impact 3.C-1: Generation of fugitive inhalable particulate matter that could result in the violation of an air quality standard or contribute substantially to an existing or projected air quality violation. (Less than Significant with Mitigation)

Construction Impacts

All Elements

Construction of all program elements would require earth disturbing activities that would lead to fugitive dust emissions of PM_{10} and $PM_{2.5}$. Reconstruction of levees along Lower Berryessa Creek would result in approximately 164,000 cubic yards of material cut from the existing levee. Construction associated with the Lower Calera Creek Element would require approximately 2,200 cubic yards of cut from one side of the creek and approximately 2,000 cubic yards of material excavation for floodwalls. Preliminary estimates of construction material and disposal requirements for the program-level elements (Tularcitos Creek Element, Upper Calera Creek Element, and Lower Penitencia Creek Element) indicate approximately 250,000 cubic yards of materials. It is anticipated that the transport, use, and disposal of construction materials required for these program-level elements would be similar to those described for the project-level analyses.

Fugitive dust emissions associated with the construction activities described above could contribute to the non-attainment status for particulate matter. This would be a significant impact.

Operations Impacts

All Elements

The maintenance activities associated with program operations would generate minimal fugitive dust emissions. This would be a less than significant impact.

Mitigation Measures

Mitigation Measure 3.C-1: *Dust Control Measures.* The District and/or its contractor(s) shall implement the following dust control measures during construction of all elements. For elements to be developed under the Program for which construction emissions exceed one or more of the applicable BAAQMD thresholds, additional measures shall be required as indicated in the list following the Basic Controls.

Basic Dust Controls that Apply to All Construction Sites

- 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 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 BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Additional Dust Measures

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

Significance after Mitigation: Less than Significant. Mitigation Measure 3.C-1 would reduce impacts related to fugitive inhalable particulate matter to less-than-significant levels by implementing fugitive dust control measures as described in the 2010 BAAQMD CEQA Guidelines. Implementation of this mitigation measure would ensure that fugitive dust emissions from program construction would not result in the violation of an air quality standard or contribute substantially to an existing or projected air quality violation.

Impact 3.C-2: Generation of criteria pollutants associated with equipment exhaust that could result in the violation of an air quality standard or contribute substantially to an existing or projected air quality violation. (Significant and Unavoidable for Construction; Less than Significant with Mitigation for Operations)

Construction Impacts

All Elements

The 2010 BAAQMD CEQA Guidelines acknowledge that construction exhaust emissions are a substantial source of criteria pollutant emissions in the Basin, and as a result they should be quantified and measured against the recommended thresholds of significance. Under the BAAQMD Guidelines, a program would have a significant short-term construction air quality impact if it would result in average construction-related emissions of ROG, NOx, or $PM_{2.5}$ (non-inclusive of fugitive dust) of more than 54 pounds per day or emissions of PM_{10} (non-inclusive of fugitive dust) of more than 82 pounds per day. The BAAQMD recommends calculating the average daily construction emissions by dividing the total construction emissions by the number of workdays (BAAQMD, 2010c).

To determine the significance of daily construction emissions, the air quality modeling program RoadMod, was used to quantify construction exhaust emissions associated with the Lower Berryessa Creek Element as well as the Lower Calera Creek Element. The program elements would not be constructed concurrently. Therefore, the total emissions generated by each element were divided by the estimated number of workdays for each element to obtain the average daily emission amounts. Results are summarized in Table 3.C-6. Given that detailed information regarding construction activities associated with the program-level elements has not been established, emissions from these activities are evaluated qualitatively.

As shown in Table 3.C-6, construction of the Lower Berryessa Creek and the Lower Calera Creek elements would result in average daily NOx emissions that would exceed the NOx significance thresholds in the 2010 BAAQMD CEQA Guidelines. Thus, the NOx emissions from equipment exhaust would result in the violation of an air quality standard or contribute substantially to an existing or projected air quality violation, and are therefore considered significant. Given that construction of the other elements associated with the Program (i.e., Tularcitos Creek Element, the Upper Calera Creek elements, and Lower Penitencia Creek Element) would likely require similar equipment and activities as the Lower Berryessa Creek Element and the Lower Calera Creek Element, it can be assumed that NOx exhaust emissions from such activities would also be potentially significant.

Operations Impacts

Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Lower Penitencia Creek Element

Operation of the Program would involve continuing the maintenance activities currently required by existing conditions as well as some additional maintenance of newly constructed floodwalls, and the new concrete box culvert. These additional activities could include

TABLE 3.C-6
ESTIMATED AVERAGE DAILY CONSTRUCTION EMISSIONS [a]

Construction Phase	Criteria Pollutant Emissions				
	ROG	CO	NOx	PM_{10} [a]	$PM_{2.5}$ [b]
Lower Berryessa Creek Element (pounds per day)					
Site Preparation / Planting	18.3	66.4	167.0	6.5	5.9
Earthwork	42.0	224.0	347.8	14.8	13.5
Site Improvement and Amenities	1.7	7.3	15.9	0.6	0.5
Concrete Placement	2.4	13.1	15.6	1.1	1.0
Total (tons/element)	3.7	18.5	31.4	1.3	1.2
Total (average pounds/element)	**22.8**	**113.1**	**192.1**	**8.1**	**7.4**
BAAQMD Significance Threshold	*54*	*NA*	*54*	*82*	*54*
Exceed Threshold?	**No**	**NA**	**Yes**	**No**	**No**
Lower Calera Creek Element (pounds per day)					
Site Preparation	13.5	46.7	123.9	4.7	4.4
Earthwork	19.2	69.7	170.5	7.1	6.5
Site Improvement and Amenities	13.3	46.1	119.5	4.8	4.4
Concrete Placement	13.6	44.4	121.0	5.0	4.6
Total (tons/element)	1.3	4.5	11.7	0.5	0.4
Total (average pounds/element)	**16.1**	**55.5**	**144.0**	**5.9**	**5.4**
BAAQMD Significance Threshold	*54*	*NA*	*54*	*82*	*54*
Exceed Threshold?	**No**	**NA**	**Yes**	**No**	**No**

[a] Construction activity breakdown in this table corresponds to the breakdown shown in Table 2.2, Chapter 2, Program Description.
[b] PM_{10} and $PM_{2.5}$ include exhaust emissions only.

inspection, survey and repair of floodwalls, and graffiti abatement, which would result in a very minimal increase in vehicle trips made to the facilities. The emissions generated from these additional activities would be very minimal and would constitute a less than significant impact.

Tularcitos Creek Element

The preliminary concept for the Tularcitos Creek Element includes construction of a high flow pump station within the existing Tularcitos Creek channel adjacent to Paseo Refugio. A very minimal increase in vehicle trips would result from newly required maintenance associated with the pump station. This increase would not substantially increase emissions.

Diesel engine driven pumps, which would provide the capacity to convey 845 cubic feet per second, would be activated only when the water surface level in Berryessa Creek is high enough create backwater effects in Tularcitos Creek. In addition to the use of the pumps during high water surface level conditions, the pump station would require monthly testing and exercise of the pumps and regular maintenance and servicing including sediment removal in the wet well, outlet structure, and outlet channel. While the emissions from vehicle trips made to the pump station for these maintenance purposes would be negligible, the regular

exercise of the diesel driven pumps would be a source of emissions. The currently proposed diesel powered pumps would constitute a new source of emissions and hence would be subject to the requirements of BAAQMD Rules and Regulations, particularly Regulation 2: Permits; Rule 1: General Requirements; Rule 2: New Source Review; and Rule 5: New Source Review of Toxic Air Contaminants. Operation of the pump station would also be required to comply with the BAAQMD administrated statewide ATCM for Stationary Diesel Engines.

The required compliance with BAAQMD Rules and Regulations would minimize the air quality impact associated with emissions from the pump station; however, because the design of this program element has not been finalized, this analysis assumes that diesel driven pumps would be used and impacts associated with equipment exhaust resulting in the violation of an air quality standard or contributing substantially to an existing or projected air quality violation could occur and would thus be potentially significant.

***Best Management Practices*:** None applicable

Mitigation Measures for Construction Emissions

Mitigation Measure 3.C-2a: *Exhaust Emissions Reduction Measures.* The District and/or its contractor(s) shall implement the following measures during construction of all project- and program-level elements to reduce construction-related exhaust emissions:

- Idling time of diesel powered construction equipment shall be minimized by shutting equipment off when not in use and reducing idling time to two 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 and determined to be running in proper condition prior to operations.
- All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NOx and PM.
- Construction equipment that meets CARB's most recent certification standard for off road, heavy duty diesel engines shall be used.

Mitigation Measure 3.C-2b: *Emissions Reduction Plan.* The District and/or its contractor(s) shall develop an emissions reduction plan that demonstrates that off-road equipment of more than 50 horsepower to be used during construction of all project- and program-level elements shall achieve a program-wide fleet-average 20 percent NOx reduction, and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions shall include using late model engines, low-emissions 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.

Significance after Mitigation: Significant and Unavoidable. Implementation of Mitigation Measures 3.C-2a and 3.C-2b would reduce construction-related exhaust emissions associated for all elements. However, while these measures would help reduce emissions of

NOx, by approximately 20 percent to approximately 154 pounds per day and 115 pounds per day for the Lower Berryessa Creek Element and Lower Calera Creek Element, respectively, the mitigated emissions associated with construction of all elements would still exceed the NOx threshold of 54 pounds per day as specified by the 2010 BAAQMD CEQA Guidelines. Therefore, the exhaust emission impact associated with construction would remain significant and unavoidable.

Mitigation Measures for Operations Emissions

> **Mitigation Measure 3.C-2c:** ***Air Pollutant Emissions Plan.*** Prior to implementation of the Tularcitos Creek Element, the District shall conduct a detailed analysis of the air pollutant emissions from the designed pump station. Emissions shall be quantified and health risk to receptors in the vicinity shall be assessed based on the proposed operations assumptions. Should the review indicate air pollutant emissions would exceed significance thresholds, feasible measures shall be implemented to reduce the pump station emissions to a level that does not exceed BAAQMD significance thresholds. Such measures may include, but not limited to: requiring the diesel-powered pumps to comply with CARB Tier 2 or Tier 3 standards[2], or operating the pump using electricity rather than diesel-powered pumps.

Significance after Mitigation: Implementation of Mitigation Measure 3.C-2c would result in development of an air pollutant emissions plan prior to implementation of the Tularcitos Creek Element. The air pollutant emissions plan would ensure that emission controls are incorporated into the pump design (if required) in order to reduce pollutant emissions to a less-than-significant level. Therefore, for the purposes of this program-level analysis, pump station impacts and the impact associated with equipment exhaust would not result in the violation of an air quality standard or contribute substantially to an existing or projected air quality violation and would be less than significant after mitigation.

Impact 3.C-3: Cumulatively considerable increases in criteria pollutant emissions for which the area is in non-attainment of standards. (Significant and Unavoidable for Construction; Less than Significant with Mitigation for Operations)

Construction Impacts

All Elements

As discussed previously, the BAAQMD thresholds of significance represent emissions levels at which an individual project would have a cumulatively considerable impact on air quality.

As discussed under Impact 3.C-1, implementation of Mitigation Measure 3.C-1 would reduce fugitive PM_{10} and $PM_{2.5}$ emissions to a less-than-significant level under the 2010 BAAQMD

[2] 'Tier 2' or 'Tier 3' refer to emissions standards for off-road compression-ignition engines and equipment as specified in title 13, California Code of Regulations, § 2423. Standards are set for emissions of nitrogen oxides and particulate matter and vary depending on model year and maximum engine power.

CEQA Guidelines. The 2010 BAAQMD CEQA Guidelines includes quantitative thresholds for exhaust emissions associated with construction activities. As discussed under Impact 3.C-2, NOx emissions from program construction would be significant and unavoidable even if mitigation were to be implemented. Therefore, based on the significance thresholds identified in the 2010 BAAQMD CEQA Guidelines, construction of the Program would result in a significant and unavoidable cumulatively considerable increase in criteria pollutant emissions.

Operations Impacts

Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Lower Penitencia Creek Element

As discussed under Impacts 3.C-1 and 3.C-2, exhaust and fugitive dust emissions from program operations would constitute a less than significant impact. Program operations would therefore not result in a cumulatively considerable increase in criteria pollutant emissions for which the Basin is designated non-attainment.

Tularcitos Element

As discussed in Impact 3.C-2, implementation of Mitigation Measure 3.C-2c would ensure that the operations impact associated with the Tularcitos Creek Element would be less than significant. Program operations with implementation of Mitigation Measure 3.C-2c would therefore not result in a cumulatively considerable increase in criteria pollutant emissions for which the Basin is designated non-attainment.

Mitigation Measures

Mitigation: Implement Mitigation Measures 3.C-1 and 3.C-2a through 3.C-2c.

Significance after Mitigation: Significant and Unavoidable. The Program would result in cumulatively significant and unavoidable construction exhaust emissions. All other criteria pollutant impacts would not be cumulatively considerable.

Impact 3.C-4: Expose sensitive receptors to substantial pollutant concentrations. (Significant and Unavoidable)

Construction Impacts

Potential impacts related to exposing sensitive receptors to substantial pollutant concentrations due to program-related construction activities are based on the findings of the Health Risk Assessment (HRA) that was conducted for the Lower Berryessa Creek and Lower Calera Creek elements (see Appendix D). Impacts associated with program-level elements (i.e., Tularcitos Creek Element, the Upper Calera Creek Elements 1 and 2, and Lower Penitencia Creek Element) are discussed qualitatively.

Cancer Risk

Program construction activities would produce diesel particulate matter (DPM) and $PM_{2.5}$ emissions due to construction equipment. Impact 3.C-1 describes the construction activities and associated emission estimates in detail. These emissions could result in elevated concentrations of DPM and $PM_{2.5}$ at nearby receptors that could lead to an increase in the risk of cancer or other health impacts. Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chances in one million of contracting cancer, for example, one cancer case among one million people exposed. The maximum incremental cancer risk from exposure to air toxics was calculated following the guidelines established by California OEHHA (OEHHA, 2003).

USEPA's SCREEN3 model (Version 96043) was used to conduct a screening dispersion modeling analysis.[3] As recommended by BAAQMD, the worst case meteorological conditions that cause the highest modeled pollutant concentration were used in the analysis. These worst case meteorological conditions generally involve stable atmospheric conditions with light wind speeds and are very conservative in the estimation of annual average conditions. Receptors were placed at a distance of 25 meters (82 feet) from the program area out to a distance of two kilometers (6,562 feet) to represent the residential receptors within the program area. However, the maximum concentration occurs at distance of beyond 130 meters (426 feet) from the program area. A receptor height of 1.8 meters (5 feet, 9 inches) was used to simulate breathing height (recommended by BAAQMD). As recommended by BAAQMD, an emission height of 3.05 meters (10 feet) was used. The Lower Berryessa Creek and Lower Calera Creek elements were analyzed separately as they generally affect a different set of receptors.

The maximum cancer risk would be 10.1 per million for construction activities associated with the Lower Berryessa Creek Element. The maximum cancer risk would be 5.6 per million for the Lower Calera Creek Element. The cancer risk due to construction activities for the Lower Berryessa Creek Element is greater than the BAAQMD threshold of 10 per million and would be significant. The cancer risk due to construction activities for the Lower Calera Creek Element is below the BAAQMD threshold of 10 per million and would be less than significant.

It is anticipated that impacts associated with the program-level elements would be similar to those described for the project-level elements and would exceed the BAAQMD threshold and would be a significant impact.

Acute and Chronic Health Risk

Non-cancer adverse health impacts, acute (short-term) and chronic (long-term), are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the Program to a published reference exposure level (REL) that could cause adverse health effects as established by OEHHA. The ratio (referred to as the

[3] Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical air movement.

Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. If the overall HI for the highest-impacted organ system is greater than one, then the impact is considered to be significant. The target organ for DPM is the respiratory system.

As a result of unmitigated construction activities, the chronic HI would be 0.13 for the Lower Berryessa Creek Element. The chronic HI would be 0.07 for the Lower Calera Creek Element. The chronic HI due to construction activities for project-level elements would be well below the BAAQMD threshold of 1 and the impact would be less than significant.

It is anticipated that activities associated with the program-level Tularcitos Creek Element, the Upper Calera Creek elements, and Lower Penitencia Creek Element would be similar to those described for the Lower Berryessa Creek Element and the Lower Calera Creek Element and that the chronic HI would be below the significance threshold of one. Therefore, associated impacts from the program-level elements would be less than significant.

PM2.5 Concentrations

$PM_{2.5}$ concentrations that would result from program-related construction equipment exhaust were determined using the SCREEN3 dispersion model. Of note, fugitive dust emissions are not included in the analysis (per BAAQMD guidance), as these emissions are mitigated through the implementation of best management practices (Mitigation Measure 3.C-1). The maximum unmitigated annual $PM_{2.5}$ exposure as a result of construction activities for the Lower Berryessa Creek Element would be 0.65 $\mu g/m^3$ and for the Lower Calera Creek Element would be 0.36 $\mu g/m^3$, which would exceed the BAAQMD threshold of 0.3 $\mu g/m^3$ and would therefore constitute a significant impact.

Although preliminary information on construction material and activity requirements for the program-level elements (i.e., Tularcitos Creek Element, the Upper Calera Creek Elements 1 and 2, and Lower Penitencia Creek Element) have not yet been determined, it is anticipated that the activities and associated $PM_{2.5}$ concentrations would be similar to those of the Lower Berryessa Creek Element and could exceed the $PM_{2.5}$ concentrations threshold of 0.3 $\mu g/m^3$ and would therefore constitute a potentially significant impact.

Operations Impacts

Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Lower Penitencia Creek Element

As discussed under Impact 3.C-2, diesel particulate matter operations emissions in the form of PM_{10} and $PM_{2.5}$ would be negligible and would be considered less than significant. Program operations would therefore not expose sensitive receptors to substantial pollutant concentrations and impacts would be less than significant.

Tularcitos Creek Element

As discussed in Impact 3.C-2, Program operations could therefore expose sensitive receptors to substantial pollutant concentrations.

Cumulative Health Risk. The BAAQMD's CEQA Guidelines include new standards and methods for determining the significance of cumulative health risk impacts (BAAQMD, 2010a). The method for determining cumulative health risk requires the tallying of health risk from permitted sources and major roadways in the vicinity of a project, then adding the project contribution, to determine whether the cumulative health risk thresholds are exceeded. BAAQMD has published tables showing health risk for major roadways within Santa Clara County, including I-680 and I-880 (BAAQMD, 2010d). The receptors impacted by the Program would be beyond the distance of influence specified in the BAAQMD methodology (greater than 1,000 feet) from I-680 and I-880.[4] Thus, the impact from this roadway is not expected to significantly overlap or contribute to the health risk impact associated with program construction activities at the location of receptors that would be affected by the Program

BAAQMD has also developed a geo-referenced database of permitted emitters of toxic air contaminants throughout the Bay Area, and has developed the Stationary Source Risk and Hazard Analysis Tool (BAAQMD, 2010d) for estimating cumulative health risks from permitted sources. For the most part, the health impacts from the Lower Berryessa Creek and Lower Calera Creek elements are distinct and thus, the cumulative impacts were determined separately. Tables 3.C-7 and 3.C-8 identify the BAAQMD-permitted facilities within 1,000 feet of the Lower Berryessa Creek and Lower Calera Creek elements. The tables also shows the cancer risk, chronic hazard risk, acute health risk, and $PM_{2.5}$ concentrations associated with these facilities, as calculated by BAAQMD. As indicated in the tables, the total cumulative cancer risk, chronic hazard, and $PM_{2.5}$ concentrations associated with the nearby permitted facilities together with the elements would be less than significant. The cumulative health risk impact is therefore less than significant.

It is anticipated that cumulative health risk impacts that would be associated with the program-level Tularcitos Creek Element, the Upper Calera Creek Elements 1 and 2, and Lower Penitencia Creek Element would be similar to those described for the Lower Berryessa Creek Element. Therefore, program-level cumulative health risk impacts would be less than significant.

Best Management Practices: None applicable.

[4] The eastern reach of the Lower Calera Creek Element is approximately 2,750 feet from I-680. The western reach of the Lower Calera Creek Element is approximately 1,825 feet from I-880. The western reach of the Lower Berryessa Element is approximately 2,800 feet from I-880. The eastern reach of the Lower Calera Creek Element is approximately 1,550 feet from I-680.

TABLE 3.C-7
CUMULATIVE HEALTH IMPACTS – LOWER BERRYESSA CREEK ELEMENT

Site No.	Facility Type	Address	Cancer Risk	Chronic Hazard	Acute Hazard	$PM_{2.5}$
17154	Emergency Generator	731 Folsom	45.6	0.0162	0	0.0812
17159	Pump Station	944 La Honda Drive	21.6	0.00769	0	0.0385
17158	Pump Station	75 Marylinn Drive	19.3	0.00685	0	0.0343
		Permitted Sources Total	**86.5**	**0.03**	**0**	**0.15**
		Program, as Mitigated	**5.6**	**0.13**	**0**	**0.29**
		Permitted Facilities and the Program Combined	**92.1**	**0.16**	**0**	**0.44**
		BAAQMD Cumulative Significance Criteria	**100**	**10**	**10**	**0.8**
		Significant Cumulative Impact?	**No**	**No**	**No**	**No**

TABLE 3.C-8
CUMULATIVE HEALTH IMPACTS – LOWER CALERA CREEK ELEMENT

Site No.	Facility Type	Address	Cancer Risk	Chronic Hazard	Acute Hazard	$PM_{2.5}$
8471	Fuel Dispensing	1265 N Milpitas Blvd	0.18	0.000164	0.000042	0
17214	Emergency Generator	1275 N Milpitas Blvd	8.87	0.00315	0	0.0158
8015	Auto Body	1351 Minnis Circle	0	0.000252	0.0011	0
5887	Auto Body	95 Minnis Circle	0.00369	0.000001	0.000001	0.0339
		Permitted Sources Total	**9.1**	**0.004**	**0.001**	**0.05**
		Program, as Mitigated	**3.1**	**0.07**	**0**	**0.16**
		Permitted Facilities and the Program Combined	**12.2**	**0.07**	**0.001**	**0.21**
		BAAQMD Cumulative Significance Criteria	**100**	**10**	**10**	**0.8**
		Significant Cumulative Impact?	**No**	**No**	**No**	**No**

Mitigation Measures

Mitigation: Implement Mitigation Measures 3.C-1 and 3.C-2a through 3.C-2c.

Significance after Mitigation:

***Construction Activities Cancer Risk*.** Less than Significant. Mitigation Measures 3.C-2a and 3.C-2b, which would reduce DPM emissions of off-road construction equipment by 45 percent compared to the average fleet emissions, would reduce cancer risk associated with the Lower Berryessa Creek Element to a level that would be less than significant.

***Construction Activities PM2.5 Concentrations*.** Significant and Unavoidable**.** Mitigation Measures 3.C-2a and 3.C-2b would reduce $PM_{2.5}$ emissions from construction activities by 45 percent, $PM_{2.5}$ concentrations associated with the Lower Berryessa Creek

Element would be reduced to 0.36 µg/m^3 and $PM_{2.5}$ concentrations for the Lower Calera Creek Element would reduced to 0.20 µg/m^3. Therefore, impacts related to $PM_{2.5}$ concentrations associated with the Lower Berryessa Creek Element would be significant and unavoidable, and for the Lower Calera Creek Element, impacts would be mitigated to less than significant. For the program-level elements, similar to the Lower Berryessa Creek Element, Mitigation Measures 3.C-2a and 3.C-2b would reduce $PM_{2.5}$ emissions from construction activities by 45 percent, but program-level $PM_{2.5}$ concentration impacts would be significant and unavoidable.

***Operations Impacts*.** Less than significant**.** Implementation of Mitigation Measure 3.C-2c would result in development of an air pollutant emissions plan prior to implementation of the Tularcitos Creek Element, which would ensure that emission controls are incorporated into the pump design (if required) in order to reduce pollutant emissions and associated health risk below BAAQMD's TAC significance criteria related to cancer and non-cancer risks. This would be a less than significant impact.

Impact 3.C-5: Expose sensitive receptors to objectionable odors. (Less than Significant with Mitigation)

Construction Impacts

All Elements

Diesel-fueled construction equipment would generate some odors associated with diesel exhaust; however, these emissions typically dissipate quickly and would be unlikely to affect a substantial number of people. Furthermore, given that program construction would generally be linear, it can be assumed that no individual receptor would be exposed to such odors for an extensive period of time. Therefore, odor impacts associated with construction of the Program would be less than significant.

Operations Impacts

All Elements

There are a large number of sensitive receptors surrounding all project- and program-level elements. Some sites would have materials that are rich in organic matter decaying in an anaerobic condition, which generates assorted malodorous gases such as reduced sulfur compounds. During sediment removal at these sites, odorous emissions from the decaying organic matter could impact nearby sensitive receptors. The District would continue the existing sediment removal schedule of one half of the channel annually for Lower Berryessa Creek and periodically for Lower Calera Creek. The only new required sediment removal would be for the concrete box culvert proposed for the Upper Calera Creek Element 2 and for portions of the pump station proposed for the Tularcitos Creek Element.

Sediment removal is not a routine activity. The need for sediment removal would be triggered by the accumulation of more than one foot of average sediment depth in creek channels,

culverts, and hydraulic structures. The District BMP AQ-4 requires that these materials be handled in a manner that avoids impacting sensitive receptors. It prohibits stockpiling potentially odorous materials within 1,000 feet of residential areas and requires excavated sediment to be disposed off at a landfill or other suitable site. As the potential for impact is very short in duration at any given site, implementation of District BMP AQ-4 would ensure that impacts from sediment removal would be less than significant.

Tularcitos Creek Element

Operation of the proposed pump station on the Tularcitos Creek Element could result in odorous emissions from the diesel-driven pumps. Odors from diesel combustion at the pump station would have the potential to expose nearby residents to odors associated with diesel exhaust. There are two sources of odors in diesel engines. One is unburned fuel and its thermal breakdown products, which are principally various forms of hydrocarbons and some nitrogen compounds. The other is incomplete combustion resulting in partial oxidation of hydrocarbons to oxygen containing organic compounds. The use of diesel-driven pumps, during periods when the water level in Berryessa Creek is high enough to prevent flows from Tularcitos Creek by gravity, could expose sensitive receptors to objectionable odors and would result in a potentially significant impact.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with exposure of sensitive receptors to objectionable odors:

- AQ-4: Avoid Stockpiling Potentially Odorous Materials – applicable to the operations phase of all elements.

Mitigation Measures

Mitigation: Implement Mitigation Measure 3.C-2c (Air Pollutant Emissions Plan for the Tularcitos Creek Element).

Significance after Mitigation: Less than Significant. Mitigation Measure 3.C-2c would reduce emissions from the pump station.

3.C.4 References

Bay Area Air Quality Management District (BAAQMD), BAAQMD CEQA Guidelines – Assessing the Air Quality Impacts of Projects and Plans, December 1999.

Bay Area Air Quality Management District (BAAQMD), California Environmental Quality Act – Air Quality Guidelines, June 2010a.

Bay Area Air Quality Management District (BAAQMD), *Bay Area 2010 Clean Air Plan*, 2010b.

BAAQMD, Personal communication with Greg Tholen of the BAAQMD on May 14, 2010c.

BAAQMD, BAAQMD CEQA Guidelines Tools and Methodology, (http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx), 2010d

California Air Resources Board (CARB), Aerometric Data Analysis and Management, http://www.arb.ca.gov/adam, accessed March 31, 2010a.

California Air Resources Board (CARB), Ambient Air Quality Standards, http://www.arb.ca.gov/research/aaqs/aaqs2.pdf, accessed April 1, 2010b.

Office of Environmental Health Hazards Assessment (OEHHA), The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf), 2003.

3.D Biological Resources

This section identifies the plant communities, wildlife habitats, and sensitive species occurring in the program area and assesses the potential for program activities to affect sensitive biological resources. The environmental setting covers the regional context, the program setting, and the existing environment. The regulatory section provides an overview of federal, state, and local regulations and policies. Potential impacts on biological resources are identified in this section, as are the Santa Clara Valley Water District's (District) best management practices (BMPs) (District, 2010) and mitigation measures designed to minimize impacts.

This evaluation of biological resources in the program area is based on technical research; field surveys; aerial photograph interpretation; ~~and~~database review of special-status plants and wildlife, vegetation communities, wildlife habitat; and an ~~jurisdictional~~ investigation of jurisdictional "waters of the United States" and "waters of the State" that occur in the program vicinity. Field surveys of the entire program area, including: special-status plant surveys; wetland delineations; fish; and, California red-legged frog surveys were conducted in 2004, 2006, 2009, and 2010.~~:~~

Plants

- Floristic Surveys for Special-status Plants at Lower Berryessa Creek Project – Calera Creek and Tularcitos Creek (ESA, 2006a)
- Lower Berryessa Creek Rare Plant Surveys (ESA, 2006b)

Wetlands

- Instream Wetland Vegetation Regrowth Study (Santa Clara Valley Water District, 2002)
- Final Delineation of Waters of the United States at Lower Berryessa Creek (ESA, ~~2004~~2010)
- Final Delineation of Waters of the United States at Calera and Tularcitos Creeks (ESA, 2005b)
- Lower Berryessa Creek Project – Preliminary Delineation of Waters of the United States for Upper Calera Creek (ESA, 2008)

Fish, California Red-legged Frogs and Aquatic Habitats

- Berryessa Creek Levee Project Fisheries Investigations (ESA, 2002b)
- Report of Reconnaissance Level Steelhead Habitat Assessment of Lower Berryessa Creek (CH2MHILL, 2001a)
- Calera & Tularcitos Creeks Aquatic Habitat Assessment (Podlech, 2005)
- Draft Berryessa Creek California Red-legged Frog Survey (Tetra Tech, Inc., 2002a)
- Draft Berryessa Creek Aquatic Habitat Survey (Tetra Tech, Inc., 2002b)

Nest

- Berryessa Creek Nest Survey (CH2MHILL, 2001b)

General

- Santa Clara Valley Water District Lower Berryessa Creek Project – Vegetation, Wildlife, Special-status Species and Wetlands Resources within Calera and Tularcitos Creeks (ESA, 2005a).
- Lower Berryessa Project ~~alignment~~ General Site Survey of Existing Conditions (ESA, 2010)

3.D.1 Environmental Setting

Regional Setting

The Lower Berryessa Creek Program is located in the City of Milpitas, within the Coyote Watershed in Santa Clara County. The Coyote Watershed is Santa Clara County's largest watershed, encompassing 236,161 acres (369 square miles) from Morgan Hill to Milpitas, of which approximately 70 percent remains rural and/or relatively undeveloped (District, 2002). Elevation within the Coyote Watershed extends from the valley floor, which is about 10 feet above sea level, to approximately 4,000 feet.

The program region has a Mediterranean climate with cool, wet winters and warm, dry summers, and receives an average of less than 15 inches of rainfall a year. The Mediterranean climate, in part, is created by the coastal mountain ranges that protect the program region from the hot summer weather of the Central Valley. In addition, the Pacific Ocean provides a steady flow of cool, moist marine air during summer months, which holds temperatures at a moderate level. Lower Berryessa Creek and its tributaries are located within the highly developed valley floor of the lower portion of the Coyote Watershed in the City of Milpitas.

Program Setting

This section describes the physical setting within the program area. Details on biological resources, including habitat types, are described in subsequent sections. The program area is located west of Interstate 680 (I-680), east of Interstate 880 (I-880), north of East Calaveras Boulevard, and south of Dixon Landing Road. The program alignment includes portions of Lower Berryessa Creek, Calera Creek, Tularcitos Creek, and Lower Penitencia Creek for a total of approximately 25,000 linear feet of creek channel. Within the program area, Lower Berryessa Creek receives water seasonally from Calera and Tularcitos Creeks between East Calaveras Boulevard and the Union Pacific Railroad (UPRR) tracks. Lower Berryessa Creek then flows northwesterly through the City of Milpitas to its confluence with Lower Penitencia Creek. Lower Penitencia Creek flows northward to Coyote Creek and ultimately drains into San Francisco Bay.

The program vicinity is highly urbanized; commercial and residential land uses surround the program area. All of the creeks within the program area have been extensively modified

and are contained primarily in either engineered trapezoidal earthen channels or in concrete channels. The creeks are maintained as flood control channels within most of the program area. Upper Calera Creek remains in a more natural state, except for a concrete drop structure located northeast of I-680 adjacent to Higuera Adobe Park. Open space in the program vicinity is primarily restricted to the creek corridors, city and county parks, and the Hetch Hetchy Linear Parkway located on top of the San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy Aqueduct.

Lower Berryessa Creek

Berryessa Creek originates in the Los Buellis Hills of the Diablo Range, between Ed R. Levin and Alum Rock Parks, east of the City of San José. The creek flows westerly to I-680, then northward through the City of Milpitas to its confluence with Lower Penitencia Creek. Berryessa Creek has a drainage area of approximately 22 square miles.

With the exception of its headwater reaches, Berryessa Creek has been modified throughout its length. The upstream reaches of Berryessa Creek are freshwater, seasonal, and dry during the summer months. Within the program area, flow in Lower Berryessa Creek is perennial, due primarily to urban runoff. Downstream reaches of Lower Berryessa Creek, west of the UPRR crossing and outside the program area, become brackish due to tidal influence.

Channelization of Lower Berryessa Creek began around 1976. When a stream is channelized, it is generally straightened and restrained by levees and/or steep banks to protect surrounding areas from flooding. The portion of Lower Berryessa Creek that lies within the program area comprises approximately 8,700 linear feet. Two reaches of Lower Berryessa Creek within the program area are reinforced with concrete: the UPRR crossing and the reach that crosses over the Hetch Hetchy Aqueduct. There are gravel maintenance roads along both sides of the channel—on the top-of-bank and within the banks—except for the concrete sections. Channel width in the program area is approximately 120 feet, with side slopes of less than 2:1 (two feet horizontal to one foot vertical). Within the program area, the creek has been maintained on a regular basis (eight times in the past 14 years) since its construction. Maintenance includes, but is not limited to, sediment and vegetation removal within the creek channel.

Calera Creek

Calera Creek is a seasonal freshwater tributary to Lower Berryessa Creek. It originates in the hills northeast of the City of Milpitas and flows south-westerly to its convergence with Lower Berryessa Creek. The program area includes approximately 8,300 linear feet of Calera Creek, from its confluence with Lower Berryessa Creek to east of I-680.

Calera Creek has been channelized from the UPRR tracks to Milpitas Boulevard (approximately 450 linear feet). In this area, Calera Creek is a constructed concrete flood control channel with vertical concrete banks. From the pedestrian bridge near Thomas Russell Middle School to I-680, Calera Creek is in a more natural state consisting of riparian vegetation, with some

in-stream habitat features such as large woody debris (Upper Calera Creek Element 2). There is a concrete drop structure located near Higuera Adobe Park.

Except for those areas where the creek is concrete lined, nearly all portions of Calera Creek support emergent freshwater wetlands within the creek channels and contain non-native grasslands on their earthen banks. Upstream of the drop structure by Milpitas High School, freshwater emergent species can be found, although the majority of the creek bed is a cobbly bottom, with less fine sediment and vegetation than is normally preferred by such species.

Tularcitos Creek

Tularcitos Creek is a freshwater tributary to Lower Berryessa Creek that originates from the hills northeast of the City of Milpitas. It is a seasonal stream at its headwaters near Tularcitos Golf and Country Club, approximately 1.7 miles upstream of the program area. Prior to channelization, Tularcitos Creek was an alluvial fan within the program area. The program area includes the reach of Tularcitos Creek between Paseo Refugio Road and I-680, which is about 4,000 linear feet. Four pedestrian overpasses and three roads (including Paseo Refugio) cross over Tularcitos Creek.

Within the program area Tularcitos Creek is an excavated earthen trapezoidal flood control channel, with gravel maintenance roads bordering both sides of the channel. On one side are single-family homes and the other side is Hetch Hetchy Linear Parkway, under which is the Hetch-Hetchy Aqueduct.

Tularcitos Creek supports occasional freshwater emergent wetlands within its channel, and contains non-native grasslands on its earthen banks. A few ornamental trees are within the vicinity of the stream, on residential properties or within the adjacent parks. These trees do not appear to provide a significant amount of shade, but they may provide bird nesting and foraging habitat. During a site visit in September 2009, it was observed that sediment and vegetation were recently removed within the segment of Tularcitos Creek from North Hillview Drive to I-680.

Lower Penitencia Creek

The Lower Penitencia Creek watershed drains approximately 30 square miles; including areas on the western slopes of the Diablo Range on the east side of the Santa Clara Basin and portions of the valley floor. The main tributaries are East Penitencia channel and Berryessa Creek. Lower Penitencia Creek flows from the foothills of the Diablo Range, through undeveloped, unincorporated county land and continues westerly through residential neighborhoods in the cities of Milpitas and San José, transitioning to higher density residential neighborhoods and industrial areas west of I-680.

Within the program area, Lower Penitencia Creek is mostly an earthen, trapezoidal flood control channel. Downstream of its confluence with Lower Berryessa, the creek is contained with concrete levees and an earthen channel bed. Throughout most of the program reach, Lower Penitencia contains a center bench formed from deposited sediment, with low-flow

channels on either side. The bench is vegetated with brackish marsh vegetation. Wetland vegetation, either freshwater or brackish marsh species, also occurs in thick patches within the low-flow channels and adjacent to open water areas throughout the creek. A few large trees occur in some locations at the toe of the levee. Downstream of I-680 the creek is more tidally influenced and vegetation communities transition to brackish marsh vegetation.

Existing Environment

Vegetation Communities and Wildlife Habitats

Vegetation communities are assemblages of plant species that occur together in the same area, which are defined by species composition and relative abundance. The vegetation/ habitat classification presented herein is based on field observations and on the California Department of Fish and Game (CDFG) List of California Terrestrial Natural Communities Recognized by the California Natural Diversity Database (CNDDB) (CDFG, 2010). This EIR also relies on A Manual of California Vegetation (Sawyer and Keeler-Wolf, 1995) which maintains a more detailed inventory of terrestrial natural communities based on the dominant plant species present. Wildlife habitats typically were classified and evaluated using the CDFG's A Guide to Wildlife Habitats of California (Mayer and Laudenslayer, 1988).

There are five main vegetation communities found within the program area: ruderal/non-native annual grassland, brackish marsh, freshwater marsh, riparian woodland, and developed/ landscaped (see Figures 3.D-1a and 3.D-1b) (these maps are inclusive of project-level reaches only). The creeks within the program area are managed flood control channels that do not provide suitable habitat to support fish. Concrete channels and water temperatures do not provide suitable conditions for most fish species. Details on each community and its location within the program area are discussed below.

Ruderal / Non-native Annual Grassland

Ruderal communities consist of weedy vegetation that typically occurs in areas where soils and native vegetation have been significantly disturbed by grading, plowing, construction, or other land-clearing activities, resulting in the domination of non-native species. This community, which could also be classified as non-native annual grassland, occurs within grassland found above the ordinary high water mark on the side slopes of the creek channels and levees.

Ruderal/non-native and annual grasslands in the program area are primarily dominated by non-native annual grasses and an assortment of non-native forbs. These species include wild oats (*Avena barbata*), annual ryegrass (*Lolium multiflorum*), bristly oxtongue (*Picris echioides*), poison hemlock (*Conium maculatum*), yellow star-thistle (*Centaurea solstitialis*), and wild radish (*Raphanus raphanistrum* L.).

Ruderal/non-native annual grassland habitat is found along the levee banks and along the outside of the levee maintenance roads. Throughout much of the program area, the vegetation along levee banks is managed by herbicides or mechanical methods. As such, in some of these areas the levees are mowed or are relatively barren.

Habitat Attributes. Disturbed non-native grasslands generally support relatively low wildlife diversity, but could be used by common and special-status species for foraging habitat and migratory corridors. The adjacent freshwater marsh (described below) enhances the wildlife habitat elements of the grasslands in the program area by providing an adjacent water source. Many common species such as birds, reptiles, and mammals use non-native annual grasslands for food, shelter materials, and foraging habitat. Reptiles typically found in grassland habitats include western fence lizard (*Sceloporus occidentalis*), western skink (*Eumeces skiltonianus*), gopher snake (*Pituophis catenifer*), and western rattlesnake (*Crotalus viridis*). Common birds that use grasslands for nesting and foraging materials include western meadowlark (*Sturnella neglecta*), red-winged blackbird (*Agelaius phoeniceus*), and song sparrow (*Melospiza melodia*). The grassland habitat within the program area does not provide potential suitable habitat for western burrowing owl (*Athene cunicularia*) because the grassland does not contain burrows that would provide suitable nesting and refugia habitat for this species.

Brackish Marsh / Wetlands

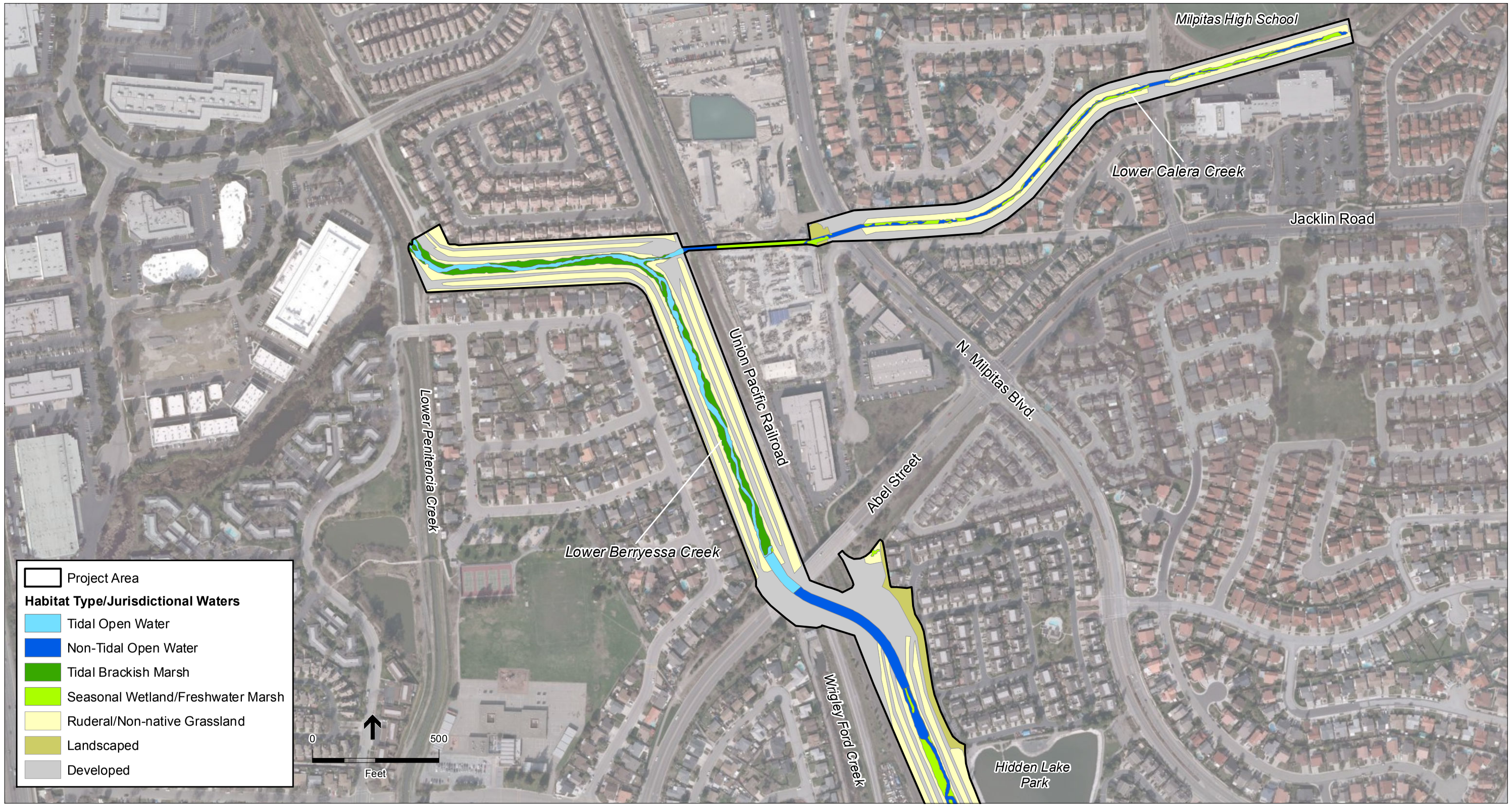
Brackish marsh wetlands are located in Lower Berryessa Creek, downstream from the railroad crossing at Abel Street and within Lower Penitencia Creek downstream of the confluence with Lower Berryessa Creek. The brackish marsh wetlands in the program area are a result of tidal influx and are distinct from the wetlands upstream of Abel Street in that they support both a greater percentage of, and greater cover by, perennial species. Brackish marsh vegetation occupies the shallower margins of the channel and, in some locations, narrow bars in the middle of the channel.

Vegetation is dominated by bulrush (*Scirpus californicus*) and water smartweed (*Polygonum* sp); both of which are obligate wetland species. Willow-leaf dock (*Rumex salicifolius*), common water plantain (*Alsima plantago-aquatica*), and floating water primrose (*Ludwigia peploides*) occur as associates.

Habitat Attributes. Species likely to inhabit this community within the program area include bird species such as red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), and black phoebe (*Sayornis nigricans)*. This community also provides some nesting and/or foraging habitat opportunities and cover for water bird species such as common merganser (*Mergus merganser*), great blue heron (*Ardea herodias*), American coot (*Fulica Americana*), snowy egret (*Egretta thula*), red-winged blackbird (*Agelaius phoeniceus*), marsh wren (*Cistothorus palustris*), song sparrow (*Melospiza melodia*), mallard (*Anas platyrhynchos*), great egret (*Casmerodius albus*), and common snipe (*Gallinago gallinago*).

Freshwater Marsh / Wetlands

Generally, wetlands are lands where water saturation is the dominant factor in determining the nature of soil development and the types of plant communities living in the soil and on its surface. Within the program area, freshwater marsh is the dominant form of wetlands and includes both vegetated areas and pockets of open water within the channels. Within the



SOURCE: Microsoft Virtual Earth, 2010; ESA, 2005; ESA, 2010; SCVWD, 2010

Lower Berryessa Creek Program. 201425

Figure 3.D-1a

Habitat Types and Jurisdictional Waters Within the Project Area



SOURCE: Microsoft Virtual Earth, 2010; ESA, 2005; ESA, 2010; SCVWD, 2010

Lower Berryessa Creek Program. 201425

Figure 3.D-1b

Habitat Types and Jurisdictional Waters Within the Project Area

program area, freshwater marsh occurs along the edges of the creek channels and occupies most of the channel in reaches with sediment build-up, resulting in reduced water flows and the establishment of freshwater marsh vegetation. Open water areas tend to occur in deeper waters within the low-flow areas of the creeks. Several vegetation associations supporting dominant hydrophytic species characterize freshwater marsh. Because the creeks are managed flood control channels, the location of freshwater marsh and open water habitats can be dynamic and shift from year to year depending on annual rainfall.

Dominant freshwater marsh species, including floating water-primrose (*Ludwigia peploides*) and watercress (*Rorippa nasturtium-aquaticum*), are found throughout the Lower Berryessa Creek corridor. Barnyardgrass (*Echinochloa crus-galli*), a non-native annual grass, is also an occasional dominant species. Stands of cattail (*Typha latifolia* and/or *T. angustifolia*) and California bulrush (*Scirpus californicus*) are associated species and are found in limited areas within the program area.

Within the Tularcitos Creek Element area and the upstream reaches of Calera Creek Element, freshwater marsh consists of watercress in association with knotweed (*Polygonum* sp). Other associates include floating water-primrose and iris-leaf rush (*Juncus xiphioides*). Perennial ryegrass (*Lolium perenne*) is also found at the toe of the banks at Tularcitos Creek where it occurs as the sole species or in association with iris-leaf rush and horsetail (*Equisetum arvense*). Few cattail stands were observed at Tularcitos Creek, but this species occurs occasionally along the edges of the Calera Creek channel. Dense stands of cattails and other wetland species occur within the Lower Penitencia Creek downstream of the Milmont Avenue Bridge to I-880.

Habitat Attributes. Wildlife that depend on freshwater marsh and open water areas include: coyotes, foxes, raccoons, most rabbits, rodents, and many species of birds. A number of amphibians require standing or flowing water for breeding, such as the western toad (*Bufo boreas*), the Sierran tree frog (*Pseudacris sierra*), and the California red-legged frog (*Rana draytonii*), a federally threatened and California Species of Special Concern. Bird species that inhabit freshwater marsh include red-winged blackbird, marsh wren, and black phoebe. The western pond turtle (*Actinemys marmorata*), a California Species of Special Concern, is found in freshwater marsh that is adjacent to open water areas. The narrow band of freshwater marsh vegetation along the creek banks provides some nesting and/or foraging opportunities and cover for water bird species such as common merganser, great blue heron, American coot, snowy egret, red-winged blackbird, marsh wren and song sparrow, as well as mallard, great egret, and common snipe.

Riparian Habitat

Riparian habitats occur along creek banks where trees and shrub species prefer a moist environment. In the program area, this habitat only occurs along a portion of Upper Calera Creek (Upper Calera Creek Elements 1 and 2) adjacent to Thomas Russell Middle School and adjacent to Higuera Adobe Park. Dominant species include willow (*Salix* ssp.), Fremont cottonwood (*Populus fremontii*), buckeye (*Aesculus californicus*), walnut (*Juglans hindsii*),

and blue elderberry (*Sambucus mexicanus*). Some non-native riparian species found in these areas include olive (*Olea europaea*) and cactus.

Habitat Attributes. Riparian woodlands provide habitat for a variety of common and special-status wildlife species. Wildlife expected to use the riparian woodland area includes aerial foraging species such as the cliff swallow, which has previously nested under the numerous bridges crossing the creeks; amphibians and reptiles, such as California red-legged frog, Pacific chorus frog, and common garter snake (*Thamnophis sirtalis*); and mammals, such as ground squirrel (*Spermophilus beecheyi*) and raccoon (*Procyon lotor*). Birds observed using the upland areas of Calera Creek and the adjacent ornamental vegetation along residences include Anna's hummingbird (*Calypte anna*), black-chinned hummingbird (*Alrchilochus alexandri*), black phoebe (*Sayornis nigricans*), northern mockingbird (*Mimus polyglottos*), American robin (*Turdus migratorius*), house sparrow (*Passer domesticus*), white-crowned sparrow (*Zonotrichia leucophrys*), mourning dove (*Zenaida macroura*), and rock dove (*Columba livia*).

Developed / Landscaped

Developed or landscaped areas typically contain non-native or ornamental species. These areas generally support no native vegetation, and land cover is dominated by roads, buildings, other manmade structures, and landscaping. The program area occurs within the vicinity of residential housing and commercial businesses where this community dominates. Landscaped areas provide potential foraging and refugia for wildlife. There are also several city parks adjacent to the program area and along several sections of Lower Berryessa Creek where native species including ceanothus (*Ceanothus* ssp.) and canyon live oak (*Quercus chrysolepis*) are included in the landscaping palette.

Habitat Attributes. Developed areas generally support low wildlife diversity but can provide marginal habitat for common species adapted to a more suburban environment. Species that could occur within this habitat include raccoon (*Procyon lotor*), black-tailed jackrabbit (*Lepus californicus*), gopher snake (*Pituophis catenifer catenifer*), and western fence lizard (*Sceloporus occidentalis*).

Sensitive Natural Communities

Sensitive natural communities are designated by various resource agencies, such as CDFG, or in local policies and regulations, and they are generally considered to have important functions or values for wildlife or humans and/or are recognized as declining in extent or distribution and are considered threatened enough to warrant some sort of protection. For example, many local agencies in California consider protection of oak woodlands important, and federal, state, and most local agencies also consider wetlands and riparian habitat as sensitive communities. The CNDDB tracks communities it believes to be of conservation concern and these communities are typically considered sensitive for the purposes of California Environmental Quality Act (CEQA) analysis. The CNDDB lists three sensitive natural communities as occurring in the vicinity of the program area: northern coastal salt marsh, sycamore alluvial woodlands, and serpentine bunchgrass grasslands (2010). With the exception of freshwater marsh, which is discussed above, none of these communities occur in the program area.

Wetlands and Waters of the U.S., ~~Including Wetlands~~ and State

Under federal law, navigable waters, tributaries to navigable waters and connected wetlands are ~~a subset of~~ classified as "waters of the United States" (waters of the U.S.) and receive protection under ~~Section 404 of~~ the Clean Water Act (CWA). The creeks up to the ordinary high water mark (OHWM) and their associated wetlands within the program area are considered waters of the U.S. In general, federally jurisdictional waters and wetlands are also regulated under state law; furthermore, state law typically regulates additional waters and riparian habitat beyond the extent of federal jurisdiction, as discussed below.

~~Wetland d~~Delineations of federal waters and wetlands have been conducted for Lower Berryessa,[1] Calera, and Tularcitos creeks and the extent of jurisdictional waters of the U.S. has been verified by the U.S. Army Corps of Engineers (Corps). For the Lower Berryessa Creek Element, the ~~wetland~~ federal jurisdictional delineation was conducted and verified in 2004 (ESA, 2004). However, since ~~V~~verifications are valid for only five years ~~and therefore~~, the extent of jurisdictional waters of the U.S. for Lower Berryessa Creek was re-assessed ~~and re-verified by the Corps~~ in 2010 (ESA, 2010), and submitted to the Corps for verification.

~~Wetland~~Delineations of federal waters and wetlands for Lower Calera and Tularcitos creeks were conducted and verified in 2005 and an extension of the verification recently was granted by the Corps. Therefore, the delineation for those elements ~~will~~ remains valid until 2016. A ~~wetland~~ federal jurisdictional delineation for Upper Calera Creek (Elements 1 and 2) was conducted and verified in 2009.

A ~~preliminary~~ ~~wetland delineation~~ federal jurisdictional delineation has not ~~has~~ been conducted for the Lower Penitencia Creek Element.; However, potentially jurisdictional waters of the U.S. ~~are~~ were estimated for the purposes of this EIR. ~~A wetland delineation would be conducted when this program element is further defined.~~

~~All~~ The majority of the jurisdictional waters of the U.S. located within the program area are considered freshwater or brackish marsh wetlands ~~or "other waters" that are located within the ordinary high water mark (OHWM)~~. The dominant species include broadleaf cattail (*Typha latifolia*), narrowleaf cattail (*Typha angustifolia*), California bulrush, poison hemlock, barnyardgrass (*Echinocloa crus-galli*), bristly oxtounge, floating water primrose, field horsetail (*Equisetum arvense*), and watercress. Marsh vegetation occupies the shallower margins of the reaches, and in some locations on narrow bars or benches in the middle of the channel. Soils within the channels were well-saturated or inundated. Indicators of hydrology included direct observation of inundation and saturation, and indirect evidence of the frequency of inundation, including incised banks, sediment deposits, and drift lines, which were mapped as the extent of OHWM. One exception to the dominant freshwater and brackish marsh wetland types observed is a seasonal wetland that is hydrologically connected to Lower

[1] The extent of federally jurisdictional waters and wetlands for the portion of the Lower Berryessa Creek Element at its confluence with Lower Penitencia Creek was estimated for approximately 30 linear feet of Lower Penitencia Creek.

Berryessa Creek. The remaining federal waters within the program area consist of non-wetland "other waters" of the U.S.

A total of 12.~~15~~739 acres (~~529,162~~ 554,901 square feet) of federally jurisdictional wetlands and waters occur~~s~~ within the program area[2]. Of this total, 8.~~075~~047 acres are wetlands. Non-wetland~~Other~~ waters in the program area consist of Lower Berryessa Creek (3.~~078~~635 acres), Lower Calera Creek (0.~~439~~484 acre), Upper Calera Creek (0.38 acres) and Tularcitos Creek (0.~~175~~193 acres). Table 3.D-1 summarizes the delineated federally jurisdictional wetlands and ~~verified~~ waters of the U.S.~~, including wetlands~~ that occur in the program area, which are also regulated under state law.

In addition to the jurisdictional waters of the U.S. delineated and ~~verified~~ and listed above and in Table 3.D-1, there are approximately 7.20 acres (315,000 square feet) of potentially jurisdictional waters of the U.S. within the Lower Penitencia Creek Element. The 7.20 acres is roughly estimated to include approximately 5.5 acres of wetlands and 1.7 acres of open water areas.

TABLE 3.D-1
STATE AND FEDERAL JURISDICTIONAL WATERS WITHIN THE PROGRAM AREA[a]

	Square Feet[b]	Acres[c]
Berryessa Creek		
Brackish/Freshwater Marsh	~~203,344~~201,377	4.668623
Other Waters of the U.S. (Berryessa Creek)	~~134,107~~158,341	3.~~078~~635
Berryessa Creek Jurisdictional Waters Total	*~~337,451~~359,718*	*~~7.747~~8.258*
Calera Creek		
Freshwater Marsh	~~23,914~~24,655	0.~~549~~566
Other Waters of the U.S. (Calera Creek)	~~19,123~~21,070	0.~~439~~484
Calera Creek Jurisdictional Waters Total	*~~43,037~~45,725*	*~~0.988~~1.05*
Upper Calera Creek		
Freshwater Marsh	59,229	1.36
Other Waters of the U.S. (Calera Creek)	16,569	0.38
Calera Creek Jurisdictional Waters Total	*75,798*	*1.74*
Tularcitos Creek		
Freshwater Marsh	65,253	1.498
Other Waters of the U.S. (Tularcitos Creek)	~~7,623~~8,407	0.~~175~~193
Tularcitos Creek Jurisdictional Waters Total	*~~72,876~~73,660*	*1.6~~73~~91*
Total Jurisdictional Waters	**~~529,162~~554,901**	**12. ~~15~~739**

[a] Lower Penitencia Creek wetland resources were visually evaluated but have not been delineated or verified and thus are not included on this table.
[b] Square feet were calculated using GIS (ArcMap 9).
[c] Acreages were calculated using GIS (ArcMap 9) and were rounded to the nearest one-thousandth acre.

SOURCE: ESA, 2005b, 2008, 2010

[2] Lower Penitencia Creek wetland resources were visually evaluated but have not been delineated or verified and thus are not included in Table 3.D-1 or the summary numbers presented here.

As stated above, state-regulated aquatic habitats may extend beyond those areas identified as federally jurisdictional. Under the Porter-Cologne Water Quality Control Act, all surface waters, including ground waters, are subject to state regulation, regardless of their connection to navigable waterways. Furthermore, areas adjacent to waters, where activities or the placement of pollutants could impair water quality or other beneficial uses, may also be subject to state regulation by the SFRWQCB. Under Sections 1600-1616 of the California Fish and Game Code, creeks, lakes and waterbodies are protected as wildlife habitat.

Special-Status Species Known or Potentially Occurring in the Program Area

A number of species that are known to occur or have potential to occur in the program vicinity are protected pursuant to federal and/or state endangered species laws, or have been designated as Species of Concern by the U.S. Fish and Wildlife Service (USFWS) or as Species of Special Concern by the CDFG. In addition, CEQA Guidelines § 15380(b) provides a definition of rare, endangered, or threatened species that are not included in any listing[3]. Species recognized under these terms are collectively referred to as "special-status species." For purposes of this EIR, special-status species include:

- Plant and wildlife species listed as rare, threatened, or endangered under the federal or California endangered species acts;
- Species that are candidates for listing under either federal or California law;
- Species designated by CDFG as Species of Special Concern;
- Species protected by the federal Migratory Bird Treaty Act (16 U.S. Code [USC] 703-711) or California Fish and Game Code 3503.5;
- Bald and golden eagles protected by the federal Bald Eagle Protection Act (16 USC 668); and
- Species such as candidate species that may be considered rare or endangered pursuant to § 15380(b) of the CEQA Guidelines.

A comprehensive database search was conducted for special-status species that have the potential to occur in the program area (see Appendix D). These lists include occurrences documented by the CNDDB (CNDDB, 2010), the California Native Plant Society (CNPS) Electronic Inventory (CNPS, 2010), and the USFWS database (USFWS, 2010a). Based on a review of the biological literature of the region, information presented in previous environmental documentation, and an evaluation of the habitat conditions of the ~~P~~program area, many of these species were eliminated from further evaluation because (1) the program area does not and/or never has provided suitable habitat for the species, (2) the known range for a particular species is outside of the program area, or (3) a significant amount of time (50+ years) has passed since the initial documentation.

[3] For example, vascular plants listed as rare or endangered or as List 1 or 2 by the CNPS are considered to meet § 15380(b).

Special-status species presented in Table 3.D-2 are those that are documented with potential to occur within the program area or for which potential habitat (i.e., general habitat types) occurs within the program area. Species for which generally suitable habitat occurs but that were nonetheless determined to have low potential to occur in the program area also are listed in Table 3.D-2. This table also provides the rationale for each potential-to-occur determination. Species with at least moderate potential to occur in the program area are discussed in further detail below.

Special-Status Plants

Although a number of special-status plant species are identified in Table 3.D-2 as occurring within the program vicinity, there are no undisturbed native communities remaining within the program area that could support special-status plants. In addition, the distribution of a number of these species is restricted to specific habitat types or soils that are not, and/or never were, present within the program area, such as vernal pools or serpentine soils. No special-status species are known to occur based on District biologists' knowledge of the creeks and life history of the targeted plants, and none were identified during ESA's rare plant surveys (ESA, 2006a; ESA, 2006b). Although all of the special-status plant species considered can be found in grasslands, they are most often found on specialized substrates not found in the program area, such as alkaline or adobe clay, or in areas of little to no disturbance. Therefore, no special-status plant species are anticipated to occur within the program area.

Special-status Wildlife

The existing developed program area and surrounding urbanized setting generally provide limited habitat for common bird and wildlife species such as swallow nests, observed within the box culverts over Arizona Avenue (ESA, 2010). There is moderate potential for tricolored blackbirds and several raptor species protected under Section 3503.5 of the California Fish and Game Code, as well as special-status amphibians, reptiles, and bats, that may use habitat within and adjacent to the program area for nesting and foraging. These species are discussed below.

Birds

Cooper's hawk (*Accipiter cooperi*). The Cooper's hawk is a California Species of Concern. It has a range that includes most of North America, although within the program area it is more common as a winter migrant. This species will hunt on ground after cornering prey in thick bushes or thistles. The Cooper's hawk breeds and nests in riparian woodlands (usually deciduous) and preys on birds and small mammals that it hunts in the woodlands. Potential habitat for this species is present in the riparian woodland within Upper Calera Creek Elements 1 and 2. This species may forage within the vicinity of the program area.

Tricolored blackbird (*Agelaius tricolor*). The tricolored blackbird is a California Species of Special Concern. This species is endemic to California and breeds mostly in the Central Valley, although breeding in the Sierra Nevada has also been documented. Tricolored blackbirds breed between mid-April and late July. They are colonial nesters utilizing freshwater marsh

TABLE 3.D-2
SPECIAL-STATUS SPECIES KNOWN FROM THE REGIONAL VICINITY OF THE PROGRAM AND ANALYZED FOR THE PROGRAM

Scientific Name **Common Name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat**	**Potential for Species Occurrence in the Program Area**
PLANTS			
Federal or State Threatened and Endangered Species			
Astragalus tener var. *tener* Alkali milk-vetch	--/--/List 1B.2	In poor draining low ground of alkali playa, grasslands and vernal pools; usually in dry adobe soil	**Low.** Specialized habitat associated with alkali soils is not present within the program area. Species not found in focused floristic surveys (ESA, 2006a and 2006b).Closest recorded sighting within one mile is considered extirpated from area; last seen in 1905 (CNPS, 2009). Other closest occurrence is approximately five miles from the program area (CNDDB, 2010).
Atriplex depressa Brittlescale	--/--/List 1B.2	Alkaline or clay grasslands, chenopod scrub, and playas; occasionally in riparian areas, marshes, or vernal pools	**Low.** On-site grasslands are highly disturbed. Habitat within the program area does not support this species. Closest known occurrence was recorded in 2003 approximately 4.4 miles away (CNDDB, 2010). Species not found in focused floristic surveys (ESA, 2006a).
Atriplex joaquiniana San Joaquin spearscale	--/--/List 1B.2	Alkaline seasonal wetlands and sinks in grasslands, chenopod scrub, and alkali meadows	**Low.** Habitat within the program area does not support this species. Closest known occurrence recorded in the past ten years (2001) approximately five miles away. On-site grasslands are highly disturbed. Species not found in focused floristic surveys (ESA, 2006a).
Lasthenia conjugens Contra Costa goldfields	FE/--/List 1B.1	Moist grasslands, vernal pools, cismontane woodlands, alkaline playas	**Low.** Habitat within the program area does not support this species On-site grasslands are highly disturbed. CNDDB nearest location is approximately five miles from the program area (CNDDB, 2010). Species not found in focused floristic surveys (ESA, 2006a).
Federal or State Species of Special Concern			
Centromadia parryi ssp. *congdonii* Congdon's tarplant	FSC/--/ List 1B.2	Alkaline soils in grasslands	**Low.** Not identified during focused botanical surveys (ESA 2006). CNDDB nearest documented sighting was in 1994 and approximately one-half mile from the program area (CNDDB, 2010).
Navarretia prostrata Prostrate navarretia	--/--/List 1B	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools	**Low.** Habitat within the program area does not support this species. On-site grasslands are highly disturbed. CNDDB sighting in 2002 approximately five and one half miles from the program area (CNDDB, 2010).
AMPHIBIANS			
Federal or State Threatened and Endangered Species			
Ambystoma californiense California tiger salamander	FT/CSC	Breeds in ponded water or other slow moving seasonal waters. Inhabits underground, upland refuges such as ground squirrel burrows.	**Low.** Habitat within the program area does not support this species. Flows within creeks are too high during the breeding season and upland areas are extremely developed and do not provide suitable refugia and aestivation habitat. Closest CNDDB recorded sighting in 2001 approximately seven miles from the program area (CNDDB, 2010).
Rana draytonii California red-legged frog	FT/CSC	Breed in stock ponds, pools, and slow-moving streams	**Low** The majority of habitat within the program area does not support this species. However, habitats within the Upper Calera Creek provide potentially suitable habitat for this species but this species has not been observed within the program areas. The closest known occurrence is at least seven miles away in Penitencia Creek in Alum Rock Park (CNDDB, 2010).

TABLE 3.D-2 (Continued)
SPECIAL-STATUS SPECIES KNOWN FROM THE REGIONAL VICINITY OF THE PROGRAM AND ANALYZED FOR THE PROGRAM

Scientific Name **Common Name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat**	**Potential for Species Occurrence in the Program Area**
AMPHIBIANS (cont.)			
		State Species of Special Concern	
Rana boylii Foothill yellow-legged frog	--/CSC	Shallow, flowing streams with some cobble-sized substrate	**Low.** Creeks do not provide suitable habitat for this species Cobble-sized substrate not found in program area. CNDDB nearest sighting approximately five miles east from the program area at Calaveras Reservoir (CNDDB, 2010).
REPTILES			
		State Species of Special Concern	
Actinemys marmorata Western pond turtle	--/CSC/	Lakes, ponds, reservoirs, and slow-moving streams and rivers, primarily in foothills and lowlands	**Moderate.** Potential suitable habitat occurs within the program area specifically within Upper Calera Creek, Lower Berryessa Creek, and Lower Penitencia Creek. Flows within the creeks are likely too high during the winter months for this species. This species was not identified during any surveys of the program area (Padley, 2005a).
FISH			
		Federal or State Threatened and Endangered Species	
Oncorhynchus tshawytscha Chinook salmon	FE/CSC	Drainages of San Francisco and San Pablo bays, central California coastal rivers	**Low.** Creeks within the program area do not provide suitable habitat nor do they support Chinook salmon. Migration barriers exist downstream of the program area.
Oncorhynchus mykiss Central California coast steelhead	FT/CSC	Drainages of San Francisco and San Pablo bays, central California coastal rivers	**Low.** Creeks within the program area do not provide suitable spawning or juvenile rearing habitat (Podlech, 2005). Nearest CNDDB sighting over five miles from the program area (CNDDB, 2010). Migration barriers exist downstream of the program area.
BIRDS			
		State Species of Special Concern	
Accipiter cooperi Cooper's hawk	--/CSC	Nests in riparian growths of deciduous trees and live oak woodlands. Also nests in larger trees of urban and suburban residential neighborhoods.	**Moderate.** Within the program area foraging areas and trees provide limited habitat (food and nesting) (Padley, 2005b). Nearest recorded sighting approximately seven miles from the program area and documented over 10 years ago in 1996 (CNDDB, 2010).
Agelaius tricolor Tricolored blackbird	--/CSC	Colonial nester in emergent freshwater marshes; heavy cattail, tule growth.	**Moderate.** Tricolored blackbirds are occasionally seen during the winter months in the Milpitas area. Potential habitat is present within the program area. Nearest recorded sighting approximately two and one half miles from the program area; documented 10 years ago in 1999 (CNDDB, 2010).
Aquila chrysaetos Golden eagle	--/CSC	Forages in grasslands, deserts, and other open habitats; nests on cliffs or in large trees	**Low.** Habitat within the program area does not support this species. Nearest documented occurrence over 10 miles from the program area (CNDDB, 2010).

TABLE 3.D-2 (Continued)
SPECIAL-STATUS SPECIES KNOWN FROM THE REGIONAL VICINITY OF THE PROGRAM AND ANALYZED FOR THE PROGRAM

Scientific Name **Common Name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat**	**Potential for Species Occurrence in the Program Area**
BIRDS (cont.)			
State Species of Special Concern (cont.)			
Athene cunicularia Western burrowing owl	--/CSC	Found in open, dry annual or perennial grasslands, deserts and scrublands characterized by low-growing vegetation, subterranean nester in small mammal burrows	**Low.** Burrowing owls require burrows excavated by ground squirrels. Surveys by District biologists have been negative (Padley 2005b). No burrowing owls or burrows with evidence of burrowing owl use were identified during ESA surveys. Nearest CNDDB recorded sighting documented in 1996, approximately eight miles from the program area (CNDDB, 2010).
Asio otus Long-eared owl	--/CSC	Frequents dense, riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats	**Low.** Habitat within the program area does not support this species. CNDDB does not report any known occurrences within five miles of the program area (CNDDB, 2010).
Buteo jamaicensis Red-tailed hawk	--/3503	Nests in large oaks and conifers. The Bay Area's most common urban raptor.	**Moderate.** May nest in larger trees adjacent to the program area. May forage over creek channels. Suitable habitat occurs within program area in native and ornamental trees.
Buteo lineatus Red-shouldered hawk	--/3503	Commonly nests in riparian corridors but becoming increasingly common in urban areas throughout the East Bay, nesting in large trees.	**Moderate.** Fairly common locally in urban and suburban areas adjacent to urban areas. May nest in larger trees in parks or residential neighborhoods adjacent to the program area.
Circus cyaneus Northern harrier	--/CSC	Mostly nests in emergent vegetation, wet meadows or near rivers and lakes, but may nest in grasslands away from water	**Low.** Habitat within the program area does not support this species. Harriers are ground nesters need large extensive open areas to forage and the surrounding landscape is highly developed. Nearest recorded sighting approximately eight miles from the program area (CNDDB, 2010).
Elanus leucurus White-tailed (=black shouldered) kite	--/CFP	Large areas of open grasslands, meadows, marshes; dense-topped trees for nesting.	**Low.** Foraging areas and trees are limited within program area and area is surrounded by development. Foraging area is not available outside of the channel. Nearest recorded sighting approximately three miles from program area (CNDDB, 2010).
MAMMALS			
State Species of Special Concern			
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	--/CSC	Forest habitats of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	**Low**. Suitable habitat for this species occurs within areas of Upper Calera Creek only. CNDDB does not report any known occurrences of this species within 10 miles of the program vicinity (CNDDB, 2010)

TABLE 3.D-2 (Continued)
SPECIAL-STATUS SPECIES KNOWN FROM THE REGIONAL VICINITY OF THE PROGRAM AND ANALYZED FOR THE PROGRAM

Scientific Name **Common Name**	**Listing Status USFWS/ CDFG/CNPS**	**General Habitat**	**Potential for Species Occurrence in the Program Area**
MAMMALS (cont.)			
State Species of Special Concern (cont.)			
Antrozous pallidus Pallid bat	--/CSC	Roosts in a variety mainly dry habitats. Needs protection from high temperatures and is sensitive do disturbance.	**Low.** Although the program area may provide potential habitat, this species is particularly sensitive to disturbance and is therefore unlikely to be found within the vicinity. The nearest occurrence of this species is approximately seven miles from the program area in San José (CNDDB, 2010).
Corynorhinus townsendii Townsend's big-eared bat	--/CSC	Roosts in caves, old buildings, and occasionally under bridges. Forages in edge habitats along streams and areas adjacent to and within a variety of wooded habitats.	**Low.** Some of the overpasses located adjacent to the program areas may provide suitable roosting habitat; however, this species is extremely sensitive to human disturbance. Nearest recorded occurrence approximately five miles from the program area in the foothills (CNDDB, 2010).
Lasiurus blossevillii Western red bat	--/CSC	Typically solitary, roosting primarily in the foliage of trees or shrubs. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**Low.** The western red bat is associated with riparian habitats and roosts in snags and trees with dense canopies and an open understory for escape during night-time feeding. Roosting habitat available in riparian woodland within the Upper Calera Creek area. Marginal foraging habitat is present along Upper Calera Creek.

STATUS CODES:

Federal (USFWS):
FE = Listed as Endangered by the Federal Government
FT = Listed as Threatened by the Federal Government
FSC = Former Federal Species of Special Concern (Sacramento FWS list is no longer maintained)

State (CDFG):
CE = Listed as Endangered by the State of California
CT = Listed as Threatened by the State of California
CSC = California species of special concern
CFP = California fully protected species
3503.5 = Protection for nesting species of Falconiformes (hawks) and Strigiformes (owls)

CNPS:
List 1B = Plants rare, threatened, or endangered in California and elsewhere
List 2 = Plants rare, threatened, or endangered in California but more common elsewhere

An extension reflecting the level of threat to each species is appended to each rarity category as follows:
.1 – Seriously endangered in California
.2 – Fairly endangered in California
.3 – Not very endangered in California

SOURCES: CNPS, 2010; CDFG, 2010; USFWS, 2010a

vegetation such as cattails, tules, and blackberry thickets. The wetland habitats within the creek channels only provide marginal habitat for this species and are not likely to be dense enough for breeding. CNDDB reports known occurrences of this species within the City of Milpitas, approximately four and one half miles from the program area (CNDDB, 2010).

Red-tailed hawk (*Buteo jamaicensis*). The red-tailed hawk is protected under California's State Fish and Game Code, Section 3503.5. Red-tailed hawks are commonly found in woodlands and open country with scattered trees. These large hawks feed primarily on small mammals, but will also prey on other small vertebrates, such as snakes and lizards, as well as on small birds and invertebrates. Red-tailed hawks nest in a variety of trees in urban, woodland, and agricultural habitats. Larger trees in the parks and residential areas adjacent to the program area may be used by red-tailed hawks for nesting, and the open areas along the program area creek channels provide foraging habitat for the species.

Red-shouldered hawk (*Buteo lineatus*). Red-shouldered hawks are also protected under California's State Fish and Game Code, Section 3503.5. This species is relatively common in both rural and urban areas and can be found in residential neighborhoods and along riparian corridors or other waterbodies. These hawks hunt primarily for mammals, reptiles, and amphibians. Similar to red-tailed hawk, larger trees within Upper Calera Creek and in residential areas and parks adjacent to the program area provide potential nesting habitat for this species.

Amphibians

California red-legged frog (*Rana draytonii*). The California red-legged frog is federally listed as threatened, and is a California species of special concern. The USFWS issued a revised critical habitat designation for the California red-legged frog on March 17, 2010 (USFWS, 2010b). The program area does not fall within critical habitat for California red-legged frog.

Historically, the California red-legged frog occurred in coastal mountains from Marin County southward to northern Baja California, and along the floor and foothills of the Central Valley from about Shasta County southward to Kern County (Jennings and Hayes, 1994). Currently, this subspecies generally only occurs in the coastal portions of its historical range; it has been apparently extirpated from the valley and foothills and from most of Southern California south of Ventura County. California red-legged frogs are usually confined to aquatic habitats such as creeks, streams, and ponds, and occur primarily in areas having pools approximately three feet deep, with adjacent dense emergent or riparian vegetation (Jennings and Hayes, 1988). Adult frogs move seasonally between their egg-laying sites and foraging habitat, but they rarely move large distances from their aquatic habitat. California red-legged frogs breed from November to March. Egg masses are attached to emergent vegetation (Jennings and Hayes, 1994) and hatch within 14 days. Metamorphosis generally occurs between July and September.

Within Lower Berryessa, Lower Calera, Tularcitos, and Lower Penitencia creeks, only marginal dispersal[4] habitat for California red-legged frogs has been observed. In-stream aquatic habitat does not provide suitable breeding habitat in the form of deep, cool pools or slack water areas. The in-stream vegetation also does not provide suitable breeding habitat or refugia. And while upland habitat occurs adjacent to the canals along the levees, the levees do not contain friable soils or holes or mammal burrows and therefore do not provide suitable upland refugia habitat for this species. Upper Calera Creek Elements 1 and 2 provide potential suitable dispersal habitat for this species but there are no documented occurrences within the program area.

Reptiles

Western Pond Turtle (*Actinemys marmorata*). Western pond turtle is a California species of special concern. Historically, this turtle had a relatively continuous distribution in most Pacific slope drainages from Klickitat County, Washington, along the Columbia River to Arroyo Santo Domingo, northern Baja California, and Mexico. The known elevational range of the western pond turtle extends from near sea level to about 4,690 feet above sea level. In California, western pond turtles were historically present in most Pacific slope drainages between the Oregon and Mexican borders (Jennings and Hayes, 1994).

Western pond turtles require some slack- or slow-water aquatic habitat. Pond turtles are uncommon in high-gradient streams, probably because their local distribution may be limited by water temperatures, current velocity, food resources, or any combination thereof. Habitat quality seems to vary with the availability of aerial and aquatic basking sites; however, western pond turtles often reach higher densities where many aerial and aquatic basking sites are available. Hatchlings require shallow water habitat with relatively dense submergent or short emergent vegetation in which to forage. Western pond turtles also require an upland oviposition site in the vicinity of the aquatic site. Suitable oviposition sites must have the proper thermal and hydraulic environment for incubation of the eggs. The thin-shelled eggs of these turtles are suited to development in a dry nest; in an excessively moist nest (irrigated areas), eggs have a high probability of failing. Nests are typically located on a slope that is unshaded to ensure that substrate temperatures would be high enough to incubate the eggs.

This aquatic turtle usually leaves the aquatic site to reproduce, aestivate, and overwinter. Western pond turtles may overwinter on land or in water, or may remain active in water during the winter season (Jennings and Hayes, 1994). Mating, which has been rarely observed, typically occurs in late April or early May, but may occur year-round. Females migrate from the aquatic site to an upland location and deposit from one to 13 eggs in a shallow excavation. The nesting site can be more than 1,315 feet from the aquatic site (Reese, 1996), but average distance is probably less than 655 feet (Jennings and Hayes, 1994). Females may lay more than one clutch per year, usually during May and June, although some individuals may deposit eggs as early as late April and as late as early August (Jennings and Hayes, 1994).

[4] Dispersal habitat is considered habitat areas that would be used to migrate from one habitat to another but where no suitable breeding habitat occurs.

Within the program area, the temporary pools and open water areas with the creek channels provide potential habitat for this species. However, the steep levee slopes do not provide suitable nesting habitat for western pond turtles. And whiles Lower Berryessa and Lower Penitencia creeks do provide some marginal basking habitats within the channels, this species has not been documented to occur within the program area.

Mammals

Western red bat (*Lasiurus blossevillii*). The western red bat is a California Species of Special Concern that has a widespread distribution throughout California. The western red bat prefers snags and trees with moderately dense canopies for roosting, and may roost as low as four feet off the ground among dense foliage that provides shade during the day and is open below to allow escape for feeding at night. The western red bat's primary foods include crickets, cicadas, moths, beetles, plant hoppers, ants, and flies. Food is taken in flight, and the bat is reported to follow regular flight paths during feeding and foraging at decreasing heights as the sky darkens. Upper Calera Creek Elements 1 and 2 include dense riparian habitat and sycamore trees that could provide potentially suitable habitat; however, this species has not been documented within the program area.

San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a California species of special concern and is a medium-sized native rodent. Dusky-footed woodrats are widespread in chaparral, woodland, and forest habitats with well-developed undergrowth, where their conical stick houses are often visible. These houses (or middens) may be as much as six feet tall, and contain multiple chambers used for sleeping and food storage. Houses are usually occupied by single adults or females with young and can be used by successive generations of woodrats. Woodrat houses provide cover for many other animal species, including small mammals, reptiles, amphibians, and arthropods. Woodrats feed primarily on the foliage of evergreen broadleaf plants such as oaks, coffeeberry (*Rhamnus californica*), Mexican elderberry, toyon, and gooseberry (*Ribes* spp.) Reproduction occurs from February through September. Suitable habitat for San Francisco dusky-footed woodrat occurs within Upper Calera Creek upstream of I-680; however, this species has not been documented within the program area.

3.D.2 Regulatory Setting

Many biological resources in California are protected and/or regulated by a variety of laws and policies administered by federal, state, and/or local agencies. The following is an overview of the key agencies, regulations, and policies relevant to the Lower Berryessa Creek Program.

Federal Regulations

The USFWS and the National Oceanic and Atmospheric Administration (NOAA) / National Marine Fisheries Service (NMFS) have joint authority to list a species as threatened or endangered under the Federal Endangered Species Act (FESA) (16 USC 153 et seq.). The

USFWS has authority over the Migratory Bird Treaty Act (16 USC 703–711), the Bald Eagle Protection Act (16 USC 668), and the Fish and Wildlife Coordination Act (16 USC 661-667e). The U.S. Army Corps of Engineers has authority to regulate the discharge of dredged or fill material into wetlands and waters of the U.S., under Section 404 of the Clean Water Act (33 USC 1344).

Federal Endangered Species Act

Under FESA, the Secretary of the Interior (represented by the USFWS) and the Secretary of Commerce (represented by NMFS) have joint authority to list a species as threatened or endangered (16 USC 1533[c]). Two federal agencies oversee FESA: USFWS has jurisdiction over plants, wildlife, and resident fish, and NMFS has jurisdiction over anadromous fish and marine fish and mammals. FESA Section 7 mandates that all federal agencies consult with USFWS and NMFS to ensure that federal agency actions do not jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat for listed species (see the discussion below under Critical Habitat). FESA prohibits the unauthorized "take"[5] of any fish or wildlife species listed as threatened or endangered, including the destruction of habitat that could hinder species recovery.

Pursuant to the requirements of Section 7 of the FESA, a federal agency reviewing a proposed program within its jurisdiction must determine whether any federally listed threatened or endangered species could be present in the program area, and whether the program action would have a potentially significant effect on such species. In addition, the agency is required to determine whether the program action is likely to jeopardize the continued existence of any species proposed to be listed under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]). Section 7 consultation would be conducted by the U.S. Army Corps of Engineers in conjunction with issuance of Clean Water Act Section 404 permits for the Program.

Critical Habitat

Under the FESA, critical habitat is formally designated by the Secretary of Interior (or Commerce as appropriate) for survival and recovery of listed species. Critical habitat designations are specific areas within a geographic region that are occupied by a species and determined to be critical to its survival in accordance with FESA. Federal entities issuing permits or acting as a lead agency must show that their actions do not negatively affect the critical habitat to the extent that it impedes the recovery of the species. The program area does not include designated critical habitat for any FESA-listed species.

5 "Take" is defined as harassing, harming, pursuing, hunting, shooting, wounding, killing, trapping, capturing, collecting, or attempting to engage in any such conduct.

Migratory Bird Treaty Act – Protection of Nesting Birds

The Migratory Bird Treaty Act (16 USC § 703, Supp. I, 1989) prohibits the killing, possessing, or trading of migratory birds, bird parts, eggs, and nests, except in accordance with regulations prescribed by the Secretary of the Interior. Birds of prey are protected in California under Fish and Game Code Section 3505.5. Under this section it is "unlawful to take, possess, or destroy the nests or eggs of any such bird, accept otherwise provided by this code or any other regulation adopted hereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment and/or reproductive failure. The CDFG considers disturbance that causes nest abandonment or reproductive failure to constitute a take. Any loss of eggs, nests, or young, or any activities resulting in nest abandonment, is considered a significant impact. Program impacts on these species would not be deemed significant unless the species are known to be present in the area, or if they have high potential to nest in the program area or to rely on it for its primary foraging.

Bald Eagle Protection Act

Under the Bald Eagle Protection Act (16 USC 668-668d), it is illegal to import, export, take, sell, purchase, or barter any bald eagle or golden eagle or part thereof.

Clean Water Act

Section 404 of the federal Clean Water Act (CWA) regulates activities in wetlands and "other waters" of the United States. CWA Section 404 permits are required for the placement of dredged or fill materials into waters of the United States, including wetlands. Wetlands are a subset of "waters of the United States" that are defined in the Code of Federal Regulations (CFR) (33 CFR 328.3[a]; 40 CFR 230.3[s]). Wetlands are defined as those areas that are inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetland determination under the federal wetland definition adopted by the Corps requires the presence of three factors: (1) wetland hydrology, (2) plants adapted to wet conditions, and (3) soils that are routinely wet or flooded [33 CFR 328.3(b)].

State Regulations

California Endangered Species Act

Under the California Endangered Species Act (CESA) (Fish and Game Code § 2050 et seq.), CDFG has the responsibility for maintaining lists of:

- Threatened and endangered species;
- Candidate species, which are species for which the California State Fish and Game Commission has formally accepted a petition for listing, but for which it has not yet issued a ruling; and

- Species of special concern, which are animal species whose populations have diminished and may be considered for listing if declines continue.

Pursuant to the requirements of CESA, a state or local public agency reviewing a proposed project within its jurisdiction must determine whether any state-listed endangered or threatened species may be present in the program area and determine whether the Program would have a potentially significant impact on such species. In addition, CDFG encourages informal consultation on any proposed project that could affect a candidate species. Actions otherwise prohibited under CESA can be legalized under the state's Natural Community Conservation Planning Act (Fish and Game Code §§ 2800–2840), which is somewhat broader in its orientation and objectives than CESA or FESA and focuses on the preservation of habitat. More commonly, and for the potential taking of individual animals (as opposed to habitat) listed under CESA, Fish and Game Code Sections 2080.1 and 2081 provide for issuance of an incidental take permit. CDFG will issue an incidental take permit only if: the authorized take is incidental to an otherwise lawful activity; the impacts of the authorized take are minimized and fully mitigated; and adequate funding is provided to implement the minimization and mitigation measures.

CDFG also designates and maintains a list of species of special concern, which are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational, or educational value. These species do not have the same legal protection as listed species or fully protected species, but may be added to official lists in the future. CDFG intends the species of special concern list to be a management tool for consideration in future land use decisions.

Fully Protected Species – California Fish and Game Code §§ 3511, 4700, 5050, and 5515

In general, ~~F~~fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for their take, except for collecting these species for necessary scientific research and relocation of the bird species for the protection of livestock. Many fully protected species have also been listed as threatened or endangered species under the more recent endangered species laws and regulations; however, because the original statutes have not been repealed or amended, the legal protection of "no take" is still generally applicable. However, the take of fully protected species "whose conservation and management" is provided for in an approved Natural Community Conservation Plan has recently been authorized (Senate Bill 618).

Protection of Nesting Birds – California Fish and Game Code §§ 3503.5 and 3513

Section 3503.5 states that it is "unlawful to take, possess, or destroy the nests or eggs of any such bird of prey (i.e., species in the orders falconiformes and strigiformes) except as otherwise provided by this code or any other regulation adopted hereto." Section 3513 states that it is also unlawful to take or possess any migratory non-game bird (or part of such migratory non-game bird) as designated in the Migratory Bird Treaty Act. Disturbance that causes nest abandonment

and/or reproductive failure is considered a take by CDFG. This statute does not provide for the issuance of an incidental take permit.

Native Plant Protection Act-California Fish and Game Code §§ 1900-1913

The California Native Plant Protection Act (Fish and Game Code § 1900–1913) provides guidance on the preservation of plant resources. Vascular plants listed as rare or endangered by the CNPS but which have no designated status or protection under federal or state endangered species legislation, are defined as follows:

- **List 1A:** Plants presumed extinct;
- **List 1B:** Plants rare, threatened, or endangered in California and elsewhere;
- **List 2:** Plants rare, threatened, or endangered in California, but more numerous elsewhere;
- **List 3:** Plants about which more information is needed (a review list); and
- **List 4:** Plants of limited distribution (a watch list).

In general, plants appearing on CNPS Lists 1A, 1B, or 2 are considered to meet the criteria of endangered, rare, or threatened under the CEQA Guidelines Section 15380. Additionally, plants identified on CNPS Lists 1A, 1B, or 2 meet the definition of Section 1901, Chapter 10 (Native Plant Protection Act) and Sections 2062 and 2067 (CESA) of the California Fish and Game Code as rare or endangered species.

Waters of the State

State Water Resources Control Board/Regional Water Quality Control Board

In California, pursuant to Section 401 of the CWA, the SWRCB considers that "waters of the ~~s~~State" include, but are not limited to, rivers, streams, lakes, bays, marshes, mudflats, unvegetated seasonally ponded areas, drainage swales, sloughs, wet meadows, natural ponds, vernal pools, diked bay lands, seasonal wetlands, and riparian woodlands. Under the Porter-Cologne Water Quality Control Act (Porter-Cologne), all waters of the United States that are within the borders of California are also waters of the state. ~~Subsequent to~~As a result of the *Solid Waste Association of Northern Cook Counties v. United States Corps of Engineers* decision, the SWRCB has ~~resulted in having~~ sole jurisdiction over certain "isolated waters" that are not regulated by the Corps. Most of the implementation of the SWRCB's responsibilities is delegated to the nine Regional Water Quality Control boards (RWQCBs). The program area falls within the jurisdiction of the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB).The regional boards take Section 401 water quality certification actions for activities subject to any permit issued by the Corps pursuant to Section 404 and also administer the NPDES construction general permit program. See Section 3.I for a description of the construction general permit program.

California Fish and Game Code §§ 1600-1616

Under Sections 1600-1616 of the California Fish and Game Code, CDFG regulates activities that substantially divert, obstruct the natural flow of, or substantially change rivers, streams, and lakes. The jurisdictional limits of Section 1600-1616 of the California Fish and Game Code are defined as the bed, channel, or bank of any river, stream, or lake. CDFG regulates activities that would take place near, or result in, the deposit or disposal of debris, waste, or other materials into any river, stream, or lake and requires a Lake and Streambed Alteration Agreement for these activities. CDFG would draft a Lake and Streambed Alteration Agreement that includes measures for protecting fish and wildlife resources that could be affected during project implementation.

Local Plans, Policies, and Ordinances

Santa Clara County General Plan

The Santa Clara County General Plan (SCCGP) provides policies regarding resource conservation for unincorporated areas; however, it is intended to provide guidance for the cities within its boundary as well. SCCGP resource conservation policies pertaining to the program area include; water quality and watershed management, habitat and biodiversity, and heritage resources (such as heritage trees). The following is a summary of the policies and implementation that specifically pertain to resource conservation issues along the program area:

- *Water Quality & Watershed Management*

  C-RC-19: The strategies for maintaining and improving water quality on a countywide basis, in addition to ongoing point source regulation, should include:

  a. effective non-point source pollution control;
  b. restoration of wetlands, riparian areas, and other habitats which serve to improve Bay water quality; and,
  c. comprehensive Watershed Management Plans and “best management practices” (BMPs)

  C-RC 20: Adequate safeguards for water resources and habitats should be developed and enforced to avoid or minimize water pollution of various kinds, including:

  a. erosion and sedimentation;
  b. organic matter and wastes;
  c. pesticides and herbicides;
  d. effluent from inadequately functioning septic systems;
  e. effluent from municipal wastewater treatment plants;
  f. chemicals used in industrial and commercial activities and processes;
  g. industrial wastewater discharges;
  h. hazardous wastes; and
  i. non-point source pollution.

C-RC 22: Countywide, compliance should be achieved with the requirements of the National Pollution Discharge Elimination System (NPDES) permit for discharges into S.F. Bay, and to that end, the Countywide Nonpoint Source Pollution Control Program should receive the full support and participation of each member jurisdiction.

C-RC 25: Wetlands restoration for the purpose of enhancing municipal wastewater treatment processes, improving habitat and passive recreational opportunities should be encouraged and developed where cost-effective and practical.

- *Habitat and Biodiversity*

  C-RC 27: Habitat types and biodiversity within Santa Clara County and the region should be maintained and enhanced for their ecological, functional, aesthetic, and recreational importance.

  C-RC 28: The general approach to preserving and enhancing habitat and biodiversity countywide should include the following strategies:

  1. Improve current knowledge and awareness of habitats and natural areas.
  2. Protect the biological integrity of critical habitat areas.
  3. Encourage habitat restoration.
  4. Evaluate the effectiveness of environmental mitigations.

  C-RC 31: Areas of habitat richest in biodiversity and necessary for preserving threatened or endangered species should be formally designated to receive greatest priority for preservation, including baylands and riparian areas, serpentine areas, and other habitat types of major significance.

  C-RC 32: Land uses permitted in resource conservation areas should not be allowed to degrade the integrity of natural habitat.

  C-RC 33: Linkages and corridors between habitat areas should be provided to allow for migration and otherwise compensate for the effects of habitat fragmentation.

  C-RC 34: Restoration of habitats should be encouraged and utilized where feasible, especially in cases where habitat preservation and flood control, water quality, or other objectives can be successfully combined.

  C-RC 35: The status of various threatened and endangered species and the effectiveness of strategies and programs to preserve biodiversity should be monitored and evaluated on an ongoing basis.

  C-RC 36: Specific project mitigations for the purpose of preserving habitat should be monitored for a period of time to assure the likelihood of their effectiveness.

- *Heritage Resources*

  C-RC 52: Prevention of unnecessary losses to heritage resources should be ensured as much as possible through adequate ordinances, regulations, and standard review procedures. Mitigation efforts, such as relocation of the resource, should be employed where feasible when projects will have significant adverse impact upon heritage resources.

C-RC 54: Heritage resources should be restored, enhanced, and commemorated as appropriate to the value and significance of the resource.

Milpitas General Plan

The City of Milpitas General Plan combines the requirements for open space and environmental conservation into one element (City of Milpitas, 2002). The following is a summary of the guiding principles and policies from that section that apply to the Program.

- *Biotic Resource Guiding Principles*

  4.b-G-1: Protect and conserve open spaces which are necessary for wildlife habitats and unique ecological patterns.

  4.b-G-2: Preserve and protect populations and supporting habitat of special-status species within the Planning Area, including species that are state or federally-listed as Rare, Threatened, or Endangered, all federal "candidate" species for listing and other species proposed for listing, and all California Species of Special Concern.

- *Biotic Resource Policies*

  4.b-I-1: Strictly enforce grading regulations controlling removal of vegetative cover from hillside areas.

  4.b-I-2: Preserve remaining stands of trees.

  4.b-I-3: Recreation use of essentially virgin areas should be centered around activities which have a minimally disruptive effect on natural vegetation.

  4.b-I-4: Require a biological assessment of any project area where sensitive species are present, or where habitats that support known sensitive species are present.

  4.b-I-5: Utilize sensitive species information acquired through biological assessments, project land use, planning and design.

- *Water Quality and Conservation Guiding Principles*

  4.d-G-1: Protect and enhance the quality of water resources in the Planning Area.

  4.d-G-2: Promote conservation and efficiency in the use of water.

- *Water Quality Policies*

  4.d-I-1: Continue implementing the National Pollutant Discharge Elimination System (NPDES) requirements of the RWQCB.

Habitat Conservation Plans

Currently, there are no adopted habitat conservation plans (HCPs) that apply to the program area. However, two plans are currently being developed within the Santa Clara Valley region:

- The District is currently preparing the Three Creeks Habitat Conservation Plan for Water Supply Operations to protect and enhance habitats for a suite of aquatic species and provide for the conservation of species impacted by its on-going water supply operations in the northern Santa Clara Valley. The HCP would apply to operations within three

watersheds: Coyote, Guadalupe, and Stevens Creek. Milpitas is in the Coyote Creek watershed. Concurrent with preparation of the HCP, an environmental impact report / environmental impact statement (EIR/EIS) will be prepared.

- The Santa Clara Valley Habitat Conservation Plan/Natural Community Conservation Plan (SCV HCP/NCCP) is currently being prepared. SCV HCP/NCCP is a regional partnership between six local partners (County of Santa Clara, Santa Clara Valley Transportation Authority, the District, and the Cities of San Jose, Gilroy, and Morgan Hill) and two wildlife agencies (CDFG and USFWS). The SCV HCP/NCCP is studying approximately 62 percent of the land area of Santa Clara County, or approximately 520,000 acres. The study area lies primarily within southern Santa Clara County and includes all of the City of San Jose except for Bayland areas. Land areas within City of Milpitas, including the ~~P~~program area, are not included in the SCV HCP/NCCP.

Local Ordinances

City of Milpitas Code of Ordinances

The City of Milpitas has adopted a tree protection and heritage tree program entitled the Tree Maintenance and Protection Ordinance of the City of Milpitas. Under tha~~t~~te program, it is ~~be~~ unlawful to remove, without permit, trees within the city limits that meet the following criteria:

- All trees (including non-natives) which have a fifty-six-inch or greater circumference of any trunk measured four and one half feet from the ground and located on developed residential property;
- All trees which have a thirty-seven-inch or greater circumference of any trunk measured four and one half feet from the ground and located on developed commercial or industrial property;
- All trees which have a thirty-seven-inch or greater circumference of any trunk measured four and one half feet from the ground, when removal relates to any transaction for which zoning approval or subdivision approval is required; any tree existing at the time of a zoning or subdivision approval and was a specific subject of such approval or otherwise covered by previously mentioned provisions;
- All trees which have a thirty-seven-inch or greater circumference of any trunk measured four and one half feet from the ground and located on a vacant, undeveloped or underdeveloped property;
- All heritage trees or groves of trees.[6]

[6] Heritage tree designation may be applied by resolution of the City Council to individual trees or a grove of trees of any size or species within the City of Milpitas that are distinctive, of special historical value, or of significant community benefit. A tree or grove of trees may be designated as a heritage tree or heritage tree grove upon a finding that it is unique and of importance to the community due to any of the following factors: (1) it is an outstanding specimen or grove of a desirable species; (2) it is one of the largest or oldest trees or grove of trees in Milpitas; and/or (3) the tree or grove of trees possesses distinctive form, size, age, location, and/or historical significance.

3.D.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on biological resources if it were to:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS;
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG, SFBRWQCB, or USFWS;
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species, or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; or
- Conflict with the provisions of an adopted HCP, natural community conservation plan (NCCP), or other approved local, regional, or state HCP.

Approach to Analysis

Under Section 15065(a)(1) of the CEQA Guidelines, a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to (1) substantially reduce the habitat of a fish or wildlife species; (2) cause a fish or wildlife population to drop below self-sustaining levels; or (3) substantially reduce the number or restrict the range of an endangered, rare, or threatened species.

For the purposes of this EIR, the definition of the word "substantial," as used in the significance criteria above, has three principal components, each of which contributes to some degree in the analysis of impacts on biological resources:

- Magnitude and duration of the impact (e.g., substantial/not substantial);
- Uniqueness of the affected resource (rarity); and
- Susceptibility of the affected resource to disturbance.

The evaluation of significance must also consider the interrelationship of these three components. For example, a relatively small-magnitude impact on a state or federally listed species could be considered significant because the species is rare and believed to be very susceptible to disturbance. Conversely, a natural community such as California annual grassland is not

necessarily rare or sensitive to disturbance, and thus a much larger magnitude of impact might be required to result in a significant impact. Impacts on biological resources are considered significant when program-related habitat modifications (e.g., development, introduction of non-native plant and animal species, increased human intrusion, barriers to movement, or landscape management) could reduce species populations to the extent that they become locally less numerous; impacts on habitats are considered significant when the habitats could not continue to support viable populations of associated plant and animal species as a result of program implementation.

No Impact Significance Determinations

Due to the nature and geographic extent of the Program, and/or the non-applicability of the criteria to the Program, there would be no impacts related to the following criterion; therefore, no impact discussion is provided for these topics for the reasons described below:

> *Conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional or state HCP*. There are no adopted HCCPs or NCCPs that include the program area. Two HCPs applicable to the Santa Clara County area are currently being developed, as described in Section 3.D.2, Regulatory Setting, but neither of these plans ~~have~~ has been formally adopted, and one does not include land areas in the city of Milpitas. Therefore, there would be no impacts on local or state HCPs.

Impact Summary

Table 3.D-3 summarizes the impacts associated with the Program. Table 3.D-4 summarizes the District BMPs and mitigation measures that would be implemented to reduce impacts to less-than-significant levels.

Impacts and Mitigation Measures

Impact 3.D-1: Potential for adverse effects on special-status species including California red-legged frog and western pond turtle. (Less than Significant)

Construction Impacts

All Elements

Construction activities could have direct and indirect impacts on western pond turtle and California red-legged frog, and/or their habitats if they were occur within the program area. Direct impacts could include injury or mortality in the event that individual frogs or turtles were to enter the immediate construction area. Individual frogs or turtles could be trampled or crushed beneath equipment or vehicles. Indirect impacts could also occur if sediment, debris, or hazardous materials were to ~~accidentally~~ be released into the creeks, resulting in impacts on water quality. Construction of the raised levees and installation of the floodwalls would include excavation and storage of excavated material. If not handled correctly, excavated material could be ~~accidentally~~ discharged into creeks, degrade water quality, and directly and/or indirectly impact potential habitat for California red-legged frog and western pond

TABLE 3.D-3
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL BIOLOGICAL RESOURCES IMPACTS

	Impact 3.D-1		Impact 3.D-2		Impact 3.D-3		Impact 3.D-4		Impact 3.D-5		Impact 3.D-6	
	Adverse effects on California red-legged frog and western pond turtle		Adverse effect on special-status birds and bats		Adverse effect on San Francisco Dusky-footed Woodrat		Adverse effect on federally or state protected wetlands or waters and riparian habitats		Impacts on movement corridors for fish and wildlife species		Conflict with local policies or ordinances protecting biological resources, including tree ordinances	
	construction	operations	construction	operations	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements												
Lower Berryessa Creek Element	LTS	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	–	SM	–
Lower Calera Creek	LTS	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	–	SM	–
Program-Level Elements												
Upper Calera Creek Element 1	LTS	LTS	LTS	LTS	SM	LTS	SM	LTS	LTS	–	SM	–
Upper Calera Creek Element 2	LTS	LTS	LTS	LTS	SM	LTS	SM	LTS	LTS	–	SM	–
Tularcitos Creek Element	LTS	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	–	SM	–
Lower Penitencia Creek Element	LTS	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	–	SM	–

SM = Significant Impact, Can Be Mitigated
LTS = Less than significant Impact
– = No Impact

TABLE 3.D-4
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.D-3 Protection of San Francisco Dusky-footed Woodrat		Measure 3.D-4a Wetland and Riparian Habitat Avoidance and Minimization		Measure 3.D-4b Compensate for Wetland and Riparian Habitat Loss		Measure 3.D-6a Tree and Shrub Replacement ~~and Compensation~~		Measure 3.D-6b Tree Protection Measures	
	construction	operations	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements										
Lower Berryessa Creek Element	–	–	–	–	✓	–	✓	–	✓	–
Lower Calera Creek	–	–	–	–	✓	–	✓	–	✓	–
Program-Level Elements										
Upper Calera Creek Element 1	✓	–	✓	–	✓	–	✓	–	✓	–
Upper Calera Creek Element 2	✓	–	✓	–	✓	–	✓	–	✓	–
Tularcitos Creek Element	–	–	✓	–	✓	–	✓	–	✓	–
Lower Penitencia Creek Element	–	–	✓	–	✓	–	✓	–	✓	–

✓ = Applicable Impact
– = No Impact

turtle. Accidental discharge of fuel, lubricants, or other hazardous materials into creeks could result in degradation of water quality and habitat for these species.

In channel construction would occur during the dry season (mid-June through mid-October) when flows within the creeks would be expected to be low or, in some cases, nonexistent. Low flows would reduce but not eliminate the potential for these species to be present in the program area. District BMPs would minimize impacts on California red-legged frog and western pond turtle (see Appendix B). BMP BI-2 (Avoid and Minimize Impacts on Native Aquatic Vertebrates) includes provisions to conduct preconstruction surveys by a qualified biologist to determine the potential for presence of aquatic species prior to the start of construction, and would require the relocation of California red-legged frog and western pond turtle in the event they occur in the work area. ~~This BMP also includes provisions to conduct preconstruction surveys by a qualified biologist to determine the potential for presences of aquatic species prior to the start of construction.~~ Therefore, direct construction impacts on California red-legged frog and western pond turtle would be less than significant.

Additional BMPs that would minimize indirect construction impacts on California red-legged frog and western pond turtle caused by release of sediment or hazardous materials to be released into creeks include the following: HM-9 to HM-14, WQ-1 to WQ-8, WQ-11, WQ-12, WQ-14 to WQ-18, WQ-26, WQ-29, WQ-40 and WQ-41. These BMPs, together with the District obtaining coverage under the NPDES construction general permit (see Impact 3.F-2),would assure indirect construction impacts on California red-legged frog and western pond turtle would be less than significant.

Operations Impacts

All Elements

Operations activities include maintenance activities to maintain design capacity of the creeks for flood control. Removal of sediment and debris would be required if sediment reaches greater than one foot above design capacity. Post-construction maintenance activities would be the same or similar to existing maintenance practices. These would include removing silt and sediment from within the creek channels, as well as vegetation management using herbicides and mechanical means. Operations activities could result in injury or mortality of individual frogs or turtles within the maintenance area. Indirect impacts would occur in the event that accidental discharge of sediment, or hazardous materials such as fuel or lubricants, enters the creeks and degrades water quality.

Maintenance activities would occur during the dry season, typically from May through October when flows within the creeks would be low or, in some areas, nonexistent, and therefore it is less likely that California red-legged frog or western pond turtle would occur within the program area. Implementation of BMP BI-2 would require pre-activity surveys and relocation of aquatic vertebrates in the event that species are present in the maintenance areas. Implementation of the following District BMPs would include activities to prevent maintenance activities from affecting water quality or impairing habitat for California

red-legged frogs and western pond turtle: HM-4 to HM-14, WQ-1 to WQ-9, WQ-11, WQ-12, WQ-14 to WQ-18, WQ-26 to WQ-29, WQ-40, and WQ-41. These BMPs would assure impacts on California red-legged frog and western pond turtle as a result of maintenance activities would be less than significant.

Best Management Practices

The following summarizes District BMPs that avoid and minimize impacts on California red-legged frog and western pond turtle:

- BI-2: Avoid and Minimize Impacts on Native Aquatic Invertebrates – applicable to the construction and operations phase of all elements.
- HM-4: Follow All Posting & Notification Requirements for Pesticide Use – applicable to the operations phase of all elements.
- HM-5: Comply with All Pesticide Usage Requirements – applicable to the operations phase of all t elements.
- HM-6: Coordinate Pesticide Use Reporting with the Vegetation Management Unit Manager – applicable to the operations phase of all elements.
- HM-7: Comply with Restrictions on Herbicide Use in Upland Areas – applicable to the operations phase of all elements.
- HM-8: Comply with Restrictions on Herbicide Use in Aquatic Areas – applicable to the operations phase of all elements.
- HM-9: Clean Vehicle and Equipment – applicable to the construction and operations phase of all elements.
- HM-10: Assure Proper Vehicle and Equipment Fueling – applicable to the construction and operations phase of all elements.
- HM-11: Assure Proper Vehicle and Equipment Maintenance – applicable to the construction and operations phase of all elements.
- HM-12: Assure Proper Hazardous Materials Management – applicable to the construction and operations phase of all elements.
- HM-13: Prevent Spills– applicable to the construction and operations phase of all elements.
- HM-14: Know the Spill Kit Location – applicable to the construction and operations phase of all elements.
- WQ-1: Conduct Work from Top of Bank – applicable to the construction and operations phase of all elements.
- WQ-2: Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms – applicable to the construction and operations phase of all elements.

- WQ-3: Assess Pump/Generator Set Operations and Maintenance – applicable to the construction and operations phase of all elements.
- WQ-4: Handle Sediments so as to Minimize Water Quality Impacts – applicable to the construction and operations phase of all elements.
- WQ-5: Avoid Runoff from Soil Stockpiles – applicable to the construction and operations phase of all elements.
- WQ-6: Stabilized Construction Entrance and Exits – applicable to the construction and operations phase of all elements.
- WQ-7: Prevent Erosion Downstream of Bank Protection Sites – applicable to the operations phase of all elements.
- WQ-8: Minimize Sediment Transport Downstream from In-channel Herbicide Sites – applicable to the operations phase of all elements.
- WQ-9: Minimize Local Erosion Increase from In-channel Vegetation Removal – applicable to the operations phase of all elements.
- WQ 10 Evaluate and Select the Most Appropriate Use of Concrete Use Near Waterways – applicable to the construction phase of all elements.
- WQ-11: Use Coffer Dams for Tidal Work Areas – applicable to the operations phase of all elements.
- WQ-12: Diversion/ Bypass Water at Non-tidal Sites – applicable to the construction and operations phase of all elements.
- WQ 13: Minimize Hardscape in Bank Protection Design – applicable to the construction and operations phase of all elements.
- WQ-14: Use Temporary Seeding for Erosion Control As Appropriate– applicable to the construction and operations phase of all elements.
- WQ-15: Manage Groundwater Work at Sites – applicable to the construction and operations phase of all elements.
- WQ-16: Avoid Erosion When Restoring Flows – applicable to the construction and operations phase of all elements.
- WQ-17: Prevent Scour Downstream of Sediment Removal – applicable to the construction and operations phase of all elements.
- WQ-18: Maintain Clean Conditions at Work Sites – applicable to the construction and operations phase of all elements.
- WQ-26: Evaluate Use of Silt Fence Culvert Entrance Protection – applicable to the construction and operations phase of all elements.
- WQ-27: Discharge Surface Protection – Armoring Vehicle and Equipment Cleaning – applicable to the construction phase of all elements.

- WQ-28: Discharge Surface Protection – Flow Diversion Vehicle and Equipment Cleaning – applicable to the construction phase of all elements.
- WQ-29: Evaluate Use of Storm Drain Curb & Drop Inlet Protection – applicable to the construction and operations phase of all elements.
- WQ-40: Prevent Water Pollution – applicable to the construction and operations phase of all elements.
- WQ-41: Prevent Stormwater Pollution – applicable to the construction and operations phase of all elements.

Mitigation: None required.

Impact 3.D-2: Adverse effects on special-status birds or bats. (Less than Significant)

Construction Impacts

All Elements

Program construction activities would require vegetation removal, including the removal of trees and shrubs that provide suitable nesting for birds and raptors and roosting habitat for bats. Removal of potential habitat during nesting, breeding, or roosting could result in impacts on special-status birds and bats. If vegetation removal were to occur during the typical bird nesting season between February and August, bird nests could be destroyed. If vegetation removal were to occur during sensitive periods for bats (winter hibernacula or maternity roosting) impacts on this species could occur including abandonment of young. The District would implement BMPs BI-8 through BI-10 during construction to avoid and minimize impacts on nesting and breeding birds and raptors. The BMPs that address impacts on nesting and breeding birds would also address impacts on special-status bats. BMPs include, avoiding impacts to nesting migratory birds, minimizing impacts during vegetation removal and use of nesting prevention devices. These BMPs would assure impacts on nesting birds and raptors and special-status bats would be less than significant.

Operations Impacts

All Elements

Operations activities would include removal of sediment and debris, as well as vegetation management. Vegetation management could include pruning or removal of shrubs along maintenance roads, similar to current practices. Removal of vegetation, if conducted during the nesting season, could damage or destroy active nests. BMPs BI-8 through BI-10 would ensure impacts on breeding and nesting birds would be less than significant.

Operations impacts typically would not occur in habitat for nesting or breeding western red bats. Vegetation removal would occur within the existing creek channels and along the maintenance roads. Operations impacts on special-status bats would be less than significant.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with adverse effects on special-status birds and bats:

- BI-8: Avoid Impacts to Nesting Migratory Birds – applicable to the construction and operations phase of all elements.
- BI-9: Use Exclusions Devices to Prevent Migratory Bird Nesting – applicable to the construction and operations phase of all elements.
- BI-10: Minimize Impacts to Vegetation Whenever Clearing (or Trimming) is Necessary

Mitigation: None required.

Impact 3.D-3: Adverse effects on San Francisco dusky-footed woodrat habitat. (Less than Significant with Mitigation)

Potential suitable habitat for the San Francisco dusky-footed woodrat only occurs within Upper Calera Creek Elements 1 and 2. Vegetation communities within the other elements do not provide suitable habitat for this species. Within the Upper Calera Creek Elements (1 and 2) vegetation removal, grading, and excavation within San Francisco dusky-footed woodrat habitat could cause destruction of nests and injury or mortality to individual woodrats. These impacts would be potentially significant.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.D-3: ***Protection of San Francisco Dusky-footed Woodrat (Upper Calera Creek Element 1 and Upper Calera Creek Element 2).*** Prior to construction within the Calera Creek Elements 1 and 2 work areas, the District shall ensure that a qualified biologist conducts a survey for woodrat middens (i.e., nests, houses) within all limits of construction no more than two to four weeks before the initiation of clearing or grading. The survey shall be conducted early enough before site clearing in order to ~~address~~ identify any middens requiring removal prior to construction. If no middens or evidence of woodrat nesting is found, no further action is required. If middens are found, the District shall ensure that measures are implemented during construction to avoid or minimize impacts on woodrat and its habitat. Avoidance and minimization measures may include, but are not limited to: establishment of buffer around active nests, construction of exclusion fencing and establishment of buffer areas, disassembling middens and relocation of woodrat middens outside of the work area, and biological monitoring during construction. In addition, in the event woodrat middens are found within

the Upper Calera Element 1 and 2 work areas, the District shall coordinate with CDFG to ensure that any avoidance measures implemented are appropriate and adequate to protect this species.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.D-3 would reduce impacts on San Francisco dusty-footed woodrat to less-than-significant levels by requiring avoidance and minimization measures if middens or evidence of woodrat nesting is found within the program area.

Impact 3.D-4: Adverse effects on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities. (Less than Significant with Mitigation)

Construction Impacts

All Elements

The creeks and associated wetlands within all elements fall under the jurisdiction of the Corps (§ 404 of the CWA), SFBRWQCB (§ 401 of the CWA) and CDFG (§ 1600-1616 of the Fish and Game Code). The SFBRWQCB and CDFG regulate additional areas, which may include non-native grassland and developed areas within the levee banks along all streams in the program area. For the CDFG, this may include trees along the channelized streams where those trees provide riparian habitat functions, such as shading of the streams and contribution of leaf litter and large woody debris to the stream channel. Implementation of the Program could affect jurisdictional wetlands and waters that are located within the stream reaches, both temporarily and permanently. Program construction, including excavation for raised levees and installation of the floodwalls, could result in direct and indirect impacts on wetlands and waters. Direct impacts could include removal of wetland habitat from within the channel during excavation and reconstruction of the raised levees in Lower Berryessa, Lower Calera, Upper Calera, and Lower Penitencia creeks. Direct impacts could also include direct removal of wetland habitat as a result of construction of the pump station on Tularcitos Creek. Finally, direct impacts could occur to Lower Penitencia Creek wetlands during excavation and construction of a widened flood plain near I-880.

As described in Section 3.D.1, Environmental Setting, within the program area, ~~R~~riparian habitat, which is considered jurisdictional by the SFBRWQCB and CDFG, only occurs in Upper Calera Creek Elements 1 and 2, adjacent to Thomas Russell Middle School and Higuera Adobe Park. Construction of these elements could result in the direct removal of riparian habitat, including trees, during construction. Indirect impacts on wetlands ~~would include~~could result from the accidental release of sediment, debris, or hazardous materials during construction activities. Excavated materials would be stored adjacent to jurisdictional waters and aquatic habitats. If not properly managed, excavated materials could be accidentally discharged into the creeks, resulting in degradation of water quality. Construction equipment

and vehicles would be used adjacent to wetlands and aquatic habitats. If not properly maintained, hazardous materials such as fuels and lubricants could be accidentally discharged into wetlands and aquatic habitats resulting in indirect impacts on wetlands or aquatic habitats.

Levee reconstruction would result in temporary and permanent removal of non-native grassland and developed areas within levees along all channelized stream reaches within the program area. These areas may be considered jurisdictional and regulated by the SFBRWQCB and CDFG. Levee reconstruction would also result in the removal of trees, many, if not all of which, were planted along the levees and may provide some level of riparian function and, therefore, would be considered jurisdictional by CDFG. Where trees are located along the levee tops, they serve no riparian function; they are far enough from the streams that they do not provide shaded riverine habitat, nor do they contribute organic material, such as leaf litter or woody debris, to the streams.

Prior to the start of construction, the District would obtain the applicable permits and authorization from the Corps, the SFBRWQCB, and a CDFG Lake and Streambed Alteration Agreement. The District would adhere to all of the terms and conditions in these permits and authorizations. Terms and conditions require no net loss of wetland, riparian, ~~and~~or aquatic habitat and could include, but are not limited to, rectification, restoration~~, enhancement~~, and/or compensatory mitigation ~~for permanent and temporary loss of wetlands, riparian, and aquatic habitats~~.

Implementation of the following District~~s~~ BMPs would ~~reduce and~~ avoid and minimize indirect and temporary impacts on wetlands, riparian habitat, ~~and~~ aquatic habitat~~s~~, and state jurisdictional upland habitat within the levees: HM-9 to HM-14, WQ-1 to WQ-30, WQ-35, WQ-36, WQ-40, and WQ-41. These BMPs include measures to avoid equipment within the creek channels, minimize vegetation removal to the extent feasible, restore areas temporarily disturbed by construction, and adhere to protocols for fueling and maintaining vehicles. The District's design of project-level elements avoids placement of structures within wetlands and minimizes the amount of wetlands and aquatic habitat that could be permanently affected by the program element, to the extent feasible. ~~However, permanent impacts on wetlands would occur during installation of the floodwalls and raising of the levees on Lower Berryessa and Calera creeks. Given the nature of the Program, it is necessary that excavation for construction of the raised levees and floodwalls occur within the channel, which would coincide with the location of some areas of wetlands.~~

~~Construction of the Lower Berryessa Creek Element and Lower Calera Creek Element would result in approximately 8.64 acres of impacts on waters of the U.S., including wetlands.~~ The ~~Project~~ Construction of the project-level Lower Berryessa Creek and Lower Calera Creek elements is expected to result in unavoidable but temporary impacts to approximately 5.22 acres of jurisdictional brackish and seasonal wetlands and 4.17 acres of other waters of the U.S. and state, including tidal waters. Impacts have been assessed as temporary because waters within these project areas would be restored following the conclusion of construction. Based on studies undertaken for the SMP, wetlands are expected to return

within one- to two years (District, 2002). Upon completion of the Lower Berryessa Creek Element and Lower Calera Creek Element, which are designed to improve flood control efficacy and capacity, there is expected to be a 2.6-acre net increase in federally jurisdictional waters as a result of: excavation and widening of the channel; and increasing channel cross-sections, depths, and hydraulic capacity. Further, these elements would add an additional 2.68 acres of federally designated wetland and riparian habitat on constructed earthen benches within the improved channels. Also, raising of the levees and elimination of two of the originally-proposed four maintenance roads along Lower Berryessa Creek would also result in the addition of upland, albeit non-woody, habitat on the levee slopes. ~~Approximately 7.77 acres (338,100 square feet) of wetlands would be directly impacted within Lower Berryessa Creek and approximately 0.87 acre (38,000 square feet) of wetlands would be directly impacted within Lower Calera Creek. Wetlands within these creeks are expected to recolonize after the completion of construction. The District's *Instream Wetland Vegetation Regrowth Study* (District 2002) found that regrowth of non-tidal wetlands approached or surpassed pre-excavation amounts within one to two years (District 2002). Additionally, implementation of the Lower Berryessa Creek Element is anticipated to increase channel width and provide approximately 3.09 acres of additional potential jurisdictional waters of the U.S. once the element has been constructed. However, because of the amount of time between impact and recolonization of wetlands within the creeks, these impacts are considered permanent impacts for the purposes of this EIR.~~

The acreage of affected wetlands, riparian habitat, and waters of the U.S. and state, has not been calculated for the program-level elements and would be determined during the project-specific environmental review for those elements ~~but it is expected to be similar to the acreage discussed for the project-level elements~~. Installation of the new pump station at Tularcitos Creek and improvements on Upper Calera Creek and Lower Penitencia Creek could result in temporary or permanent impacts on jurisdictional waters, riparian habitat, ~~and~~ wetlands, and upland habitat within the levee banks. ~~Some~~ The majority of the impacts ~~may~~ are expected to be temporal and ~~some~~ wetland habitats ~~may~~ are expected to recolonize rapidly following ~~upon~~ completion of the elements: the District's *Instream Wetland Vegetation Regrowth Study* (District, 2002) found that regrowth of non-tidal wetlands approached or surpassed pre-excavation amounts within one to two years (District, 2002). Temporary and permanent impacts would be analyzed in detail during the project-specific environmental review for each of these elements.~~, but the temporal loss of wetlands and waters of the US would be considered a potential permanent loss of waters of the U.S. and waters of the state.~~

In summary, ~~the~~ both project-level and program-level elements would primarily result in ~~long~~short-term loss of jurisdictional wetlands and waters during construction of the improvements within ~~Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks~~the program area, which is a significant impact.

Operations Impacts

All Elements

Operations activities include the removal of sediment and debris, as well as vegetation management. Removal of sediment and vegetation from within the channel would occur if sediment build-up reaches one foot of design capacity. Maintenance activities would be the same or similar to current maintenance practices. Freshwater marsh vegetation occurs on accumulated sediments within the creek channels. This sediment and vegetation would be removed to maintain design capacity, resulting in direct impacts on wetlands and aquatic habitat. This also could result in indirect impacts on wetlands and aquatic habitats by facilitating erosion and sedimentation downstream. Sediment that is removed would be temporarily stored on site and, if not properly maintained, could be ~~accidentally~~ discharged downstream, resulting in impacts on water quality. The use of equipment adjacent to the creeks could result in ~~an accidental~~ discharge of fuel, oil, or other hazardous materials, which would result in impacts on water quality.

In the event maintenance would result in impacts to waters of the U.S., the District would obtain the proper authorizations from the Corps, SFBRWQCB, and CDFG under the existing general permits issued for the Stream Maintenance Program (SMP) (District, 2002). The District would adhere to all of the terms and conditions in the permits and authorizations. Terms and conditions could include, but are not limited to, restoration, enhancement, and compensatory mitigation for permanent and temporary loss of wetlands and aquatic habitats.

Implementation of the following District BMPs would reduce and avoid impacts on wetlands and aquatic habitats: HM-4 to HM-14, WQ-1 to WQ-9, WQ-12 to WQ-18, WQ-26, WQ-29, WQ-40, and WQ-41. These BMPs include measures to avoid equipment within the creek channels, minimize vegetation removal to the extent feasible, restore areas temporarily disturbed by construction, and adhere to protocols for fueling and maintaining vehicles. These BMPs would ensure impacts on wetlands and aquatic habitats during maintenance would be less than significant (see Appendix B for further details on District BMP implementation).

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with impacts on federally or state protected wetlands or waters (see Appendix B for further details on implementation of specific BMPs):

- HM-4: Follow All Posting & Notification for Pesticide Use – applicable to the operations phase of all elements.
- HM-5: Comply with All Pesticide Usage Requirements – applicable to the operations phase of all elements.
- HM-6: Coordinate Pesticide Use Reporting with the Vegetation Management Unit Manager – applicable to the operations phase of all elements.

- HM-7: Comply with Restrictions on Herbicide Use in Upland Areas – applicable to the operations phase of all elements.
- HM-8: Comply with Restrictions on Herbicide Use in Aquatic Areas – applicable to the operations phase of all elements.
- HM-9: Clean Vehicle and Equipment – applicable to the construction and operations phase of all elements.
- HM-10: Assure Proper Vehicle and Equipment Fueling – applicable to the construction and operations phase of all elements.
- HM-11: Assure Proper Vehicle and Equipment Maintenance – applicable to the construction and operations phase of all elements.
- HM-12: Assure Proper Hazardous Materials Management – applicable to the construction and operations phase of all elements.
- HM-13: Prevent Spills – applicable to the construction and operations phase of all elements.
- HM-14: Know the Spill Kit Location – applicable to the construction and operations phase of all elements.
- WQ-1: Conduct Work from Top of Bank – applicable to the construction and operations phase of all elements.
- WQ-2: Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms – applicable to the construction and operations phase of all elements.
- WQ-3: Assess Pump/Generator Set Operations and Maintenance – applicable to the construction and operations phase of all elements.
- WQ-4: Handle Sediments so as to Minimize Water Quality Impacts – applicable to the construction and operations phase of all elements.
- WQ-5: Avoid Runoff from Soil Stockpiles – applicable to the construction and operations phase of all elements.
- WQ-6: Stabilized Construction Entrance and Exits – applicable to the construction and operations phase of all elements.
- WQ-7: Prevent Erosion Downstream of Bank Protection Sites – applicable to the construction and operations phase of all elements.
- WQ-8: Minimize Sediment Transport Downstream from In-channel Herbicide Sites – applicable to the construction and operations phase of all elements.
- WQ-9: Minimize Local Erosion Increase from In-channel Vegetation Removal – applicable to the construction and operations phase of all elements.
- WQ-10: Evaluate and Select the Most Appropriate Use of Concrete Use Near Waterways – applicable to the construction phase of all elements.

- WQ-11: Use Coffer Dams for Tidal Work Areas – applicable to the construction and operations phase of all elements.
- WQ-12: Diversion/ Bypass Water at Non-tidal Sites – applicable to the construction and operations phase of all elements.
- WQ-13: Minimize Hardscape in Bank Protection Design – applicable to the operations phase of all elements.
- WQ-14: Use Temporary Seeding for Erosion Control As Appropriate – applicable to the construction and operations phase of all elements.
- WQ-15: Manage Groundwater At Work Sites – applicable to the construction and operations phase of all elements.
- WQ-16: Avoid Erosion When Restoring Flows – applicable to the construction and operations phase of all elements.
- WQ-17: Prevent Scour Downstream of Sediment Removal – applicable to the construction and operations phase of all elements.
- WQ-18: Maintain Clean Conditions at Work Sites – applicable to the construction and operations phase of all elements.
- WQ-19: Control Emergency Discharges – applicable to the construction and operations phase of all elements.
- WQ-20: Control Unplanned Discharges – applicable to the construction and operations phase of all elements.
- WQ-21: Control Sediment/ Turbidity Control for Discharges Less than 50 NTU – applicable to the construction phase of all elements.
- WQ-22: Control Sediment/ Turbidity Control for Discharge Greater than 50 NTU – applicable to the construction phase of all elements.
- WQ-23: Evaluate Use of Flow Path – Vegetation Filtration – applicable to the construction phase of all elements.
- WQ-24: Evaluate Use of Flow Path – Check Filters – applicable to the construction phase of all elements.
- WQ-25: Evaluate Use of On-Line Filter Systems – applicable to the construction phase of all elements.
- WQ-26: Evaluate Use of Silt Fence Culvert Entrance Protection – applicable to the construction and operations phase of all elements.
- WQ-27: Evaluate Use of Discharge Surface Protection – Armoring – applicable to the construction phase of all elements.
- WQ-28: Evaluate Use of Discharge Surface Protection – Flow Diversion – applicable to the construction phase of all elements.

- WQ-29: Evaluate Use of Discharge Storm Drain Curb & Drop Inlet Protection – applicable to the construction and operations phase of all elements.

- WQ-30: Evaluate Use of Discharging to Sanitary Sewer System – applicable to the construction phase of all elements.

- WQ-35: Control Chemical Additives in Discharges of Less Than 1,000 Gallons – applicable to the construction phase of all elements.

- WQ-36: Control Chemical Additives in Discharges of More Than 1,000 Gallons – applicable to the construction phase of all elements.

- WQ-40: Prevent Water Pollution – applicable to the construction and operations phase of all elements.

- WQ-41: Prevent Stormwater Pollution – applicable to the construction and operations phase of all elements.

Mitigation Measures

Mitigation Measure 3.D-4a: *Wetland and Riparian Habitat Avoidance and Minimization (Program-level Elements).* The District shall:

- Conduct a jurisdictional determination for potential waters of the U.S. and the State to determine the location and extent of wetlands and other jurisdictional areas within the Lower Penitencia Creek Element.

- Develop the final design of program-level elements to minimize effects on wetlands, riparian habitat, and other waters to the extent feasible, while maintaining program objectives. Areas that can be avoided shall be subject to protective measures included in the District's BMPs included as part of the Program.

Mitigation Measure 3.D-4b: *Compensate for Loss*. Prior to construction of the Program, the District shall obtain permits and authorizations from the Corps, SFBRWQCB, and CDFG. Consistent with the terms and conditions of these permits and authorizations, the District shall compensate for the unavoidable loss of ~~wetlands and other waters and riparian habitats~~ jurisdictional waters at a minimum of a 1:1 ratio. Compensation may be provided by one or more of the following methods: 1) on-site creation or restoration;~~,~~ 2) off-site creation~~,~~ or restoration; ~~and/or enhancement~~ or, 3) payment to an approved wetland mitigation bank. A mitigation and monitoring plan (MMP) shall be developed that describes how temporary and permanent impacts shall be compensated for, including active seeding or planting in the event that natural recruitment does not occur as anticipated within the first two years following construction, and shall present a feasible revegetation plan with monitoring protocols to ensure the Program does not result in a net loss of ~~wetlands~~ jurisdictional waters.

CEQA Section 15126.4 states that "if a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed." The above mitigation measures would~~for the most part~~ be implemented within the program area to the extent that revegetation would not compromise the levee system; the impacts would be similar to those of the

Program, and implementation of these measures would not result in significant impacts beyond those disclosed for the Program itself.

However, implementation of Mitigation Measure 3.D-4b could require earth disturbing activities, and secondary impacts may occur in association with implementation of this mitigation measure if off-site compensation ~~is~~ becomes necessary. Secondary impacts to aesthetics, transportation and traffic, air quality, noise, utilities and service systems, geology and soils, biological resources, hydrology and water quality, and hazardous and hazardous materials could occur.

Additionally, ~~S~~secondary impacts associated with creation or restoration of wetlands under Mitigation Measure 3.D-4b would be similar to those described for the Program and implementation of Mitigation Measure 3.D-4b; and, if carried out in the program area, would not result in any additional significant impacts beyond those disclosed for the Program.

Significance after Mitigation. Less than Significant. Implementation of Mitigation Measure 3.D-4a would require that disturbance of ~~wetlands and riparian habitats~~ jurisdictional waters be avoided to the extent practicable; and, 3.D-4b would compensate for loss of ~~wetlands and riparian habitats~~ jurisdictional waters; therefore, impacts would be reduced to a less-than-significant level.

Impact 3.D-5: Impacts on movement corridors for migratory fish or wildlife species. (Less than Significant)

Construction Impacts

All Elements

While only marginal habitat occurs within the program area, Lower~~y~~ Berryessa, Upper and Lower Calera, Tularcitos, and Lower Penitencia creeks could provide migratory corridors and serve as nursery sites for common species moving from the upper watersheds to within the program area. Common wildlife such as deer, raccoon, and coyote could use the habitats within the program area for food, water, or as refugia. During construction, the creeks or portions of the creeks would not be available for use as a movement corridor. Construction equipment and increased human presence would likely deter wildlife from entering the work area. However, the habitats within the program area do not provide a unique resource, and there is substantial connecting habitat of similar or better quality within the program area vicinity. Further, disruption of movement corridors resulting from construction would be considered temporary (during construction but not more than 16 months for each element). Therefore, impacts on movement corridors for wildlife species would be less than significant.

Suitable fish habitat is not present within the program area, and migratory fish are not present (see Table 3.D-2). Known blockages to fish migration are present downstream of the program area. Because the creeks within the program area function as flood control channels, there is little in-stream habitat suitable for spawning, incubation, and rearing of

fish. Because of the lack of cover within much of the program area, summertime water temperatures typically exceed the threshold for most fish species. For these reasons, construction of the Program would not result in impacts on native or migratory fish species.

Operations Impacts

All Elements

Operations activities would be the same or similar to current operations activities and would include maintenance within the creeks. Current maintenance activities do not interfere with resident or migratory fish or wildlife species because they are localized and temporary (up to two to three weeks at any specific location). Maintenance activities would be localized (i.e., at a specific area requiring maintenance) and would therefore not interfere with a movement or migratory corridor.

The existing habitat within Tularcitos Creek does not currently provide habitat for native resident or migratory fish or wildlife species. Therefore, operation of the pump station on Tularcitos Creek would not interfere with movement corridors for fish or wildlife species and there would be no impact.

Best Management Practices: None required.

Mitigation: None required.

Impact 3.D-6: Conflict with local policies or ordinances protecting biological resources, including tree preservation policies or ordinances. (Less than Significant with Mitigation)

Construction Impacts

All Elements

The Santa Clara County and City of Milpitas general plans outline goals and objectives in preserving and protection biological resources, including open space and water quality. Implementation of the Program would include implementation of District's BMPs that would ~~maintain and preserve~~avoid and minimize impacts to biological resources and would ensure that the Program would be consistent with the guiding principles described in the local general plans. Mitigation measures proposed in this DEIR would further ensure consistency with local plans and policies. ~~Program impacts on other local policies and ordinances would be less than significant.~~ As such, implementation of the Program would not conflict with local policies and ordinances described in Section 3.D.2, Regulatory Setting.

Construction of the Program could require the removal of vegetation, including trees that are protected under ordinances from the City of Milpitas within the District's right-of-way (ROW) in order to construct the raised levees, install the floodwalls, and construct the pump station.

~~Excavation for reconstruction of the levees and installation of the floodwalls could damage roots or drip-lines of trees.~~ In particular, a number of trees located within the District's ROW along Lower Berryessa Creek, Upper Calera Creek, and Lower Penitencia Creek would be removed during construction. Avoiding the trees on the existing levee slopes would be infeasible due to the excavation and earthwork required for levee-raising. In addition, construction activities could damage roots or drip lines of trees adjacent to the construction area. Many of the trees are not protected by the City of Milpitas tree ordinance. Impacts associated with riparian habitat ~~is~~ are discussed under Impact 3.D-4, and impacts to birds and bats that may roost in trees affected by the Program ~~is~~ are discussed under Impact 3.D-2.

Under the City's tree protection ordinance, the District would be required to identify specific trees to be removed and obtain the appropriate authorization from the City prior to construction. Because some trees under the jurisdiction of local tree protection ordinance could be removed, impacts related to conflicts with local policies or ordinances protecting biological resources would be potentially significant.

Operations Impacts

All Elements

Operation of the Program would include sediment and debris removal, as well as vegetation management. Vegetation management could include removal of vegetation within the creek channels to maintain design capacity, or on the maintenance roads to maintain access. Maintenance activities would be the same or similar to current maintenance practices. Trees that would fall under the jurisdiction of local tree ordinances would likely not occur in areas where maintenance activities would occur. Trees found within the creek channels would impair flow and restrict design capacity, and would be removed prior to becoming large enough to fall under the jurisdiction of the local tree ordinance (e.g., diameter at breast height greater than 37 inches). Operation and maintenance of the Program would not conflict with local policies and ordinances protecting biological resources, and the impact would be less than significant.

Operation of the Program would not conflict with other local policies and ordinances described in Section 3.D.2.3. The Santa Clara County and City of Milpitas General Plans outline goals and objectives in preserving and protection biological resources, including open space and water quality. Operation of the Program would require implementation of the District's BMPs and would be consistent with the guiding principles described in the local general plans. As such, operation of the Program would not conflict with local policies and ordinances described in Section 3.D.2, Regulatory Setting, and the impact would be less than significant.

Best Management Practices

See Impact 3.D-1, 3.D-2, and 3.D-4 for a description of District BMPs that would be required to address impacts associated with Program consistency with local plans and ordinances for the protection of biological resources and water quality during program construction and operation.

Mitigation Measures

Mitigation Measure 3.D-6a: *Tree and Shrub Replacement*. Prior to the start of construction, the District shall have a qualified biologist conduct a survey to identify the trees and shrubs that would be removed during construction. Trees shall be identified by species and a determination shall be made of areal coverage of the tree canopy. The District shall prepare a tree replacement plan that requires planting of: 1) trees of species similar to those removed, or of a native species; and, 2) complimentary shrubs. Replacement shall be at a minimum, anticipated 1:1 areal coverage ratio at maturity. Following initial excavation and earthwork, tree and shrub replacement shall include tree, shrub, and other ~~landscape~~ plantings in suitable areas located ~~greater than 15 feet~~off of levee slopes. The plantings shall ~~that~~ reflect the ~~existing type~~structure and density of trees and shrubs as identified in the preconstruction survey, such that the overall character, and quality, of views from the creek roads/trails are restored on-site, to the extent feasible. Where planting trees and shrubs within the same site, or within the District's ROW, is not feasible (e.g. ~~in areas greater than~~on the ~~15 feet away from~~ levee slope~~s~~ within the District ROW that could reduce channel capacity, as described in Section 2.E, Program Description; ~~, or~~ where soils within the ROW would not support plantings; or where plantings would compromise the objectives of the Program), the District shall coordinate with the City of Milpitas to find suitable, alternative location(s) for the replacement plantings. The District shall monitor tree replacement plantings annually for a minimum of three years after completion of construction to ensure establishment of the plantings and, if necessary, shall replant to ensure the success of the replacement plantings.

Mitigation Measure 3.D-6b: *Tree Protection Measures*. Prior to the start of construction, the District shall prepare a tree protection plan for trees that would remain within the program area but would be within or adjacent to the active construction areas. The plan shall include measures that the District and/or its contractor(s) shall implement to protect the remaining trees. Measures could include, but are not limited to, establishing and demarcating a Tree Protection Zone that shall be avoided; pruning low limbs to provide for equipment access and work; placing mulch to prevent compaction from machinery; wrapping tree trunks in protective material to avoid contact with machinery; and cleanly cutting, trimming and covering roots as soon as possible if they are damaged. The District shall monitor tree protection zones during construction activities within the vicinity of protected trees, and if necessary, shall replant or replace trees if they are damaged.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measures 3.D-6a and 3.D-6b would include replacement of all trees removed as part of the Program and protection of remaining trees, inclusive of all trees protected under the City's ordinance, and therefore, and would therefore reduce impacts on trees under the City's ordinance to a less-than-significant level.

3.D.4 References

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3.E Cultural Resources

Cultural resources evaluated in this section include historic-period architectural resources, archaeological resources, paleontological resources, and human remains. The setting discussion describes the existing properties in the program vicinity and assesses whether the properties are historical resources for the purposes of CEQA. The impact discussion reviews the criteria for significant impacts on cultural resources and historical resources. The methodology used in the cultural resources analysis included a literature review and field reconnaissance by qualified cultural resource personnel. This section also identifies mitigation measures that would reduce impacts to a less-than-significant level.

Area of Potential Effect. The term area of potential effect (APE) is used throughout this section to describe the maximum area, surface and subsurface, that could experience ground disturbance as a result of program activities, including access and staging areas. Although construction activities are limited in some sections of the program area, the APE includes the entirety of each element to both edges of the District right-of-way to account for staging, access, parking, and work areas. For architectural resources, the APE also includes the adjacent properties to account for potential vibration, noise, and other construction impacts to historically-significant properties.

3.E.1 Setting

This section includes information on the prehistoric and historic development within the program area and identifies existing recorded resources. An analysis was performed to determine whether properties in the program area can be considered historical resources for the purposes of CEQA[1]. National, state, and local historic preservation listings and surveys, as well as listings maintained by the District, are summarized in this section.

Environmental Setting

The Berryessa Creek watershed is located northeast of San José, California. Berryessa Creek flows west out of the foothills of the Diablo Range in Santa Clara County and then continues in a westerly direction through the southern portion of the City of Milpitas. The Berryessa Creek drainage basin encompasses 22 square miles of rural and urban land upstream of its confluence with Lower Penitencia Creek. The Lower Penitencia Creek basin, at its confluence with Coyote Creek, drains approximately 29 square miles. Ground elevations in the basin range from 2,600 feet above mean sea level (amsl) in the foothills to 10 feet amsl at the confluence with Coyote Creek. The region has a mild Mediterranean climate. Almost all of the rainfall occurs between November and early April. Temperatures are mild, rarely below freezing during the winter and seldom exceed 100 degrees Fahrenheit during the summer. The mean annual

1 See CEQA Guidelines §21084.1.

precipitation at the San José station is 14.42 inches. Typically, June is the driest month and January is the wettest month.

Paleontological Setting

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. The fossil record is the only evidence that life on earth has existed for more than 3.6 billion years. Fossils are considered nonrenewable resources because the organisms they represent no longer exist; once destroyed, a fossil can never be replaced.

Paleontological Resource Potential

The fossil yielding potential of a particular area is highly dependent on the geologic age and origin of the underlying rocks. The program area is directly underlain by a variable thickness of artificial fill or disturbed soil which is typical of an urbanized area. However, the natural geology consists of Holocene (less than 10 thousand years ago) to late-Pleistocene (10 thousand to 0.8 million years ago) alluvial fan deposits. Such deposits are composed mostly of poorly to moderately consolidated and poorly sorted silty-clay and sand. These alluvial fan deposits likely underlie the disturbed soils at highly variable depths beneath the program area. Disturbed soils and fill serve to accommodate building foundations, utility trenches, and, for the program elements, levees, berms, and culverts. The thickness of such disturbed soils would vary across the program area, and would depend on current and historic land uses.

Artificial fills underlying the program area have little to no potential to yield paleontological resources because they are engineered mixtures of sand, silt, and gravel that have been excavated, reworked, and/or transported to their present location. If artificial fills contain fossilized remains, they would be severely damaged, fragmented, unidentifiable, and could not be placed within the fossil record. Artificial fills and disturbed soils do not represent in situ or native geological deposits, and would thus be unable to yield fossils that could contribute to science or natural history. Underlying artificial fills are natural deposits of Holocene alluvium. Holocene alluvial fan deposits are loose, moderately to well-sorted sandy or clayey silt that form natural levee deposits bordering stream, or over-bank floodplain deposits. Such deposits are geologically immature and are unlikely to have fossilized the remains of organisms (fossilization processes take place over millions of years).

Geoarchaeological Discussion

The San Francisco Bay Area has undergone dramatic landscape changes since humans began to inhabit the region more than 13,000 years ago. Sea levels began rising about 15,000 years ago, at which time the coastline was located west of the Farallon Islands, and reached the

present level of the bay about 5,000 years ago (Helley et al., 1979). This dramatic change in stream base-level has resulted in increased deposition of sediment along the lower reaches of Bay Area streams (Helley et al., 1979). Active alluvial fan[2] deposits are generally less than 5,000 years old and overlie older land surfaces (including stabilized/abandoned Pleistocene-age alluvial fans). In many places, the interface between older land surfaces and active alluvial fans are marked by a well-developed buried soil profile, or a paleosol[3]. Paleosols preserve the composition and character of the earth's surface prior to subsequent sediment deposition; thus, paleosols have the potential to preserve archeological resources if the area was occupied or settled by humans (Meyer and Rosenthal, 2007). Because human populations have grown since the arrival of the area's first inhabitants, younger paleosols (late Holocene) are more likely to yield archeological resources than older paleosols (early Holocene or Pleistocene).

The APE is located in an area mapped as Holocene Alluvium, which has a high potential to contain buried paleosols. The nearest known deeply buried archaeological site in relation to the APE is located approximately three miles north and was uncovered at a depth of two meters below present-day ground surface (Gmoser et al., 1999). Numerous deeply-buried sites have been uncovered in the Santa Clara Valley, approximately six miles to the southwest of the APE, at varying depths between one foot and more than 10 feet below ground surface (Meyer and Rosenthal, 2007).

The current APE is located in areas highly disturbed from previous impacts related to the construction and maintenance of the flood control channels. With the exception of segments of Upper Calera Creek Element 1 and Upper Calera Creek Element 2, the channel alignments within the program area have been engineered. A review of the boring logs undertaken for a geotechnical study along Calera and Tularcitos creeks (Lowney Associates, 2005) did not indicate any cultural resources (e.g., shell, artifacts, organic soils). The majority of the Program would be constructed in artificially-deposited soils or within locations that experience a heavy annual flow of water. Additionally, the depth of disturbance in native soils would be minimal and unlikely to encounter intact buried paleosols. Therefore, despite the general sensitivity of the vicinity for deeply-buried archaeological resources, there appears to be a low possibility of encountering intact paleosols with cultural resources and/or features during construction in the APE.

Prehistoric Context

Categorizing the prehistoric period into broad cultural stages allows researchers to describe a broad range of archaeological resources with similar cultural patterns and components during a given timeframe, thereby creating a regional chronology. This section provides a brief discussion of the chronology for the APE.

2 Alluvial fans are fan-shaped deposits of water-transported material (alluvium). They typically form at the base of topographic features where there is a marked break in slope, and contain both active and abandoned stream channels, terraces, natural levees and other fluvial morphologies.

3 A paleosol is a buried soil that forms when sediment is deposited over a surface with a developed soil profile without it being eroded away first.

A framework for the interpretation of the San Francisco Bay Area is provided by Milliken (Milliken et al., 2007), who have divided human history in the San Francisco Bay Area into four broad periods: the *Paleoindian Period* (11,500 to 8000 B.C.), the *Early Period* (8000 to 500 B.C.), the *Middle Period* (500 B.C. to A.D. 1050), and the *Late Period* (A.D. 1050 to 1550). Economic patterns, stylistic aspects, and regional phases further subdivide cultural patterns into shorter phases. This scheme uses economic and technological types, socio-politics, trade networks, population density, and variations of artifact types to differentiate between cultural periods.

The *Paleoindian Period* (11,500 to 8000 B.C.) was characterized by big-game hunters occupying broad geographic areas. Evidence of human habitation during *Paleoindian Period* has not yet been discovered in the San Francisco Bay Area. During the *Early Holocene* (*Lower Archaic*; 8000 to 3500 B.C.), geographic mobility continued from the *Paleoindian Period* and is characterized by the millingslab and handstone as well as large wide-stemmed and leaf-shaped projectile points. The first cut shell beads and the mortar and pestle are first documented in burials during the *Early Period* (*Middle Archaic*; 3500 to 500 B.C.), indicating the beginning of a shift to sedentism. During the *Middle Period*, which includes the *Lower Middle Period* (*Initial Upper Archaic*; 500 B.C. to A.D. 430), and *Upper Middle Period* (*Late Upper Archaic*; A.D. 430 to 1050), geographic mobility may have continued, although groups began to establish longer-term base camps in localities from which a more diverse range of resources could be exploited. The first rich black middens are recorded from this period. The addition of milling tools, obsidian and chert concave-base projectile points, and the occurrence of sites in a wider range of environments suggest that the economic base was more diverse. By the *Upper Middle Period*, mobility was being replaced by the development of numerous small villages. Around A.D. 430 a “dramatic cultural disruption” occurred evidenced by the sudden collapse of the *Olivella* saucer bead trade network. During the *Initial Late Period* (*Lower Emergent*; A.D. 1050 to 1550), social complexity developed toward lifeways of large, central villages with resident political leaders and specialized activity sites. Artifacts associated with the period include the bow and arrow, small corner-notched projectile points, and a diversity of beads and ornaments.

Ethnographic Context

The APE is within the traditional territory of the Ohlone (Mutsun, Rumsun) (Levy, 1978). These people, collectively referred to by ethnographers as Costanoan, were actually distinct sociopolitical groups that spoke at least eight languages of the same Penutian language group. Ohlone occupied a large territory from San Francisco Bay in the north to the Big Sur and Salinas Rivers in the south. The primary sociopolitical unit was the tribelet, or village community, which was overseen by one or more chiefs. The APE is in the greater *Tamyen* language area (Levy, 1978). The nearest ethnographic village to the APE is *oroyšom* at the location of Mission San José.

Economically, Ohlone engaged in hunting and gathering. Their territory encompassed both coastal and open valley environments that contained a wide variety of resources, including grass seeds, acorns, bulbs and tubers, bear, deer, elk, antelope, a variety of bird species,

marine resources, and small mammals. Ohlone acknowledged private ownership of goods and songs, and village ownership of rights to land and/or natural resources; they appear to have aggressively protected their village territories, requiring monetary payment for access rights in the form of clamshell beads, and even shooting trespassers if caught. After European contact, Ohlone society was severely disrupted by missionization, disease, and displacement.

Historic-Period Setting

Spanish explorers in the late 1760s and 1770s were the first Europeans to traverse the Santa Clara Valley. José Francisco Ortega, a soldier in the exploring party of Gaspar de Portola and Juan Crespi, made the first recorded crossing of the Guadalupe River in the vicinity of present-day Alviso during November 1769, but no clear record remains of his exact route and his impressions of the area (Beck and Haase, 1974). Juan Bautista dé Anza and Pedro Font led the next expedition through the area in early 1776, leaving a substantial record of their travels. The explorers commented on the level land and good pasturage, concluding that the area would be an excellent site for settlement (Bolton, 1930). Anza recorded three native villages in the vicinity of his campsite, each reportedly composed of approximately 70 persons. Anza noted some “paths and trails” heading to the south and concluded that the same tribe of Indians dwelled throughout the entire valley (Bolton, 1930).

After an initial period of exploration, the Spanish focused on the founding of presidios, missions, and secular towns with the land held by the Crown (1769–1821), whereas the later Mexican (1822–1848) policy stressed individual ownership of the land. Following the favorable reports by Anza and Font, the Spanish moved to occupy the lands in the Santa Clara Valley founding both the Pueblo de San José and the Mission Santa Clara dé Asis in 1777. The Pueblo of San José de Guadalupe was one of three towns founded to administer and coordinate the missions and presidios of Alta California (Hendry and Bowman, 1940). Mission Santa Clara provided the religious needs of the Pueblo and, as one of seven missions located within Ohlone territory, would have been the mission with the greatest impact on the aboriginal population living in the Santa Clara Valley.

During the Mexican Period (1821–1848), when rancho grants began to be awarded by the Mexican government, title was based on a rough verbal description and a hand-drawn sketch map (*diseño*) of the desired lands (Cartier et al., 1994; Laffey, 1990). One such grant was Rancho Los Tularcitos, which included the current APE. The last Spanish governor of California granted the land to José Loreto Higuera in 1821. The rancho covered 4,394 acres bound by the San Francisco Bay, Mission San José at Calera Creek, Rancho Milpitas at Arroyo de los Coches Creek, and the ridgeline of the East Bay range. Higuera’s first house was constructed circa (ca.) 1822 in Tularcitos Valley just over one mile southeast of the APE. The current adobe building at Higuera Adobe Park was constructed ca. 1828 and was one of five adobe buildings located on the south bank of Calera Creek at that location.

The population of the Santa Clara Valley expanded as a result of the Gold Rush (1849), followed later by the construction of the railroad to San Francisco (1864) and the completion of the transcontinental railroad in 1869. In 1859 a portion of Rancho Los Tularcitos was

purchased by Clement Colombet, a native of France. Colombet attempted to establish a resort hotel at the José Higuera Adobe and added a frame-construction second story. Colombet is also credited with constructing the wood-frame building or 'Casino' in ca. 1859 which, along with one adobe building, still exists at this location. The resort failed, however, and Colombet sold the property back to Higuera's son, Valentin, later that same year. The property by and large remained in the Higuera family until 1947, when it was purchased by neighboring landowner Henry Curtner.

As the population increased during the late 1800s and early 1900s, areas close to San José were incorporated and agricultural lands closest to town were included in new residential subdivisions. The development of more intensive agricultural practices and the desire to utilize lands within the flood zone for residential development led to efforts to modify and control flooding of the Santa Clara Valley Rivers (Laffey, 1990). Some of the watercourses within the valley were dammed, rechannelized, or diverted to avoid flooding into developed areas during the later part of the 19th century. However, not all waterways were altered until later in the century. Coyote Creek, for example, was not dammed until 1936, leaving this watershed susceptible to unpredictable flooding after heavy winter rains (Payne, 1987).

Fruit production became a major industry during the later American Period. Fruit production, along with associated processing facilities, was a stable market until after World War II. Land modifications continued throughout the Santa Clara Valley during the twentieth century and especially after World War II and the Korean War. In recent decades, the old agrarian land-use pattern has been displaced by dense urban housing, commercial centers, the development of an extensive highway system, and the rise of the electronics industry as part of the "Silicon Valley."

Research Methods

Records searches were conducted for the Program at Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University on September 8, 2009 (File No. 09-0280) and October 22, 2010 (File No. 10-0394). The purpose of the records search was to: (1) determine whether known cultural resources have been recorded within or adjacent to the APE; (2) assess the likelihood for unrecorded cultural resources to be present based on historic references and the distribution of nearby sites; and, (3) develop a context for the identification and preliminary evaluation of cultural resources. The records search consisted of an examination of the following documents:

- **NWIC base maps** (USGS Milpitas 7.5-minute topographic maps), to identify recorded archaeological sites and studies within a ½-mile radius of the APE;
- **NWIC base maps** (USGS Milpitas 7.5-minute topographic maps), to identify recorded historic-period resources of the built environment (building, structures, and objects) within a ¼-mile radius of the APE;
- **Resource Inventories:** California Inventory of Historical Resources, California Historical Landmarks, Historic Properties Directory Listing by City (through April 2009);

- **Prehistoric Archaeology:** T.L. Jones and K.A. Klar (2007) Prehistoric California: Colonization, Culture, and Complexity. AltaMira Press;
- **Ethnographic Sources:** Richard Levy (1978), Costanoan. In California, Handbook of North American Indians, Vol. 8, edited by Robert F. Heizer, pp. 485–499; William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.; A.L. Kroeber (1925) Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C.; and
- **Historic Maps:** Diseño of Rancho Los Tularcitos, ca. 1837; Thompson & West (1876), Historical Atlas of Santa Clara County; McMillan & McMillan (1903), Official Map of Santa Clara County; McMillan & McMillan (1929), Official Map of Santa Clara County.

Records Search and Literature Findings

The records search indicated that one historic-period architectural resource with a possible archaeological component is located within the APE and one prehistoric archaeological site is located adjacent to the APE. Details on the resources are provided below.

The José Higuera Adobe / Higuera Adobe Park (NWIC Primary No. P-43-000432) is located at the intersection of North Park Victoria Avenue and Wessex Place adjacent to Upper Calera Creek Element 2. The 4.81-acre City-owned park contains a rebuilt circa 1828 one-story adobe building, a wood-frame residence (the 'Casino' circa 1859), modern public bathrooms, barbecue and picnic tables, a grassy lawn with playground equipment, and a parking lot. A road flanked on each side by olive trees parallels Calera Creek. The property originally held four additional adobe buildings that may survive as archaeological features. The property has been determined not eligible to the National Register (Krase, 1999); however, it is listed as a historic property under the City of Milpitas's Cultural Resources Preservation Ordinance and is therefore considered a historical resource for the purposes of CEQA.

One prehistoric archaeological site has been recorded adjacent to the APE near London Drive at Upper Calera Creek Element 2. The site, recorded as CA-SCL-37, is a large prehistoric village site described as containing "stone implements, bowls and pestles, and hundreds of melted stones used in the sweat house ceremonies" (D.W.L., 1951). Several human burials were reportedly located at the site. The Curtner house (circa. 1879) is constructed on the site.

The records search also indicated that one prehistoric isolate and re-deposited human remains have been recorded within a ½-mile radius of the APE. These resources are listed in Table 3.E-1.

Seven cultural resources studies conducted within or adjacent to the APE are on file at the NWIC. These studies are listed in Table 3.E-2. Two studies (S-4769 and S-26216) included all of the Lower Berryessa Creek Element.

Native American Contacts

A sacred lands search request was submitted to the Native American Heritage Commission (NAHC) on September 28, 2009. A response was received on April 21, 2010. A record search of the sacred land file did not indicate the presence of Native American cultural resources in

TABLE 3.E-1
PREHISTORIC ARCHAEOLOGICAL SITES WITHIN A ½-MILE RADIUS OF THE APE

Primary No.	Trinomial	Description	Eligible for NRHP?	Distance from APE?
P-43-001268	n/a	Isolated handstone	ineligible	60 meters east of Lower Berryessa Creek Element
n/a	n/a	Human remains found in flood deposited sediment in maintained channel; washed downstream from an unknown location; bone reburied	inelegible	In disturbed sediment within APE; washed downstream from an unknown location

n/a = not applicable

TABLE 3.E-2
CULTURAL RESOURCES STUDIES WITHIN AND ADJACENT TO THE APE

Study No.	Author	Title	Year	Resources Recorded
S-4769	M. Holman	Letter Report to Thomas O. Baily, Woodward-Clyde Consultants	1975	None recorded
S-6723	R. Cartier	Cultural Resource Evaluation of the Milpitas 5 Project in the City of Milpitas	1984	None recorded
S-9133	Archaeological Consulting and Research Services, Inc.	Letter Report to George S. Nolte and Associates – 85 acres of the Duadell/Goble property	1980	None recorded
S-10200	David Chavez and Associates	Cultural Resources Evaluation for the Fremont-South Bay Corridor Study	1988	None in current APE
S-22820	Far Western Anthropological Research Group	Cultural Resources Survey for the Level (3) Communications Long Haul Fiber Optics Project, Oakland to San José	2000	P-43-001268
S-23382	Basin Research Associates	Cultural Resources Assessment: South Bay Water Recycling Program Phase 2 Facilities	2000	None in current APE
S-26216	R. Cartier	Cultural Resource Evaluation of the Berryessa Creek Levee Project in the City of Milpitas, County of Santa Clara	2002	None recorded

the immediate program area. A list of Native American representatives was provided for further contact. Each person and/or organization on the list was contacted by letter on April 22, 2010. No response has been received as of the publication of this EIR.

Field Survey Methods and Results

The Lower Berryessa Creek Element was surveyed by Dr. Robert Cartier, of Archaeological Resource Management, in October 2002 (Cartier, 2002). Dr. Cartier has been conducting cultural resource management projects in California since 1977 and is a Registered Professional Archaeologist. The survey consisted of walking multiple transects along the creek bank, lower levee roads, upper levee roads, and outer program margins, including the two adjacent city parks and the railroad embankments. A subsequent survey was conducted

by ESA archaeologist, Heidi Koenig, in September 2009. The survey consisted of walking no greater than 10-meter-wide transects along the upper levee roads and, if accessible, within the channel. All embankments and cut slopes were inspected for cultural material. A cultural resources survey was not completed for the Lower Penitencia Creek Element because the preliminary design for this element is less developed than other program-level elements and therefore an APE for this element could not be determined.

The Tularcitos Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2, were also surveyed by ESA archaeologist Heidi Koenig in September 2009. Visibility was generally good during the survey; however, much of the visible ground surface consisted of artificially constructed levees and/or access roads. The APE for these elements is highly disturbed from previous construction and maintenance of the existing levees and maintenance roads. There was also evidence of past flooding activity, noticeable from steeply cut channel banks, especially in the less-engineered sections of Upper Calera Creek Element 1 and Upper Calera Creek Element 2 near Milpitas High School and Thomas Russell Middle School.

Field Survey Summary

Lower Berryessa Creek Element

No cultural resources or features were located in the Lower Berryessa Creek Element APE during the 2002 or 2009 surveys. Dr. Cartier had knowledge of human remains uncovered within the APE; however it was determined that the remains had washed down the channel from an unknown location.

Tularcitos Creek Element

No cultural resources were located in the Tularcitos Creek Element APE during the 2009 survey.

Lower Calera Creek Element

No cultural resources were located in the Lower Calera Creek Element APE during the 2009 survey.

Upper Calera Creek Element 1

No cultural resources were located in the Upper Calera Creek Element APE during the 2009 survey.

Upper Calera Creek Element 2

No cultural resources were found in the Upper Calera Creek Element 2 APE nearest to CA-SCL-37. The archaeological site was originally recorded on private property (“under the Curtner house”) on the north side of Calera Creek (D.W.L., 1951). Access to the recorded site boundaries was not available during the 2009 survey. While there is no surface evidence of cultural resources associated with CA-SCL-37 in the APE, no subsurface investigation was conducted.

The previously recorded José Higuera Adobe / Higuera Adobe Park (P-43-000432) is also located in the Upper Calera Creek Element 2. During the 2009 survey, no archaeological resources or features were observed in the APE; however, no subsurface investigation was conducted.

The condition of the adobe and 'Casino' buildings at the park were corroborated with the original recording (Krase, 1999). The recorded landscape features, including pepper trees, Italian Cypress trees, fig trees, sycamore, black walnut, and olive trees, were also present.

3.E.2 Regulatory Setting

Federal Regulations

National Historic Preservation Act

Historic properties are protected through the National Historic Preservation Act (NHPA) of 1966, as amended (16 USC 470f), and its implementing regulations. Prior to implementing an "undertaking" (e.g., issuing a federal permit), Section 106 of the NHPA requires federal agencies to consider the effects of the undertaking on historic properties and to afford the Advisory Council on Historic Preservation a reasonable opportunity to comment on any undertaking that would adversely affect properties listed or eligible for listing in the NRHP. Under the NHPA, an archaeological site, historic building, structure, or object is considered significant if it meets the NRHP listing criteria at 36 CFR 60.4, as stated below:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:
>
> a) That are associated with events that have made a significant contribution to the broad patterns of our history, or
>
> b) That are associated with the lives of persons significant in our past, or
>
> c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction, or,
>
> d) That have yielded, or may be likely to yield, information important in prehistory or history.

Federal review of projects is normally referred to as the Section 106 process. This process is the responsibility of the federal lead agency. The Section 106 review, which may be conducted by the U.S. Army Corps of Engineers in conjunction with issuance of Clean Water Act Section 404 permits for the Program, normally involves a four-step procedure, which is described in detail in the implementing regulations (36 CFR Part 800):

- Identify historic properties in consultation with the State Historic Preservation Officer (SHPO) and interested parties;
- Assess the effects of the undertaking on historic properties;
- Consult with the SHPO, other agencies, and interested parties to develop an agreement that addresses the treatment of historic properties and notify the Advisory Council on Historic Preservation; and finally
- Proceed with the project according to the conditions of the agreement.

State Regulations

The State of California implements the NHPA through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation, implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Environmental Quality Act

CEQA, as codified in California Public Resources Code (PRC) Section 21000 et seq., is the principal statute governing the environmental review of projects in the state. The CEQA Guidelines define a historical resource as: (1) a resource in the California Register of Historic Resources (CRHR); (2) a resource included in a local register of historic resources, as defined in PRC Section 5020.1(k) or identified as significant in a historic resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

The CRHR is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historic resources of the state and to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC §5024.1[a]). The criteria for eligibility to the CRHR are based on NRHP criteria (PRC §5024.1[b]). Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally eligible for or listed in the NRHP.

To be eligible for the CRHR as a historic resource, a prehistoric or historic-period resource must be significant at the local, state, and/or federal level under one or more of the following criteria:

1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2) Is associated with the lives of persons important in our past;

3) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4) Has yielded, or may be likely to yield, information important in prehistory or history [14 CCR §4852(b)].

For a resource to be eligible for the CRHR, it must also retain enough integrity to be recognizable as a historic resource and to convey its significance. A resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR.

CEQA requires lead agencies to determine if a proposed program has a significant effect on important archaeological resources, either historical resources or unique archaeological resources. If a lead agency determines that an archaeological site is a historical resource, the provisions of PRC Section 21084.1 and CEQA Guidelines Section15064.5 would apply. If an archaeological site does not meet the CEQA Guidelines criteria for a historical resource, then the site may meet the threshold of PRC Section 21083 regarding unique archaeological resources. A unique archaeological resource is "an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

- Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
- Has a special and particular quality such as being the oldest of its type or the best available example of its type.
- Is directly associated with a scientifically recognized important prehistoric or historic event or person [PRC §21083.2 (g)]."

The CEQA Guidelines note that if a resource is neither a unique archaeological resource nor a historic resource, the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines §15064[c][4]).

Other Provisions of California Public Resources Code

Several sections of the PRC protect paleontological resources. PRC Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontological feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted permission.

Section 7050.5 of the Health and Safety Code protects human remains by prohibiting the disinterring, disturbing, or removing of human remains from any location other than a dedicated cemetery. Section 5097.98 of the PRC (and reiterated in CEQA §15064.59 [e]) also states that in the event of the accidental discovery or recognition of any human remains in any location other than a dedicated cemetery, the following steps shall be taken:

(1) There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:

(A) The coroner of the county in which the remains are discovered must be contacted to determine that no investigation of the cause of death is required, and

(B) If the coroner determines the remains to be Native American:

1. The coroner shall contact the Native American Heritage Commission within 24 hours.

2. The Native American Heritage Commission shall identify the person or persons it believes to be the most likely descended from the deceased Native American.

3. The most likely descendent may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98, or

(2) Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

(A) The Native American Heritage Commission is unable to identify a most likely descendent or the most likely descendent failed to make a recommendation within 48 hours after being notified by the commission.

(B) The descendant identified fails to make a recommendation; or,

(C) The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the Native American Heritage Commission fails to provide measures acceptable to the landowner.

3.E.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant effect on cultural resources if it were to:

- Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines Section15064.5;
- Cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines Section15064.5;
- Directly or indirectly destroy a unique paleontological resource or site, or a unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

Approach to Analysis

Architectural/Structural Resources

Potential impacts on architectural resources are assessed by identifying any activities that could affect resources that have been identified as historic resources for the purposes of CEQA. Properties identified as historic resources under CEQA include those that are significant because of their association with important events, people, or architectural styles or master architects, or for their informational value (NRHP and CRHR Criteria A/1, B/2, C/3, and D/4) and that retain sufficient historical integrity to convey their significance. Criterion D/4, however, is typically applied to the evaluation of historic-period archaeological resources and not to architectural resources, as described below.

Once a resource has been identified as a CEQA historical resource (either architectural or archaeological), it then must be determined whether the impacts of the project would "cause a substantial adverse change in the significance" of the resource (CEQA Guidelines §15064.5[b]). A substantial adverse change in the significance of a historical resource means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of the historic resource would be materially impaired" (CEQA Guidelines §15064[b][1]). A historical resource is materially impaired through the demolition or alteration of the resource's physical characteristics that convey its historical significance and that justify its inclusion in the CRHR (CEQA Guidelines §15064.5[b][2][A]).

Archaeological Resources

The significance of most prehistoric and historic-period archaeological sites is usually assessed under NRHP and CRHR Criterion D/4. This criterion stresses the importance of the information potential contained within the site, rather than its significance as a surviving example of a type or its association with an important person or event. Archaeological resources may also be assessed under CEQA as unique archaeological resources, defined as archaeological artifacts, objects, or sites that contain information needed to answer important scientific research questions.

Paleontological Resources

The paleontological analysis identifies the potential to encounter paleontological resources (i.e., plant, animal or invertebrate fossils or microfossils) during excavations associated with the Program. The paleontological potential of the units to be disturbed was determined, and the potential to encounter paleontological resources at each site was evaluated. A potentially significant impact on paleontological resources would occur if: (1) construction of the program component were to move or excavate previously undisturbed geologic bedrock (native rock); and (2) the bedrock were to be disturbed has a high paleontological potential.

Human Remains

Human remains, including those buried outside of formal cemeteries, are protected under several state laws, including PRC Section 5097.98 and Health and Safety Code

Section 7050.5. These laws are identified above in Section 5.5.2.2, State Regulations and Legal Compliance. This analysis considers impacts including intentional disturbance, mutilation, or removal of interred human remains.

No Impact Significance Determinations

Based on the nature of the Program, there would be no cultural resources impact related to program operations. Since operation and maintenance of the elements would essentially be the same as existing operations, and because newly required maintenance activities associated with the new floodwalls, concrete box culvert, and new pump station would not involve excavation work, there would be no impacts on cultural resources and no mitigation is required. Therefore, operations impacts are not discussed further in this section.

Impact Summary

Table 3.E-3 provides a summary of cultural resources impacts by element and implementation phase (construction and operations). Table 3.E-4 provides a summary of applicable mitigation measures by element and implementation phase.

Impacts and Mitigation Measures

Impact 3.E-1: Impacts on unknown historical resources, archaeological resources, and/or human remains. (Less than Significant with Mitigation)

Construction Impacts

Lower Berryessa Creek Element and Lower Calera Creek Element

No known cultural resources, including historical resources, archaeological resources, and/or human remains, are located in the APE for the Lower Berryessa Creek Element and Lower Calera Creek Element. Although the general Santa Clara Valley vicinity has a high sensitivity for deeply-buried archaeological resources, due to prior impacts related to the construction and maintenance of the existing flood control channels and the minimal depth of disturbance in native soils, there is a low possibility of encountering intact paleosols with cultural resources and/or features.

However, the accidental discovery of cultural resources during construction cannot be entirely discounted. In the event of an unanticipated discovery of cultural materials and/or human remains, implementation of the District's BMPs related to cultural resources (BMPs CU-2 and CU-3) would ensure that construction personnel are alerted to proper procedures to follow in the event that such materials are found. Implementation of these BMPs would minimize potential for impacts on unknown resources.

TABLE 3.E-3
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL CULTURAL RESOUCES IMPACTS

	Impact 3.E-1		Impact 3.E-2		Impact 3.E-3		Impact 3.E-4	
	Unknown Historical Resources, Archaeological Resources and/or Human Remains		Known Archaeological Resources		Known Historical Resources		Paleontological Resources	
	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements								
Lower Berryessa Creek Element	LTS	–	–	–	–	–	LTS	–
Lower Calera Creek	LTS	–	–	–	–	–	LTS	–
Program-Level Elements								
Upper Calera Creek Element 1	SM	–	–	–	–	–	LTS	–
Upper Calera Creek Element 2	SM	–	SM	–	SM	–	LTS	–
Tularcitos Creek Element	SM	–	–	–	–	–	LTS	–
Lower Penitencia Creek Element	SM	–	–	–	–	–	LTS	–

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact
– = No Impact

TABLE 3.E-4
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.E-1		Measure 3.E-2		Measure 3.E-3	
	Cultural Resources Survey and Impact Assessment for Program-level Elements		Extended Archaeological Survey		Vibration Monitoring	
	construction	operations	construction	operations	construction	operations
Project-Level Elements						
Lower Berryessa Creek Element	–	–	–	–	–	–
Lower Calera Creek	–	–	–	–	–	–
Program-Level Elements						
Upper Calera Creek Element 1	✓	–	–	–	–	–
Upper Calera Creek Element 2	✓	–	✓	–	✓	–
Tularcitos Creek Element	✓	–	–	–	–	–
Lower Penitencia Creek Element	✓	–	–	–	–	–

✓ = Applicable Impact
– = No Impact

Upper Calera Creek Element 1, Upper Calera Creek Element 2, Tularcitos Creek Element, and Lower Penitencia Creek Element

Aside from the known cultural resources discussed below in Impact 3.E-2, no known cultural resources are located in the APE for program-level elements, based on the records search and survey conducted for the program area identified in the preliminary design for these elements. The APE for the Lower Penitencia Creek Element has yet not been determined, but there are no known resources within the general area of the Lower Penintencia Creek Element based on the records search conducted on October 22, 2010 (File No. 10-0394).

Similar to project-level elements, the inadvertent discovery of cultural materials cannot be entirely discounted. In the event of an unanticipated discovery of cultural materials and/or human remains, District BMPs CU-2 and CU-3, described below, shall be implemented and would reduce potential impacts to unknown historical resources, archaeological resources, and human remains. However, because the site design and boundary for program-level elements has not been finalized, there is also potential for cultural resources and human remains to be present if areas are added to the boundary of the element that were not evaluated for this program-level analysis and if present within the potentially expanded element boundary, disturbance of any cultural resources would be a significant impact.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts to unknown archaeological resources and/or human remains:

- CU-2: Stop Work and Report Archaeological Finds – applicable to the construction phase of all elements.
- CU-3: Stop Work and Report Burial Finds – applicable to the construction phase of all elements.

Mitigation Measures

Measure 3.E-1: *Cultural Resources Survey and Impact Assessment for Program-level Elements (Upper Calera Creek Element 1, Upper Calera Creek Element 2, Tularcitos Creek Element, and Lower Penitencia Creek Element).* In conjunction with future project-specific environmental review, the District shall conduct pre-construction cultural resources surveys for the Lower Penitencia Creek Element and for any other program-level element whose APE boundaries expand beyond those used in this EIR. The survey shall be conducted by a qualified professional who meets the Secretary of the Interior's Professional Qualification Standards (36 CFR 61). If cultural resources are discovered during a pre-construction survey, Mitigation Measure 3.E-2 shall be applied as appropriate.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.E-1 would reduce impacts to unknown historical resources, archaeological resources, and/or human remains to less-than-significant levels by requiring additional surveys and analysis of Lower Penitencia Creek Element and any area not considered part of the Program at this time.

Impact 3.E-2: Impacts on known archaeological resources associated with CA-SCL-37 and P-43-000432. (Less than Significant with Mitigation)

Construction Impacts

Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Tularcitos Creek Element, and Lower Penintencia Creek Element

The APE for the Program has been identified (see Chapter 2, Program Description) and the proposed construction area has been evaluated for potential presence of archaeological resources. As described in Research Methods, above, there are no known archaeological resources located in the APEs for the Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, and Tularcitos Creek Element. There are no known archaeological resources in the general area of the Lower Penintencia Creek Element based on the records search conducted on October 22, 2010 (File No. 10-0394). Therefore, there is no impact associated with known archaeological resources associated with these elements.

Upper Calera Creek Element 2

Two recorded archaeological resources are located adjacent to the APE for the Upper Calera Creek Element 2. While no cultural resources were located on the surface in the APE nearest to the two recorded cultural resources during the on-foot survey conducted in 2009, no subsurface investigation was conducted and there may be buried site components in the APE. Both archaeological sites are potentially eligible for the National Register under criterion (d) for their ability to yield information important to history and/or prehistory, as well as under criterion (a) for important events associated with broad patterns in history (i.e., Ohlone settlement/ religion, Mexican-era ranchos). Therefore, these sites are considered historic resources as defined by CEQA, and disturbance of these sites could result in a significant impact.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.E-2: *Extended Archaeological Survey and Avoidance or Data Recovery (Upper Calera Creek Element 2)*. In order to determine the presence of cultural resources in the APE adjacent to CA-SCL-37 and P-43-000432 the District shall hire a qualified archaeologist and a Native American monitor to conduct an Extended Archaeological Survey (EAS) in the APE adjacent to the sites prior to construction activities.

A series of hand-auger borings shall be dug at 10-foot increments up to five feet deep in the APE adjacent to the sites. Sediments shall be passed through 1/4-inch screen to determine the presence or absence of subsurface archaeological resources. The depth and number of borings shall be determined in the field based on the archaeologist's observation and results of the boring samples. The depth and general nature of the deposits exposed in soil samples shall be recorded, with additional attention given to samples that contain archaeological remains. All boring holes shall be refilled to restore pre-existing surface contours.

If archaeological resources are uncovered in the APE, the District shall avoid them if feasible. If disturbance of these resources cannot be avoided through redesign, they shall be evaluated for their eligibility to the National Register. This shall be accomplished by constructing a detailed Archaeological Research Design and Treatment Plan (ARDTP). The ARDTP shall be prepared by an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology. The ARDTP shall contain, at a minimum:

- Prehistoric and historic-period archaeological research contexts using existing documents;

- An archaeological Sensitivity Study and Testing Plan that identifies expected property types, historical development, relevant research issues and themes, impacts, and an archaeological testing plan that shall identify potentially significant archaeological features and deposits; and,

- An outline of criteria implemented to evaluate archaeological features and deposits that address relevant research issues.

If a significant archaeological resource (i.e., CEQA-defined historic resource or unique archaeological resource) is present and that the resource could be adversely affected by the Program, prior to construction the District shall:

- Implement the Archaeological Data Recovery Program (ADRP) outlined in the ARDTP. The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ADRP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, shall be limited to the portions of the historic property that could be adversely affected by the Program. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical. The results of the ARDP shall be presented in a report that contains methods, analysis, report production, laboratory analysis, and appropriate curation of materials.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.E-2 would reduce impacts to known archaeological resources to less-than-significant levels by avoiding disturbance of any significant archaeological resources within the APE or by recovering data if avoidance is not feasible.

Impact 3.E-3: Impacts on known historical resources. (Less than Significant with Mitigation)

Construction Impacts

Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Tularcitos Creek Element, and Lower Penintencia Creek Element

The APE for the Program has been identified (see Chapter 2, Program Description) and the proposed construction area has been evaluated for the potential presence of historic resources. As described in Research Methods, above, there are no known historical resources located in the APEs for the Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, and Tularcitos Creek Element. There are no known historical resources in the general area of the Lower Penintencia Creek Element based on the records search conducted on and October 22, 2010 (File No. 10-0394). Therefore, there is no impact associated with known historical resources associated with these elements.

Upper Calera Creek Element 2

The Program has the potential to indirectly affect a historical resource located near the Upper Calera Creek Element 2, Reach 2, the circa 1859 'Casino' outbuilding associated with the circa 1828 José Higuera Adobe. Although the entire José Higuera Adobe complex was determined ineligible for the National and California Registers due to a loss of integrity, the site is a historical resource for CEQA purposes because the property is listed as a protected property under the City of Milpitas's Cultural Resources Preservation Ordinance. The element includes a sheetpile wall that would be located approximately 10 feet north of the 'Casino' outbuilding, and approximately 175 feet north from the historic portions of the Higuera Adobe. The accepted threshold damage criterion for most buildings and structures is 0.2 inches per second peak particle velocity [PPV]) (see Section 3.K, Noise). Since the 'Casino' outbuilding is only about 10 feet from the proposed sheetpile wall, ground borne vibration primarily from sheetpile driving activities during construction could exceed the damage criterion, and could indirectly affect this historic building. Specifically, vibration from sheetpile driving can cause damage such as cracks in plaster walls and/or foundation settlement. No construction vibration impacts on the José Higuera Adobe are anticipated, as the historic portions of this structure is approximately 175 feet away from the area of proposed sheetpile wall. Significant impacts to the historic 'Casino' outbuilding could occur if vibrations from construction activities were to exceed the threshold as described above. In addition, construction activities from equipment storage and movement, and/or personnel, could also accidentally damage the 'Casino.' Damage to the 'Casino' would be considered a significant impact.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.E-3: *Vibration Monitoring and Damage Avoidance (Upper Calera Creek Element 2)*. To avoid potential construction damage to the historic 'Casino' outbuilding, the District shall ensure that construction vibration levels do not exceed the potential building damage threshold of 0.02 inches per PPV when

constructing the sheetpile wall. A vibration monitoring device shall be attached to the 'Casino' outbuilding to ensure that the peak construction vibration levels would not be exceeded. If such threshold is exceeded, the pile-driving activities shall be stopped immediately and alternative construction methods such as pre-drilling, hydraulic 'speed' shoring, or other feasible construction methods shall be implemented by the District if feasible to reduce vibration impacts to the 'Casino' outbuilding below the established threshold.

If it is determined that construction vibration levels cannot feasibly be reduced to a level below the vibration threshold, the District shall temporarily relocate the 'Casino' outbuilding to an area on site yet outside of the construction zone, and shall place it back in its original location after completion of the sheetpile wall. Relocation of such a fragile, wood-framed building shall be supervised by a qualified architectural historian and a structural engineer. Structural reinforcements may be required to ensure that the building is not damaged during relocation efforts. The building shall be fenced during the construction period to protect it from potential vandalism and from accidental damage by construction workers. If the building is relocated, 'before' and 'after' photographs shall be taken of the building to document the structure. Such photo-documentation shall also be supervised by a qualified architectural historian.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.E-3 would reduce impacts on known historic resources to less-than-significant levels by avoiding vibration damage to the "Casino" outbuilding construction.

Impact 3.E-4: Impacts on paleontological resources. (Less than Significant)

Construction Impacts

All Elements

As discussed in the setting, the program area has little to no potential to yield paleontological resources because it is predominantly underlain by artificial fills, which are engineered mixtures of sand, silt or gravel that would not contain unique or significant fossils. Excavation and earthwork associated with the elements, including levee reconstruction, access road improvements, and the pump station, could possibly encounter Holocene alluvium as well; however, this unit is unlikely to contain paleontological resources because the area is highly disturbed from previous construction and ongoing maintenance and the minimal depth of disturbance in native soils. Thus, impacts on paleontological resources are considered less than significant.

Best Management Practices: None required.

Mitigation: None required.

3.E.4 References

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3.F Geology and Soils

This section evaluates whether construction and operations of the Program would result in potential adverse impacts related to local geology, existing soil conditions, or seismicity. The evaluation and analysis of geology, soils, faulting, and seismicity are based, in part, on review of various geologic maps and reports. The primary sources include available resources from the United States Geological Survey (USGS), California Geological Survey (CGS), and some preliminary summaries of geologic data (Lowney Associates, 2001; Parikh Consultants, Inc., 2004) compiled for Santa Clara Valley Water District (District). Both short-term and long-term program effects are analyzed to determine their significance under CEQA. Applicable District best management practices (BMPs) that are designed to avoid or minimize impacts are identified. When program impacts are determined to be significant, mitigation measures are identified.

3.F.1 Environmental Setting

Section 2.B, Program Location and Existing Facilities, provides general information about the regional and local setting. This section presents setting information specific to geology, soils, and seismic hazards.

Regional Geology

The program area is in the southeastern portion of the San Francisco Bay Area (Bay Area), in the Coast Range geomorphic province of California. Three prominent geologic blocks dominate the Bay Area: the Santa Cruz Mountains (western block), the San Francisco Bay (central block), and the East Bay Hills / Diablo Range (eastern block). The program area is located along the northern margin of the Santa Clara Valley, approximately five miles south of the San Francisco Bay, and lies between the western and eastern blocks. Santa Clara Valley was created by a structural depression from the movement of the San Andreas and Hayward Faults that exist along the west and east sides of the valley. The program area is underlain by Quarternary-age (up to 1.6 million years ago) alluvium. The alluvium has accumulated over relatively recent geologic time (a few hundred thousand years).

Berryessa Creek is located west of the Diablo Range and immediately south of San Francisco Bay. The drainage basin covers approximately 22 square miles in northeastern Santa Clara County and includes steep mountains and rapidly urbanizing foothills and flat valley land which constitute a portion of the Cities of San José and Milpitas. Berryessa Creek flows westerly from its headwaters in the Diablo Range, starting approximately 2,000 feet above mean sea level (amsl). Below the foothills, it continues west through the Cities of San José and Milpitas, turning north and finally channeling into Lower Penitencia Creek, which is tributary to Coyote Creek.

Program Area Geology

The following discussion describes the general geology of the program area. Maps of topography, bedrock, and soil resources were reviewed to provide the basic setting of the program area. Within the program area, Berryessa Creek, Calera Creek, Tularcitos Creek, and Lower Penitencia Creek have underlying geology characteristic of alluvial plains, floodplain, and flood-basin deposits at the base of the Diablo Range (Lowney Associates, 2001)[1]. General geology features pertaining to the program area mainly consist of late Pleistocene (10,000 to 126,000 years ago) to Holocene (less than 10,000 years ago) alluvial fan deposits. Underlying Berryessa Creek, within the program area, are flood-basin deposits, which consist of organic-rich clay to very fine silty clay. Upstream of the Berryessa Creek vicinity, portions of Calera Creek and Tularcitos Creek are underlain by sedimentary rocks consisting of gravel, pebbly sandstone, siltstone, and clay, which are typical of alluvial plain deposits.

Site Topography

The ground elevation within the program area ranges from approximately 200 feet amsl at Old Piedmont Road to approximately 25 feet amsl at East Calaveras Boulevard. Elevations within the program area generally range from approximately 25 to 30 feet amsl in the vicinity of East Calaveras Boulevard to 13 to 17 feet amsl in the vicinity of the Berryessa Creek's confluence with Lower Penitencia Creek (Lowney Associates, 2001; USGS, 1980).

Soils

Due to urbanization that has occurred in the program vicinity, it is likely that the soils present have been removed, highly disturbed, or otherwise changed by the process of development. Based on the available geotechnical information from borings and geologic mapping, the program area is generally underlain by basin deposits and alluvial fan deposits (Parikh Consultants, Inc., 2004). The basin deposits consist of firm lean and sandy clay. The alluvial fan deposits generally consist of clayey gravel, sandy clay, sand, silt, clay, and gravel. The basin deposits generally occur in the downstream sections of the program area, with alluvial fan deposits occurring in the upstream sections of the program area.

The relatively flat, urbanized valley floor is underlain by alluvial soil of Quaternary age. This soil consists of interlayered, poorly sorted gravel, sand, silt, and clay deposited by water. The thickness of the alluvial soil increases westward from zero at the base of the hills to 1,000 feet or more at the western edge of the City. The alluvial soil in Milpitas was deposited in and adjacent to stream channels, in low-lying basins between streams, and on the floor of the Bay when the shoreline was east of its present position. The composition and consistency of alluvial soils varies laterally and vertically over small distances and depths (City of Milpitas, 2002).

[1] Alluvial and alluvium refers to deposits of clay, silt, sand, and gravel deposited by a stream or running water.

Regional Faulting and Seismic Hazards

This section characterizes the region's existing faults, describes historic earthquakes, estimates the likelihood of future earthquakes, and describes probable ground-shaking effects. The primary sources of information for this section are publications prepared by the USGS and the CGS, and hazard mapping tools provided by the Association of Bay Area Governments (ABAG).

Earthquake Terminology and Concepts

Earthquake Mechanisms and Fault Activity

Faults are planar features within the earth's crust that have formed to release stresses caused by the dynamic movements of the earth's major tectonic plates. An earthquake on a fault is produced when these stresses overcome the inherent strength of the earth's crust and the rock ruptures. The rupture causes seismic waves to propagate through the earth's crust, producing the ground-shaking effect known as an earthquake. The rupture also causes variable amounts of slip along the fault, which may or may not be visible at the earth's surface. It is important to note that faults are pervasive features in rocks, and occur even in areas of little-to-no earthquake activity. This is because over geologic time scales the areas where tectonic stresses build up are always changing; thus, faults are more often evidence of past tectonic activity than indicators of a current earthquake hazard.

Geologists commonly use the age of offset rocks as evidence of fault activity—the younger the displaced rocks, the more recently earthquakes have occurred. To evaluate the likelihood that a fault will produce an earthquake, geologists examine the magnitude and frequency of recorded earthquakes and evidence of past displacement along a fault. An *active* fault is defined by the State of California as a fault that has had surface displacement within Holocene time (last 10,000 years). A *potentially active* fault is defined as a fault that has shown evidence of surface displacement during the Quaternary (last 1.6 million years) (Hart, 1997). *Blind* faults do not show surface evidence of past earthquakes, even if they occurred in the recent past. Faults that show no evidence of having generated earthquakes in the last 1.6 million years (Quaternary) are considered incapable of generating an earthquake.

Earthquake Magnitude

A way to determine the size of an earthquake along a fault is to measure the energy released using a network of seismographs, which record the amplitude and frequency of the seismic waves it generates. The Richter Magnitude (M) for an earthquake represents the highest amplitude measured by the seismograph at a distance of 100 kilometers from the epicenter. Richter magnitudes vary logarithmically, with each whole number step representing a ten-fold increase in the amplitude of the recorded seismic waves. While Richter Magnitude was historically the primary measure of earthquake magnitude, seismologists now use Moment Magnitude as the preferred way to measure earthquakes. The Moment Magnitude scale (Mw) is related to the physical characteristics of a fault, including the rigidity of the rock, the size of fault rupture, and the style of movement or

displacement across the fault. Although the formulae of the scales are different, they both contain a similar continuum of magnitude values, except that Mw can reliably measure larger earthquakes and do so from greater distances.

Peak Ground Acceleration

A common measure of ground motion during an earthquake is the peak ground acceleration (PGA). The PGA for a given component of motion is the largest value of horizontal acceleration obtained from a seismograph. PGA is expressed as the percentage of the acceleration due to gravity (g), which is approximately 980 centimeters per second squared. In terms of automobile accelerations, one "g" of acceleration is equivalent to the motion of a car traveling 328 feet from rest in 4.5 seconds. For comparison purposes, the maximum peak acceleration value recorded during the Loma Prieta earthquake was in the vicinity of the epicenter, near Santa Cruz, at 0.64g (ABAG, 2010a). Unlike measures of magnitude, which provide a single measure of earthquake energy, PGA varies from place to place and is dependent on the distance from the epicenter and the character of the underlying geology (e.g. hard bedrock, soft sediments or artificial fills).

The Modified Mercalli Intensity Scale

The Modified Mercalli Intensity Scale (shown in Table 3.F-1) assigns an intensity value based on the observed effects of ground-shaking produced by an earthquake. Unlike measures of earthquake magnitude and PGA, the Modified Mercalli (MM) intensity scale is empirical in nature (i.e., it is based on actual observed effects rather than measured values). Similar to PGA, MM intensity values for an earthquake at any one place can vary depending on its magnitude, the distance from its epicenter, the focus of its energy, and the type of geologic material. The MM values for intensity range from I (earthquake not felt) to XII (damage nearly total), and intensities ranging from IV to X could cause moderate to significant structural damage. Because the MM is a measure of ground-shaking effects, intensity values can be related to a range of PGA values, also shown in Table 3.F-1.

Seismic Context

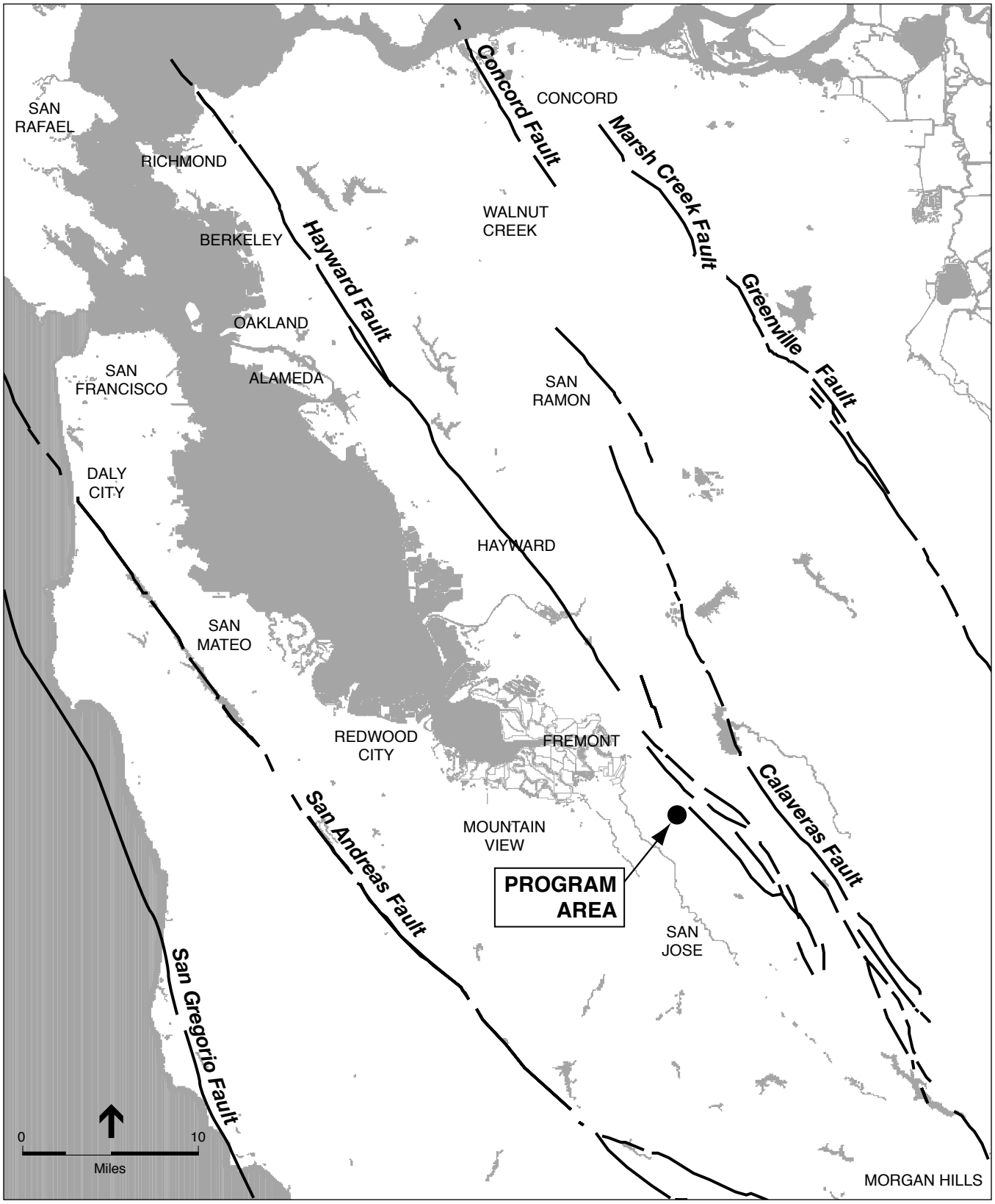
The program area lies within a region of California that contains many active and potentially active faults and is considered an area of high seismic activity (Figure 3.F-1). The USGS, along with the CGS and the Southern California Earthquake Center, formed the 2007 Working Group on California Earthquake Probabilities to summarize the probability of one or more earthquakes of magnitude 6.7 or higher occurring in California over the next 30 years. Accounting for the wide range of possible earthquake sources, it is estimated that the Bay Area has a 63 percent chance of experiencing such an earthquake by 2036 (Working Group on California Earthquake Probabilities, 2008). According to the working group, the individual faults posing the greatest threat to the Bay Area are the Hayward, San Andreas, and Calaveras Faults. Other principal faults capable of producing significant earthquakes in the Bay Area include the Concord–Green Valley, Marsh Creek–Greenville, San Gregorio, and Rodgers Creek Faults (see Figure 3.F-1).

TABLE 3.F-1
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Ground Acceleration[a]
I	Not felt except by a very few persons under especially favorable circumstances.	< 0.0017 g
II	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	0.0017-0.014 g
III	Felt noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing motor cars may rock slightly, vibration similar to a passing truck. Duration estimated.	0.0017-0.014 g
IV	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.014–0.039g
V	Felt by nearly everyone, many awakened. Some dishes and windows broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles may be noticed. Pendulum clocks may stop.	0.035 – 0.092 g
VI	Felt by all, many frightened and run outdoors. Some heavy furniture moved; and fallen plaster or damaged chimneys. Damage slight.	0.092 – 0.18 g
VII	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.18 – 0.34 g
VIII	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.34 – 0.65 g
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.65 – 1.24 g
X	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from riverbanks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 1.24 g
XI	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 1.24 g
XII	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 1.24 g

[a] Value is expressed as a fraction of the acceleration due to gravity (g). Gravity (g) is 9.8 meters per second squared. 1.0 g of acceleration is a rate of increase in speed equivalent to a car traveling 328 feet from rest in 4.5 seconds.

SOURCE: ABAG, 2003



SOURCE: ESA

Lower Berryessa Creek Program . 201425

Figure 3.F-1
Regional Fault Map

The closest active fault to the program area is the Hayward Fault, which crosses the northeast section of Upper Calera Creek Element 2. The Calaveras and San Andreas Fault systems are located approximately 4.25 miles to the northeast and 16 miles to the southwest of the program area, respectively. All of these faults are considered active. Table 3.F-2 lists the above-mentioned faults, their distance and directions from the program area, and their maximum credible earthquake magnitude. Each of these faults is briefly described below. The most significant seismic hazards affecting the program area are fault rupture, liquefaction, lateral spreading, and ground-shaking caused by a major earthquake on one of the major faults in the region (City of Milpitas, 2002; CGS, 2004).

TABLE 3.F-2
ACTIVE FAULTS IN THE PROGRAM AREA

Fault	Distance and Direction from Program Area	Most Recent Prehistoric Deformation[a]	Future Earthquake Probability[b]	Historic Earthquakes > M 6.5[c]	Maximum Moment Magnitude Earthquake (Mw)[d]
Hayward Fault (southeast extension)	Crosses Upper Calera Creek Element 2	Latest Quaternary (<15,000 years))	31% (combined with Rodgers Creek Fault)	M 6.8, 1868 M 6.75, 1838	7.1
Calaveras Fault (Central Section)	4.25 miles northeast	Historic (<150 years)	7%	M 6.5, 1911	6.8
San Andreas Fault (Peninsula Section)	16 miles southwest	Historic (<150 years)	21%	M 7.1, 1989 M 8.25, 1906 M 6.5, 1865 M 7.0, 1838	6.9
Greenville Fault (Arroyo Mocho Section)	18.75 miles northeast	Latest Quaternary (<15,000 years)	3%	None Documented	6.9
San Gregorio Fault	28 miles southwest	Latest Quaternary (<15,000 years)	6%	None Documented	7.3
Concord Fault Zone (Ignacio Valley Section)	30 miles north	Latest Quaternary (<15,000 years)	3%	None Documented	6.7

a From Bryant (2005). Defines one of the four time categories in which the most recent prehistoric surface-rupturing or surface-deforming earthquake occurred based on geologically recognizable evidence of faulting, folding, or liquefaction. The categories are (1) latest Quaternary (<15 ka), (2) late Quaternary (<130 ka), (3) late and middle Quaternary (<750 ka), and (4) Quaternary (<1.6 Ma). Note that earthquakes do not always produce recognizable evidence of surface rupture.

b Probability of one or more earthquakes of magnitude 6.7 or greater from 2007 to 2036 provided by the Working Group on California Earthquake Probabilities (2008). The Working Group estimates the probability of a "background" earthquake not from one of the seven major faults studied to be 9%.

c From Jennings (1994). Historic earthquakes listed may have occurred along any portion of the fault (not necessarily the fault section closest to the program area).

d The Maximum Moment Magnitude Earthquake is derived from the joint California Division of Mines and Geology (CDMG) / USGS Probabilistic Seismic Hazard Assessment for the State of California (Peterson et al., 1996)

SOURCES: Bryant, 2005; Jennings, 1994; Working Group on California Earthquake Probabilities, 2008; Peterson et al., 1996.

Hayward Fault

The Hayward Fault Zone, mapped as crossing Upper Calera Creek Element 2, extends for 60 miles from San Pablo Bay in Richmond, south to the San José area. The Hayward Fault has historically generated one sizable earthquake, in 1868, when a Richter magnitude 7 earthquake on its southern segment ruptured the ground for a distance of about 30 miles (Bryant, 2005). Lateral ground surface displacement along the fault trace during this event was at least three feet.

A characteristic feature of the Hayward Fault is its well-expressed and relatively consistent fault creep. Although large earthquakes on the Hayward Fault have been rare since 1868, slow fault creep has continued to occur and has caused measurable offset. Fault creep on the East Bay segment of the Hayward Fault is estimated at nine millimeters per year (mm/yr) (Peterson, et al., 1996). However, a large earthquake could occur on the Hayward Fault, and could be approximately Mw 7.1 (Table 3.F-2). The USGS Working Group on California Earthquake Probabilities (2008) identifies the Hayward–Rodgers Creek Fault Systems as having a 31 percent chance of generating one or more earthquakes of M 6.7 or greater in the next 30 years.

San Andreas Fault

The San Andreas Fault Zone, located about 16 miles southwest of the program area, is a major structural feature that forms at the boundary between the North American and Pacific tectonic plates. It is a strike-slip[2] fault, extending from the Salton Sea in Southern California near the border with Mexico to north of Point Arena, where the fault trace continues out into the Pacific Ocean. The main trace of the San Andreas Fault through the Bay Area trends northwest from the Santa Cruz Mountains to the eastern side of the San Francisco Peninsula.

In the Bay Area, the San Andreas Fault Zone was the source of the two major earthquakes in recent history that affected the San Francisco Bay region. The 1906 San Francisco earthquake was estimated at M 7.9 and resulted in approximately 290 miles of surface fault rupture, the longest of any known continental strike-slip fault. Horizontal displacement along the fault approached 17 feet near the epicenter (Bryant, 2005). The 1989 Loma Prieta earthquake, with a magnitude of Mw 6.9, was centered in the Santa Cruz Mountains and resulted in widespread damage throughout the Bay Area. The USGS Working Group on California Earthquake Probabilities (2008) identifies the San Andreas Fault as having a 21 percent chance of generating one or more earthquakes of M 6.7 or greater in the next 30 years.

Calaveras Fault

The Calaveras Fault, located 4.25 miles northeast of the program area, is a major right-lateral strike-slip fault that has been active during the last 11,000 years. The Calaveras Fault is located in the eastern San Francisco Bay region and generally trends from north to south

[2] Refers to relative motion on either side of a fault which is primarily horizontal (as opposed to vertical).

along the eastern side of the Oakland Hills into the western Diablo Range, eventually joining the San Andreas Fault Zone south of Hollister. The northern extent of the fault zone is somewhat speculative and could be linked with the Concord Fault.

There is a distinct change in slip rate and fault behavior north and south of the vicinity of Calaveras Reservoir. North of Calaveras Reservoir, the fault is characterized by a relatively low slip rate of 5 to 6 mm/yr and sparse seismicity (Bryant, 2005). South of Calaveras Reservoir, the fault zone is characterized by a higher rate of surface fault creep that has been evidenced in historic times. The Calaveras Fault has been the source of several moderate magnitude earthquakes, and the probability of a large earthquake (greater than M 6.7) is much lower than on the San Andreas or Hayward Faults. The USGS Working Group on California Earthquake Probabilities (2008) identifies the Calaveras Fault as having a seven percent chance of generating one or more earthquakes of M 6.7 or greater in the next 30 years.

Concord-Green Valley Fault

The Concord-Green Valley Fault, located 30 miles north of the program area, extends from Walnut Creek north to Wooden Valley (east of Napa Valley). Historical record indicates that no large earthquakes have occurred on the Concord or Green Valley Faults (Bryant, 2005). However, a moderate earthquake of magnitude M 5.4 occurred on the Concord Fault segment in 1955. The Concord and Green Valley Faults exhibit active fault creep and are considered to have a small probability of causing a significant earthquake. The USGS Working Group on California Earthquake Probabilities (2008) identifies the Concord-Green Valley Fault as having a three percent chance of generating one or more earthquakes of M 6.7 or greater in the next 30 years.

The San Gregorio Fault

The San Gregorio Fault, located 28 miles southwest of the program area, is an active, structurally complex fault zone as much as three miles wide. The fault zone is mainly located offshore, west of San Francisco Bay and Monterey Bay, with onshore locations at promontories, such as Moss Beach, Pillar Point, Pescadero Point, and Point Año Nuevo. While there is no record of historic seismicity, the most recent earthquake along the San Gregorio Fault Zone is thought to have occurred after 1270 AD to 1400 AD, but prior to the arrival of Spanish missionaries in 1775 AD (Bryant, 2005). The USGS Working Group on California Earthquake Probabilities (2008) identifies the San Gregorio Fault as having a 6 percent chance of generating one or more earthquakes of M 6.7 or greater in the next 30 years.

Greenville Fault

The Greenville Fault is located 18.75 miles to the northeast of the program area, along the base of the hills that form the eastern margin of the Livermore Valley. The fault is recognized as a major structural feature and has demonstrated Holocene (recent) activity. The USGS Working Group on California Earthquake Probabilities (2008) identifies the Greenville Fault as having a three percent chance of generating one or more earthquakes of M 6.7 or greater in the next 30 years.

Seismic Hazards

The following discussion identifies the seismic hazards for the program area and provides the initial context for further evaluation in the impact analysis.

Surface Fault Rupture

Seismically-induced ground rupture is defined as the physical displacement of surface deposits in response to an earthquake's seismic waves. The magnitude, sense, and nature of fault rupture can vary for different faults or even along different strands of the same fault. Ground rupture is considered more likely along active faults, which are referenced in Figure 3.F-1 and Table 3.F-1. The program alignment includes segments that are located within an Alquist-Priolo Earthquake Fault Zone, as designated by the Alquist-Priolo Earthquake Fault Zoning Act. Strands of the Hayward Fault in the vicinity of the northeast limit of Upper Calera Creek Element 2 are found to intersect the proposed program alignment. As mentioned above, in 1868 a Richter magnitude 7 earthquake on its southern segment ruptured the ground for a distance of about 30 miles.

Ground-Shaking

As discussed above, a major earthquake is likely to affect the program area within the next 30 years and would produce strong ground-shaking effects throughout the region. Earthquakes on active or potentially active faults, depending on magnitude and distance from the program area, could produce a range of ground-shaking intensities within the program area. Historically, earthquakes have caused strong ground-shaking and damage in the Bay Area, the most recent being the Mw 6.9 Loma Prieta earthquake in October 1989. The epicenter was approximately 45 miles south of the program area, but this earthquake is estimated to have caused moderate (VI) to strong (VII) shaking intensities in the program area (ABAG, 2010b). The largest earthquake in Bay Area history was the San Francisco Earthquake of 1906, with an estimated M 7.9. This produced very strong (VIII) to violent (IX) shaking intensities in the program area (ABAG, 2010a).

A future worst-case scenario would be a large earthquake on the Hayward Fault, which could produce far more severe ground-shaking in the project area than was observed during the Loma Prieta earthquake. It is estimated that a characteristic[3] earthquake along the entire Hayward Fault (both north and south segments) would produce ground-shaking of violent (IX) to very violent (X) intensity (ABAG, 2010a). These intensities can be expected to destroy some well built wood-frame structures, cause considerable ground deformation, and induce landslides. It is important to note that rupture along the entire fault is an extremely low-probability event.

One of the primary tools that seismologists use to describe ground-shaking hazard is a probabilistic seismic hazard assessment (PSHA). The PSHA for the State of California takes into consideration the range of possible earthquake sources (including such worse-case

[3] The concept of "characteristic" earthquakes means that we can anticipate, with reasonable certainty, the actual damaging earthquakes that will occur on a fault segment (Peterson et al., 1996).

scenarios as described above) and estimates their characteristic magnitudes to generate a probability map for ground-shaking. The PSHA maps depict values of PGA that have a 10 percent probability of being exceeded in 50 years. This probability level allows engineers to design buildings for ground motions that have a 90% chance of not occurring in the next 50-years, making buildings safer than if they were simply designed for the most likely events. The PSHA indicates that in the program area, there is a 10 percent chance of exceeding PGA values of 0.71g over the next 50 years (1 in 475 chance of occurring) (Peterson et al., 1996). As indicated in Table 3.F-1, these PGAs could result in considerable damage even in specially designed structures, causing partial collapse of some buildings and damaging underground utilities.

Liquefaction

Liquefaction is a transformation of soil from a solid to a liquefied state, during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liquefaction includes loose- to medium-density sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Four kinds of ground failure commonly result from liquefaction: lateral spread, flow failure, ground oscillation, and loss of bearing strength. *Lateral spreading* is the horizontal displacement of surficial blocks of sediments resulting from liquefaction in a subsurface layer that occurs on slopes ranging between 0.3 and 3 percent and commonly displaces the surface by several meters to tens of meters. *Flow failures* occur on slopes greater than three degrees and are primarily liquefied soil or blocks of intact material riding on a liquefied subsurface zone. *Ground oscillation* occurs on gentle slopes when liquefaction occurs at depth and no lateral displacement takes place. Soil units that are not liquefied may pull apart from each other and oscillate on the liquefied zone. The *loss of bearing pressure* can occur beneath a structure when the underlying soil loses strength and liquefies. When this occurs, the structure can settle, tip, or even become buoyant and “float” upwards. Liquefaction and associated failures could disrupt utility service and/or damage foundations, roads, underground cables, and pipelines.

The depth to groundwater influences the potential for liquefaction, in that sediments need to be saturated to have a potential for liquefaction. As the program area is a surface water feature, groundwater may be shallow at all times. The program area is located within a mapped liquefaction susceptibility hazard zone (CGS, 2004; USGS, 2006).

Earthquake-Induced Settlement

Settlement of the ground surface can be accelerated and accentuated by earthquakes. During an earthquake, settlement can occur as a result of the relatively rapid compaction and settling of subsurface materials (particularly loose, poorly-compacted, and variable sandy sediments above the water table) due to the rearrangement of soil particles during prolonged ground-shaking. Settlement can occur both uniformly and differentially (i.e., where adjoining areas settle at different amounts). Areas underlain by artificial fill would be susceptible to this type of settlement. Given the geologic setting of the program vicinity, this area could be subjected to earthquake-induced settlement.

Other Geologic Hazards

The artificial fills and natural geology underlying the program area present potential hazards related to soil erosion, settlement, and expansive soil materials. These hazards are discussed briefly below and provide the initial context for further evaluation in the impact analysis.

Expansive Soils

Expansive soils possess a “shrink-swell” behavior. Shrink-swell is the cyclic change in volume (expansion and contraction) that occurs in fine-grained clay sediments from the process of wetting and drying. Structural damage may occur over a long period of time, usually as a result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. Clay minerals such as smectite, bentonite, montmorillonite, beidellite, vermiculite, and others are known to expand with changes in moisture content. The higher the percentage of expansive minerals present in near-surface soils, the higher the potential for significant expansion. The greatest effects occur when there are significant or repeated moisture content changes. Expansions of 10 percent or more in volume are not uncommon. This change in volume can exert enough force on a building or other structure to cause cracked foundations, floors, and basement walls. Structural damage typically occurs over a long period of time, usually the result of inadequate soil and foundation engineering or the placement of structures directly on expansive soils. The presence of expansive soils can typically only be determined through site-specific analysis. Considering the large footprint of the Program, it is likely that some portions of the program facilities would be located on expansive soils.

Soil Erosion

Erosion is the wearing away of soil and rock by processes, such as mechanical or chemical weathering; mass wasting; and/or the action of waves, wind, and water. Excessive or accelerated soil erosion can occur in areas of concentrated runoff over erodible soils, especially where denuded of vegetation. Erosional features, such as rills or gullies, may eventually lead to damage of building foundations and roadways. In the program area, areas that are susceptible to erosion are those that would be exposed during the construction phase. Typically, the soil erosion potential is reduced once the soil is graded and covered with concrete, structures, asphalt, vegetation, or slope protection.

Settlement

Settlement can occur from immediate settlement, consolidation, or shrinkage of expansive soil. Immediate settlement occurs when a load from a structure or placement of new fill material is applied, causing distortion in the underlying materials. This settlement occurs quickly and is typically complete after placement of the final load. Consolidation settlement occurs in saturated clay from the volume change caused by squeezing out water from the pore spaces. Consolidation occurs over a period of time and is followed by secondary compression, which is a continued change in void ratio under the continued application of the

load. Rapid settlement can occur if soil is liquefied during an earthquake. Soils tend to settle at different rates and by varying amounts depending on the load weight or changes in properties over an area, which is referred to as differential settlement.

Landslides and Slope Failure

Ground failure is dependent on the slope and geology as well as the amount of rainfall, human activities such as excavation, or seismic activity. A slope failure is a mass of rock, soil, and debris displaced downslope by sliding, flowing, or falling. Landslide-susceptible areas are characterized by steep slopes and weak or unfavorably oriented geologic units. Debris flows consist of a loose mass of rocks and other granular material that, if saturated and present on a slope, can move downslope.

The rate of rock and soil movements can vary from a slow creep over many years to a sudden mass movement. Landslides occur throughout California, but the density of incidents increases in zones of active faulting. The program alignment is located in areas with very little or gently sloping topography that is unlikely to be susceptible to slope failure. However, some locations of the alignment in the vicinity of Upper Calera Creek are relatively close to steeper upland areas that may be susceptible to slope failures and that have been designated as areas of previous occurrence of landslide movement or as having conditions indicative of a potential for permanent ground displacements (ABAG, 2010a; CGS, 2004).

3.F.2 Regulatory Setting

Federal Regulations

There are no federal regulations related to geology, soils and seismicity that would apply to the Program.

State Regulations

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act became law in 1972 to mitigate the hazard of surface faulting to structures for human occupancy. The purpose of the Alquist-Priolo Act is to regulate development on or near active fault traces to reduce the hazard of fault rupture and to prohibit the location of most structures for human occupancy across these traces[4]. Cities and counties must regulate certain development projects within the zones, which includes withholding permits until geologic investigations demonstrate that development sites are not threatened by future surface displacement. Surface fault rupture is not necessarily restricted within an Alquist-Priolo Zone. Each earthquake fault zone extends approximately 200 to 500 feet on either side of the mapped fault trace, because many active faults are complex and consist of more than one branch. There is the potential for ground surface rupture along any of

[4] Title 14 of the California Code of Regulations, Section 3601(e), defines buildings intended for human occupancy as those that would be inhabited for more than 2,000 hours per year.

the branches. The Alquist-Priolo Earthquake Fault Zone for the Hayward Fault intersects the program alignment at Upper Calera Creek Element 2 Reach B.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (SHMA) of 1990 was developed to protect the public from the effects of strong ground-shaking, liquefaction, landslides, or other ground failure, and from other hazards caused by earthquakes. This act requires the State Geologist to delineate various seismic hazard zones and requires cities, counties, and other local permitting agencies to regulate certain development projects within these zones. The SHMA establishes a statewide minimum public safety standard for mitigation of earthquake hazards. This means that the minimum level of mitigation for a project should reduce the risk of ground failure during an earthquake to a level that does not cause the collapse of a building intended for human occupancy, but in most cases, not to a level of no ground failure at all. Before a development permit may be granted for a site within a Seismic Hazard Zone, a geotechnical investigation of the site must be conducted and appropriate mitigation measures incorporated into the project design. Special Publication 117 (SP-117) constitutes the guideline for evaluating seismic hazards related to ground shaking and for recommending mitigation measures as required by the Public Resources Code Section 2695(a). The objectives of the guideline are to assist in the evaluation and mitigation of earthquake-related hazards for projects within designated zones of required investigations and to promote uniform and effective statewide implementation of the evaluation and mitigation elements of the SHMA. SP-117 is intended to assist the owner or developer seeking approval of specific development project within a Seismic Hazard Zone and assist the lead agency who must complete the technical review. The methods and procedures contained in SP-117 are those which the State Mining and Geology Board, the Seismic Hazard Mapping Act Advisory Committee, and its Working Groups believe are currently representative of quality practice. The Lower Berryessa Creek, Lower Calera Creek, Tularcitos Creek and Upper Calera Creek (Element 1) Elements of the program are located within a Seismic Hazard Zone for liquefaction, as designated by the CGS. The most northern portion of Upper Calera Creek Element 2, Sub-Reach B, is located adjacent to a Seismic Hazard Zone for earthquake induced landslides, as designated by the CGS.

California Building Code

The California Building Code (CBC) has been codified in the CCR as Title 24, Part 2. Title 24 is administered by the California Building Standards Commission, which, by law, is responsible for coordinating all building standards. Under California law, all building standards must be centralized in Title 24 or they are not enforceable. The purpose of the CBC is to establish minimum standards to safeguard the public health, safety, and general welfare through structural strength, means of egress from facilities, and general stability by regulating and controlling the design, construction, quality of materials, use and occupancy, location, and maintenance of all building and structures within its jurisdiction. The 2007 CBC is based on the 2006 International Building Code (IBC) published by the International Code Conference. In addition, the CBC contains necessary California amendments, which are based on the

American Society of Civil Engineers (ASCE) Minimum Design Standards 7-05. ASCE 7-05 provides requirements for general structural design and includes means for determining earthquake loads as well as other loads (flood, snow, wind, etc.) for inclusion into building codes. The provisions of the CBC apply to the construction, alteration, movement, replacement, and demolition of every building or structure, or any appurtenances connected or attached to such buildings or structures, throughout California.

The earthquake design requirements take into account the occupancy category of the structure, the site class, soil classifications, and various seismic coefficients, which are used to determine a Seismic Design Category (SDC) for a project. The SDC is a classification system that combines the occupancy categories with the level of expected ground motions at the site and ranges from SDC A (very small seismic vulnerability) to SDC E/F (very high seismic vulnerability and near a major fault). Design specifications are then determined according to the SDC.

Local Plans and Policies

Milpitas General Plan

The Seismic and Safety Element of the City of Milpitas General Plan (City of Milpitas, 2002) identifies the following guiding principles and implementing policies that relate to the Program:

Seismic and Geologic Hazards

Guiding Principle

5.a-G-1: Minimize threat to life and property from seismic and geologic hazards.

Implementing Policies

5.a-I-1: Require all projects within the Alquist-Priolo Special Studies Zone to have geologic investigations performed to determine the locations of active fault traces before structures for human occupancy are built.

5.a-I-2: Require applications of all projects in the Hillside Area and the Special Studies Zone to be accompanied by geotechnical reports ensuring safety from seismic and geologic hazards.

5.a-I-3: Require projects to comply with the guidelines prescribed in the City's Geotechnical Hazards Evaluation manual.

3.F.3 Impacts and Mitigation Measures

Significance Criteria

The District has not formally adopted significance standard for impacts related to geology and soils, but generally considers that implementation of the Program would have a significant impact on geology and soils if it were to:

- Expose people or structures to potential substantial adverse effects, including 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 issued by the State Geologist for the area or based on other substantial evidence of a known fault;
  - Strong seismic ground-shaking;
  - Seismic-related ground failure, including liquefaction; and/or
  - Landslides;
- Result in substantial soil erosion or the loss of topsoil;
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property; or
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater.

Approach to Analysis

Geologic and seismic hazards generally vary according to site-specific conditions. While some potential hazards, such as ground-shaking and fault rupture, can be identified using available resources such as those from the CGS, other hazards, such as expansive soils, can only be identified by sampling and laboratory analysis of site-specific soils. However, it is likely that many of the hazards that are referred to in the significance criteria above would be encountered in at least some portion of the program area. Therefore, the following analysis is based on the available information from such resources as the CGS, the USGS, and engineering planning investigations that have been conducted by Lowney Associates and Parikh Consultants (Lowney Associates, 2001; Parikh Consultants, Inc., 2004). Where site-specific information is available regarding localized hazards, these hazards are identified by element. Other geologic and seismic hazards are discussed in general and may apply to all elements.

No Impact Significance Determinations

Based on the program design and its geographic location, the Program would not result in impacts related to the following criterion. No impact discussion is provided for this criterion for the following reason:

> *Wastewater Disposal.* No septic tanks or alternative waste water systems are proposed. Additionally, portable toilets would be used during the construction phase. Therefore, the Program would not require the use of septic or other alternative disposal wastewater systems, and no impact would be associated with this hazard.

Impact Summary

Table 3.F-3 provides a summary of geology and soils impacts by element and implementation phase (construction and operations). Table 3.F-4 provides a summary of applicable mitigation measures by element and implementation phase (construction and operations).

Impacts and Mitigation Measures

Impact 3.F-1: Expose people or structures to potential substantial adverse affects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, strong seismic ground-shaking, or secondary ground-shaking effects such as liquefaction or landslides. (Less than Significant with Mitigation)

Construction and Operations Impacts

All Elements

Effects of Fault Rupture. Only one element, Upper Calera Creek Element 2, is proposed within a designated Alquist-Priolo earthquake fault zone. Fault rupture is a potential hazard where the Hayward Fault intersects Reach B of Upper Calera Creek Element 2 in the program vicinity. Fault rupture could cause ground displacement and/or offset that could potentially damage floodwalls and conveyance structures, resulting in discharge of water from the conveyance to the surrounding area. The potential for fault rupture to occur is an existing hazard for the channel and associated structures of Reach B of Upper Calera Creek Element 2, as currently constructed. The Program would improve existing structures and by doing so, would not increase the risk of fault rupture or worsen the potential effects of failure caused by surface displacement during an earthquake. Therefore, the Program would not alter conditions in a way that would expose people or property to additional risk associated with fault rupture, and the impact is therefore considered less than significant.

Effects of Ground-shaking. Seismic ground-shaking, as well as other secondary seismic effects, are risks that are commonly applicable to structures throughout the Bay Area. All elements of the Program would likely experience at least one major earthquake (greater than M 6.5) sometime within the operational life of the Program. As discussed above, there is a 31 percent probability for a 6.7 magnitude earthquake occurring on the Hayward Fault. Earthquakes on any of the active faults discussed above would be expected to produce a range of ground-shaking intensities along the program alignment. Ground-shaking may affect areas hundreds of miles distant from the earthquake's epicenter. Ground-shaking intensity is partly related to the size of an earthquake, the distance to the site, and the response of the geologic materials that underlie a site. As a rule, the greater the earthquake magnitude and the closer the fault is to a site, the greater the intensity of potential damage. According to estimates made by the USGS, there is a 10 percent chance of exceeding PGA values of 0.71g over the next 50 years. Ground-shaking of this magnitude could cause significant damage to structures, including buildings, access roads, bridges, water conveyance and pumping equipment, engineered slopes, buried pipelines, and embankments.

TABLE 3.F-3
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL GEOLOGY AND SOILS IMPACTS

	Impact 3.F-1		Impact 3.F-2		Impact 3.F-3		Impact 3.F-4	
	Fault rupture, strong seismic ground-shaking, or secondary seismic effects		Erosion or loss of topsoil		Landslide, lateral spreading, subsidence, liquefaction or collapse		Expansive soils	
	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements								
Lower Berryessa Creek Element	SM	SM	LTS	LTS	LTS	LTS	SM	SM
Lower Calera Creek Element	SM	SM	LTS	LTS	LTS	LTS	SM	SM
Program-Level Elements								
Upper Calera Creek Element 1	SM	SM	LTS	LTS	LTS	LTS	SM	SM
Upper Calera Creek Element 2	SM	SM	LTS	LTS	LTS	LTS	SM	SM
Tularcitos Creek Element	SM	SM	LTS	LTS	LTS	LTS	SM	SM
Lower Penitencia Creek Element	LTS	LTS	LTS	LTS	LTS	LTS	LTS	LTS

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact

TABLE 3.F-4
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.F-1 Geotechnical Investigations		Measure 3.F-4 Geotechnical Explorations	
	construction	operations	construction	operations
Project-Level Elements				
Lower Berryessa Creek Element	✓	✓	✓	✓
Lower Calera Creek Element	✓	✓	✓	✓
Program-Level Elements				
Upper Calera Creek Element 1	✓	✓	✓	✓
Upper Calera Creek Element 2	✓	✓	✓	✓
Tularcitos Creek Element	✓	✓	✓	✓
Lower Penitencia Creek Element	–	–	–	–

✓ = Applicable Impact
– = No Impact

Seismic ground-shaking is an unavoidable hazard for facilities in the Bay Area. It should be noted that seismic ground-shaking is an existing hazard for the existing structures, roads, levees, crossings, and other associated facilities as currently constructed, and that the Program is largely an improvement of the existing facilities and flood conveyance structures. Current standard structural design criteria represent improved requirements over those used in the past for base foundation materials and require a greater degree of structural integrity. Facilities designed and constructed under current codes and standards would be an improvement to existing facilities and seismic risks would be reduced. It is likely that ground shaking would occur during the program lifetime, and damage could be caused that could result in some failure of the foundation material or structure. Considering current engineering design and construction standards, the damage would be equal to or less than what would be expected to occur without the Program. The Program would not exacerbate the potential damage caused by ground shaking to the extent that the Program would cause substantial loss or injury. Therefore, construction in accordance with current engineering practice for the San Francisco Bay Area and building code requirements for seismic design would reduce the potential for significant damage and the impact would be less than significant.

Secondary Ground-shaking Effects. In addition to severe ground-shaking, significant seismic events can be associated with secondary effects such as liquefaction and earthquake-induced landslides.

Liquefiable soils are present wherever loose unconsolidated sediments in near-surface (generally less than 50 feet from the ground surface) soils are saturated due to a high groundwater table. As discussed under Section 3.F.1, Environmental Setting, the program alignment is located within a mapped liquefaction susceptibility hazard zone. Soils in these areas have a high potential for liquefaction. The presence of liquefiable soils on a site-specific basis can only be determined through site-specific exploration of subsurface soils. Geotechnical investigations conducted by Parikh Consultants identified intermittent pockets/lenses of loose to medium dense clayey sand/silty sand layers within the program area, but above measured groundwater levels (Parikh Consultants, 2004). Therefore, Parikh Consultants reported the liquefaction potential of the soil materials within the program area to be considered relatively low. However, it was recommended that additional investigations be conducted to determine groundwater levels and the extent and thickness of the liquefiable loose to medium dense sand layers within the program area (Parikh Consultants, 2004). Further recommendations suggest that, should a potential for liquefaction be established by additional investigations, evaluation of the post-liquefaction settlement, lateral spreading, and impact on slope stability due to liquefaction of the potential liquefiable sand layers underneath the proposed design levee within the mapped SHMA liquefaction zone should be performed. Because geotechnical investigations indicate the presence of liquefiable soils in the program area which could directly affect the Program, as proposed, further analysis would be required in the program area to identify specific measures to ensure that secondary ground-shaking effects, such as liquefaction, would not expose people or structures to additional risk of loss, injury, or death. Because no structures are currently proposed in Lower Penitencia Creek, this element would be considered to have less than significant

secondary ground shaking effects. Therefore, this would be a potentially significant impact to all elements except Lower Penitencia Creek Element.

In general, the elements are located in developed areas with relatively gentle slopes that are at low risk of landslides or earthquake-induced landslides. Improvements in the vicinity of the northern extreme of Upper Calera Creek Element 2, Reach B are relatively close to steeper upland areas that may be susceptible to slope failures, and that have been designated as areas of previous occurrence of landslide movement or as having conditions indicative of a potential for permanent ground displacement. However, program improvements at Upper Calera Creek Element 2, Reach B, as proposed, are localized within a limited area and, based on the nature of the improvements, are unlikely to exacerbate the potential for secondary slope failure resulting in damage to property or harm to the public above the existing conditions in the program area. Therefore, the risk of earthquake-induced landslide for all elements is minimal and the impact would be less than significant.

Conclusion. Construction according to the latest industry standards and building code requirements for seismic design would minimize the potential for significant damage from fault rupture, seismic ground-shaking, and related secondary seismic effects, such as liquefaction. Current geotechnical practices standard to the industry evaluate site soils for liquefaction potential, have various methods of mitigating the potential damaging effects of liquefaction, and include design criteria to mitigate potential damage from an earthquake. The program features would be safer than the existing flood protection features because building codes and geotechnical design standards have evolved significantly since the original flood protection components were constructed. Fault rupture and ground shaking are unavoidable and improvements proposed as part of the Program would not exacerbate the effects of an earthquake or cause more damage than would occur under current conditions. However, because the geotechnical report prepared for the Program (Parikh Consultants, 2004), used as part of this analysis, indicates that liquefaction is a potential concern and requires further evaluation, this impact is considered potentially significant for all program elements except the Lower Penitencia Creek Element.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.F-1: *Geotechnical Investigations (Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Tularcitos Creek Element)*. The District shall ensure that a design-level geotechnical investigation is conducted by a California licensed geotechnical engineer for all elements and facilities prior to or during the final design phase. Recommendations from the geotechnical investigation shall be applicable to foundation design, earthwork, backfill, and site preparation. The recommendations shall become part of the construction specifications and be consistent with standard engineering practice within California and CBC and be consistent with any local policies. The investigations shall include an evaluation of liquefiable soils and provide remedies to reduce the risk of liquefaction. Remedies to reduce liquefaction risk include removal/replacement, in-situ soil conditioning, or other standard engineering practices

commonly employed in the San Francisco Bay Area. The construction manager shall conduct inspections and certify that all design criteria have been met in accordance with recommendations of the geotechnical engineer.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.F-1 would reduce seismic impacts to structures to a less-than-significant level by ensuring that foundation design, earthwork, backfill, and site preparation are compliant with applicable geotechnical standards and would prevent significant damage to Program Elements during a seismic event.

Impact 3.F-2: Substantial erosion or loss of topsoil. (Less than Significant)

Construction Impacts

All Elements

Program construction would require significant earthwork activities that include excavation of soils, stockpiling soils, and transport as part of the Program. These soils would be required mainly for reconstructing levees as well as raising access roads, bridges, and any additional grading for slope stability. The preliminary stages of construction, especially site grading and soil stockpiling, could leave loose soil exposed to the erosive forces of rainfall and high winds. Erosion and loss of topsoil could be problematic in areas underlain by soils with a high runoff and erosion potential. If unmanaged, even covered soils could become exposed to erosion causing loss of topsoil. The stockpiling areas and the entire creek embankment modifications would primarily be the components most at risk of the effects of erosion. While not likely, due to the fact that construction would be performed during the dry season, intense rain or wind events in the program area could result in substantial amounts of soil eroding into adjacent waterways, and possibly the propagation of small rills or gullies. Increased surface water runoff and entrapment of sediment in runoff are discussed in Section 3.I, Hydrology and Water Quality.

Program construction elements relevant to this potential impact include: raising levees along Lower Berryessa Creek; constructing floodwalls and/or headwalls along sections of all creeks; improving maintenance roads along sections of all creeks; reconstructing pedestrian bridges across Lower Berryessa Creek, Lower Calera Creek, and Tularcitos Creek; hydroseeding along sections of Lower Berryessa Creek and Lower Calera Creek; constructing a stormwater pump station adjacent to Tularcitos Creek; constructing a concrete box culvert adjacent to Upper Calera Creek, removing sediment and vegetation and constructing a widened floodplain in Lower Penitencia Creek.

A number of program features and standard District practices, as well as requirements set forth by the San Francisco Bay Regional Water Quality Control Board, would substantially reduce the potential for impacts associated with erosion and sedimentation. As stated above, all construction activities would take place during the dry season (i.e., from mid-April to mid-

October, annually), greatly reducing the chance that substantial runoff and subsequent sediment and/or pollutant loading would occur during active construction.

During construction of the Program, the District's best management practices (BMPs) related to water quality protection would be implemented. The following District BMPs would be implemented to avoid or minimize soil erosion and off-site sediment transport as appropriate for all program construction activities: HM-9, WQ-1, WQ-2, WQ-4 to WQ-9, WQ-12 to WQ-14, WQ-16 to WQ-18, WQ-26 to WQ-29, and WQ-41. These BMPs, which are also summarized at the end of this section, are measures specifically designed to prevent and control erosion and sediment delivery as well as the inadvertent release of pollutants (e.g., hydraulic fluid or petroleum). Refer to Appendix B of this EIR for detailed information regarding the District BMPs.

Because soil surface disturbance for the Program would be greater than one acre, specific erosion control measures would be identified as part of the Construction General Permit and Storm Water Pollution Prevention Plan (SWPPP) required for construction. Examples of typical construction BMPs include scheduling or limiting activities to certain times of the year; installing sediment barriers such as silt fencing and fiber rolls along the perimeter of the construction area; maintaining equipment and vehicles used for construction; tracking controls, such as stabilizing entrances to the construction site; and developing and implementing a spill prevention and cleanup plan. The SWPPP (and associated BMPs) would be prepared and implemented prior to commencing construction, and BMP effectiveness would be ensured through the sampling, monitoring, reporting, and record-keeping requirements contained in the Construction General Permit. In addition, the Construction General Permit required under the NPDES program would require that the topsoil be preserved in areas requiring grading in order to ensure proper implementation of post-construction BMPs for site restoration. Additional post-construction BMPs that would be required under the SWPPP, such as reseeding of disturbed areas, would restore the work sites to their original condition, thereby preventing or minimizing long-term erosion problems. Implementation of the requirements would reduce the impact associated with soil erosion.

The features included as part of the Program (i.e., limiting the construction season) and those required as part of the Construction General Permit and SWPPP processes, coupled with the implementation of the District BMPs listed above, would substantially reduce the potential construction-related erosion impacts. The impact would be less than significant.

Operations Impacts

All Elements

Once constructed, the improvements associated with the Program, such as the reconstructed levees and floodwalls, would include the addition of concrete linings and revegetation that would reduce the potential for erosion and loss of topsoil.

The majority of the maintenance activities described in Section 2.G, Maintenance, are currently ongoing within the elements and would continue as part of the Program. As described in

Section 2.G, some new maintenance activities would also be required; these include activities associated with the new floodwalls, the concrete box culvert, and the pump station. District BMPs are incorporated into the program design for operations and maintenance. These BMPs specify procedures for maintenance design, and they also specify procedures for field operations with respect to the routine stream and canal maintenance activities, including sediment removal, vegetation management, and bank protection that specifically address and minimize adverse impacts relating to erosion and loss of topsoil. The following BMPs would be implemented during maintenance activities: HM-9, WQ-1, WQ-2, WQ-4 to WQ-8, WQ-9, WQ-12 to WQ-14, WQ-16 to WQ-18, WQ-26, WQ-29, and WQ-41. With implementation of these BMPs, impacts relating to substantial or accelerated soil erosion or loss of topsoil during construction of the Program would be less than significant.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with erosion or loss of topsoil:

- HM-9: Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-1: Conduct Work from Top of Bank Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-2: Use of Wheel and Track Mounted Vehicles in Stream Bottoms Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-4: Handle Sediments so as to Minimize Water Quality Impacts Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-5: Soil Stockpiles Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-6: Stabilized Construction Entrance Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-7: Prevent Erosion Downstream of Bank Protection Sites Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-8: Minimize Sediment Transport Downstream from In-channel Herbicide Sites Vehicle and Equipment Cleaning – applicable to the construction phase of all elements.
- WQ-9: Minimize Local Erosion Increase from In-channel Vegetation Removal Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-12: Diversion/ Bypass Water at Non-tidal Sites Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.

- WQ-13: Minimize Hardscape in Bank Protection Design Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-14: Seeding Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-16: Avoid Erosion When Restoring Flows Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-17: Prevent Scour Downstream of Sediment Removal Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-18: Site Maintenance and Cleanup Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-26: Silt Fence Culvert Entrance Protection Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-27: Discharge Surface Protection – Armoring Vehicle and Equipment Cleaning – applicable to the construction phase of all elements.
- WQ-28: Discharge Surface Protection – Flow Diversion Vehicle and Equipment Cleaning – applicable to the construction phase of all elements.
- WQ-29: Discharge Storm Drain Curb & Drop Inlet Protection Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- WQ-41: Stormwater Pollution Prevention Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.

Mitigation: None required.

Impact 3.F-3: Slope instability and potential for on- or off-site landslide, lateral spreading, subsidence, or collapse. (Less than Significant)

Construction and Operations Impacts

All Elements

Slope failure is more likely to occur in areas with a history of previous failure and in weak geologic units exposed on relatively steep slopes. If present, such slope failure could damage the program facilities or other nearby facilities and properties. The areas proposed for program improvements in the Lower Berryessa Creek Element, Lower Calera Creek Element, Tularcitos Creek Element, Upper Calera Creek Element 1, Reach A of Upper Calera Creek Element 2, and Lower Penitencia Creek Element are located on flat to gently sloping terrain that is not prone to large or damaging landslides. However, program improvements in Reach B of Upper Calera Creek Element 2 are proximate to steeper upland areas that may be susceptible to slope failures and that have been designated as areas of previous occurrence of landslide

movement or as having conditions indicative of a potential for permanent ground displacements. The improvements on Reach B of Upper Calera Creek Element 2 are located outside of these designated landslide zones and are unlikely to result in slope failure due to local topography of the program area and due to the nature of the planned improvements. The Program therefore does not increase the risk of on- or off-site landslide, lateral spreading, subsidence, or slope failure, and this impact would be less than significant.

Mitigation Measure 3.F-1 would be implemented to address impacts associated with fault rupture, strong seismic ground-shaking, or secondary seismic effects and requires the District to conduct geotechnical investigations to specify seismic and geologic hazards and to ensure that the District's contractor(s) incorporate recommendations of the geotechnical engineer into the design and construction specifications for the Program. While not required to address slope stability impacts, implementation of Mitigation Measure 3.F-1 would also further reduce the potential for slope stability impacts.

Best Management Practices: None required.

Mitigation: None required.

Impact 3.F-4: Expansive soils. (Less than Significant with Mitigation)

Construction and Operations Impacts

All Elements

Program facilities could be damaged due to settlement of weak or saturated subsurface soils. Underlying soils within the program area could also have a high potential for expansion. The "shrink-swell" capacity of expansive soils would cause damage to foundations and any subsurface improvements. One or more of these soil properties could affect portions of the Program. Unless properly mitigated, shrink-swell soils could exert additional pressures on improvements that eventually lead to significant damage. Settlement failure would also occur if expansive soils are used in backfill and undergo continued expansion and contraction. Over time these soils could settle, resulting in misalignment or damage to aboveground and buried facilities. The effects of shrink-swell soils could also damage foundations of paved service roads and concrete slabs. The expansion and contraction could exert enough pressure on the structures to result in cracking, settlement, and uplift.

Most of the program vicinity has been previously developed and is located within highly urbanized areas, such that the underlying soils have likely been replaced with engineered fill that is not prone to shrink-swell. Therefore, the program area would not likely include soils prone to shrink-swell. Additionally, the Program would be required to adhere to all applicable ordinances of the CBC (CCR Title 24) and would employ standard engineering and building practices common to construction projects throughout California. Depending on the nature of the facilities and the characteristics of the soils at each specific work site, such standards and

recommendations could require a variety of approaches to avoid a significant impact, including: specialized foundation design; over-excavation and placement of clean, non-expansive engineered fill prior to construction; and/or other measures to reduce concerns related to expansive soils, consistent with the prevailing engineering standard of care.

Site-specific geotechnical studies have not yet been conducted to determine soil conditions, and some sites require further geotechnical evaluation to determine shrink-swell potential. As currently proposed, the Lower Penitencia Creek Element does not include the construction of structures and therefore impacts under this element would be less than significant and no mitigation would be required. If soils present are potentially expansive, damage to program facilities could occur, resulting in a potentially significant impact.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.F-4: *Geotechnical Explorations (Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Tularcitos Creek Element).* As part of the design-level geotechnical investigation to support the siting of new facilities outlined in Measure 3.F-1, a California licensed geotechnical engineer shall conduct an evaluation of expansive soils. If expansive soils are identified during the geotechnical investigation, the geotechnical engineer shall provide recommendations to correct the condition to ensure that facilities are not damaged. Expansive soils shall be removed or reconditioned as per the recommendations of the geotechnical engineer. All excavated materials proposed for use as backfill for the reconstructed levees or other program components shall be evaluated for expansive properties in accordance with standard engineering practice prior to final placement. The placement and compaction specifications for fill materials shall be developed by the geotechnical engineer and placement of that fill shall be conducted under the engineer's supervision.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.F-4 would reduce the potential impacts of expansive soils to program structures to a less-than-significant level by removing or reconditioning potentially expansive soils in accordance with standard engineering practice.

3.F.4 References

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3.G Greenhouse Gases

This section provides an analysis of the current environmental and regulatory setting related to climate change in California and the Program's potential to generate GHG emissions and to conflict with plans and policies related to reducing GHG emissions. This section of the EIR discusses the Program's emissions of greenhouse gases and therefore its potential contribution to global climate change.

3.G.1 Environmental Setting

Greenhouse Gases

Some gases in the atmosphere affect the Earth's heat balance by absorbing infrared radiation. These gases can prevent the escape of heat in much the same way as glass in a greenhouse. This is often referred to as the "greenhouse effect," and it is responsible for maintaining a habitable climate. On Earth, the gases believed to be most responsible for global warming are water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Enhancement of the greenhouse effect can occur when concentrations of these gases exceed the natural concentrations in the atmosphere. Of these gases, CO_2 and methane are emitted in the greatest quantities from human activities. Emissions of CO_2 are largely by-products of fossil fuel combustion, whereas methane primarily results from off-gassing associated with agricultural practices and landfills. SF_6 is a GHG commonly used in the utility industry as an insulating gas in transformers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually world-wide, is a very potent GHG with 23,900 times the global warming potential as CO_2. There is widespread international scientific agreement that human-caused increases in GHGs has and will continue to contribute to global warming, although there is much uncertainty concerning the magnitude and rate of the warming.

Some of the potential resulting effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Globally, climate change has the potential to affect numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2007):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days, and fewer frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

There are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood, and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

Historical Context

As noted in the 2006 Climate Action Team Report (CAT Report) to Governor Schwarzenegger and the Legislature, the Earth's climate has always changed and evolved. This is most clearly exemplified in the 100,000-year ice-age cycles that have occurred. As described in the CAT Report, the last 10,000 years, and more specifically the last millennium, has been warm and one of the most stable climates observed. Yet the CAT Report states that during the 20th century a rapid change in the climate and climate change pollutants has occurred and these changes are attributable to human activities. Climate change is described by the CAT Report as a "shift in the 'average weather' that a given region experiences," and that this can be measured by changes in temperature, wind patterns, precipitation, and storms (Cal-EPA, 2006).

According to the CAT Report, human activities including the burning of coal, oil, and natural gas, and the destruction of forests have contributed to an increase in CO_2 in the atmosphere by approximately 30 percent since the late 1800s; and the increase in CO_2 and other GHGs, have had a major influence on some of the "key factors that govern climate change" (Cal-EPA, 2006).

Baseline Conditions

The California Energy Commission (CEC) estimated that in 2004 California produced 492 million gross metric tons of CO_2-equivalent (CO_2e) GHG emissions (CEC, 2006)[1]. The CEC found that transportation is the source of 41 percent of the State's GHG emissions, followed by electricity generation at 22 percent and industrial sources at 21 percent.

3.G.2 Regulatory Setting

Federal Regulations

No federal regulations regarding climate change apply to the Program. As of late 2010, the Environmental Protection Agency had started the process of regulating large sources of GHG emissions (e.g., power plants, cement manufacturing), but these proposed regulations are not applicable to Program activities.

[1] The principal greenhouse gases are carbon dioxide (CO_2), methane, nitrous oxide, sulfur hexafluoride, perfluorocarbons, hydrofluorocarbons, and water vapor. Carbon dioxide is the reference gas for climate change because it gets the most attention and is considered the most important greenhouse gas. Because of the differential heat absorption potential of various greenhouse gases, greenhouse gas emissions are frequently measured in CO_2 equivalents (CO_2e), which present a weighted average based on each gas's heat absorption (or "global warming") potential. Emission sources (i.e., individual projects) are generally reported in metric tons/year of CO_2e.

State Regulations

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which sets forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and,
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32

In 2006, California passed the California Global Warming Solutions Act of 2006 (Assembly Bill 32 [AB 32]; California Health and Safety Code Division 25.5, §38500 et seq.), which requires the California Air Resources Board (CARB) to design and implement emission limits, regulations, and other measures such that statewide GHG emissions will be reduced to 1990 levels by 2020.

In December 2007, CARB approved the 2020 emission limit of 427 million metric tons of CO_2e of GHGs. The 2020 target of 427 million metric tons of CO_2e requires the reduction of 169 million metric tons of CO_2e, or approximately 30 percent, from the state's projected 2020 "business-as-usual" emissions of 596 million metric tons of CO_2e.

Also in December 2007, CARB adopted mandatory reporting and verification regulations pursuant to AB 32. The regulations came into effect on January 1, 2009, with the first reports covering 2008 emissions. The mandatory reporting regulations require reporting for certain types of facilities that make up the bulk of the stationary source emissions in California. Currently, the draft regulation language identifies major facilities as those that generate more than 25,000 metric tons/year of CO_2e. Cement plants, oil refineries, electric-generating facilities/providers, cogeneration facilities, hydrogen plants, and other stationary combustion sources that emit more than 25,000 metric tons/year CO_2e make up 94 percent of the point source CO_2e emissions in California (CARB, 2007).

On December 11, 2008, CARB adopted the Climate Change Scoping Plan (2008 Scoping Plan), which functions as a roadmap of CARB's plans to achieve GHG reductions in California required by AB 32 through subsequently enacted regulations (CARB, 2008). The 2008 Scoping Plan proposes a comprehensive set of actions designed to reduce overall carbon emissions in California. Key elements of the 2008 Scoping Plan include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewable energy mix of 33 percent;

- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the state's long-term commitment to AB 32 implementation (CARB, 2008).

The 2008 Scoping Plan also includes recommended measures that were developed to reduce GHG emissions from key sources and activities while improving public health, promoting a cleaner environment, preserving our natural resources, and ensuring that the impacts of the reductions are equitable and do not disproportionately impact low-income and minority communities. These measures put the state on a path to meet the long-term 2050 goal of reducing California's GHG emissions to 80 percent below 1990 levels.

The total reduction for the recommended measures is 174 million metric tons/year of CO_2e, by 2020, slightly exceeding the 169 million metric tons/year of CO_2e of reductions estimated to be needed in the Draft Scoping Plan. The measures in the 2008 Scoping Plan approved by the Board will be developed and in place by 2012.

Senate Bill 97

Senate Bill 97 (SB 97), signed in August 2007 (Chapter 185, Statutes of 2007; Public Resources Code [PRC] §21083.05 and 21097), acknowledges that climate change is a prominent environmental issue that requires analysis under the California Environmental Quality Act (CEQA). This bill directed the Governor's Office of Planning and Research (OPR), which is part of the California Natural Resources Agency (Resources Agency), to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions (or the effects of GHG emissions), as required by CEQA, by July 1, 2009.

On April 13, 2009, OPR submitted to the Secretary for Natural Resources its proposed amendments to the state CEQA Guidelines for GHG emissions, as required by SB 97 (PRC §21083.05) (OPR, 2009). These CEQA Guidelines amendments provide guidance to public agencies regarding the analysis and mitigation of the effects of GHG emissions in draft CEQA documents. The Resources Agency adopted the CEQA Guidelines amendments with minor, non-substantial changes on December 31, 2009, and transmitted the adopted amendments and the entire rulemaking file to the Office of Administrative Law. The amended CEQA Guidelines became effective on March 18, 2010.

The amendments suggest relatively modest changes to various portions of the existing CEQA Guidelines. Modifications address those issues where analysis of GHG emissions may differ in some respects from more traditional CEQA analysis.

The amendments include a new CEQA Guidelines Section (§15064.4), to assist lead agencies in determining the significance of the GHG impacts. This section urges lead agencies to quantify, where possible, the GHG emissions of proposed projects. In addition to quantification, this section recommends consideration of several other qualitative factors that may be used in determination of significance including: (1) the extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting; (2) whether the GHG emissions exceed a threshold of significance that the lead agency determines applies to the project; and (3) the extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The amendments also include a new CEQA Guidelines section subdivision (§15064.7(c)), to clarify that in developing thresholds of significance, a lead agency may appropriately review thresholds developed by other public agencies, or recommended by other experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence.

The amendments also include another new CEQA Guidelines section (§15183.5) that provides for tiering and streamlining the analysis of GHG emissions. Project-specific environmental documents may rely on an EIR containing a programmatic analysis of GHG emissions in the region over a specified time period. In addition, the amendments add a new set of environmental checklist questions (VII, Greenhouse Gas Emissions) to the CEQA Guidelines Appendix G (see Section 3.G.3, Impacts and Mitigation Measures, under Significance Criteria).

OPR Technical Advisory, CEQA and Climate Change

On June 19, 2008, OPR published a technical advisory on CEQA and Climate Change. The advisory provided OPR's perspective on the emerging role of CEQA in addressing climate change and GHG emissions prior to adoption of the 2010 amendments to CEQA pursuant to SB97. While the much of the content of this document has been superseded by the adoption of the 2010 amendments to the CEQA guidelines, this document does provide detail regarding what OPR expects to see in terms of content of a CEQA relevant analysis of GHG impacts.

- Lead agencies should calculate or model GHG emissions including emissions associated with vehicular traffic, energy consumption, water usage and construction activities.

- Lead agencies must determine what constitutes a significant impact in the absence of regulatory standards.

- Lead agencies should assess whether the emissions are "cumulatively considerable" even though a project's GHG emissions may be individually limited. OPR states: "Although climate change is ultimately a cumulative impact, not every individual project that emits GHGs must necessarily be found to contribute to a significant cumulative impact on the environment" (OPR, 2008).

Local Plans and CEQA Guidance

The County of Santa Clara adopted a climate action plan (CAP) in September 2009. The CAP focuses only on County operations, facilities, and employee actions that reduce not only GHG emissions but also energy and water consumption, solid waste and fuel consumption. The CAP focuses primarily on steps needed to reach the 10% reduction goal by 2015 but also identifies policies and actions that are needed to set the stage for reductions past 2015. The City of Milpitas has not approved a climate action plan or greenhouse gas reduction plan.

Bay Area Air Quality Management District

The Bay Area Air Quality Management District (BAAQMD) publishes air quality guidance for CEQA. On June 6, 2010, the BAAQMD adopted thresholds and guidance for analyzing GHG emissions development (2010 BAAQMD CEQA Guidelines). The 2010 BAAQMD CEQA Guidelines consist of two project-level thresholds for operational emissions of GHGs, one for stationary sources (10,000 metric tons/year of CO_2e) and another threshold for projects other than stationary sources (1,100 metric tons/year of CO_2e or 4.6 metric tons/service population/year of CO_2e, or compliance with qualified GHG reduction strategy) (BAAQMD, 2010). Projects that exceed one or both of these thresholds may be considered to result in a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact to global climate change. The 2010 BAAQMD CEQA Guidelines do not state a threshold for construction GHG emissions.

3.G.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant effect on GHG emissions if it were to:

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

Approach to Analysis

The BAAQMD significance thresholds mentioned described in Section 3.G.2, Regulatory Setting, were used to determine whether the Program would generate GHG emission that may have a significant effect on the environment, individually or cumulatively. For program operations, the relevant thresholds are 10,000 metric tons/year of CO_2e for stationary sources and 1,100 metric tons/year of CO_2e for all other sources. BAAQMD has not set a significance threshold for construction GHG emissions. GHG emissions from construction are time limited events that would not be part of the Program's ongoing activity. These one-time emissions can be divided by the estimated lifetime of the Program to allow direct comparison of these emissions to annualized significance thresholds. The analysis presents estimates of these one-time emissions, converts them to annualized estimates, and adds them to operational emissions for comparison to established significance thresholds.

With respect to potential conflicts with plans, policies or regulations adopted for the purpose of reducing GHG emissions there are no adopted local plans which have jurisdiction over the Program. The County's Climate Action Plan only addresses emissions generated by county operations and its employees. Therefore, the Program does not conflict with any applicable plan, policy or regulation to adopted for the purpose of reducing GHG emissions and this issue is not discussed further in this analysis.

Impact Summary

Table 3.G-1 provides a summary of GHG impacts by element and implementation phase (construction and operations).

TABLE 3.G-1
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL GHG IMPACTS

	Impact 3.G-1	
	Increase in GHG emissions and conflict with the state goal of reducing GHG emissions in California to 1990 levels by 2020	
	construction	operations
Project-Level Elements		
Lower Berryessa Creek Element	LTS	LTS
Lower Calera Creek Element	LTS	LTS
Program-Level Elements	LTS	LTS
Upper Calera Creek - Element 1	LTS	LTS
Upper Calera Creek - Element 2	LTS	LTS
Tularcitos Creek - Element	LTS	LTS
Lower Penitencia Creek Element	LTS	LTS

LTS = Less than Significant Impact

Impacts and Mitigation Measures

Impact 3.G-1: Generate GHG emissions that would have a significant impact on the environment. (Less than Significant)

Construction and Operations Impacts

All Elements

The Program would include construction of floodwalls and headwalls, reconstruction of pedestrian bridges and levees, construction of a concrete box culvert, and construction of a new stormwater pump station.

Calculations of emissions using the Roadmod construction emissions model indicate that an estimated 4,531 metric tons (MT) of CO2e emissions from project-level construction activities would be emitted over the course of the 16 month construction period. This calculation includes CO_2e GHG emissions from off-road equipment, trucks, and workers during construction and

energy consumption associated with facility operations. Appendix C contains information regarding assumptions and emissions calculations used in this analysis. This is a conservative emissions estimate that does not account for any best management practices that may reduce GHG emissions. If these one-time emissions are annualized assuming a 40-year development life (which is likely low), the one-time emissions from construction of the project-level elements contribute approximately 113 MT CO_2e emissions annually. Annualizing of emissions is useful for comparison to significance thresholds which are established in terms of annual emission rates. These annualized emissions are added to the total program-related GHG emissions for comparison to significance thresholds in lieu of any established construction-related threshold for GHGs. Amortized construction emissions by themselves are below the 1,100 MT CO_2e BAAQMD significance threshold for non-stationary sources.

The majority of the maintenance activities required by program operations, including periodic maintenance of program facilities and periodic sediment removal, are currently ongoing within the elements. New trips would be generated only by newly required maintenance activities, including those associated with the new floodwalls (e.g. removal of graffiti), the concrete box culvert, and the new pump station. Nonetheless, operations and maintenance activities are not anticipated to substantially increase vehicle trips (e.g. an average of less than one vehicle trip per day).

Operation of the Program would involve continuing the maintenance activities currently required by existing conditions, such as sediment removal, as well as some additional maintenance of newly constructed floodwalls, the new concrete box culvert, and the pump station. These operational activities would result in a very minimal increase in vehicle trips (e.g. an average of less than one vehicle trip per day). Emissions from newly required vehicle trips would be negligible. The current design for the Tularcitos Creek Element includes a diesel-powered pump station which, as a stationary source, the BAAQMDs stationary source threshold of 10,000 metric tons/year of CO_2e would apply. As described in Section 2, Program Description, the pumps would only be activated when water surface levels in Lower Berryessa Creek are high enough to create backwater effects in Tularcitos Creek. Therefore, it is conservatively estimated that the pumps would be in operation 100 days per year on average. While the pump station design and operational requirements have not been defined, the GHG emissions of a pump station operating two 1,280 horsepower diesel pumps running 24 hours a day, 100 days a year was estimated for comparative purposes using URBEMIS 2007 version 9.2.4 (see Appendix C). The pump would produce approximately 1,912 metric tons/year of CO_2e. Addition of amortized construction emissions would increase the annual GHG emissions to 2,025 metric tons/year of CO_2e. These emissions would be below the 10,000 metric tons/year of CO_2e significance threshold of the BAAQMD for stationary sources and therefore represent a less than significant impact with regard to GHG emissions.

The proposed pump station would result in total stationary emissions below the 2010 BAAQMD CEQA Guidelines threshold for stationary sources of 10,000 metric tons/year of CO_2e. As such, the Program's stationary operations emissions would be less than significant with respect to 2010 BAAQMD CEQA Guidelines.

TABLE 3.G-2
ESTIMATED METRIC TONS/YEAR OF CO_2 FROM PUMPS

Operations	CO_2 Emissions (metric tons/year) [a]
Two 1,280 hp diesel pumps operating 24 hours a day, seven days a week, for 100 days a year.	*1,912*
BAAQMD Stationary Source Threshold	*10,000*
Exceed Thresholds?	**No**

a conversion from Tons to Metric Tons = (2107.64 tons x 2000 / 2204.62)
b Two 1,280 horsepower generators sets operating for the set time were entered into URBEMIS 9.4.2 to obtain the data provided (see Appendix C).

Best Management Practices: None required.

Mitigation: None required.

3.G.4 References

Bay Area Air Quality Management District (BAAQMD), CEQA Air Quality Guidelines, May 2010.

California Air Resources Board (CARB), Mandatory Reporting of California greenhouse gas Emissions, Presentation in El Monte, California, December 6, 2007.

California Air Resources Board (CARB), Climate Change Final Scoping Plan, a framework for change, October 2008.

California Energy Commission (CEC), Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004, 2006,

California Environmental Protection Agency (Cal/EPA), Climate Action Team Report to Governor Schwarzenegger and the California Legislature, 2006.

Intergovernmental Panel on Climate Change (IPCC). Climate Change 2001: Working Group I: The Scientific Basis, 2007

Governor's Office of Planning and Research (OPR), Technical Advisory, CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review, June 19, 2008.

Governor's Office of Planning and Research (OPR), Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions and Public Workshop Announcement, January 8, 2009.

3.H Hazards and Hazardous Materials

This section provides an assessment of potential impacts related to hazards and hazardous materials that could be present in the vicinity of the Program. Potential hazards addressed in this section include hazardous materials in soil and groundwater, fires, releases of hazardous materials during construction, and interference with an adopted emergency response plan or emergency evacuation plan. The Santa Clara Valley Water District (District) best management practices (BMPs) designed to avoid or minimize impacts are identified. If program-related impacts are found to exceed thresholds of significance, mitigation measures are identified.

3.H.1 Environmental Setting

This section describes the existing conditions of the program area with respect to hazards and hazardous materials. It identifies program areas potentially affected by hazardous materials in soil or groundwater, as well as wildfire hazards.

Definition of Hazardous Materials

The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases). The term “hazardous material” is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment[1].

In some cases, past industrial or commercial activities on a site could have resulted in spills or leaks of hazardous materials to the ground, resulting in soil and/or groundwater contamination. If improperly handled, hazardous materials and wastes can cause public health hazards when released to the soil, groundwater, or air. The four basic exposure pathways through which an individual can be exposed to a chemical agent include: inhalation, ingestion, bodily contact, and injection. Exposure can come as a result of an accidental release during transportation, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transportation of soils contaminated by hazardous materials from previous spills or leaks.

Potential Presence of Hazardous Materials in Soil and Groundwater

This evaluation of the potential to encounter hazardous materials in soil and groundwater is based on federal, state, and local regulatory database reviews conducted by Environmental

1 California, Health and Safety Code, Chapter 6.95, Section 25501(o).

Data Resources (EDR) (EDR, 2010) to identify permitted hazardous materials uses[2], environmental cases[3], and spill sites[4] within ¼ mile of the proposed construction sites.

The evaluation in this section also includes more in-depth information from a Phase I Environmental Site Assessment (Lowney Associates, 2001) prepared for the portion of the program area along Berryessa Creek from East Calaveras Boulevard to Lower Penitencia Creek, which includes the entire Lower Berryessa Creek Element as well as the western portion of the Lower Calera Creek Element.

As mentioned above, EDR performed a regulatory database search that identified sites listed in regulatory agency files for the documented use, storage, or release of hazardous materials or petroleum products. This database search included all six elements. Program construction would involve ground disturbance and excavation and, therefore, could potentially encounter any contaminated soil or groundwater present that originates from both onsite and offsite sources. Sites that may have the potential to affect subsurface conditions along the program alignment and could potentially expose construction workers or the public to impacted soil or groundwater are listed in Table 3.H-1. This table includes an assessment (high, moderate, or low) of the potential impact for the known soil or groundwater contamination at the identified sites to affect soil or groundwater conditions in the program area based on the environmental condition, status of investigation, distance, and groundwater flow direction of the identified sites. This preliminary assessment is made based upon the information provided in the database report and the distance of known contamination from elements. Additional review of environmental investigation reports, available through the appropriate regulatory agencies for the listed sites, would be performed closer to the time of construction and would provide more current and detailed site information to refine this preliminary assessment in preparation for construction.

Few of the environmental cases identified in the database report have the potential to affect soil or groundwater quality within the program area. Potential groundwater contamination was identified at three sites in the vicinity of the Program; however, soil and groundwater remediation was conducted at these sites and the cases have been closed by the responsible regulatory agency. Table 3.H-1 summarizes the known environmental cases near the Program. Further details on these cases obtained from the Phase I report are provided below.

2 Permitted hazardous materials uses are facilities that use hazardous materials or handle hazardous wastes but that comply with current hazardous materials and hazardous waste regulations.

3 Environmental cases are sites suspected of releasing hazardous substances or that have had cause for hazardous materials investigations and are identified on regulatory agency lists. These are sites where soil and/or groundwater contamination is known or suspected to have occurred. Once identified and under regulatory oversight, these sites are also referred to as open cases.

4 Spill sites are locations where a spill has been reported to the state or federal regulatory agencies. Such spills do not always involve a release of hazardous materials.

TABLE 3.H-1
POTENTIALLY HAZARDOUS RELEASE SITES NEAR THE PROGRAM AREA
(According to EDR Report)

Site Name/Address	Approximate Distance from Program Area	Regulatory List[a]	Site Summary	Potential to Affect Program Area[b]
Milpitas Materials 1125 North Milpitas Boulevard Milpitas	100 feet north of the Lower Calera Creek Element	LUST Hist LUST UST HAZNET	This facility is listed as a result of a leaking underground storage tank (LUST); the LUST case is completed and closed. There are currently active USTs operating with no violations. See subsection below titled "Milpitas Materials."	Low
Hanson Concrete Products 1 Hanson Court Milpitas	Within the corridor of the Lower Calera Creek Element	LUST Hist LUST Sweeps UST	This facility is listed as a closed LUST case. There is now an UST on the site, but the UST is operating as registered with no violations. See subsection below titled "Hanson Concrete Products."	Low
Shell Service Station 950 East Calaveras Milpitas	200 feet east of the southernmost end of the Lower Berryessa Creek Element and up gradient of the program area.	LUST Hist LUST Hist UST	This is the site of both a historical LUST case that is completed as well as a current LUST case that is under investigation. There is now an UST on the site, but the UST is operating as registered with no violations. See subsection below titled "Shell Oil."	Low
Devcon Construction 855 Los Coches Milpitas	660 feet south-southeast of the southernmost end of the Lower Berryessa Creek Element	CORTESE	No information available. (The CORTESE list is a historical list that is no longer maintained).	Low

[a] Regulatory Lists: LUST (Leaking Underground Storage Tank List); FINDS (Facility Index System); CORTESE (Historical Cal-EPA List); CERCLIS (Comprehensive Environmental Response, Compensation, and Liability Information System); Hist UST (Historical UST List): Deed Restriction; Hist LUST; UST (Underground Storage Tank List); SWEEPS UST (Historical UST List), HAZNET (Registered hazardous waste generator).

[b] POTENTIAL FOR ENVIRONMENTAL CONDITION – KEY:

Low Potential = The potential to create an environmental condition at the program area is considered to be low for one or several factors including, but not limited to, the following:

(1) the direction of groundwater flow is away from the program area (down-gradient); (2) remedial action is underway or has been completed at an offsite location; (3) the distance from the program area is considered great enough so as not to create a potential environmental condition; (4) only soil was affected by the occurrence, and the site is not located adjacent to the program area; (5) the reporting agency has determined no further action is necessary (case closed).

Moderate Potential = The potential to create an environmental condition at the program area is considered to be moderate, and further investigation might be necessary due to one or several factors including, but not limited to, the following:

(1) an occurrence was reported but the remedial status is unknown; (2) unable to confirm whether remedial action has been completed; (3) the occurrence is in proximity to program area; (4) groundwater flow is towards the program area (up-gradient).

High Potential = The potential to create an environmental condition at the program area is considered to be high, and further investigation is necessary due to one or several factors, including the following:

(1) an occurrence was noted onsite, and the status of the remedial action is unknown; (2) the occurrence affected groundwater and is located up-gradient from the program area.

SOURCE: EDR, 2010

Milpitas Materials. Three underground storage tanks (USTs) are currently in operation on the property, including two 10,000-gallon diesel tanks and one 8,000-gallon gasoline tank. These tanks are currently in compliance with their permits and have passed leak detection tests. Paints, fuels, acids, solvents, and gases are also stored at the property. In 1989, five USTs were removed from the property, including two 4,000-gallon diesel tanks, two 10,000-gallon diesel tanks, and one 8,000-gallon gasoline tank. The southern area of the property where the two diesel tanks were located is adjacent to Calera Creek. In both former locations of these tanks, soil and groundwater were affected by petroleum hydrocarbons. Soil and groundwater remediation was performed until the case was closed in 1998. At that time, benzene was detected in the groundwater at levels which exceeded drinking water standards. However, the District considered this a low risk because of the small impacted area and because the groundwater is not used for human consumption. Groundwater flow direction was shown to be south, towards Calera Creek. However, due to the concrete liner in Calera Creek, it was considered unlikely that surface water in Calera Creek was affected. Plumes migrating beneath Calera Creek onto the adjacent Hanson Concrete property were considered a possibility; therefore, residual hydrocarbon contamination could be present in soil adjacent to the creek channel.

Hanson Concrete Products. Two USTs for gasoline were removed from this property sometime between 1988 and 1992. These tanks were located on the east side of the property, closer to Hanson Court than Berryessa Creek, and fuel releases apparently resulted in limited impacts to soil. According to the 2010 EDR report, this site currently contains an active UST with no violations (EDR, 2010). Based on the distance of the tank locations from the creek and the apparent limited soil impacts, the potential to encounter soil or groundwater contamination at nearby elements is considered low.

Shell Oil. Three 10,000-gallon USTs are currently in operation on this property. These tanks are in compliance with their permits and have passed leak detection tests. In addition to fuels, motor oil, brake fluids, fuel injection cleaner, antifreeze, and windshield wiper fluid are stored on the site. Storage facilities on the property for these chemicals are in compliance. In 1985, three USTs were removed from the property, including one 10,000-gallon and two 8,000-gallon gasoline tanks. Soil and groundwater were affected by a gasoline release; the groundwater flow direction was shown to be towards Berryessa Creek. Soil and groundwater remediation was performed until the case closed in 1996. It appeared that impacted groundwater did not extend as far as Berryessa Creek. This was confirmed in soil and groundwater samples collected in a related Phase II investigation; therefore, the potential to encounter these contaminants in soil at sites adjacent to the creek appears low. Lowney & Associates noted, however, that the possibility exists for surface runoff from the property containing petroleum, hydrocarbons, cement, and other materials from daily activities that drain into Berryessa Creek through storm drain networks to affect channel sediments along with other nonpoint source pollutants (Lowney Associates, 2001).

Devcon Construction. The facility had a reported release of gasoline first identified in 1993 (SWRCB, 2010). Subsequently, contaminated soils were excavated and disposed offsite. Following further soil and groundwater investigation work and monitoring of concentration levels, the site was closed in 2001. Typically a site is closed when remaining concentration levels of contaminants do not pose any threat to human health or the environment.

Potential Presence of Naturally Occurring Asbestos

Asbestos is a common name for a group of naturally occurring fibrous silicate minerals that are made up of thin but strong durable fibers. Asbestos is a known carcinogen and presents a public health hazard if it is present in the friable (easily crumbled) form. Naturally occurring asbestos would most likely be encountered in Franciscan ultramafic rock[5] (primarily serpentinite[6]) or Franciscan mélange[7]. Section 3.F, Geology and Soils, does not identify any portion of the program area as being located in areas where these types of bedrock occur.

Wildfire Hazards

The California Department of Forestry and Fire Protection (CAL FIRE) does not identify any high fire hazard areas in the program area (CAL FIRE, 2007 and 2008). However, CAL FIRE and the California Fire Alliance identify Milpitas as a fire-threatened community at the wildland-urban interface (California Fire Alliance, 2010).

Airports

The nearest public airport to the Program is the San José International Airport, located approximately four miles southwest of the program area in the City of San José. The program area is not located within any special planning zones associated with this airport (ESA, 1996). The Moffett Federal Airfield is located approximately seven miles west of the program area and the Reid-Hillview Santa Clara County Airport is located approximately eight miles south/southeast of the program area. No private airstrips occur in the program vicinity.

Schools

Several schools occur within ¼ mile of the program vicinity. Table 3.H-2 lists the schools in the program vicinity.

5 Ultramafic rocks are formed in high-temperature environments well below the surface of the earth.

6 Serpentine is a naturally occurring group of minerals that can be formed when ultramafic rocks are metamorphosed during uplift to the earth's surface. Serpentinite is a rock consisting of one or more serpentine minerals. This rock type is commonly associated with ultramatic rock along earthquake faults. Small amounts of chrysotile asbestos, a fibrous form of serpentine minerals, are common in serpentinite.

7 Mélange is a mixture of rock materials of differing sizes and types typically contained within a sheared matrix.

TABLE 3.H-2
SCHOOLS IN THE PROGRAM VICINITY

Element	School(s) – Distance from Element
Lower Berryessa Creek Element	• Curtner Elementary School – approximately 750 feet west of the element
Lower Calera Creek Element	• Milpitas High School – adjacent to the eastern end of the element area • Jensen School for the Performing Arts – approximately 1,000 feet north of the element
Upper Calera Creek Element 1	• Milpitas High School – adjacent to a stretch of the western end of the element area • Thomas Russell Junior High School – adjacent to the northeastern end of the element area • Marshall Pomeroy Elementary School – less than 1,000 feet northwest of the element • Lang Learning Center – less than 1,000 feet east of the element
Upper Calera Creek Element 2	• Thomas Russell Junior High School – adjacent to as stretch of the southern end of the element area • Marshall Pomeroy Elementary School – less than 1,000 feet west of the southern end of the element
Tularcitos Creek Element	• Kinder Care Learning Center – less than 500 feet north of the northern stretch of the element
Lower Penitencia Creek Element	• No schools within a quarter mile.

3.H.2 Regulatory Setting

Hazardous materials and hazardous wastes are subject to numerous federal, state, and local laws and regulations intended to protect public health and safety and the environment. The U.S. Environmental Protection Agency (USEPA), California Environmental Protection Agency (Cal-EPA), California Department of Toxic Substances Control (DTSC), Regional Water Quality Control Board (RWQCB), and Bay Area Air Quality Management District (BAAQMD) are the major federal, state, and regional agencies that enforce these regulations. The main focus of the federal Occupational Safety and Health Administration (Fed-OSHA) and the California Occupational Safety and Health Administration (Cal-OSHA) is to prevent work-related injuries and illnesses, including from exposures to hazardous materials. CAL FIRE is the state agency that implements fire safety regulations.

In accordance with Chapter 6.11 of the California Health and Safety Code (§25404 et seq.), local regulatory agencies enforce many federal and state regulatory programs through the Certified Unified Program Agency (CUPA) program, including:

- Hazardous materials business plans (Chapter 6.95 of the Health and Safety Code, §25501 et seq.);
- State Uniform Fire Code requirements (§80.103 of the Uniform Fire Code as adopted by the state fire marshal pursuant to Health and Safety Code §13143.9);
- Underground storage tanks (Chapter 6.7 of the Health and Safety Code, §25280 et seq.);
- Aboveground storage tanks (Health and Safety Code §25270.5[c]); and,

- Hazardous waste generator requirements (Chapter 6.5 of the Health and Safety Code, §25100 et seq.).

The Milpitas Fire Department and the Santa Clara County Department of Public Health, Hazardous Materials Compliance Division, share CUPA responsibilities for the City of Milpitas (UNIDOCS, 2010).

Use and Storage of Hazardous Materials and Fuels

State and federal laws require detailed planning and management to ensure that hazardous materials are properly handled, used, stored, and disposed of and, in the event that such materials are accidentally released, to reduce risks to human health and the environment. Businesses that handle specified quantities of chemicals are required to submit a hazardous materials business plan in accordance with community right-to-know laws. This plan allows local agencies to plan appropriately for a chemical release, fire, or other incident.

Hazardous waste regulations establish criteria for identifying, packaging, and labeling hazardous wastes; dictate the management of hazardous waste; establish permit requirements for hazardous waste treatment, storage, disposal, and transportation; and identify hazardous wastes that cannot be disposed of in landfills.

The use and storage of hazardous materials as part of the Program, including the use of small, temporary fuel storage tanks during construction and the installation of small, permanent fuel storage tanks for operation of the proposed pump station, would be overseen under the CUPA program.

Aboveground Storage of Petroleum Products

The Aboveground Petroleum Storage Act of 1990 requires facilities storing petroleum products in a single tank greater than 1,320 gallons, or facilities storing petroleum in aboveground tanks or containers with a cumulative storage capacity of greater than 1,320 gallons, to file a storage statement with the State Water Resources Control Board (SWRCB) and prepare a spill prevention, control, and countermeasure plan. The plan must identify appropriate spill containment or equipment for diverting spills from sensitive areas, as well as discuss facility-specific requirements for the storage system, inspections, recordkeeping, security, and personnel training.

The SWRCB requires registration of an aboveground fuel storage tank at a construction site only if the tank is 20,000 gallons or larger, or if the aggregate volume of aboveground petroleum storage is over 100,000 gallons, which would not be applicable to the Program.

Underground Storage Tanks

State laws governing USTs specify requirements for permitting, monitoring, closure, and cleanup these facilities. Regulations set forth construction and monitoring standards for existing tanks, release reporting requirements, and closure requirements. In the program area, the Milpitas Fire Department has regulatory authority for permitting, inspection, and removal of USTs. Any

entity proposing to remove a UST must submit a closure plan to Milpitas Fire Department prior to tank removal. Upon approval of the UST closure plan, the Milpitas Fire Department would issue a permit, oversee removal of the UST, require additional subsurface sampling if necessary, and issue a site closure letter when the appropriate removal and/or remediation has been completed. There are no USTs associated with the Program; however, these regulations are relevant due to the number of USTs in the vicinity of the Program with the potential to affect subsurface conditions in the program area.

Soil and Groundwater Contamination

In Santa Clara County, remediation of contaminated sites is generally performed under the oversight of the Santa Clara County Hazardous Materials Compliance Division (a division of the Santa Clara County Department of Environmental Health), or in some instances, the RWQCB and/or the DTSC. At sites where contamination is suspected or known to have occurred, the site owner is required to perform a site investigation and perform site remediation, if necessary. Site remediation or development may also be subject to regulation by other agencies. For example, if the Program requires dewatering near a hazardous waste site, the Program sponsor might be required to obtain a permit from the municipal sewer agency before discharging the water to the sewer system, or a National Pollutant Discharge Elimination System (NPDES) permit from the RWQCB before discharging to the storm water collection system.

Worker Safety Requirements

Fed-OSHA and Cal-OSHA are the agencies responsible for assuring worker safety in the handling and use of chemicals in the workplace. The federal regulations pertaining to worker safety are contained in Title 29 of the Code of Federal Regulations (CFR), as authorized in the Occupational Safety and Health Act of 1970. They provide standards for safe workplaces and work practices, including standards relating to hazardous materials handling. In California, Cal-OSHA assumes primary responsibility for developing and enforcing workplace safety regulations; Cal-OSHA standards are generally more stringent than federal regulations.

The state regulations concerning the use of hazardous materials in the workplace are included in Title 8 of the California Code of Regulations, which contain requirements for safety training, availability of safety equipment, accident and illness prevention programs, hazardous substance exposure warnings, and emergency action and fire prevention plan preparation. Cal-OSHA also enforces hazard communication program regulations, which contain worker safety training and hazard information requirements, such as procedures for identifying and labeling hazardous substances, communicating hazard information related to hazardous substances and their handling, and preparation of health and safety plans to protect workers and employees.

At sites known or suspected to have soil or groundwater contamination, construction workers must receive training in hazardous materials operations and a site health and safety plan

must be prepared. The health and safety plan establishes policies and procedures to protect workers and the public from exposure to potential hazards at the contaminated site.

Additional safety and health regulations for construction are set forth in 29 CFR Subpart D, §1926. These regulations cover worker exposures to gases, vapors, fumes, and dust from construction operations, including the following: construction, installation, inspection, and maintenance of blast-cleaning enclosures to prevent the dispersion into the air of dust, fumes, and mist that could cause harmful exposures; concentrations of dust in the breathing zone of an abrasive-blasting operator; and disposal of exhaust material. In addition, this section of the regulations covers welding and cutting operations.

Wildland Fire

The California Public Resources Code (PRC) includes fire safety regulations that restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors[8] on construction equipment that use an internal combustion engine; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided onsite for various types of work in fire-prone areas. These regulations include the following:

- Earthmoving and portable equipment with internal combustion engines would be equipped with a spark arrestor to reduce the potential for igniting a wildland fire (PRC §4442);
- Appropriate fire suppression equipment would be maintained during the highest fire danger period, from April 1 to December 1 (PRC §4428);
- On days when a burning permit is required, flammable materials would be removed to a distance of 10 feet from any equipment that could produce a spark, fire, or flame, and the construction contractor(s) would maintain the appropriate fire suppression equipment (PRC §4427); and
- On days when a burning permit is required, portable tools powered by gasoline-fueled internal combustion engines would not be used within 25 feet of any flammable materials (PRC §4431).

In the City of Milpitas, fire response is under the jurisdiction of the Milpitas Fire Department.

Emergency Response

California has developed an emergency response plan to coordinate emergency services provided by federal, state, and local government and private agencies. Responding to hazardous materials incidents is one part of this plan. The plan is administered by the State Office of Emergency Services (OES), which coordinates the responses of other agencies. The Milpitas Fire Department coordinates response to fire, hazardous materials, and other

[8] A spark arrestor is a device that prohibits exhaust gases from an internal combustion engine from passing through the impeller blades where they could cause a spark. A carbon trap is commonly used to retain carbon particles from the exhaust.

emergencies within the program area. The Fire Department members respond and work with the Milpitas Police Department, other local fire and police agencies, emergency medical providers, the California Highway Patrol (CHP), the California Department of Fish and Game, and the California Department of Transportation (Caltrans).

Hazardous Materials Transportation

The U.S. Department of Transportation regulates hazardous materials transportation on all interstate roads. Within California, the state agencies with primary responsibility for enforcing federal and state regulations and for responding to transportation emergencies are the CHP and Caltrans. Together, federal and state agencies determine driver-training requirements, load labeling procedures, and container specifications. Although special requirements apply to transporting hazardous materials, requirements for transporting hazardous waste are more stringent, and hazardous waste haulers must be licensed to transport hazardous waste on public roads.

3.H.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant effect on hazards and hazardous materials if it were to:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Be located within an area covered by an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, and would result in a safety hazard for people residing or working in the project area;
- Be located within the vicinity of a private airstrip and would result in a safety hazard for people residing or working in the project area;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan; or

- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

Approach to Analysis

This impact analysis focuses on potential effects related to hazards and hazardous materials in the program area. The evaluation was performed in light of current conditions in the program area, the environmental database and Phase I site assessment reports reviewed, applicable regulations and guidelines, and proposed construction activities and operations.

In many cases, compliance with laws, regulations, and mandatory regulatory permits prescribe actions that reduce the potential for adverse effects to occur as a result of program implementation. Additionally, the Program would include implementation of District BMPs that would avoid and minimize effects of the Program (see Appendix B for detail on the District's BMPs). Should program impacts remain significant or potentially significant under the California Environmental Policy Act (CEQA), even after such actions are considered, mitigation measures to reduce program impacts are proposed.

No Impact Significance Determinations

Based on the Program and its physical setting, the Program would not result in impacts related to the following significance criteria; these criteria are not discussed in the impact analysis for the following reasons:

> *Safety hazards in the vicinity of an airport and/or private airstrip*. The nearest airport is the San José International Airport, which is located approximately four miles from the program area. Moffett Federal Airfield is located approximately seven miles from the program area and Reid-Hillview Santa Clara Airport is located eight miles from the program area. There are no private airstrips within the program vicinity. Because the program area is located more than two miles from an airport and would not involve construction of aboveground structures that could interfere with air traffic, impacts related to safety hazards in the vicinity of an airport are not applicable and there would be no impact.
>
> *Located on a site listed pursuant to Government Code Section 6592*.5. Hazardous materials sites in the vicinity of program elements that could have the potential to affect subsurface conditions in the program area are identified in Table 3.H-1 and discussed below under Impact 3.H-1. Database inquiry within ¼ mile radius of the program area did not reveal that construction would be located on a hazardous materials site listed pursuant to Section 6592.5.

Impact Summary

Table 3.H-3 provides a summary of hazards and hazardous materials impacts by element and implementation phase (construction and operations). Table 3.H-4 provides a summary of applicable mitigation measures by element and implementation phase (construction and operations).

TABLE 3.H-3
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL HAZARDS AND HAZARDOUS MATERIALS IMPACTS

	Impact 3.H-1		Impact 3.H-2		Impact 3.H-3		Impact 3.H-4		Impact 3.H-5	
	Hazards related to exposure or release of hazardous materials		Accidental release of hazardous materials		Emission or use of hazardous materials within ¼ mile of a school		Impair implementation of adopted emergency response plan		Expose people or structures to a risk of loss or injury from wildfires	
	construction	operations	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements										
Lower Berryessa Creek Element	SM	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	LTS
Lower Calera Creek Element	SM	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	LTS
Program-Level Elements										
Upper Calera Creek Element 1	SM	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	LTS
Upper Calera Creek Element 2	SM	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	LTS
Tularcitos Creek Element	SM	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	LTS
Lower Penitencia Creek Element	SM	LTS	LTS	LTS	LTS	LTS	SM	LTS	LTS	LTS

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact

TABLE 3.H-4
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.H-1		Measure 3.M-1	
	Soil and Groundwater Management Plan		Traffic Control Plan	
	construction	operations	construction	operations
Project-Level Elements				
Lower Berryessa Creek Element	✓	–	✓	–
Lower Calera Creek Element	✓	–	✓	–
Program-Level Elements				
Upper Calera Creek Element 1	✓	–	✓	–
Upper Calera Creek Element 2	✓	–	✓	–
Tularcitos Creek Element	✓	–	✓	–
Lower Penitencia Creek Element	✓	–	✓	–

✓ = Applicable Impact
– = No Impact

Impacts and Mitigation Measures

Impact 3.H-1: Create a hazard to construction workers, the public, or the environment through exposure to or release of hazardous materials encountered during excavation or grading. (Less than Significant with Mitigation)

Construction Impacts

All Elements

In order to evaluate the potential presence of hazardous materials in soil and groundwater in the program area, a database search of the program vicinity was performed to identify facilities with known releases to soil and groundwater. Environmental cases identified are listed in Table 3.H-1. The potential to encounter known hazardous materials in soil and groundwater is considered to be low in areas for which the environmental database reviews did not identify known environmental cases in the program vicinity, and moderate in areas located in proximity to known environmental cases. None of the sites identified in Table 3.H-1 are located within areas that would require excavation for construction of the Program. Additionally, the levees that would be excavated are composed of fill material that was imported during construction of the existing levees.

The potential for encountering hazardous materials during excavation of these levees is generally considered low in all of the program area. Analytical testing of soil and groundwater prior to commencement of construction activities is often required for areas of known hazardous materials releases to identify the extent of hazardous materials, and to identify avoidance and/or remediation measures prior to construction. However, in areas where there is no known hazardous materials and the potential to encounter hazardous materials is low, soil and groundwater testing is not necessary. Impacts related to releases of hazardous materials at known hazardous materials sites are considered less than significant.

While not likely given the past land use within the program area, there is still the possibility of encountering unanticipated hazardous materials in soil. Exact excavation depth for construction of all elements is currently unknown. If hazardous materials were present in excavated soil or groundwater, a release to the environment could occur and construction workers and the public could be exposed to the hazardous materials in the soil and groundwater and to chemical vapors during construction. Depending on the nature and extent of any contamination encountered, adverse health effects could result if proper precautions are not taken. The District's BMP HM-12, Hazardous Materials Management, addresses the potential hazard of encountering hazardous materials and requires that all field personnel follow the appropriate procedures if hazardous materials are discovered. BMP HM-12 also provides some direction on actions necessary in the event that an accidental release of hazardous materials occurs. However, the BMP provides few details on the appropriate response and protective equipment necessary for construction workers in the event that suspected contaminated soils are discovered. Without a detailed soil and groundwater management plan that is prepared based on site specific data and available to site workers on site, there is a chance of mishandling any discovered contamination, resulting in a potentially significant impact.

Operations Impacts

All Elements

Maintenance activities associated with the Program are described in Chapter 2, Program Description, but generally include sediment and debris removal within the channels to maintain design capacity, as well as vegetation management. Maintenance activities after program construction would be the same or similar to current maintenance activities and would be done in accordance with the District's standard operations and maintenance guidelines. As described above, the District's BMP HM-12 requires that field to personnel know the appropriate procedures to be followed in the event that hazardous materials are encountered during maintenance activities.

Because there would be minimal changes to sediment and debris removal activities following program construction, the potential impact associated with the release of hazardous materials into the environment would be less than significant.

Best Management Practices

The following summarizes the District's BMP that would be required to address impacts associated with hazards related to exposure or release of hazardous materials:

- HM-12: Assure Proper Hazardous Materials Management – applicable to the construction and operations phase of all elements.

Mitigation Measures

> **Mitigation Measure 3.H-1: *Soil and Groundwater Management Plan*.** Prior to ground breaking activities, the District shall include in construction specifications the implementation of a Soil and Groundwater Management Plan (SGMP) prepared by state registered hazardous waste investigation and remediation professionals. The plan shall be submitted to the Santa Clara County Hazardous Materials Compliance Division. The SGMP shall be present on site at all times and readily available to site workers. The SGMP shall include a health and safety plan; emergency notification protocols; and handling and sampling procedures for site workers in accordance with OSHA and Santa Clara County Hazardous Materials Compliance Division requirements. The SGMP shall also describe protocols for offsite disposal of contaminated soils or groundwater. In addition, the SGMP shall include coordination and notification protocols and requirements for any inadvertent releases of hazardous materials within the vicinity of any schools.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.H-1 would reduce impacts related to the release of hazardous materials to less-than-significant levels by requiring the preparation of a SGMP and establishing detailed procedures to be followed in the event that unknown hazardous materials are encountered during program construction.

Impact 3.H-2: Improper storage or accidental release of hazardous materials during construction or operations of the Program. (Less than Significant)

Construction Impacts

All Elements

Hazardous materials anticipated to be transported, used, or disposed during construction activities would include fuels, lubricants, asphalt, paints, and solvents. Storage and use of hazardous materials at construction sites and staging areas could result in the accidental release of hazardous materials, which could degrade soil, groundwater, and/or surface water quality in nearby creeks or downstream water bodies, including Lower Berryessa, Calera, and Tularcitos Creeks, either directly or via the storm sewer system.

As discussed in Section 3.H.2 (under the heading 'Use and Storage of Hazardous Materials and Fuels'), numerous laws and regulations apply to the storage of hazardous materials to minimize the potential for improper handling, spills, and releases. As discussed in Section 3.I, the implementation of BMPs during construction as required by the NPDES permit and associated SWPPP would further reduce the potential for accidental release of hazardous materials. The BMPs would include protection measures for the temporary onsite storage of diesel fuels or other hazardous materials used during construction, including requirements for secondary containment and berming to contain a potential release and to prevent any such release from reaching an adjacent waterway or stormwater collection system. All equipment and materials storage would need to be routinely inspected for leaks, and records maintained for documenting compliance with the storage and handling of hazardous materials. Application of the District's BMPs for hazardous materials and water quality, such as HM-9 through HM-15, which provide guidance on vehicle and equipment fueling and maintenance, hazardous materials management, spill prevention, and spill response, would further reduce the potential for releases.

Based on the above analysis, impacts associated with transport, use, or disposal of hazardous materials would be less than significant.

Operations Impacts

All Elements

Maintenance of the Program may occasionally require the use of hazardous materials such as fuels, lubricants, paints, solvents, herbicides, and rodenticides. Maintenance activities would be the same or similar to current practices and would include sediment and debris removal and vegetation maintenance. Maintenance activities would require the use of construction vehicles and equipment and the use of herbicides for vegetation management.

Additionally, operation of the pump station at the Tularcitos Creek Element would likely include the use of an aboveground fuel tank for diesel fuel to power the pump station. Hazardous materials storage, including the fuel storage tank, would be subject to local and state regulations, including appropriate secondary containment features, permitting and

inspection by the local regulatory agency. Compliance with regulations regarding hazardous materials use, including pesticide and herbicide use, would reduce the potential for harmful exposures to hazardous materials to construction workers and the public. During operations and maintenance activities, the District would implement BMPs HM-1 through HM-8, which provide guidance on the use of herbicides and pesticides, and HM-9 through HM-15, which provide guidance on vehicle and equipment care and hazardous materials management. Adherence to existing laws and regulations regarding hazardous materials, as well as implementation of the District's BMPs, would minimize the potential for impacts resulting from accidental release of hazardous materials associated with transport, use, or disposal of hazardous materials. Therefore, this impact would be less than significant.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with hazards related to accidental release of hazardous materials:

- HM-1: Herbicide Use Requirements – applicable to the operations phase of all elements.
- HM-2: Types of Pest Control – applicable to the operations phase of all elements.
- HM-3: Alternative Evaluation & Approval of Pest Control – applicable to the operations phase of all elements.
- HM-4: Posting & Notification for Pesticide Use – applicable to the operations phase of all elements.
- HM-5: Pesticide Usage Requirements – applicable to the operations phase of all elements.
- HM-6: Pesticide Use Reporting – applicable to the operations phase of all elements.
- HM-7: Herbicide Use in Upland Areas – applicable to the operations phase of all elements.
- HM-8: Herbicide Use in Aquatic Areas – applicable to the operations phase of all elements.
- HM-9: Vehicle and Equipment Cleaning – applicable to the construction and operations phase of all elements.
- HM-10: Vehicle and Equipment Fueling – applicable to the construction and operations phase of all elements.
- HM-11: Vehicle and Equipment Maintenance – applicable to the construction and operations phase of all elements.
- HM-12: Hazardous Materials Management – applicable to the construction and operations phase of all elements.

- HM-13: Spill Prevention – applicable to the construction and operations phase of all elements.
- HM-14: Spill Kit Location – applicable to the construction and operations phase of all elements.
- HM-15: Avoid Exposing Soils with High Mercury Levels – applicable to the construction and operations phase of all elements.

Mitigation: None required.

Impact 3.H-3: Emit hazardous emissions or involve handling hazardous materials within ¼-mile of an existing or proposed school. (Less than Significant)

Construction Impacts

All Elements

As listed in Table 3.H-2, six schools are within approximately ¼-mile of program area and two schools (Milpitas High School and Thomas Russell Junior High School) are adjacent to portions of the program area. Construction activities would occur during dry season months (mid-April to mid-October) and would require approximately two construction seasons, and could therefore coincide with school days for a duration of up to approximately two months at the beginning and end of the school year. However, work in any one particular reach in the vicinity of a school could be shorter.

Overall, construction activities would be temporary and the proposed type of construction does not generally involve significant hazardous emissions of toxics that would be considered an acute health hazard. As described in Impact 3.C-4 (Air Quality), health risks associated with construction air pollutant emissions would be less than significant. During construction, common hazardous materials such as paints, solvents, cements, adhesives, and petroleum products (such as asphalt, oil, and fuel) would be used. As discussed above under Impact 3.H-2, the handling, storage, and disposal of hazardous materials is subject to numerous regulations as well as District BMPs, including HM-9 through HM-15.

Although construction activities associated with the Program could result in the inadvertent release of small quantities of hazardous materials, implementation of BMPs HM-9 through HM-15 would ensure that a spill or release at a construction site would not result in an emission with the potential for hazardous exposures to individuals at nearby schools. Therefore, the potential impact related to the use of hazardous materials during construction on nearby schools would be considered less than significant.

Operations Impacts

All Elements

Maintenance of the Program may occasionally require the use of hazardous materials such as fuels, lubricants, paints, solvents, herbicides, and rodenticides. During maintenance, the use of these materials would be considered low in terms of frequency, duration, and amount. Numerous laws and regulations ensure the safe transportation, use, storage and disposal of hazardous materials, as described in Impact 3.H-2. In addition, the District would also implement BMPs HM-1 through HM-8, which provide guidance on the use of herbicides and pesticides, and HM-9 through HM-15, which provide guidance on vehicle and equipment care and hazardous materials management. Although operations and maintenance activities could result in an inadvertent release of small quantities of hazardous materials, the potential impact of such a release on nearby schools would be less than significant.

Best Management Practices

See Impact 3.H-2 for a description of District BMPs that would be required to address impacts associated with hazards related to accidental release of hazardous materials; the same BMPs would be required to address emission or use of hazardous materials within ¼ mile of a school.

Mitigation: None required.

Impact 3.H-4: Impair implementation of an adopted emergency response or evacuation plan. (Less than Significant With Mitigation)

Construction Impacts

All Elements

Program construction could interfere with an adopted emergency response plan or emergency evacuation plan if construction activities involved the complete or partial closure of roadways, interfered with identified evacuation routes, otherwise restricted access for emergency response vehicles, or restricted access to critical facilities such as hospitals or fire stations.

As mentioned in Section 3.M, Transportation and Traffic, this analysis assumes that the District would comply with all construction and permanent easements obtained from the Union Pacific Railroad UPRR, the City of Milpitas, Milpitas High School, and Thomas Russell Middle School. While lane closures are not anticipated, construction equipment, including the potential for off-hauling of equipment, could result in increased traffic congestion and could require detours at the pedestrian bridges. This could impede emergency access and would be a potentially significant impact.

Operations Impacts

All Elements

Program operations, including maintenance activities, would be similar to activities required for maintenance of the existing flood control structures, with the exception of maintenance activities associated with the new floodwalls, concrete box culvert, and pump station and of operation of the pump station, and would require periodic activities at each element. It is anticipated that activities at the proposed pump station would involve a negligible increase in vehicle or truck trips on existing roadways, which would not cause increased congestion or blockages of area roadways. Program operations would not affect emergency services activities and circulation patterns that currently exist in the program area, and would not impair or interfere with implementation of an emergency response plan or evacuation plan, therefore, this impact would therefore be less than significant.

Best Management Practices: None applicable.

Mitigation Measures

Implement Mitigation Measure 3.M-1 (Traffic Control Plan).

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.M-1 would reduce impacts on emergency response and evacuation plans to a less-than-significant level by requiring the District to provide advanced information and notification to emergency service providers regarding potential detours as well as the timing, location, and duration of construction activities.

Impact 3.H-5: Expose people or structures to risk of loss, injury, or death involving wildland fires. (Less than Significant)

Construction Impacts

All Elements

CAL FIRE does not identify any high fire hazard areas in the program area (CAL FIRE, 2007; CAL FIRE, 2008). However, CAL FIRE and the California Fire Alliance identify Milpitas as a fire-threatened community at the wildland-urban interface (California Fire Alliance, 2010), and therefore all portions of the program area are considered part of a fire-threatened community in an urban-wildland interface. The use of construction equipment and temporary on-site storage of diesel fuel could pose a wildland fire risk in areas identified as an “urban-wildland interface.” The time of the greatest fire danger would be during any phases in which vegetation is cleared, when people and machines would be working among vegetative fuels that can be highly flammable. If piled onsite, the cleared vegetative materials could also become a fire fuel. Potential sources of ignition would include equipment with internal combustion engines, gasoline-powered tools, and equipment or tools that produce a spark, fire, or flame. Such sources would include sparks from blades or other metal parts scraping against rock, overheated brakes

on wheeled equipment, friction from worn or unaligned belts and drive chains, and burned-out bearings or bushings. Sparking as a result of scraping against rock would be difficult to prevent. The other hazards would result primarily from poor maintenance of the equipment. Smoking by onsite construction personnel would also be a potential source of ignition during construction.

Regulations governing the use of construction equipment in fire-prone areas, such as regulations within the Public Resources Code, are designed to minimize the risk of wildland fires during construction activity. These regulations restrict the use of equipment that may produce a spark, flame, or fire; require the use of spark arrestors on construction equipment that have internal combustion engines; specify requirements for the safe use of gasoline-powered tools in fire hazard areas; and specify fire suppression equipment that must be provided onsite for various types of work in fire-prone areas. With compliance with existing fire safety regulations, this impact would be less than significant.

Operations Impacts

All Elements

The majority of the maintenance activities described as part of the Program are currently ongoing within the program area. The minor amount of maintenance activities that would be added as a result of the Program—including sediment removal, monitoring and repairing equipment, and exercise and testing of the pump station—would not significantly increase the amount of flammable materials or sources of fire in the program area. They are not likely to involve the clearing of vegetation or the use of flammable fuels. In the case that vegetation is cleared or fuels are used for vehicles, the regulations governing the use of fuels and equipment, including the Public Resources Code, would minimize the potential impact. The impact would, therefore, be less than significant.

Best Management Practices: None required.

Mitigation: None required.

3.H.4 References

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State Water Resources Control Board (SWRCB), *Geotracker Database,* http://www.geotracker.swrcb.ca.gov/profile_report.asp?global_id=T0608501634, accessed on June 22, 2010.

UNIDOCS, Who Regulates What in Santa Clara County, http://www.unidocs.org/members/whoregulateswhat.html, accessed April 19, 2010.

3.I Hydrology and Water Quality

This section presents the existing hydrology and water quality conditions, including surface water and groundwater, flooding, and the applicable regulations associated with the Program. This section includes identification and analysis of potential hydrology and water quality impacts related to construction and operations, including maintenance of the Program. Applicable Santa Clara Valley Water District (District) best management practices (BMPs) designed to avoid or minimize impacts are identified. If the program impacts are determined to be significant, mitigation measures are identified.

3.I.1 Environmental Setting

Section 2.B, Program Location and Existing Facilities, provides general information about the regional and local setting of the Program. Section 2.B also includes general descriptions of the creeks located in and adjacent to the program area. The following section provides a more detailed discussion of the existing hydrologic conditions and characterizes groundwater, water quality, and flooding conditions in the program area.

Existing Hydrologic Conditions

The program area is located in the Berryessa Creek drainage basin, which is located in the Coyote Creek Watershed. The Coyote Creek Watershed encompasses approximately 322 square miles of eastern Santa Clara County. Berryessa Creek and Lower Penitencia Creek are two of the largest creeks traversing the Coyote Creek Watershed. The Berryessa Creek drainage basin encompasses an area of approximately 22 square miles. Berryessa Creek originates in the Los Buellis Hills of the Diablo Range, between Ed R. Levine and Alum Rock Parks, east of the City of San José. Berryessa Creek then flows westerly to Interstate 680 (I-680), then northward through the City of Milpitas (City) to its confluence with Tularcitos Creek, one of its tributaries, which is located near the Milpitas Civic Center and Beresford Park. Downstream of the confluence with Tularcitos Creek, Wrigley Ford Creek and Calera Creek flow into Berryessa Creek. Berryessa Creek flows into Lower Penitencia Creek near Penitencia Street and Summerwind Drive. From the confluence with Berryessa Creek, Lower Penitencia Creek flows approximately 4,500 feet northward to Coyote Creek (see Figure 2-1). Coyote Creek flows northward of Lower Penitencia Creek and empties into South San Francisco Bay. The Lower Penitencia Creek watershed encompasses approximately 30 square miles. Lower Penitencia Creek flows from the foothills of the Diablo Range, through undeveloped county land and continues westerly through residential neighborhoods in San José and Milpitas. Lower Penitencia Creek transitions to higher density residential neighborhoods and industrial areas west of I-680.

The program vicinity lies within a region that has a mild Mediterranean climate. On average, approximately 90 percent of the rainfall in the area occurs during the winter and early spring months, November through April. Based on a San José meteorological station, the average annual rainfall for the program area is approximately 14.7 inches (WRCC, 2010).

Upstream of the program area (south of Montague Expressway), Berryessa Creek is typically dry during the summer months; within the program area limits, Lower Berryessa Creek is perennial, mainly due to urban runoff. In the winter, groundwater also contribute to the creek flow, particularly the reach between Montague Expressway and Calaveras Boulevard, upstream of the program area.

Berryessa Creek has been modified throughout its length except for the furthest upstream reaches in the hills. Lower Penitencia Creek, Lower Berryessa Creek and two of its tributaries, Calera Creek and Tularcitos Creek, are either engineered-earth trapezoidal channels or in a concrete channel for most of the program area. The program elements are: Lower Berryessa Creek Element, Tularcitos Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Lower Penitencia Creek Element. Areas near all of these creeks are located in existing 100-year flood (i.e., one percent chance of flooding in any given year) zones (FEMA, 2009; City of Milpitas, 2011). More information on existing flooding in the program area is discussed in the Flooding section below.

Lower Berryessa Creek

The Lower Berryessa Creek Element spans approximately 8,700 linear feet, from Calaveras Boulevard downstream to the confluence with Lower Penitencia Creek. The Lower Berryessa Creek channel, levees, and roads were originally constructed in 1976 to provide flood protection. Levees and maintenance roads are located on both sides of the Lower Berryessa Creek channel, which is mostly a uniform earthen trapezoidal channel. A 700-foot-long reach located at the Union Pacific Railroad (UPRR) crossings under North Abel Street and at the confluence with Wrigley Ford Creek as well as a 210-foot long reach at the Tularcitos confluence are concrete-lined (District, 2010a). Six bridges cross Lower Berryessa Creek within the program area. Three of these bridges, the Calaveras Boulevard bridge and two railroad bridges, are partially blocked with vegetation and sediment and impede flood flows. The other three bridges are at or above the levees and do not significantly impede flood flows.

Other than routine maintenance, the only improvement since the construction of the Lower Berryessa Creek channel was the raising of the levee elevations by 1.5 feet in 1997. The increased heights provided 100-year flood protection based on hydrology and hydraulics available at the time. However, in 1998, there was significant damage to homes and automobiles due to flooding of the creek. Recent studies indicate that there are severe restrictions, such as bridges and culverts, in Lower Berryessa Creek that prevent the existing 100-year flood from passing without overtopping the existing levees (District, 2002; NHC, 2003; NHC, 2006; District, 2010a).

Calera Creek

The elements on Calera Creek include Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2, as described below. During large flood events, flow depth and velocity within Calera Creek are greatly controlled by the backwater

effect from Lower Berryessa Creek (i.e., they are controlled by the downstream water surface elevation in Lower Berryessa Creek). A hydraulic model of existing conditions indicates that the 100-year flow is not contained within the existing creek channel due to existing backwater effects from Berryessa Creek on the downstream reach and inadequate channel capacity (District, 2010a). Additionally, the backwater effects limit the capacity of Calera Creek to convey the incoming sediment loads.

Lower Calera Creek Element

The Lower Calera Creek Element spans from the confluence with Lower Berryessa Creek to a drop structure that is located approximately 3,000 feet upstream of the confluence. The Lower Calera Creek channel is earthen trapezoidal with some sandbag slope stabilization downstream of the UPRR crossing. The creek is located in a vertical walled concrete channel from North Milpitas Boulevard downstream to the UPRR crossing. From North Milpitas Boulevard to the Lower Calera Creek Element upstream extent, the creek consists of a relatively narrow bottom and an earthen trapezoidal channel with vegetated side slopes.

Upper Calera Creek Element 1

The Upper Calera Creek Element 1 spans approximately 2,300 feet. The element is located from an existing pedestrian bridge near Founders Lane downstream to the drop structure at the upstream end of Lower Calera Creek. The element includes an approximately 100- to 130-foot-wide floodplain and 10- to 20-foot-wide low flow channel. The floodplain is most defined in the reach upstream of Escuela Boulevard. Moderate vegetation and sedimentation occur near the culvert crossing near Escuela Boulevard. Narrow access roads are located adjacent to the channel on one or both sides.

Upper Calera Creek Element 2

The Upper Calera Creek Element 2 spans approximately 3,000 feet, from near London Drive downstream to the pedestrian bridge near Founders Lane. The creek is much narrower and steeper than Upper Calera Creek Element 1 for most of this element. Access for maintenance is limited for most of this element, especially downstream of I-680. Upstream of I-680, the creek remains narrow through Higuera Adobe Park. There is a drop structure and a sudden channel grade change of approximately five feet near the upstream end of the park. The channel is located in a relatively wide grassy swale upstream of the park.

Tularcitos Creek

The Tularcitos Creek Element spans approximately 4,000 linear feet from the culvert cross of I-680 downstream to the confluence with Lower Berryessa Creek. The Tularcitos Creek channel is a concrete trapezoidal channel from Paseo Refugio to the confluence with Lower Berryessa Creek. Upstream of Paseo Refugio, the element includes a relatively narrow bottom and an earthen trapezoidal channel with grassy side slopes. The majority of the Tularcitos Creek Element has narrow access roads on both sides. There are four road culvert crossings and four pedestrian bridge crossings. During large flood events, flow depth and velocity within Tularcitos Creek are greatly controlled by the backwater effect from Lower

Berryessa Creek. A hydraulic model of existing conditions indicates that the100-year flow is not contained within the existing creek channel due to backwater effects from Berryessa Creek on the downstream reach and inadequate channel capacity along most of the creek (District, 2010a). Additionally, the backwater effects limit the capacity of Tularcitos Creek to convey the incoming sediment loads.

Lower Penitencia Creek

The Lower Penitencia Creek Element spans approximately 4,500 linear feet from the confluence of Lower Berryessa Creek to the confluence of Coyote Creek. The Lower Penitencia Creek channel is a trapezoidal managed flood control channel. From the confluence with Lower Berryessa to the California Circle bridge, the bottom width of the creek is approximately 100 feet wide and side slopes are 2:1. Downstream of this bridge to I-880 the creek narrows to approximately 70 feet. Downstream of I-880 to its confluence with Coyote Creek, Lower Penitencia Creek is approximately 35 feet wide and has a less steep natural bank. During a 100-year flood event, there is inadequate channel capacity within the creek (District, 2010a).

Groundwater

The Santa Clara subbasin, which is part of the Santa Clara Valley basin, is the primary source of groundwater for the Santa Clara Valley and the program area. Generally, the Santa Clara subbasin is divided vertically into two major aquifers separated by an aquitard, or thick layer of clay or non-porous rock, which ranges in depth from approximately 75 feet below ground surface (bgs) in the upper watershed to 160 feet bgs in the northern interior portion of the subbasin (Todd and KJC, 2009). This layer of clay retards the movement of groundwater between the two aquifers. The upper aquifer is considered to be unconfined[1], whereas the lower aquifer is a confined[2] or semi-confined aquifer. The lower aquifer provides much of the municipal and domestic groundwater supply and the upper, unconfined aquifer is currently not used for water supply.

Prior to 1965, the Santa Clara Valley subbasin experienced substantial land subsidence due to groundwater overdraft[3]. In 1965, State water deliveries to the San José area began and reduced the rate of subsidence. Berryessa Creek and its tributaries are located in the outer margin of the zone affected by land subsidence and experienced from zero to four feet of subsidence from 1900 to 1967 (District, 2010a).

The District actively promotes aquifer recharge through its percolation ponds to avoid overdraft of the aquifer, as well as to minimize future subsidence and saltwater intrusion from San Francisco Bay. There are three ponds located within the Coyote Watershed, on Upper Penitencia Creek and Coyote Creek that ultimately provide groundwater recharge of the

1 Unconfined aquifer is a saturated region of the subsurface that does not have a confining layer between it and the surface.
2 Confined aquifer is a saturate region of the subsurface that has a confining layer, such as an aquitard.
3 Groundwater overdraft is the condition of a groundwater basin where the amount of water extracted exceeds the amount of groundwater recharging the basin over a period of time.

lower, confined aquifer. These ponds are generally located in natural recharge areas for the lower aquifer (i.e., in-stream and off-stream sand and gravel deposits that occur at the margins of the Santa Clara subbasin). None of these ponds are located in the program area. In both the foothill (margins) areas, as well as the Santa Clara valley floor, surface water generally infiltrates unlined streambeds and recharges the ground water supply during portions of the year. In some parts of the flatlands, the groundwater table of the unconfined aquifer approaches the ground surface during the rainy season.

For more than 20 years, the District has monitored wells regularly throughout the Santa Clara Valley. In 2009, a relatively dry year, the station designated in Milpitas (State Well 06S01W24H015), which is west of the program area, had groundwater elevations at the surface in March and then at depths of approximately nine feet and 11 feet in July and August, respectively (District, 2010b). The increased aquifer recharge and the decreased pumping of the aquifer, compared to levels in the 1980's, contribute to unconfined groundwater levels that are relatively high in the program area.

Water Quality

Surface Water Quality

Both point and non-point pollution sources affect stream water quality. Although there are no identified point pollution source discharges to the program creeks, there are non-point sources. Non-point source runoff from winter storms, over-land flow, construction sites, exposed soil, roofs, parking lots, and streets influences the water quality of streams in the program area. Any pollutants or items typically found on city streets or construction sites can be a potential source of non-point source pollution, because stormwater discharges are not treated at a stormwater or combined sanitary sewer/stormwater treatment plant, but instead are collected in a separate storm drain system and discharged into local creeks.

Since 2002, the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) has collected water samples at local creeks throughout the Santa Clara subbasin for aquatic life and recreational use indicators in both the wet and dry season. Between 2002 and 2007, 82 water samples were collected at 27 sites and analyzed for physio-chemical and chemical (i.e., metals, nutrients and anions, and organophosphate pesticides), as well as acute and chronic toxicity and pathogen indicators (SCVURPP, 2007). The chemical indicators analyzed include diazinon (an organophosphate pesticide), cadmium, chromium, copper, lead, nickel, mercury, selenium, silver, and zinc. Although the water bodies in the program area are not designated as impaired for diazinon, water from the program area eventually flows into Coyote Creek, which is impaired for diazinon (see Impaired Waterways - CWA 303(d) list section below).

In April 2003, the highest concentration of diazinon in the Santa Clara subbasin was measured at 0.05 µg/L at a station on Berryessa Creek located approximately 1.5 miles upstream of the Lower Berryessa Creek Element (SCVURPPP, 2007). All samples were below the total maximum daily load (TMDL) target for diazinon in urban creeks that drain into San Francisco

Bay (1.0 µg/L). Diazinon is generally associated with urban runoff and storm sewers. The areas adjacent to the program elements are primarily urban, and therefore, may contribute pollutants, such as diazinon, to the program elements.

Groundwater Quality

Groundwater provides nearly half of the water supply for Santa Clara County. The groundwater basins in the region are composed of gravels, sands, and silty sands that have washed down from the mountains into the valley. Because the valley floor consists of relatively large-diameter soils, it is very permeable and forms good aquifers, or water-bearing layers of sand and gravel (DWR, 2004). The aquifers in the basin are capable of storing large amounts of groundwater for wells.

The District has a general groundwater monitoring program in place to detect changes in groundwater quality or quantity. Groundwater quality in the Santa Clara subbasin, within both the confined and unconfined aquifers, is generally good. Drinking water standards in the confined aquifer met at public supply wells are usually without the use of treatment methods (Todd and KJC, 2009).

Flooding

The Federal Emergency Management Agency (FEMA) has designated areas in Santa Clara County that have a one percent chance of flooding in any given year (100-year flood) and areas that have a 0.2 percent chance of flooding in any given year (500-year flood). Extensive 100-year flood zones have been designated in the program area adjacent to all elements (Figure 2-1) (FEMA, 2007; City of Milpitas, 2011).

The District's design criteria require that creeks are engineered to convey the existing 100-year flow and three to four feet of freeboard, at a minimum, but at the present time not all creeks convey this capacity (Ndah, 2011). Freeboard refers to the minimum amount of height above the 100-year flood elevation that levees or other structures in the floodplain need to be designed to accommodate. The District requires three feet of freeboard in the majority of the program area. The exception is at bridges where four feet of freeboard is required 100 feet upstream and downstream of bridge (Ndah, 2011). All of the creeks in the program area include portions with inadequate channel capacity and freeboard. A hydrologic study was completed in 2003 that determined 100-year design flows, which accounted for potential future projects that would increase the flow in the program area. The 100-year design flows are larger than the existing 100-year flows established by FEMA because these flows account for future land use and potential future projects that would increase flow in the program area. In 2006, the hydrologic model was updated to include future land use and possible future improvements along tributaries to Berryessa Creek, and modified 100-year design flows were determined (NHC, 2006). Subsequently, the 100-year design flows were refined by the U.S. Army Corps of Engineers (Corps) and the District to account for future adjustments in hydrology and hydraulic modeling techniques (District, 2010a). The refined

100-year design flows established by the Corps and the District are being used to ensure adequate freeboard in the program area.

As part of detailed project-specific planning for the Lower Penitencia Creek Element, the District would perform a hydrologic and hydraulic analysis of the creek from just upstream of the Lower Berryessa Creek confluence downstream to I-880) in order to determine the 100-year water surface elevation and hydraulic grade line (HGL) throughout the reach that would result from the upstream elements. With respect to inflows from Lower Berryessa Creek, the hydraulic analysis would use the design flows calculated for the Program. The hydraulic analysis would include a minimum of 10 cross-sections on Lower Penitencia Creek. If the calculated change (i.e., compared to the information published by FEMA [2009]) in the water surface elevation or the HGL in Lower Penitencia Creek is greater than one foot, at any point, or any new areas are predicted to experience flooding, then the District would design and implement the Lower Penitencia Creek Element to fully contain the design flow rate.

3.I.2 Regulatory Setting

Federal and State Regulations

Executive Order 11988

Under Executive Order 11988, the FEMA is responsible for management of floodplain areas, defined as the lowland and relatively flat areas adjoining inland and coastal waters subject to a one percent or greater chance of flooding in any given year (the 100-year floodplain). FEMA requires that local governments covered by federal flood insurance pass and enforce a floodplain management ordinance that specifies minimum requirements for any construction within the 100-year floodplain. See Local Plans and Policies section below (i.e., Santa Clara County General Plan, Milpitas Municipal Code, and Milpitas General Plan) for details on 100-year floodplain construction requirements for the program area.

Federal and State Water Quality Policies

The statutes that govern the activities under the Program that may affect water quality are the federal Clean Water Act (CWA) (33 U.S.C. §1251) and the Porter-Cologne Water Quality Control Act (Porter-Cologne) (Water Code, §13000 et seq.). These acts provide the basis for water quality regulation in the program area.

The California legislature has assigned the primary responsibility to administer and enforce statutes for the protection and enhancement of water quality to the State Water Resources Control Board (SWRCB) and its nine Regional Water Quality Control Boards (RWQCBs). The SWRCB provides state-level coordination of the water quality control program by establishing statewide policies, and plans for the implementation of state and federal regulations. The nine RWQCBs throughout California adopt and implement water quality control plans that recognize the unique characteristics of each region with regard to natural water quality, actual and potential beneficial uses, and water quality problems. The RWQCB adopts and implements a Water

Quality Control Plan that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan (California Water Code, §13240-13247).

Beneficial Use and Water Quality Objectives (CWA Section 303)

The San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) is responsible for the protection of the beneficial uses of waters within the San Francisco Bay region, including the program area. The SFBRWQCB uses its planning, permitting, and enforcement authority to meet this responsibility and has adopted the Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) (SFBRWQCB, 2007a) to implement plans, policies, and provisions for water quality management.

In accordance with state policy for water quality control, the SFBRWQCB employs a range of beneficial use definitions for surface waters, groundwater basins, marshes, and mudflats that serve as the basis for establishing water quality objectives and discharge conditions and prohibitions. The Basin Plan has identified existing and potential beneficial uses supported by the key surface water drainages throughout its jurisdiction (SFBRWQCB, 2007a). The beneficial uses of any specifically identified water body generally apply to all its tributaries (SFBRWQCB, 2007a). Beneficial uses for Berryessa Creek and Lower Penitencia Creek have not been identified. However, the following existing or potential beneficial uses have been identified for Coyote Creek, to which all reaches within the Program are eventually tributary: groundwater recharge, cold freshwater habitat, fish migration, preservation of rare and endangered species, fish spawning, warm freshwater habitat, wildlife habitat, water contact recreation, and noncontact water recreation. The Basin Plan also includes water quality objectives that are protective of the identified beneficial uses (SFBRWQCB, 2007a)); and, the beneficial uses and water quality objectives collectively define the water quality standards for a given region. The freshwater water quality objectives for toxic pollutants are shown in Table 3.I-1.

TABLE 3.I-1
FRESHWATER WATER QUALITY OBJECTIVES FOR TOXIC POLLUTANTS FOR SURFACE WATERS

	Water Quality Objectives	
	Average	
Compound	**4-day (micrograms/liter)**	**1-hr (micrograms/liter)**
Arsenic	150	340
Chromium VI	11	16
Copper	9.0	13
Lead	2.5	65
Mercury	0.025	2.4
Nickel	52	470
Silver	none	3.4
Zinc	120	120

SOURCE: SFBRWQCB, 2007

Impaired Waterways - CWA 303(d) list

The objective of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." Under CWA §303(d), the State of California is required to develop a list of impaired water bodies that do not meet water quality standards and objectives. Although the water bodies in the program area are not designated as impaired, water from the program area eventually flows into two impaired water bodies: Coyote Creek and San Francisco Bay South. For those water bodies failing to meet standards, states are required to establish a total maximum daily load (TMDL). A TMDL defines how much of a specific pollutant a given water body can tolerate (loading capacity) and still meet relevant water quality standards, and uses the water body's loading capacity to allocate pollutant loadings among point and nonpoint sources. Coyote Creek is impaired by diazinon and a TMDL was established in 2007 (SFBRWQCB, 2007b). San Francisco Bay South is impaired by chlordane, DDT, dieldrin, dioxin compounds, exotic species, furan compounds, mercury, PCBs, and selenium (SFBRWQCB, 2007b). TMDLs for each of these impairments are proposed to be developed by 2019.

Water Quality Certification (CWA Section 401)

Section 401 of the CWA requires that an applicant for any federal permit (e.g., a CWA Section 404 permit) obtain certification from the state that the permitted action (e.g., discharge of fill) will comply with other provisions of the CWA and with state water quality standards. For example, before the Corps can issue a Section 404 permit, it must certify, under Section 401, that the permitted action meets state water quality standards. For the program area CWA Section 404 permits, the SFBRWQCB must provide the water quality certification required under Section 401 of the CWA. Water quality certification under Section 401 of the CWA is required in order to minimize or eliminate the potential water quality impacts associated with the action(s) requiring a federal permit. CWA Sections 401 and 404 are also discussed in Section 3.D, Biological Resources.

National Pollutant Discharge Elimination System Program (CWA Section 402)

The CWA was amended in 1972 to provide that the discharge of pollutants to waters of the United States from any point source is unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. The 1987 amendments to the CWA added Section 402(p), which establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. In November 1990, the U.S. Environmental Protection Agency (EPA) published final regulations that also establish stormwater permit application requirements for discharges of stormwater to waters of the United States from construction projects that encompass five or more acres of soil disturbance. Regulations (Phase II Rule) that became final on December 8, 1999, expanded the existing NPDES program to address stormwater discharges from construction sites that disturb land equal to or greater than one acre and less than five acres (small construction activity).

Construction General Permit (SWRCB Order 2009-09-DWQ)

For stormwater discharges associated with construction activity in the state of California, the SWRCB has adopted the General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities, Order No. 2009-0009-DWQ (Construction General Permit) in order to avoid and minimize water quality impacts attributable to such activities. The Construction General Permit applies to all projects where construction activity disturbs one or more acres of soil. Construction activities subject to this permit includes clearing, grading, and disturbances to the ground, such as stockpiling or excavation. The Construction General Permit requires the development and implementation of a Storm Water Pollution Prevention Plan (SWPPP), which includes and specifies BMPs designed to prevent pollutants from contacting stormwater and keep all products of erosion from moving off-site into receiving waters. Routine inspection of all BMPs is required under the provisions of the Construction General Permit. In addition, the SWPPP must contain a visual monitoring program, a chemical monitoring program for non-visible pollutants, and a sediment monitoring plan if the site discharges directly to a water body listed on the 303(d) list for sediment.

The Construction General Permit is implemented and enforced by the RWQCBs, and the SFBRWQCB administers the stormwater permitting program for the program area. Dischargers are required to submit a notice of intent (NOI) in order to, at the discretion of the SWRCB, obtain coverage under this Construction General Permit. Dischargers are responsible for notifying the relevant RWQCB of violations or incidents of non-compliance, as well as for submitting annual reports identifying deficiencies of the BMPs and how the deficiencies were corrected.

On September 2, 2009, the SWRCB adopted the new version of the Construction General Permit, effective on July 1, 2010 (expires September 2, 2014), replacing the previous Construction General Permit (Order No. 99-08-DWQ). The existing permit requires a risk-based permitting approach, dependent upon the likely level of risk imparted by a project. The permit also contains several additional compliance items, including: (1) additional mandatory BMPs to reduce erosion and sedimentation, which may include incorporation of vegetated swales, setbacks and buffers, rooftop and impervious surface disconnection, bioretention cells, rain gardens, rain cisterns, implementation of pollution/sediment/spill control plans, training, and other structural and non-structural actions; (2) sampling and monitoring for non-visible pollutants; (3) effluent monitoring and annual compliance reports; (4) development and adherence to a Rain Event Action Plan; (5) requirements for the post-construction period; (6) numeric action levels and effluent limits for pH and turbidity; (7) monitoring of soil characteristics on site; and (8) mandatory training under a specific curriculum. Under the revised permit, BMPs will be incorporated into the action and monitoring requirements for the program area, as compared to the existing permit, where specific BMPs are implemented only via a SWPPP. Under the updated permit, additional monitoring, reporting, and training requirements for management of stormwater pollutants will be implemented.

Porter-Cologne Water Quality Control Act

Porter-Cologne (codified in the California Water Code, §13000 et seq.) is the basic water quality control law for California. As mentioned above, it is implemented by the SWRCB and the nine RWQCBs. The SWRCB establishes statewide policy for water quality control and provides oversight of the RWQCBs' operations. In addition to other regulatory responsibilities, the RWQCBs have the authority to conduct, order, and oversee investigation and cleanup where discharges or threatened discharges of waste to waters of the state could cause pollution or nuisance, including impacts to public health and the environment. Porter-Cologne and the CWA are integrated in many respects, as the entities established by Porter-Cologne are in many cases enforcing and implementing federal laws and policies. However, there are some regulatory tools that are unique to Porter-Cologne, such as wastewater discharge requirements.

Statewide General Waste Discharge Requirements for Discharges to Land with a Low Threat to Water Quality (SWRCB Order 2003-0003-DWQ)

The SWRCB has adopted a General Waste Discharge Requirement for specific types of low-threat discharges to the land surface, including small dewatering projects related to activities such as excavation during construction. This general order is intended to describe a range of protective measures that could be applied to a broad category of activities. If discharging to the land surface is required or desired for any construction activity, the District would apply for and obtain coverage under this general order.

Lake and Streambed Alteration Agreement (Fish and Game Code §1600-1616)

The California Department of Fish and Game (CDFG) requires a project applicant to obtain a Lake and Streambed Alteration Agreement (SAA) pursuant to Fish and Game Code §1600-1616 if a project were to: (1) substantially obstruct or divert the natural flow of a river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or (3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. Details on the SAA requirements and procedures are located in Section 3.D, Biological Resources.

Local Plans and Policies

Santa Clara County General Plan

The Santa Clara County General Plan (Santa Clara County, 1994) identifies the following principles and policies that relate to the Program:

> *Section H Resource and Conservation, Water Quality and Watershed Management*
>
> *Policy C-RC 20*. Adequate safeguards for water resources and habitats should be developed and enforced to avoid or minimize water pollution of various kinds, including: a. erosion and sedimentation; b. organic matter and wastes; c. pesticides and herbicides; d. effluent from inadequately functioning septic systems; e. effluent from municipal wastewater treatment plants; f. chemicals used in industrial and commercial activities

and processes; g. industrial wastewater discharges; h. hazardous wastes; and i. non-point source pollution.

Section I Health and Safety, Natural Hazards

Policy C-HS 34. Flood control measures should be considered part of an overall community improvement program and advance the following goals, in addition to flood control: a. resource conservation; b. preservation of riparian vegetation and habitat; c. recreation; and d. scenic preservation of the county's streams and creeks.

Implementation Recommendations C-HS (i) 32. Continue efforts by, and joint planning with, the Santa Clara Valley Water District to design and construct flood control improvements that achieve a desirable balance of resource conservation, flood control and recreational objectives.

City of Milpitas Municipal Code

The City of Milpitas Municipal Code (City of Milpitas, 2010), Section XI-15, identifies the following provisions for flood hazard reduction that relate to the Program:

Section X Zoning, Planning and Annexation, Chapter 15 Floodplain Management Regulations

XI-15-5.1b Standards of Construction: Construction Materials and Methods

(b1) With materials and utility equipment resistant to flood damage.

(b2) Using methods and practices that minimize flood damage.

The other provisions for flood hazard reduction are not relevant to the Program (i.e. construction of utilities, subdivisions, manufactured homes, and recreational vehicles).

City of Milpitas General Plan

The City of Milpitas General Plan (City of Milpitas, 2002) identifies the following principles and policies that relate to the Program:

Section 5 Seismic and Safety Element, Section 5.5b Drainage and Flooding

Guiding Principle:

5.b-G-1 Minimize threat to life and property from flooding and dam inundation.

Implementing Policies:

5.b-I-1 Ensure that new construction or substantial improvements to any existing structure result in adequate protection from flood hazards.

5.b-I-3 Ensure that encroachment into designated floodways does not result in any increase in flooding hazards.

5.b-I-5 Seek construction of flood control channels to withstand 100-year floods along Coyote, Penitencia, Berryessa, Scott, Calera, and Los Coches Creeks.

Section 4 Open Space and Environmental Conservation Element, Section 4.d Water Quality and Conservation

Guiding Principles:

4.d-G-1 Protect and enhance the quality of water resources in the Planning Area.

Implementing Policy:

4.d-I-1 Continue implementing the National Pollutant Discharge Elimination System (NPDES) requirements of the Regional Water Quality Control Board. - *This is implemented through Chapter 16 of the City's Zoning Ordinance.*

3.I.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on hydrology and water quality if it were to:

- Violate any water quality standards or waste discharge requirements;
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of preexisting nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted);
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or by other means, in a manner that would result in substantial erosion or siltation on- or off-site;
- Substantially alter the existing drainage pattern of a site or area through the alteration of the course of a stream or river, or, by other means, substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site;
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff;
- Otherwise substantially degrade water quality;
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map;
- Place within a 100-year flood hazard area structures that would impede or redirect flood flows;
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow.

Approach to Analysis

Hydrology and water quality impacts may vary based on site-specific conditions. The following analysis is based on the available hydrologic observations and modeling that has been completed for the program area. The available data and reports include hydrologic modeling of existing conditions (NHC, 2003; NHC, 2006), the Planning Study Report for the Lower Berryessa Creek Program (District, 2010a), and the Coyote Watershed Stream Stewardship Plan (District, 2002). Where relevant and applicable site-specific hydrology and water quality information is available, the impact analysis includes site-specific evaluation. Some impacts are analyzed in general and may apply to all proposed program elements.

No Impact Significance Determinations

The significance criteria for hydrology and water quality impacts listed below are not applicable to the Program, and are not assessed further in the impact analysis, due to the following:

Create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems. The Program would not include impervious surfaces that would result in the creation or contribution of runoff that would exceed the capacity of existing stormwater drainage systems. There would be no impact due to contribution of runoff that would exceed the capacity of existing or planned stormwater drainage systems.

Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other authoritative flood hazard delineation map; or place within a 100-year flood hazard area structures that would impede or redirect flood flows. No new housing or structures that would impede or redirect flood flows would be placed within the 100-year floodplain. The Program includes installation and modification of levees, floodwalls, headwalls, culverts, and bridges to accommodate 100-year flood flows. There would be no impact related to placement of new housing or structures in flood hazard areas.

Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam; or expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow. The Program would not involve placing people or structures in areas downstream of levees or dams that could fail. In addition, the elevation and distance of the program area from the coast precludes impacts related to tsunamis. There are no large lakes or other enclosed water bodies located near the program area; therefore, there is no risk of seiche. Additionally, mudflows are unlikely to occur in the program area.

Impact Summary

Potential project-level and program-level hydrology and water quality impacts are shown in Table 3.I-2.

TABLE 3.I-2
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL HYDROLOGY AND WATER QUALITY IMPACTS

	Impact 3.I-1		Impact 3.I-2		Impact 3.I-3		Impact 3.I-4	
	Degradation of water quality		Impacts on groundwater supplies and recharge due to dewatering		Alteration of drainage patterns and erosion or siltation		Alteration of drainage patterns and flooding	
	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements								
Lower Berryessa Creek Element	LTS	LTS	LTS	–	–	LTS	–	LTS
Lower Calera Creek Element	LTS	LTS	LTS	–	–	LTS	–	LTS
Program-Level Elements								
Upper Calera Creek Element 1	LTS	LTS	LTS	–	–	LTS	–	LTS
Upper Calera Creek Element 2	LTS	LTS	LTS	–	–	LTS	–	LTS
Tularcitos Creek Element	LTS	LTS	LTS	–	–	LTS	–	LTS
Lower Penitencia Creek Element	LTS	LTS	LTS	–	–	LTS	–	LTS

SU = Significant and Unavoidable
SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact
– = No Impact

Impacts and Mitigation Measures

Impact 3.I-1: Increased erosion and sedimentation and/or pollutant (e.g., fuels and lubricants) loading to surface waters, which could subsequently result in violation of water quality standards or otherwise degrade water quality. (Less than Significant)

Construction Impacts

All Elements

Construction activities could potentially impact water quality with respect to sediment and pollutant loading and in turn, could have potentially adverse impacts on one or more beneficial uses identified by the SFBRWQCB for surface waters in or near the program area (SFBRWQCB, 2007a). By definition, this would be a violation of existing water quality standards. Program construction activities relevant to this potential impact include: raising levees along Lower Berryessa Creek; constructing floodwalls and/or headwalls along sections of all creeks; improving maintenance roads along sections of all creeks; reconstructing pedestrian bridges across Lower Berryessa Creek, Lower Calera Creek, and Tularcitos Creek; hydroseeding along sections of Lower Berryessa Creek and Lower Calera Creek; constructing a stormwater pump station adjacent to Tularcitos Creek; constructing a concrete box culvert adjacent to Upper Calera Creek, removing sediment and vegetation and constructing a widened floodplain in Lower Penitencia Creek.

While not likely since construction would occur during the dry season, intense rain or wind events in such areas could result in substantial soil erosion into adjacent waterways. Activities that disturb the ground near or within a stream channel (e.g., clearing and grading) could make soils and sediments more susceptible to erosion by altering their existing structure or state. Depending on the distance and ground slope, some portion of the eroded material could be delivered to a receiving stream channel or other type of waterway over a relatively short time period (e.g. during the next rain event). In this case, increased erosion rates would likely lead to increased sediment concentrations and turbidity levels in the receiving stream channel. Moderate increases in surface runoff from construction areas could initiate erosion and sediment delivery problems. Increased runoff rates at construction areas could result from temporarily decreasing ground surface resistance to over-land flow (e.g., clearing of vegetation or slope grading) or decreasing the infiltration capacity of the soil by means of compaction (e.g., with heavy equipment). In addition, if construction equipment or workers inadvertently release pollutants (e.g., hydraulic fluid or petroleum) within the program area, these compounds could be entrained by runoff and discharged into receiving channel(s) causing water quality degradation. The extent of erosion or pollution that could occur at any given construction site varies depending on soil type, vegetation/cover, and weather conditions. Substantial erosion and loss of topsoil are discussed in Section 3.F, Geology and Soils.

A number of program design features and District BMPs, as well as requirements set forth by the SFBRWQCB, would substantially reduce the potential for water quality impacts associated with erosion and sedimentation. As stated above, all program construction activities would take

place during the dry season (i.e., from mid-April to mid-October, annually), greatly reducing the chance that substantial runoff and subsequent sediment and/or pollutant loading would occur during active construction. Further, as described in Section 3.I.2, Regulatory Setting, the District or its contractor(s) would be required to submit an NOI to the SWRCB in order to obtain approval under the Construction General Permit. In accordance with the Construction General Permit effective in July 2010, the District or its contractor(s) would be required to prepare a SWPPP and implement BMPs as described in the Construction General Permit order (Order No. 99-08-DWQ or Order No. 2009-0009-DWQ). The SWPPP would include, but not be limited to, relevant measures, conditions, and monitoring obligations which would reduce the impacts of construction activities on water quality.

The District would implement the appropriate BMPs as described in the District BMP Handbook (Appendix B; District, 2010c) and would incorporate the District BMPs relating to stormwater management into the SWPPP. The following District BMPs would be implemented, as appropriate, for all construction activities: HM-9 to HM-14, WQ-1 to WQ-30, WQ-35, WQ-36, WQ-40, and WQ-41. These BMPs include measures specifically designed to prevent and control erosion and sediment delivery as well as the inadvertent release of pollutants (e.g., hydraulic fluid or petroleum).

The features included as part of the Program (i.e., limiting the construction season) and those required by the SWPPP and the Construction General Permit, combined with the implementation of the District BMPs listed above, would minimize the potential for construction-related erosion and sedimentation impacts and the associated potential for water quality degradation or violation of water quality standards, and; therefore, this impact would be less than significant.

Operations Impacts

All Elements

Activities associated with program operations could also potentially impact water quality with respect to sediment and pollutant loading, and could subsequently have potentially adverse impacts on one or more beneficial uses identified by the SFBRWQCB. Program activities relevant to this potential impact include structural maintenance activities (e.g., inspecting and repairing floodwalls), vegetation maintenance activities (e.g., preventing vegetation growth along the top of levee maintenance roads), and routine sediment removal. Post-construction maintenance activities would be the same as or similar to existing maintenance practices. The frequency and scope of vegetation maintenance and sediment removal activities would not change notably with implementation of the Program. Structural maintenance activities would likely increase slightly in association with the new structural features (e.g., floodwalls, concrete culvert, and pump station).

The mechanisms by which activities associated with program operations could produce substantial sedimentation and/or pollutant-loading are similar to those described above under construction impacts. However, the relative magnitude of ground-disturbing activities would be

notably less compared to that generally associated with program construction. Herbicides may be used as part of the vegetation maintenance activities associated with the Program. Depending upon the particular chemical compound and the method of application, herbicides could be mobilized by rainfall or storm runoff, or could be inadvertently released or spilled in proximity to receiving waters, and could eventually impact the quality of surface water and/or groundwater.

Vegetation and sediment removal activities would be consistent with the District's Stream Maintenance Program (SMP) and the District would implement the appropriate BMPs during maintenance activities. The following BMPs would be implemented for all program vegetation maintenance activities, sediment removal activities, and structural maintenance activities: HM-4 to HM-14, WQ-1 to WQ-9, WQ-12 to WQ-18, WQ-26, WQ-29, WQ-40, and WQ-41. Continued implementation of the District BMPs for maintenance activities would reduce the potential operations-related erosion and sedimentation impacts as well as the associated potential for water quality degradation or violation of water quality standards. The impact would be less than significant.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with degradation of water quality:

- HM-4: Follow all Posting & Notification for Pesticide Use – applicable to the operations phase of all elements.
- HM-5: Comply with All Pesticide Usage Requirements – applicable to the operations phase of all elements.
- HM-6: Coordinate Pesticide Use Reporting with the Vegetation Management Unit Manager – applicable to the operations phase of all elements.
- HM-7: Comply with Restrictions on Herbicide Use in Upland Areas – applicable to the operations phase of all elements.
- HM-8: Comply with Restrictions on Herbicide Use in Aquatic Areas – applicable to the operations phase of all elements.
- HM-9: Clean Vehicles and Equipment – applicable to the construction and operations phase of all elements.
- HM-10: Assure Proper Vehicle and Equipment Fueling – applicable to the construction and operations phase of all elements.
- HM-11: Assure Proper Vehicle and Equipment Maintenance – applicable to the construction and operations phase of all elements.
- HM-12: Assure Proper Hazardous Materials Management – applicable to the construction and operations phase of all elements.

- HM-13: Prevent Spills – applicable to the construction and operations phase of all elements.
- HM-14: Know the Spill Kit Location – applicable to the construction and operations phase of all elements.
- WQ-1: Conduct Work from Top of Bank – applicable to the construction and operations phase of all elements.
- WQ-2: Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms – applicable to the construction and operations phase of all elements.
- WQ-3: Assess Pump/Generator Set Operations and Maintenance – applicable to the construction and operations phase of all elements.
- WQ-4: Handle Sediments so as to Minimize Water Quality Impacts – applicable to the construction and operations phase of all elements.
- WQ-5: Avoid Runoff from Soil Stockpiles – applicable to the construction and operations phase of all elements.
- WQ-6: Stabilized Construction Entrance and Exits – applicable to the construction and operations phase of all elements.
- WQ-7: Prevent Erosion Downstream of Bank Protection Sites – applicable to the construction and operations phase of all elements.
- WQ-8: Minimize Sediment Transport Downstream from In-channel Herbicide Sites – applicable to the construction and operations phase of all elements.
- WQ-9: Minimize Local Erosion Increase from In-channel Vegetation Removal – applicable to the construction and operations phase of all elements.
- WQ-10: Evaluate and Select the Most Appropriate Use of Concrete Use Near Waterways – applicable to the construction phase of all elements.
- WQ-11: Use Coffer Dams for Tidal Work Areas – applicable to the construction phase of all elements.
- WQ-12: Diversion/ Bypass Water at Non-tidal Sites – applicable to the construction and operations phase of all elements.
- WQ-13: Minimize Hardscape in Bank Protection Design – applicable to the operations phase of all elements.
- WQ-14: Use Temporary Seeding for Erosion Control As Appropriate – applicable to the construction and operations phase of all elements.
- WQ-15: Manage Groundwater At Work Sites – applicable to the construction and operations phase of all elements.

- WQ-16: Avoid Erosion When Restoring Flows – applicable to the construction and operations phase of all elements.
- WQ-17: Prevent Scour Downstream of Sediment Removal – applicable to the construction and operations phase of all elements.
- WQ-18: Maintain Clean Conditions at Work Sites – applicable to the construction and operations phase of all elements.
- WQ-19: Control Emergency Discharges – applicable to the construction phase of all elements.
- WQ-20: Control Unplanned Discharges – applicable to the construction phase of all elements.
- WQ-21: Control Sediment/ Turbidity Control for Discharges Less than 50 NTU – applicable to the construction phase of all elements.
- WQ-22: Control Sediment/ Turbidity Control for Discharge Greater than 50 NTU – applicable to the construction phase of all elements.
- WQ-23: Evaluate Use of Flow Path – Vegetation Filtration – applicable to the construction phase of all elements.
- WQ-24: Evaluate Use of Flow Path – Check Filters – applicable to the construction phase of all elements.
- WQ-25: Evaluate Use of On-Line Filter Systems – applicable to the construction phase of all elements.
- WQ-26: Evaluate Use of Silt Fence Culvert Entrance Protection – applicable to the construction and operations phase of all elements.
- WQ-27: Evaluate Use of Surface Protection – Armoring – applicable to the construction phase of all elements.
- WQ-28: Evaluate Use of Surface Protection – Flow Diversion – applicable to the construction phase of all elements.
- WQ-29: Evaluate Use of Storm Drain Curb & Drop Inlet Protection – applicable to the construction and operations phase of all elements.
- WQ-30: Evaluate Use of Discharging to Sanitary Sewer System – applicable to the construction phase of all elements.
- WQ-35: Control Chemical Additives in Discharges of Less Than 1,000 Gallons – applicable to the construction phase of all elements.
- WQ-36: Control Chemical Additives in Discharges of More Than 1,000 Gallons – applicable to the construction phase of all elements.

- WQ-40: Prevent Water Pollution – applicable to the construction and operations phase of all elements.

- WQ-41: Prevent Stormwater Pollution – applicable to the construction and operations phase of all elements.

Mitigation: None required.

Impact 3.I-2: Impacts on groundwater supplies, recharge, and quality due to dewatering activities. (Less than Significant)

Construction Impacts

All Elements

Impacts associated with potential release of previously unknown hazardous materials, including any that may be present in groundwater, are discussed in Impact 3.H-1. As discussed in Section 3.I.1, Environmental Setting, groundwater depths within the program area could be relatively shallow (e.g., less than or equal to 11 feet bgs). In order to provide for clear and safe work areas, groundwater dewatering may be necessary for construction activities that would involve excavation. Such activities may include: constructing floodwalls and/or headwalls for all elements; improving roads for all elements; reconstructing bridges for Lower Berryessa Creek Element, Lower Calera Creek Element, and Tularcitos Creek Element; constructing a stormwater pump station for the Tularcitos Creek Element; sediment removal to restore design conditions and construction of a floodplain for the Lower Penitencia Creek Element; and/or constructing a concrete box culvert for the Upper Calera Creek Element 1.

All dewatering activities would be temporary in nature, confined to a small area, and occur only during dry season months (mid-June to mid-October). All water which accumulates in program excavations would be removed and creek flows and runoff diverted around the work areas. The creek flow in the program area would be temporarily diverted around the work area by using one of the following types of diversions: temporary durable plastic K-rail barrier system, water-tight cofferdam, or inflatable bladder dam. These diversions would remain in place throughout the in-stream construction period. The locations and spacing of the diversions will be determined based on the type and length of construction activity. As appropriate, the District would implement the following BMPs to reduce impacts on groundwater supplies and discharge: WQ-12, WQ-15, WQ-16, WQ-19, WQ-20, WQ-21 to WQ-29, WQ-31 to WQ-36, and WQ-40. WQ-12 and WQ-16 include specific requirements for diverting water and restoring flow in a way that minimizes impacts to groundwater. The implementation of the BMPs ensures that dewatering impacts on groundwater supplies and recharge would be less than significant.

All dewatering activities, when necessary, would discharge either directly to the land surface or to a surface water body (e.g., stream channel) in the vicinity of the construction site. Any such discharge has the potential, depending on the specific volume and rate, to induce erosion and cause sediment to be delivered to, or entrained and mobilized within, adjacent surface waters and stream channels. Subsequently, the water quality of these features could be degraded. Further, while the dewatering process would be temporary, yielding a relatively small volume of groundwater, the potential exists for such water or saturated soils to already be contaminated. According to the SWRCB's GeoTracker database (SWRCB, 2010) there are no sites or areas being actively monitored with respect to groundwater contaminants in the immediate vicinity of any element. Though the potential for encountering contaminated groundwater near any of the elements is low, the possibility cannot be completely discounted. Discharge (i.e., through dewatering) or displacement of contaminated water or soil as a result of excavation related to the Program could potentially impact the beneficial uses of surface water or groundwater identified by the SFBRWQCB.

As appropriate, the District would implement the following BMPs to reduce impacts on groundwater quality: WQ-12, WQ-15, WQ-16, WQ-19, WQ-20, WQ-21 to WQ-29, WQ-31 to WQ-36, and WQ-40. These BMPs include measures specifically designed to prevent water quality degradation related to the management and discharge of groundwater at construction sites and work areas. Implementation of the above BMPs would minimize the potential for water quality impacts or water quality standards violations associated with construction dewatering. Therefore, dewatering impacts on groundwater quality would be less than significant.

Operations Impacts

All Elements

The majority of the maintenance activities described in Section 2.G, Maintenance, are currently ongoing within the elements and would continue as part of the Program. Additionally, as described in Section 2.G, newly required maintenance activities would be required; these would include activities associated with the new floodwalls, a concrete box culvert, and a new pump station. Since operations and maintenance of these new facilities would not involve excavation or dewatering, no impacts associated with operational dewatering would occur.

The Program would result in increased flood protection and a smaller area of inundation of flood waters. There are no groundwater recharge ponds in the program area and much of the existing area that is inundated is impervious. During flood events, with and without the Program, the ground is saturated and groundwater recharge is minimal. Therefore, there would be no operational impacts of the Program on groundwater recharge.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with impacts on groundwater supplies, recharge, and water quality due to dewatering:

- WQ-12: Divert/Bypass Water at Non-Tidal Sites – applicable to the construction phase of all elements.
- WQ-15: Manage Groundwater At Work Sites – applicable to the construction phase of all elements.
- WQ-16: Avoid Erosion When Restoring Flows – applicable to the construction phase of all elements.
- WQ-19: Control Emergency Discharges – applicable to the construction phase of all elements.
- WQ-20: Control Unplanned Discharges – applicable to the construction phase of all elements.
- WQ-21: Control Sediment/ Turbidity Control for Discharges Less than 50 NTU – applicable to the construction phase of all elements.
- WQ-22: Control Sediment/ Turbidity Control for Discharge Greater than 50 NTU – applicable to the construction phase of all elements.
- WQ-23: Evaluate Use of Flow Path – Vegetation Filtration – applicable to the construction phase of all elements.
- WQ-24: Evaluate Use of Flow Path – Check Filters – applicable to the construction phase of all elements.
- WQ-25: Evaluate Use of On-Line Filter Systems – applicable to the construction phase of all elements.
- WQ-26: Evaluate Use of Silt Fence Culvert Entrance Protection – applicable to the construction phase of all elements.
- WQ-27: Evaluate Use of Surface Protection – Armoring – applicable to the construction phase of all elements.
- WQ-28: Evaluate Use of Surface Protection – Flow Diversion – applicable to the construction phase of all elements.
- WQ-29: Evaluate Use of Storm Drain Curb & Drop Inlet Protection – applicable to the construction phase of all elements.
- WQ-31: Control Small Volume Chlorinated Discharge (less than or equal 50,000 gallons) – applicable to the construction phase of all elements.
- WQ-32: Control Medium Volume Chlorinated Discharge (50,000 to 100,000 gallons) – applicable to the construction phase of all elements.
- WQ-33: Control Large Volume Chlorinated Discharge (greater than 100,000 gallons) – applicable to the construction phase of all elements.

- WQ-34: Control Superchlorinated Discharge (Chlorine Concentration greater than 1.5 mg/l [ppm]) – applicable to the construction phase of all elements.
- WQ-35: Control Chemical Additives in Discharges of Less Than 1,000 Gallons– applicable to the construction phase of all elements.
- WQ-36: Control Chemical Additives in Discharges of More Than 1,000 Gallons– applicable to the construction phase of all elements.
- WQ-40: Prevent Water Pollution – applicable to the construction phase of all elements.

Mitigation: None required.

Impact 3.I-3: Alter the existing drainage pattern and potentially result in downstream erosion or siltation on- or off-site. (Less than Significant)

Construction Impacts

All Elements

Construction activities themselves would not result in alteration of drainage patterns; however, the facility improvements that would result from program construction would alter drainage patterns, as discussed below. Although dewatering could occur it would be confined to a small area for a short amount of time and would not alter drainage patterns. Therefore, there would be no impact to existing drainage patterns.

Operations Impacts

All Elements

Implementation of the Program would result in altered drainage patterns within all elements. Raising or installing floodwalls, headwalls, or levees would increase the flow depth and raise the water surface elevation (and hydraulic grade line) for a given, large flood event (e.g., during a 100-year flood event)~~.~~, while channel widening and floodplain construction would likely decrease the flow depth and water surface elevation. Depending on the concurrent change in the water surface slope, an increase in the flow depth could translate to an increase in flow velocity and, subsequently, an increase in the capacity of the channel to erode and mobilize bed and bank sediments. Conversely, a decrease in flow depth and velocity (e.g., through channel widening, such as that proposed for the Lower Calera Creek Element) could result in more sediment deposition. If the ~~increase~~change in velocity is large enough and enough sediment is available for transport, the resultant ~~bed/bank erosion and increase in~~ impact upon sediment transport processes could be substantial, negatively impacting both channel stability and water quality.

According to previous studies (District, 2010a), all of the elements generally exhibit characteristics of a sediment transport regime that is net depositional (i.e., the channels tend to

accumulate sediment over time). This characteristic is not surprising given their location in the watershed (i.e., in the lower elevations) and their proximity to tidally-influenced stream channels. On average, and assuming a uniform distribution of sediment, the sediment accumulation over the channel bed within the Lower Berryessa Creek Element is approximately five to six inches per year (District, 2010a). Sediment accumulation over the channel bed within the Lower Penitencia Creek Element is also substantial. Evidence of stream bank erosion is largely absent from all of the elements (District, 2010a), which is further evidence of the depositional nature of the channel reaches comprising the overall Program. Further, during large flood events, flow depth and velocity within the Tularcitos Creek Element and the Calera Creek Element are greatly controlled by the backwater effect from Lower Berryessa Creek. Thus, though the Lower Calera Creek Element would widen the channel, the sediment transport capacity following large flows would likely remain unchanged, as the backwater effect from Lower Berryessa Creek would still largely control the hydraulic properties of the reach. The backwater effects limit the capacity of the Calera Creek and Tularcitos Creek elements to convey their incoming sediment loads.

Given the largely depositional nature of the channel reaches within the elements, it is unlikely that the overall sediment transport regime would change notably as a result of the Program. However, during extreme flood events (i.e., the one-percent annual chance flood), more sediment would likely be conveyed through the Berryessa Creek and Lower Penitencia Creek elements. Still, the reaches within these elements would likely remain depositional with respect to sediment continuity and net transport. Construction of a broader and more functional floodplain, as proposed for the downstream end of the Lower Penitencia Creek Element, would increase the sediment storage capacity at the downstream end of the program area and attenuate the downstream transport of sediment during extreme flood events. Further, it should be noted that, over time, the majority of sediment transported to and from the reaches within the elements is likely conveyed by moderate flood flows (i.e., floods that occur more frequently, and are of less magnitude, than those targeted by the Program); thus, the Program would have a less than significant impact on the sediment transport capacity of these flows. The Program would not result in substantial alteration of the existing drainage pattern, or result in subsequent downstream erosion or siltation on- or off-site; therefore, this impact would be less than significant.

Best Management Practices: None required.

Mitigation: None required.

Impact 3.I-4: Alter the existing drainage pattern and potentially result in downstream flooding. (Less than Significant)

Construction Impacts

All Elements

Construction activities would not result in alteration of drainage patterns; however, the facility improvements that would result from program construction would alter drainage patterns, as discussed below. Although dewatering could occur, it would be confined the immediate work area for a short periods of time and would not alter drainage patterns and there would be no impact to existing drainage patterns.

Operations Impacts

All Elements

Implementation of the Program would alter the drainage pattern within all elements. Raising levees and installing floodwalls and headwalls (all elements), installing a concrete box culvert (Upper Calera Creek Element 2), installing a new stormwater pump station (Tularcitos Creek Element), and construction of a floodplain (Lower Penitencia Creek Element) would increase the conveyance capacity of the elements during large flood events. The conveyance capacity of Lower Berryessa Creek would approximately double as a result of implementing the Program. As a result of increasing the conveyance capacity of the elements (namely Lower Berryessa Creek), reaches immediately downstream may be subject to increased flooding induced by operation of the Program, and downstream levees would be subjected to higher water surface elevations during flood flows.

Though features such as the proposed floodwalls and levees would control flooding within the program area, a secondary effect of such features is the tendency for increased flooding immediately upstream and downstream due to relatively rapid changes in channel hydraulics (e.g., backwater effects, downstream pooling). The Calera Creek elements and the Tularcitos Creek Element are being implemented largely in direct response to the potential upstream flooding impacts of the Lower Berryessa Creek Element. As such, the upstream flooding impacts of the Lower Berryessa Creek Element have been explicitly considered and incorporated into the overall Program. A potential impact common to the Calera Creek, Tularcitos Creek, and Lower Berryessa Creek elements is that they would tend to increase the velocity and magnitude of large flows at a point within Lower Penitencia Creek just upstream of the Lower Berryessa Creek confluence downstream to Interstate 880 (I-880), since more flow would be routed through the channel network as opposed to being stored and attenuated within the existing floodplain. The Lower Penitencia Creek Element would address these downstream impacts by restoring design conditions and constructing a larger floodplain primarily within the District's existing ROW. As described above, as part of the Lower Penitencia Creek Element, the District would perform a hydrologic and hydraulic analysis of the creek from just upstream its confluence with Lower Berryessa Creek to downstream at I-880 in order to determine the anticipated 100-year water surface elevation and hydraulic grade line (HGL) that would result from the implementation of the upstream

elements. Downstream of I-880, water surface elevations are controlled by Coyote Creek and the influence of San Francisco Bay (FEMA, 2009). Based on the above analysis, the potential impact on downstream flooding from all elements would be less than significant.

Best Management Practices: None applicable.

Mitigation: None required.

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3.J Land Use and Planning

This section describes the existing land uses and land use characteristics of the area surrounding the Lower Berryessa Creek Program (Program), policies and regulations guiding development on and around the program area, and the relationship of these policies to the Program. This section also evaluates the Program's conformance with land use regulations. Assessment of program impacts involves describing the existing environmental setting in terms of land uses and characteristics, describing the existing regulatory environment, and identifying if implementation of the Program could have a significant adverse environmental effect on land use.

3.J.1 Environmental Setting

Overview and Program Area

The program area is located in the City of Milpitas (City) in northern Santa Clara County. The City's "Planning Area," which is coterminous with the City's "Sphere of Influence," [1] encompasses approximately 13 square miles of incorporated lands and approximately five square miles of unincorporated territories; and, is divided into two distinct subareas: the Valley Floor Area and the Hillside Area. The Hillside Area comprises approximately 5,600 acres generally east of Piedmont Road, Evans Road, and the northern portion of North Park Victoria Drive. The Hillside Area occupies the steep upland eastern half of the Planning Area and is characterized by open space with chaparral and non-native grasses. The relatively flat Valley Floor Area occupies the western half of the Planning Area which comprises approximately 6,800 acres. It extends from Coyote Creek in the west to Piedmont Road, Evans Road, and the northerly portion of North Park Victoria Drive in the east. This area, which is entirely within the City's incorporated limits, has a predominantly urban characteristic and accommodates the majority of the City's population of approximately 70,000 (California Department of Finance, 2009). As of 2002, over 45 percent of the developed land in the Valley Floor Area was devoted to residential uses and over 24 percent of the developed land was devoted to industrial uses (City of Milpitas, 2002).

The Program's approximate 25,000 linear feet fall entirely within the City of Milpitas city limits, generally within the area bounded by East Calaveras Boulevard to the south, Interstate 880 (I-880) to the west, Dixon Landing Road to the north, and within 1,000 feet of Interstate 680 (I-680) to the east. Almost all of the program activity would occur within the Valley Floor Area.

[1] A city's "sphere of influence" is adopted by the relevant Local Agency Formation Commission and encompasses incorporated and unincorporated territory that represent the city's probable ultimate physical boundaries and service area.

Existing Land Use

In general, land uses surrounding the program area include commercial, including the Milpitas Town Center, office parks and industrial parks; residential, including low- and medium-density single-family as well as high-density multi-family; educational/institutional; and open space areas. The Union Pacific Railroad (UPRR) tracks run in a north-south direction in the western portion of the program area and cross program reaches in two locations. The San Francisco Public Utilities Commission (SFPUC) Hetch Hetchy Aqueduct also runs in a north-south direction through the program area and crosses Berryessa Creek just north (downstream) of North Hillview Drive. Figure 2-1 provides an aerial view of the land uses as well as schools and recreation areas located in the program vicinity (see Chapter 2, Program Description). Land uses surrounding each program reach are listed in Table 3.J-1.

Lower Berryessa Creek Element

The Lower Berryessa Creek Element is surrounded predominately by single-family homes. Exceptions include the industrial park north of Abel Street and the Milpitas Town Center with its associated retail, surface parking, and hospitality land uses. In addition, two parks, Peter T. Gill Memorial Park and Hidden Lake Park, are situated along the creek's eastern and northern banks. The Hetch Hetchy Aqueduct crosses underneath Lower Berryessa Creek just downstream of North Hillview Drive.

Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2

Land uses surrounding the three elements along Calera Creek, (i.e., Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2), include single-family homes, schools, open space, and commercial or office parks. Immediately upstream of its confluence with Berryessa Creek, Calera Creek traverses an industrial park. Single-family dwellings occupy areas on both sides of the creek between North Milpitas Boulevard and Arizona Avenue. Upstream of Arizona Avenue, where Milpitas High School fields and facilities are located along the north bank of the creek, a retail sub-center and more residences align the south side of the creek. North of Escuela Parkway the creek is again surrounded by single-family dwellings, with the Thomas Russell Junior High School fields abutting the creek right-of-way (ROW) just downstream of its intersection with I-680. Upstream of I-680, Calera Creek provides a divide between a low-density residential neighborhood to the west and Higuera Adobe Park and private open space to the east.

Tularcitos Creek Element

Single-family homes characterize land uses along both sides of the Tularcitos Creek Element. The Hetch Hetchy Linear Parkway, a linear park that overlies the SFPUC Hetch Hetchy Aqueduct, extends along the western side of the Tularcitos Creek Element from Peter T. Gill Memorial Park upstream to where the creek channel turns east toward I-680. A small commercial office complex is located north of the creek immediately downstream of its intersection with I-680.

TABLE 3.J-1
SURROUNDING LAND USES AND LAND USE CLASSIFICATIONS

Element and Reach	Surrounding Land Uses	General Plan Land Use Classifications and location in relation to the creek reach
Lower Berryessa Creek Element		
Reach A	• Single-family houses	MFH (north) SFL (south)
Reach B	• Single-family houses and Milpitas Materials, Co. (manufacture and wholesale concrete mixtures and related products) • Commercial building (occupied by an automotive parts and services, framing manufacture and retail, North Valley Christian Fellowship church) • Nichols Manufacturing, Inc. (welding, auto and motorcycle repair)	SFL (west) MW (east)
Reach C	• ROW surrounding the UPRR • Single-family houses • Pump station at the confluence with Wrigley Ford Creek	SFL (west) MFM (east) MW (south)
Reach D	• Single-family houses separated from the creek by Erie Place • Hidden Lake Park • Milpitas RV and Self Storage • Private recreational facility • Playground and trail along the outside edge of the west levee	MFM (east and west) POS (east) MW (west)
Reach E	• Single-family houses separated from the creek by Folsom Circle, Edgewater Drive, Paseo Refugio and Sutterwind Drive • Multi-family houses separated from the creek by surface parking (Town Center shopping center beyond) • Peter T. Gill Memorial Park separated from the creek by Paseo Refugio	MFM (north and south) SFL (north) TC (south) POS (north)
Reach F	• Peter T. Gill Memorial Park and single-family houses separated from the creek by Paseo Refugio • Single-story commercial	SFL (north) POS (north) TC (south)
Reach G	• Single-family houses separated from the creek by Paseo Refugio • Embassy Suites Milpitas Silicon Valley separated from the creek by surface parking • Single-story commercial • Surface parking and N Hillview Drive	SFL (north) TC (north and south)
Lower Calera Creek Element		
Reach A	• Single-family houses • ROW surrounding the UPRR • Milpitas Materials, Co. (manufacture and wholesale concrete mixtures and related products)	MFH (north) SFL (south) MW (north and south)
Reach B	• Single-family houses • Multi-family townhomes separated from the creek by Jacklin Court • Milpitas High School baseball fields • Retail center (gym, restaurants, video store, surface parking)	SFL (north and south) SMD (south) PF (north) RSC (south)
Upper Calera Creek Element 1		
Reach A	• Milpitas High School buildings • Single-family houses	PF (north) SFL (south)
Reach B	• Single-family houses	SFL (north and south)
Upper Calera Creek Element 2		
Reach A	• Thomas Russell Middle School fields • Single-family houses	PF (west) SFL (east)
Reach B	• Single-family houses • Higuera Adobe Park • Private open space	SFL (west) POS (east) HVL (east)

TABLE 3.J-1 (Continued)
SURROUNDING LAND USES AND LAND USE CLASSIFICATIONS

Element and Reach	Surrounding Land Uses	General Plan Land Use Classifications and location in relation to the creek reach
Tularcitos Creek Element		
	• Peter T. Gill Memorial Park • Hetch Hetchy Linear Parkway • Single-family houses	POS (west) SFL (east)
Lower Penitencia Creek Element		
	• Single-family houses • Single-family houses separated from the creek by Palisades Drive • Multi-family townhomes separated from the creek by Cll Del Sol • Multi-family townhomes • Apartment Complexes • Commercial/Manufacturing building (occupied by Solyndra, a solar photovoltaic systems manufacturer) • BAPS Shri Swaminarayan Mandir Hindu Temple • Living World Korean Baptist Church • Commercial/Office building • Detention Basin and Pump Station	MFH (east) INP (west)

NOTES: HVL = Hillside Very Low Density
INP = Industrial Park
MFH = Multi-Family High Density
MFM = Multi-Family Medium Density
MW = Manufacturing and Warehousing
PF = Public Facility
POS = Parks and Open Space
RSC = Retail Sub-Central
SFL = Single Family Low Density
SMD = Single Family Medium Density
TC = Town Center

SOURCE: City of Milpitas, 2002; City of Milpitas, 2009; field reconnaissance; aerial photographs

Lower Penitencia Creek Element

Residential subdivisions occupy the land east of the Lower Penitencia Creek Element. High-density single-family residential development characterizes the area near the confluence with Lower Berryessa Creek northward approximately to Aspenridge Drive. North of the single-family dwellings, the east side of the creek is characterized by three-story townhomes and apartment complexes. This area of high-density multi-family dwellings surrounds the 11-acre Dixon-Landing Park. An industrial park, including structures intended for industrial use and associated parking, is located along the western bank of the Lower Penitencia Creek Element. However, occupants within this industrial park vary and include some office uses, institutional uses (temple and church), a hotel, and small retail (gas station and coffee shop).

3.J.2 Regulatory Setting

Federal and State Regulations

There are no federal or state land use regulations that apply to the Program.

Local Plans and Policies

Milpitas General Plan

All elements are within the District ROW and under District ownership. However, it is the District's practice to work closely with local jurisdictions and neighboring communities during project planning and to conform to local land use plans and policies to the extent possible. As the elements are entirely within the Milpitas City Planning Area and the program area is considered within the City's planning documents, program conformance with the Milpitas General Plan is discussed herein.

The City of Milpitas General Plan (General Plan), which consists of its comprehensive update in 1994 and subsequent minor amendments, establishes inclusive, long-term land use policies for the City. The General Plan includes the following topics: Land Use, Circulation, Open Space and Environmental Conservation, Seismic and Safety, Noise, and Housing.

Land Use Element

The General Plan Land Use Element, together with the Land Use Map, provides the framework for development within the City's planning area. It specifies a range of permitted population densities and building intensities through the designation of lands into land use classifications. The permitted population density and building intensity reflect the service-limited carrying-capacity established by other elements of the General Plan.

Land Use Classification. According to the General Plan Land Use Map, the program area abuts 11 land use classifications. Table 3.J-1 lists the land use classifications in the program area by reach. In general, the land surrounding the creeks is developed with uses consistent with the existing land use classifications and zoning. Therefore, it is reasonable to assume that future expansion and redevelopment in the program area would be similar to what exists today.

Urban Growth Boundary/ Urban Services Boundary. In 1998, the City of Milpitas passed a ballot initiative, Measure Z, establishing an Urban Growth Boundary (UGB) to be in effect for 20 years. Measure Z amended the City's General Plan by creating a growth boundary located generally at the base of the hillsides. The purpose of the UGB is to ensure preservation of identified non-urban, open-space, and other areas by establishing a line beyond which no or limited urban land uses can be approved for development during the term of the initiative. Beyond the UGB are the hillsides, in which development is restricted according to a slope density formula that dictates minimum lot sizes.

Measure Z further directed the City to apply to the Local Agency Formation Commission (LAFCO) to retract the Urban Service Area to a location coterminous with the UGB. The Urban Service Area boundary designates the areas within which new or expanded city services, such as water supply, road maintenance, police, fire, and emergency medical services, may be approved. According to the General Plan, "city service" includes flood control services. In August of 2006, LAFCO adopted the proposed modification to the Urban Service Area. Subsequently, the Planning Commission and Board of Supervisors

recommended and adopted changes to the parcels removed from the Urban Service Area such that each has a "Hillside" land use classification and corresponding "HS, Hillside" base zoning (Santa Clara County, 2010).

General Plan Land Use Element Guiding Principles and Implementing Policies. The Land Use Element of the General Plan includes the following guiding principles and implementing policies that are applicable to the Program:

> *2.a-G-1:* Maintain a land use program that balances Milpitas' regional and local roles by providing for a highly amenable community environment and a thriving regional industrial center.
>
> *2.a-G-2:* Maintain a relatively compact urban form.
>
> *2.a-G-5:* A park-like setting will be created by a series of local parks, school sites, and a greenway system laced throughout all living areas.
>
> *2.a I-2:* Promote development within the incorporated limits which acts to fill-in the urban fabric rather than providing costly expansion of urban services into outlying areas.
>
> *2.a I-2.1:* Maintain an Urban Growth Boundary in the hillside area, as shown on the General Plan Land Use Map, that shall be effective until December 31, 2018 and, except as otherwise provided below, shall not be moved until that time.
>
> > *A. City Services Prohibited in Area Outside the Urban Growth Boundary and Outside the City Limits [excerpt]*: The City shall not process, approve or authorize construction or provision of any City service or City service extension to any property or people in that area located both outside of the Urban Growth Boundary and outside of the city limits of the City of Milpitas, except as expressly provided in this Policy 2.a I-2.1A. "City service" means any water, sanitary sewer, storm drain, flood control, road maintenance, sidewalk maintenance, police, fire or emergency medical service, including construction of related infrastructure that the City, its agents, its departments, or its contractors, provides to any property or people within the City limits. …

In addition to the above, consistency of the Program with applicable principles and policies included in the Circulation, Open Space and Environmental Conservation, Seismic and Safety, Noise, and Housing Elements of the General Plan is analyzed in the appropriate sections of Chapter 3.

Milpitas Specific Plans

There are no City of Milpitas specific plans applicable to the program area.

3.J.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on land use and planning if it were to:

- Physically divide an established community;
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the program (including but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect; or
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

Approach to Analysis

The information presented in this section is based on the City of Milpitas General Plan and related maps, as well as information compiled from site visits conducted by ESA in September 2009 and April 2010. The analysis of land use impacts for the Program addresses the Program's potential to create new physical barriers within existing communities and issues of consistency with adopted land use plans and policies. The analysis related to a physical division or disruption of an existing community is based on an assessment of the existing land uses, characteristics in the surrounding area, and the extent to which the Program would introduce new land uses or alter existing land uses.

The analysis with regard to consistency with land use plans is based upon a review of the Milpitas General Plan principles and policies that are applicable to the Program and the program area.

No Impact Significance Determinations

Based on the location of the Program, there would be no impact related to the following criterion:

- *Conflict with any applicable habitat conservation plan or natural community conservation plan.* The Santa Clara Valley Habitat Plan/Natural Community Conservation Plan (SCV HCP/NCCP), covering approximately 62 percent of the Santa Clara County land area, is currently under development by a partnership of wildlife agencies and local partners, including the District. The current schedule shows certification of the EIS/EIR and completion of the final HCP/NCCP in 2011 (Santa Clara County, 2011). However, the program area is not included in the SCV HCP/NCCP study area.

  The District is currently preparing the Three Creeks Habitat Conservation Plan for Water Supply Operations (Three Creeks HCP) to protect and enhance habitats for a suite of aquatic species and provide for the conservation of species impacted by its on-going water supply operations in the northern Santa Clara Valley. The Three

Creeks HCP would apply to operations within three watersheds: Coyote, Guadalupe, and Stevens Creek. While the program area is in the Coyote Creek watershed, it is not included in the Three Creeks HCP. Currently, the environmental impact report / environmental impact statement (EIR/EIS) is being prepared for the Three Creeks HCP. There are no adopted HCPs or NCCPs that are applicable to the program area; therefore, there would be no impact related to conflicts with any applicable HCP or NCCP. This significance criterion is not discussed further.

Impact Summary

Table 3.J-2 provides a summary of land use and planning impacts by element and implementation phase (construction and operations).

TABLE 3.J-2
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL LAND USE IMPACTS

	Impact 3.J-1		Impact 3.J-2	
	Division of an Established Community		Consistency with Plans and Policies	
	construction	operations	construction	operations
Project-Level Elements				
Lower Berryessa Creek Element	LTS	LTS	LTS	LTS
Lower Calera Creek Element	LTS	LTS	LTS	LTS
Program-Level Elements				
Upper Calera Creek Element 1	LTS	LTS	LTS	LTS
Upper Calera Creek Element 2	LTS	LTS	LTS	LTS
Tularcitos Creek Element	LTS	LTS	LTS	LTS
Lower Penitencia Creek Element	LTS	LTS	LTS	LTS

LTS = Less than Significant Impact

Impacts and Mitigation Measures

Impact 3.J-1: Physical division of an established community. (Less than Significant)

Construction and Operations Impacts

All Elements

The creek corridors, flood protection improvements, and associated maintenance activities are an existing part of the community. The Program would not introduce new land uses or result in any permanent land use changes. Because the Program would continue to occupy the same area as existing facilities, the Program would not physically divide any established communities, and this impact would be less than significant.

Best Management Practices: None required.

Mitigation: None required.

Impact 3.J-2: Conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. (Less than Significant)

Construction Impacts

All Elements

Program construction activities would not conflict with the applicable principles and policies in the General Plan Land Use Element. As noted in Section 3.J.2, Regulatory Setting consistency of the Program with applicable principles and policies included in the General Plan Circulation, Open Space and Environmental Conservation, and Noise Elements is analyzed in the appropriate sections of Chapter 3. Program construction would not result in conflicts with the applicable principles and policies in the General Plan Land Use Element or with any other applicable land use plan, policy, or regulation related to environmental effects. Therefore, the Program construction-related impact with respect to land use conflicts is less than significant.

Operations Impacts

All Elements

Program improvements would be consistent with the applicable principles and policies contained within the General Plan Land Use Element. The Program would improve flood protection on land fully developed with residential, commercial, recreational, institutional, and industrial uses. For example, as shown in Figure 3.I-1 of Section 3.I, Hydrology and Water Quality, without the Program, flooding from breaches along Upper Calera Creek Element 2 would occur over land within Higuera Adobe Park and southward along the eastern side of I-680. As such, the Program would facilitate the City's ability to achieve General Plan land use goals relating to protecting and guiding development in its urban areas. Therefore, the Program's operational impacts with respect to land use conflicts is less than significant.

Best Management Practices: None required.

Mitigation: None required.

3.J.4 References

California Department of Finance, Table E-1, City/County Population Estimates with Annual Percent Change, January 1, 2008 and 2009, May 2009.

City of Milpitas, City of Milpitas General Plan, Land Use Element, 1994 as amended through 2002.

City of Milpitas, General Plan Map, January, 2009.

Santa Clara County, Government Center, Santa Clara Valley HCP/NCCP Official Website, http://www.scv-habitatplan.org/www/default.aspx, accessed February 22, 2011.

Santa Clara County, Office of Planning, The Milpitas Urban Growth Boundary, Urban Service Area Modification, and Related Amendment to the County General Plan and Zoning Maps, Official Website, http://www.sccvote.org/portal/site/planning/planningchp?path=%2Fv7%2FPlanning%2C%20Office%20of%20(DEP)%2FPlanning%20Studies%2FOther%20Studies%20%26%20Projects%2FMilpitas%20USA%20Modification, accessed April 14, 2010.

3.K Noise

This section describes the environmental and regulatory setting of the Program with respect to existing noise levels and the exposure of people, especially sensitive individuals, to excessive noise and vibration levels that would be generated by the construction and operations of the Program. Background information on environmental acoustics, including definitions of terms commonly used in this noise analysis, is also provided. The Santa Clara Valley Water District (District) best management practices (BMPs) designed to avoid or minimize impacts are identified. If program-related impacts are found to exceed thresholds of significance, mitigation measures are identified.

3.K.1 Introduction

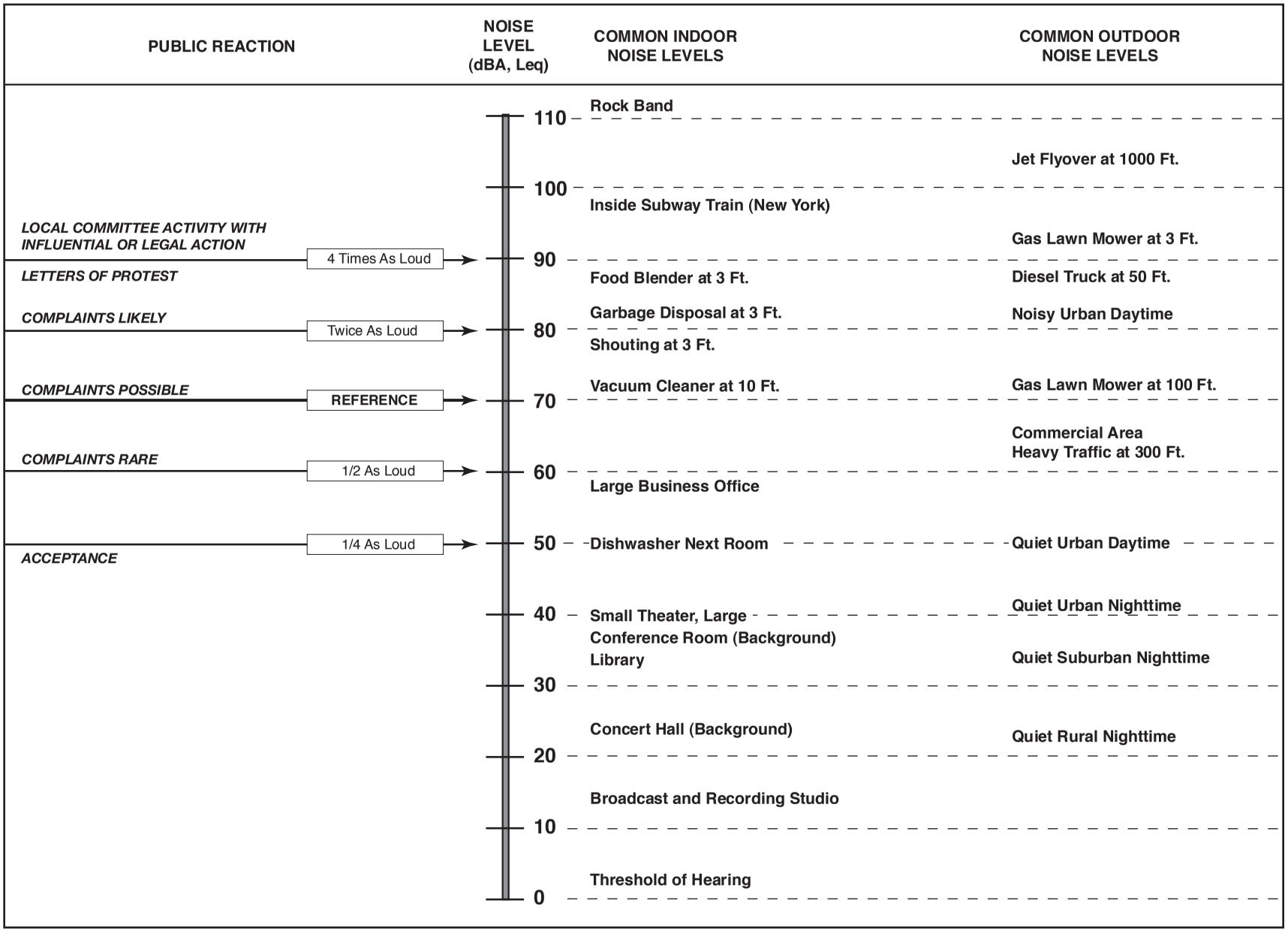
Noise Principles

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound is characterized by various parameters that include the sound pressure level or energy content and the frequency. The sound pressure level, the most common descriptor used to characterize the loudness of sound, is measured in decibels (dB), a logarithmic scale on which zero dB corresponds roughly to the threshold of human hearing and 120 to 140 dB corresponds to the threshold of pain. The decibel scale is useful because the human ear perceives sound in a nonlinear fashion.

The typical human ear also is not equally sensitive to all frequencies of the audible sound spectrum. Therefore, to assess potential noise impacts on people, sound is measured using an electronic filter that de-emphasizes the frequencies below 1,000 hertz (Hz) and frequencies above 5,000 Hz in a manner that corresponds to the human ear's decreased sensitivity to low and extremely high frequencies. This method is referred to as A-weighting and the sound pressure levels thus measured are expressed in units of A-weighted decibels (dBA). A-weighting is typically applied to community noise measurements, because it reflects people's perceptions of sound levels.

Noise Exposure and Community Noise

An individual's noise exposure is a measure of the noise experienced by the individual over a period of time. A noise level is a measure of noise at a given instant, but noise levels typically vary over time. Community noise includes many distant, unidentifiable noise sources that constitute a relatively stable background noise exposure that changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources and changes in atmospheric conditions. In addition to the slowly changing background noise at any given place, the community noise level may include identifiable local noise sources, such as machinery. The noise level at any given place also includes short-duration single-event noise from identifiable sources (e.g., aircraft flyovers, motor vehicles, sirens). Some representative noise sources and their corresponding sound levels (in dBA) are shown in Figure 3.K-1.



SOURCE: Caltrans Transportation Laboratory Noise Manual, 1982; and modification by ESA

Figure 3.K-1
Effects of Noise on People

These successive additions of sound to the community noise environment vary the community noise level over time; therefore, to legitimately characterize the community noise environment and evaluate noise impacts, it is necessary to measure noise exposure over a period of time. The time-varying character of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The equivalent sound level is the average noise exposure level over a specified time period of interest, typically one hour.

L_{max}: The instantaneous maximum noise level measured during the period of interest.

DNL: The energy average of A-weighted sound levels over a 24-hour period, including a "penalty" to account for the greater sensitivity of most people to nighttime noise. Noise that occurs between 10 p.m. and 7 a.m. is weighted (penalized) by adding 10 dBA to account for the greater annoyance of such noise. The DNL is also referred to as L_{dn}.

CNEL: Community Noise Equivalent Level (CNEL) is the average A-weighted noise level during a 24-hour day with a 5-decibel penalty in the evening (from 7 p.m. to 10 p.m.), and a 10-decibel penalty in the night (between 10 p.m. and 7 a.m.).

The DNL and CNEL are primarily used for transportation noise assessments. These descriptors are well-correlated with public annoyance due to transportation noise sources. Traffic noise is also described using the DNL and hourly noise descriptors.

Effects of Noise on People

The effects of noise on people can be placed into three categories:

- *Interference with activities such as speech, sleep, and learning* – The thresholds for speech interference indoors are about 45 dBA if the noise is steady and about 55 dBA if the noise is fluctuating. Outdoors, the thresholds are about 15 dBA higher. Interior residential standards for multi-family dwellings are set by the State of California at 45 DNL. The standard is designed for sleep and speech protection, and most jurisdictions apply the same criterion for all residential uses.

- *Subjective effects of annoyance, nuisance, and dissatisfaction* – Based on attitude surveys used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas, the main causes for annoyance are interference with speech, radio, and television; house vibrations; and interference with sleep and rest. The DNL as a measure has been found to provide a valid correlation of noise level and the percentage of people annoyed. Three aspects of community noise are most important in determining subjective response: the level of sound; the frequency composition or spectrum of the sound; and the variation of sound level with time.

- *Physiological effects such as hearing loss or sudden startling* – While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise, but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

Environmental noise typically produces effects in the first two categories. Workers at industrial plants often experience noise in the last category. There is no completely satisfactory way to measure the subjective effects of noise or the corresponding reactions of annoyance and dissatisfaction. A wide variation exists in the individual thresholds of annoyance, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

Thus, an important way of predicting a human reaction to a new noise environment is the way the new noise compares to the existing noise levels to which one has adapted: the so called "ambient noise" level. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived;
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference when the change in noise is perceived but does not cause a human response;
- A change in level of at least 5 dBA is required before any noticeable change in human response would be expected; and
- A 10-dBA change is subjectively heard as approximately a doubling in loudness, and can cause an adverse response.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. A ruler is a *linear* scale: it has marks on it corresponding to equal quantities of distance. One way of expressing this is to say that the ratio of successive intervals is equal to one. A *logarithmic* scale is different in that the ratio of successive intervals is not equal to one. Each interval on a logarithmic scale is some common factor larger than the previous interval. A typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1,000, 10,000, etc., doubling the variable plotted on the x-axis. The human ear perceives sound in a non-linear fashion; hence, the decibel scale was developed. Because the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion; rather, they combine logarithmically. For example, if two identical noise sources produce noise levels of 50 dBA, the combined sound level would be 53 dBA, not 100 dBA.

Noise Attenuation

Sound level naturally decreases as a receptor moves further away from the source. This basic attenuation rate is referred to as the *geometric spreading loss*. The basic rate of geometric spreading loss depends on whether a given noise source can be characterized as a point source or a line source. Point sources of noise, including stationary mobile sources such as idling vehicles or onsite construction equipment, attenuate (lessen) at a rate of approximately 6.0 dBA per doubling of distance from the source. In many cases, noise attenuation from a point source increases by 1.5 dB from 6.0 dB to 7.5 dB for each doubling of distance due to ground absorption and reflective wave canceling. These factors are

collectively referred to as *excess ground attenuation*. The basic geometric spreading loss rate is used where the ground surface between a noise source and a receiver is reflective, such as parking lots or a smooth body of water. The excess ground attenuation rate (i.e., 7.5 dB per doubling of distance) is used where the ground surface is absorptive, such as soft dirt, grass, or scattered bushes and trees. No added ground attenuation is assumed for hard sites, so the changes in noise levels over distance (drop-off rate) is simply the result of the geometric spreading of the noise from the source.

Widely distributed noises such as a street with moving vehicles (i.e., a "line" source) would typically attenuate at a lower rate of approximately 3.0 dB for each doubling of distance between the source and the receiver. If the ground surface between source and receiver is absorptive rather than reflective, the nominal rate increases by 1.5 dB to 4.5 dB for each doubling of distance. Atmospheric effects, such as wind and temperature gradients, can also influence noise attenuation rates from both line and point sources of noise. However, unlike ground attenuation, atmospheric effects are constantly changing and difficult to predict. Noise from construction sites tends to have characteristics of "point" sources, so attenuation would range between 6.0 and 7.5 dBA per doubling of distance.

Trees and vegetation, buildings, and barriers reduce the noise level that would otherwise occur at a given receptor distance. However, for a vegetative strip to have a noticeable effect on noise levels it must be dense and wide. For example, to attenuate traffic noise by 5 dB a stand of trees must be at least 100 feet wide and dense enough to completely obstruct a visual path to the roadway (Caltrans, 1998). A row of structures can shield more distant receivers depending upon the size and spacing of the intervening structures and site geometry. Similar to vegetative strips discussed above, noise barriers, which can include natural topography and soundwalls, reduce noise by blocking the line of sight between the source and receiver. Generally, a noise barrier that breaks the line of sight between source and receiver will provide at least a 5-dB reduction in noise.

Vibration

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The decibel notation acts to compress the range of numbers required to describe vibration (FTA, 2006). Typically, groundborne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source. Older masonry structures are typically at risk for architectural damage from vibration. In addition, sensitive receptors such as people (especially residents, the elderly, and the sick) are more sensitive to vibration from equipment.

Physical Setting

Noise Sources and Levels

Transportation sources, such as automobiles, trucks, trains, and aircraft, are the principal sources of noise in urban environments like the program area. Along major transportation corridors, noise levels can reach 80 DNL while along arterial streets, noise levels typically range from 65 to 70 DNL. Industrial and commercial equipment and operations also contribute to the ambient noise environment in their vicinities.

The program area is bounded by East Calaveras Boulevard to the south, Interstate 880 (I-880) to the west, Dixon Landing Road to the north, and within 1,000 feet of Interstate 680 (I-680) to the east. North Milpitas Boulevard and Jacklin Road cross through the program area. These transportation noise sources generally dominate the noise environment in the program area. Other noise sources include commercial activity from the Milpitas Town Center and train activity along the Union Pacific Railroad (UPRR) tracks that run in a north-south direction in the western portion of the program area and cross program reaches in two locations.

Existing Vibration Sources

Similar to the environmental setting for noise, the vibration environment in the program area is dominated by traffic on nearby roadways and train activity on UPRR tracks. Heavy trucks can generate groundborne vibrations that vary depending on vehicle type, weight, and pavement conditions. As heavy trucks typically operate on major streets, existing groundborne vibration in the program vicinity is largely related to heavy truck traffic on I-880 and I-680, Jacklin Road, and North Milpitas Boulevard. However, traffic-related vibration levels adjacent to these roadways are typically attenuated to levels that are not perceptible.

Sensitive Receptors

Human response to noise varies considerably from one individual to another. Effects of noise at various levels can include interference with sleep, concentration, and communication; physiological and psychological stress; and hearing loss. Given these effects, some land uses are considered more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure duration and insulation from noise) and the types of activities typically involved. In general, residences, motels and hotels, schools, libraries, churches, hospitals, nursing homes, auditoriums, and parks and other outdoor recreation areas are most sensitive to noise. Commercial and industrial uses are considered the least noise-sensitive.

Lower Berryessa Creek Element

The Lower Berryessa Creek Element is almost entirely surrounded by single-family homes. In addition to residential receptors, two parks—Peter T. Gill Memorial Park and Hidden Lake Park—are situated along the creek's eastern and northern banks, the Embassy Suites Milpitas Silicon Valley hotel is adjacent to and west of Reach G, and the Curtner Elementary School is located approximately 750 feet west of Reach G.

Lower Calera Creek Element, Upper Calera Creek Element 1, and Upper Calera Creek Element 2

The Calera Creek portion of the Program is divided into three elements: the Lower Calera Creek Element, the Upper Calera Creek Element 1, and the Upper Calera Creek Element 2. All three elements are primarily surrounded by single-family residences. The Lower Calera Creek Element and Upper Calera Creek Element 1 are both located adjacent to Milpitas High School. Thomas Russell Middle School is located adjacent to Upper Calera Creek Element 2 while Marshall Pomeroy Elementary is located approximately 1,000 feet northwest of this element. The Jensen School for the Performing Arts is located approximately 1,000 feet north of the Lower Calera Creek Element and the Lang Learning Center is approximately 1,000 feet east of Upper Calera Creek Element 1. The Higuera Adobe Park is adjacent to and west of Reach B.

Tularcitos Creek Element

The Tularcitos Creek Element is surrounded by single-family homes, as well as the Hetch Hetchy Linear Parkway and the Peter T. Gill Memorial Park. The Kinder Care Learning Center is less than 500 feet north of the northern stretch of the Element.

Lower Penitencia Creek Element

The east side of the Lower Penitencia Creek Element is within 50 feet of single- and multi-family homes from its confluence with Lower Berryessa Creek downstream to California Circle. The western bank is adjacent to more commercial and industrial buildings, many of which are currently vacant. The Lower Penitencia Creek is between 50 feet and 100 feet away from places of worship including the BAPS Shri Swaminarayan Mandir temple, the Living Word Korean Baptist Church, and the Everlasting Private Foundation Church.

3.K.3 Regulatory Setting

As a general matter, federal and state agencies regulate mobile noise sources while local agencies regulate stationary noise sources and activities. Federal and state agencies regulate noise from mobile sources by establishing and enforcing noise standards on vehicle manufacturers. Local agencies regulate noise through three principal means: enforcement of local noise ordinances; implementation of noise-related policies contained in the local general plan, such as noise / land use compatibility guidelines; and enforcement of noise-related conditions on permit approvals.

Most cities and counties have adopted general plans. California Government Code Section 65302 lists the noise element as one of the seven essential elements cities and counties must include as part of their general plans. The general plan noise element is a planning document that contains goals and policies to ensure compatible land use development with respect to noise. Cities and counties typically adopt noise ordinances for the implementation of the policies and standards in the general plan. The program area is in City of Milpitas. The City of Milpitas General Plan (General Plan) policies and noise ordinance standards would be applicable to construction and operations of the Program.

Federal and State Regulations

There are no state or federal laws, regulations, or codes regarding noise and vibration applicable to the program area.

Local Plans, Policies, and Ordinances

City of Milpitas General Plan Noise Element

The City of Milpitas General Plan Noise Element contains principles and policies to reduce or eliminate the effects of excessive noise in the community (City of Milpitas, 2002). The Noise Element also contains Noise Compatibility Standards to help protect public health and safety and prevent disruption of certain human activities. The City's noise compatibility standards are derived from guidelines published by the California Office of Planning and Research and match different land uses with an appropriate range of noise levels.

Goals contained in the General Plan strive to improve the overall environment in the city by reducing annoying and physically harmful levels of noise and maintaining appropriate noise conditions in all areas of the City.

The General Plan Noise Element contains the following principles and policies that would apply to the Program:

Guideline Principles

6-G-1: Maintain land use compatibility with noise levels similar to those set by State guidelines.

6-G-2: Minimize unnecessary, annoying, or injurious noise.

Implementing Policies

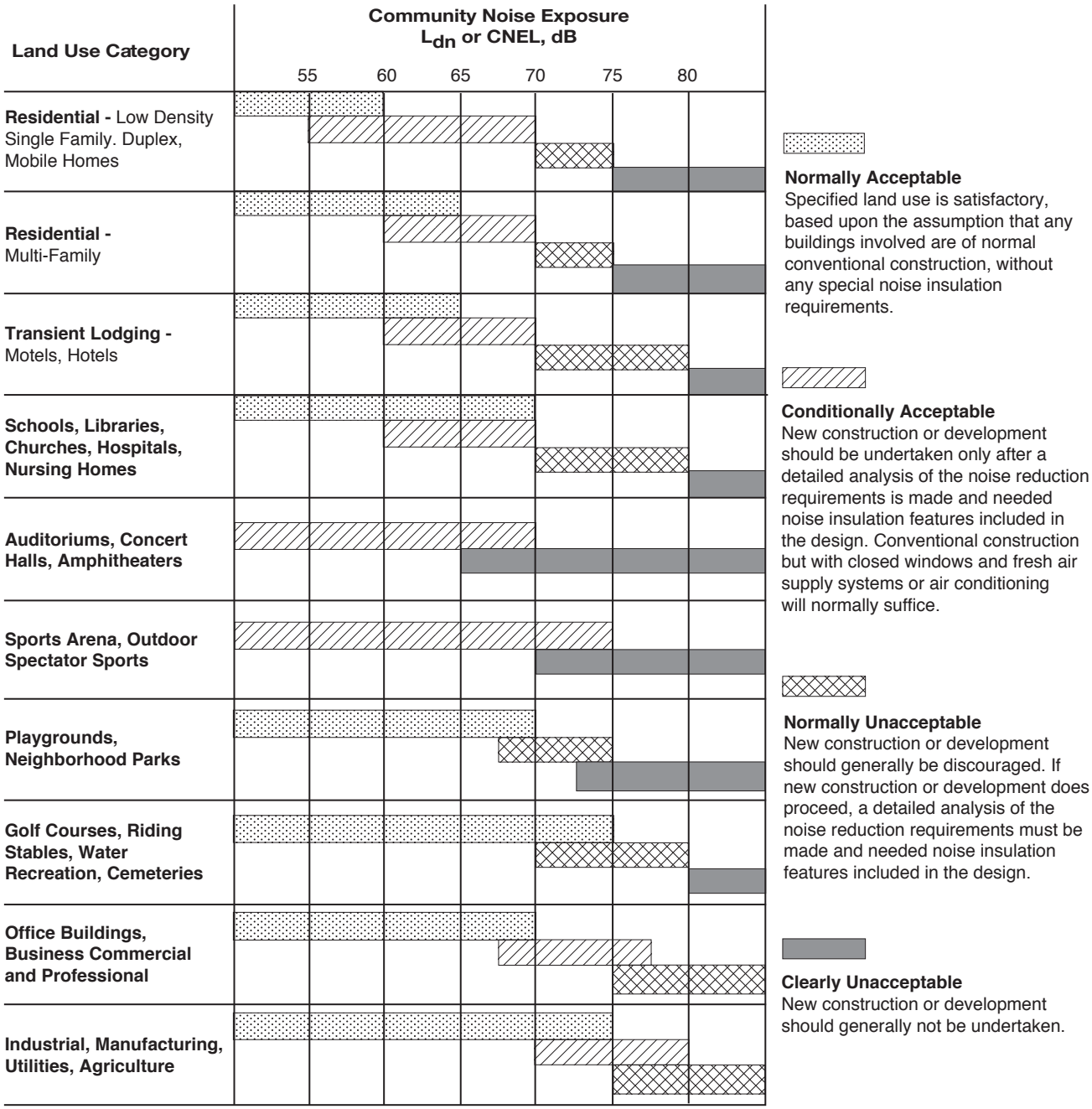
6-I-1: Use guidelines in the Noise and Land Use Compatibility Table (shown in Figure 3.K-2) as review criteria for development projects.

6-I-6: Assist in enforcing compliance with noise emissions standards for all types of vehicles, established by the California Vehicle Code and by federal regulations, through coordination with the Milpitas Police Department, Santa Clara County Sheriff's Department, and the California Highway Patrol.

6-I-7: Avoid residential DNL exposure increases of more than 3 dB or more than 65 dB at property line, whichever is more restrictive.

6-I-9: Enforce the provisions of the City of Milpitas Noise Ordinance and the use of established truck routes.

6-I-10: Reduce the noise impact in existing residential areas where feasible. Noise mitigation measures should be implemented with the cost shared by public and private agencies and individuals.



SOURCE: City of Milpitas, 1994

Lower Berryessa Creek Program . 201425

Figure 3.K-2
Land Use Compatibility Chart for Community Noise

6-I-12: New noise-producing facilities introduced near sensitive land uses which may increase noise levels in excess of "acceptable" levels will be evaluated for impact prior to approval; adequate mitigation at the noise source will be required to protect noise-sensitive land uses.

6-I-13: Restrict the hours of operation, technique, and equipment used in all public and private construction activities to minimize noise impact. Include noise specifications in requests for bids and equipment information.

In addition to regulating noise through implementation of General Plan policies, local jurisdictions regulate noise through enforcement of local ordinance standards. These standards generally relate to noisy activities (e.g., use of loudspeakers and construction) and stationary noise sources and facilities (e.g., air conditioning units and industrial activities). Generally, federal and state laws preempt local agencies from establishing noise standards for transportation-related noise sources, such as aircraft, ships, trains, and motor vehicles.

City of Milpitas Noise Abatement Ordinance

Chapter 213 of the Milpitas Municipal Code contains regulations that apply to noise abatement. Section V-213-3 of the Code states that "it shall be unlawful for any person in any district zoned for residential use (under the provisions of Chapter 10, Title XI of the Milpitas Municipal Code) to make, continue or cause to be made or continued, any disturbing noise between the hours of 10 p.m. in the evening to 7 a.m. in the morning." Disturbing noise is defined as any sound or vibration caused by sound which occurs with such intensity, frequency or in such a manner as to disturb the peace and quiet of any person.

The section also includes specific regulations that apply to construction activities. It requires that all construction activities and construction-related operations, including delivery of construction materials, supplies, or improvements on or to a construction site, shall be restricted to the hours between 7 a.m. and 7 p.m. on weekdays and weekends. No construction work shall be conducted or performed on holidays (City of Milpitas, 2008).

3.K.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on noise if it were to:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies;
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels;
- Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;

- For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels; or
- For a project within the vicinity of a private airstrip, expose people residing or working in the project area to excessive noise levels.

Approach to Analysis

Noise impacts resulting from construction and operation of the six elements were evaluated by comparing anticipated noise levels to the guidelines set forth in the City's General Plan Noise Element and Noise Abatement Ordinance. Specifically, construction noise would be considered significant if construction activities would violate the City of Milpitas Noise Abatement Ordinance, which requires that all construction activities are restricted between the hours of 7 a.m. and 7 p.m. and prohibited on holidays. For the purposes of this analysis, construction noise level increases would be considered substantial if they would occur outside of this restricted time period. Additionally, although the City's Noise Abatement Ordinance does not have quantitative standards for construction noise, construction noise levels could be disruptive to nearby receptors if noise levels substantially exceed the existing ambient levels, and are evaluated herein.

For operations, the Program would result in a significant long-term impact if program-related DNL noise levels would be greater than those considered normally acceptable as defined by the City's Noise Compatibility Standards (see Figure 3.K-2) or result in increases of more than 3 dBA at nearby residential property lines, whichever is more restrictive. For example, program operations-related DNL noise levels of over 60 dBA at single-family residences would be considered a significant impact.

Groundborne vibration impacts were evaluated by identifying potential vibration sources, assessing their impacts to surrounding sensitive uses based on the distance separating them, and making a significance determination. Program-related vibration would be considered significant if it would exceed the criteria published by the California Department of Transportation (Caltrans), including 0.2 inches per second for the protection of fragile buildings and interference or annoyance to human sensitive receptors (Caltrans, 2002).

As noted in Chapter 2, Program Description, the District's noise-related best management practices (BMPs) are incorporated into the design for both construction and operations. The District BMPs are measures that would be implemented by the District as part of the Program for the purpose of minimizing or avoiding adverse environmental impacts.

No Impact Significance Determinations

The Program would not result in impacts related to the following significance criteria; these criteria are not discussed in the impact analysis for the following reasons:

> *Excessive noise levels in the vicinity of an airport and/or private airstrip.* The nearest airport to the Program is the San José International Airport, which is located approximately four miles from the program area. Moffett Federal Airfield is located

approximately seven miles from the program area and Reid-Hillview Santa Clara Airport is located eight miles from the program area. There are no private airstrips within the vicinity of the Program. Because the Program is located more than two miles from an airport, impacts related to excessive noise levels in the vicinity of an airport are not applicable and there would be no impact.

Impact Summary

Table 3.K-1 provides a summary of noise and vibration impacts by element and implementation phase (construction and operations). Table 3.K-2 provides a summary of applicable mitigation measures by element and implementation phase.

Impacts and Mitigation Measures

Impact 3.K-1: Short-term and permanent increases in ambient noise levels at nearby noise receptors could exceed established standards and ordinances. (Less than Significant with Mitigation)

Construction Impacts

All Elements

Construction, although typically short-term, can be a significant source of noise. Construction is most significant when it takes place near sensitive land uses, occurs at night, and/or occurs in early morning hours. For most construction activities, the dominant noise source is usually an internal combustion engine. Stationary equipment, such as pumps, generally operates in one location for one or more days at a time. Mobile off-road equipment such as bulldozers and loaders would move around the construction site while on-road trucks and automobiles would transport equipment, material, and workers to and from the construction area. Noise generated by construction activities generally fluctuates depending on the construction phase, the quantity and type of equipment in use, and the duration of use. The impact of construction noise on a receptor would depend upon the level of construction activity on a given day and the related noise generated by that activity; the distance between construction activities and the noise-sensitive use; the presence or absence of barriers between the noise source and the receptor; and the ambient noise levels in the area. Table 3.K-3 shows typical noise levels associated with various types of construction-related machinery that would likely be required for construction of the Program.

Program construction would temporarily increase ambient noise levels in the program vicinity over the duration of construction. Individual construction activities that would be associated with the Lower Berryessa Creek Element and the Lower Calera Creek Element would last between one and four months (see Table 2-2 in Chapter 2, Program Description). Construction activities for Upper Calera Creek Element 1, Upper Calera Creek Element 2, Tularcitos Creek Element, and Lower Penitencia Creek Element would likely have similar durations. For all elements, construction activities spanning seven months or greater would be implemented over two construction seasons, which are typically from mid-April to mid-October. In addition, equipment operation during each workday would be intermittent and would vary depending on

TABLE 3.K-1
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL NOISE AND VIBRATION IMPACTS

	Impact 3.K-1		Impact 3.K-2	
	Increase in Noise Levels		Exposure to Groundborne Vibration or Noise	
	construction	operations	construction	operations
Project-Level Elements				
Lower Berryessa Creek Element	SM	LTS	LTS	LTS
Lower Calera Creek Element	SM	LTS	LTS	LTS
Program-Level Elements				
Upper Calera Creek Element 1	SM	LTS	LTS	LTS
Upper Calera Creek Element 2	SM	LTS	LTS	LTS
Tularcitos Creek Element	SM	SM	LTS	LTS
Lower Penitencia Creek Element	SM	LTS	LTS	LTS

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact

TABLE 3.K-2
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.K-1a		Measure 3.K-1b		Measure 3.K-1c		Measure 3.K-1d	
	Noise Control Techniques		Minimize Noise from Impact Equipment		Minimize Noise from Stationary Sources		Tularcitos Creek Noise Study	
	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements								
Lower Berryessa Creek Element	✓	–	✓	–	✓	–	–	–
Lower Calera Creek Element	✓	–	✓	–	✓	–	–	–
Program-Level Elements								
Upper Calera Creek Element 1	✓	–	✓	–	✓	–	–	–
Upper Calera Creek Element 2	✓	–	✓	–	✓	–	–	–
Tularcitos Creek Element	✓	–	✓	–	✓	–	–	✓
Lower Penitencia Creek	✓	–	✓	–	✓	–	–	–

✓ = Applicable Impact
– = No Impact

TABLE 3.K-3
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Equipment	Typical Noise Level (dBA) @ 50 Feet
Auger Drill Rig	84[a]
Backhoe	80
Bulldozer	85
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane, Mobile	83
Excavator	81 [a]
Gradall	83 [a]
Grader	85
Jack Hammer	88
Loader	85
Paver	89
Pump	76
Roller	74
Saw	76
Scraper	89
Truck	88

[a] Data from Federal Highway Administration (FHWA) Highway Construction Noise Handbook.

SOURCE: FTA, 2006; FHWA, 2006.

the phase of work and the improvement type. All construction activities would occur between the hours of 7 a.m. and 7 p.m., Monday through Friday. Construction would not occur on state and federal holidays recognized by the City of Milpitas.

The primary noise-generating activities related to construction of the Program would be site preparation and earth-moving activities, site improvements and amenities (base courses, flexible paving, fences and gate, fabricated bridges, landscape grading), and concrete placement (constructing the floodwall, trapezoidal channel, channel transitions, and miscellaneous concrete improvements). The main noise sources associated with site preparation and earthmoving activities would be the operation of bulldozers, loaders, excavators, and backhoes that would remove material, as well as trucks hauling excavated materials away. The main noise sources associated with site improvements and amenities would be the operation of trucks, augers, soil stabilizers, and cranes. The primary noise-generating equipment used in concrete placement would be excavators, loaders, compactors, concrete mixers, and pumps. A detailed discussion of construction equipment that would likely be used during construction of the overall Program is provided in Section 2.F.4 of the Program Description. The equipment used for construction in each of the elements would vary depending on the activities proposed (see Table 2-2 of the Program Description).

Noise from construction activity generally attenuates (decreases) at a rate of 6.0 to 7.5 dBA per doubling of distance from the source. However, construction associated with the Program along some of the program reaches could take place within 50 feet of the nearest

existing sensitive receptors. Thus, noise levels at the closest existing sensitive receptors could be similar to those shown in Table 3.K-3. Ambient daytime average noise levels typically experienced at residential areas with moderate to high traffic levels similar to or greater than the Program area tend to range between 55 and 65 dBA. Therefore, although the City's Noise Abatement Ordinance does not have quantitative standards for construction noise, construction noise levels would be disruptive to nearby receptors because noise levels substantially exceed the existing ambient levels.

District-adopted BMPs NO-1 (Minimize Noise Pollution) and NO-2 (Minimize Disturbances to Residential Neighborhoods Due to Noise) would be implemented for all construction activities as they occur in each of the elements. BMP NO-1 would require compliance with standards in the City's Noise Abatement Ordinance. BMP NO-2 would require employment of noise control devices such as mufflers, as well as practices such as limiting idling of trucks and restricting construction and truck movement to the less noise-sensitive daytime hours on weekdays.

Although implementation of the District BMPs would reduce adverse noise effects on adjacent land uses, the BMPs are general and noise levels would likely still be substantially above the existing ambient levels given the proximity of sensitive receptors and the noise impacts from construction activities would therefore be considered significant.

Operations Impacts

Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek 1, Upper Calera Creek 2, and Lower Penitencia Creek Element

Operation of the Program would involve continuing the maintenance activities that currently occur as part of the existing conditions, such as sediment removal, as well as some additional structural maintenance of newly constructed floodwalls, the new box culvert, and the pump station. Maintenance activities such as sediment removal would involve the use of construction equipment, which could result in increased noise levels in the immediate vicinity. As discussed in Chapter 2, Program Description, program improvements are not expected to alter the existing sediment removal schedule and could even result in a decrease in the required routine maintenance to the improved facilities. The newly required maintenance activities would result in a very minimal increase in vehicle trips made to the facilities. With the exception of the pump station (see below), operation of all program components on all elements would not represent a significant change to the current level of activity associated with existing conditions.

Tularcitos Creek Element

The pump station proposed as a part of the Tularcitos Creek Element would require annual testing and exercise of the pumps, routine servicing, sediment removal, and other repairs to the building and fixtures as needed. Operation of the pump station would have the potential to expose nearby sensitive receptors, including residences and users of the Peter T. Gill Memorial Park, to intermittent increase in noise levels. However, the Tularcitos Creek Element is being reviewed in this EIR at a program level and would undergo additional

CEQA review prior to implementation. The noise impact of the pump station would be based on the type, size, capacity, and location of the pumps; the presence of other noise-generating equipment at the station, such as emergency generators; and the noise reduction potential of muffling devices and noise barriers. The operational impacts would be significant if the project-level analysis concludes that pump station noise levels would exceed the City's established land use compatibility standards at nearby sensitive receptor locations.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with increases in noise levels:

- NO-1: Minimize Noise Pollution – applicable to the construction phase of all elements.
- NO-2: Minimize Noise Disturbance to Residential Neighborhoods Due to Noise – applicable to the construction phase of all elements.

Mitigation Measures

Mitigation Measure 3.K-1a: *Noise Control Techniques*. The District shall require its contractors to ensure equipment and trucks used for construction utilize the best available noise control techniques which would include, but not limited to, improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds.

Mitigation Measure 3.K-1b: *Minimize Noise from Impact Equipment*. The District shall require its contractors to ensure that impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.

Mitigation Measure 3.K-1c: *Minimize Noise from Stationary Sources*. The District shall require its contractors to ensure that construction stationary noise sources be located as far from adjacent receptors as possible, and that they be muffled and enclosed within temporary sheds. Insulation barriers and other measures shall be incorporated to the extent feasible.

Significance after Mitigation: Less than Signficant. Implementation of Mitigation Measures 3.K-1a though 3.K-1c would reduce the Program's construction-related impacts to a less-than-significant level by assuring that the District require its contractor to use noise control techniques on equipment, vehicles, and stationary sources.

Mitigation Measure 3.K-1d: *Tularcitos Creek Noise Study and Mitigation Plan* (Tularcitos Creek Element). As part of the Tularcitos Creek Element, the District shall conduct a detailed noise and vibration assessment to evaluate the operations impacts

of the pump station on nearby sensitive receptors. Consistent with the City of Milpitas General Plan Noise Element, additional design measures, if necessary, shall be incorporated to avoid residential DNL exposure above levels specified in the Milpitas Noise Element for compatible land uses, or levels that would result in increases of more than 3 dBA at nearby residential property lines, whichever is more restrictive. Potential design measures could include, but are not limited to, utilizing noise control techniques such as improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.K-1d would reduce the pump station's operation noise impacts to a less–than-significant level by implementation of a detailed noise and vibration assessment and incorporating design measures to reduce noise and vibration from operation of the pump station.

Impact 3.K-2: Exposure to or generation of excessive groundborne vibration or groundborne noise levels in the vicinity of the Program. (Less than Significant)

Construction Impacts

All Elements

Some types of construction equipment can produce vibration levels that can cause architectural damage to structures and be annoying to nearby sensitive receptors. Vibration levels generated during construction of the Program would vary during the construction period, depending upon the construction activity and the types of construction equipment used. Typical vibration levels for the construction equipment types that would generally result in the highest vibration levels (e.g., drill rig, large bulldozers) are presented in Table 3.K-4.

TABLE 3.K-4
VIBRATION SOURCE LEVELS FROM CONSTRUCTION EQUIPMENT

	Peak Particle Velocity (in/sec)
Distance (feet)	**Drill Rig, Large Bulldozer**
15	0.191
25	0.089
50	0.031
75	0.017
100	0.011
150	0.006

SOURCE: FTA, 2006.

The nearest residences to the program area would be as close as 25 feet to active construction equipment along some of the elements. At this distance, construction equipment PPV levels would be as high as 0.089 in/sec, which would be less than the 0.20 in/sec

significance threshold. Therefore, short-term construction-related vibration impacts would be considered less than significant.

Operations Impacts

All Elements

As discussed under Impact 3.K-1, operation of the Program would involve continuing the maintenance activities currently occurring as part of the existing conditions as well as some additional structural maintenance of newly constructed floodwalls, the new box culvert, and the new pump station. These activities would not involve any new sources of vibration, and hence their impact to nearby sensitive receptors would be less than significant. At a distance of over 25 feet from the nearest residence, vibration levels from the proposed pump station along the Tularcitos Creek Element would also not be significant. Therefore, the Program would result in a less than significant long-term vibration impact.

Best Management Practices: None required.

Mitigation: None required.

3.K.4 References

Californian Department of Transportation (Caltrans), Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, October 1998.

Californian Department of Transportation (Caltrans), Transportation Related Earthborne Vibrations (Caltrans Experiences). Technical Advisory, Vibration TAV-02-01-R9601. February 20, 2002.

City of Milpitas, City of Milpitas General Plan, Noise Element, 1994 as amended through 2002.

City of Milpitas, Code of Ordinances, Title V – Public Health, Safety and Welfare; Chapter 213 – Noise Abatement, December 2008, http://library.municode.com/index.aspx?clientId=16491&stateId=5&stateName=California, accessed April 16, 2010.

U.S. Department of Transportation, Federal Highway Administration (FHWA), Federal Highway Construction Noise Handbook, Final Report, August 2006.

Federal Transit Administration (FTA), Transit Noise and Vibration Impact Assessment, Final Report, May 2006.

3.L Recreation

This section evaluates potential impacts on recreational resources that could result from implementation of the Program and identifies mitigation measures to reduce or avoid impacts where feasible. The analysis addresses publicly accessible recreational resources in the program vicinity, including multi-use paths used for bicycling as well as designated and undesignated recreational trails used for walking and jogging.

3.L.1 Environmental Setting

The Program is located within a predominantly residential area consisting of low- and medium-density single-family as well as high-density multi-family housing within the City of Milpitas. Other land uses surrounding the program vicinity include commercial, office parks, and schools. Within the program vicinity there are numerous park and recreational facilities, including neighborhood parks, schoolyard recreational facilities, greenbelts, creek levee trails, and bike paths. The following section describes the recreational facilities found within the program vicinity. Table 3.L-1 lists the program elements and the recreational resources that are adjacent to or near each element.

Parks and Community Facilities

The City of Milpitas Parks and Recreation Services department has jurisdiction over 25 park locations with various amenities including softball fields, tennis courts, basketball courts, handball courts, bocce ball courts, volleyball standards, horseshoe units, par courses, and barbecues (City of Milpitas, 2009b). These resources, together with special use parks and community facilities, total approximately 160 acres of city parks (City of Milpitas, 2002). In addition, several regional parks are located adjacent to or near the City of Milpitas. Recreational resources serving city residents are classified as Community Parks, Neighborhood Parks, Special-use Parks, and Regional Parks. Facilities within the program vicinity are illustrated in Figure 3.L-1.

There are eight neighborhood parks within the program vicinity under that generally provide open space areas, picnic tables, barbeque pits, and minimal parking for cars. Higuera Adobe Park is located in the vicinity of Upper Calera Creek Element 2 and includes a park, picnic areas, and a historic adobe house.

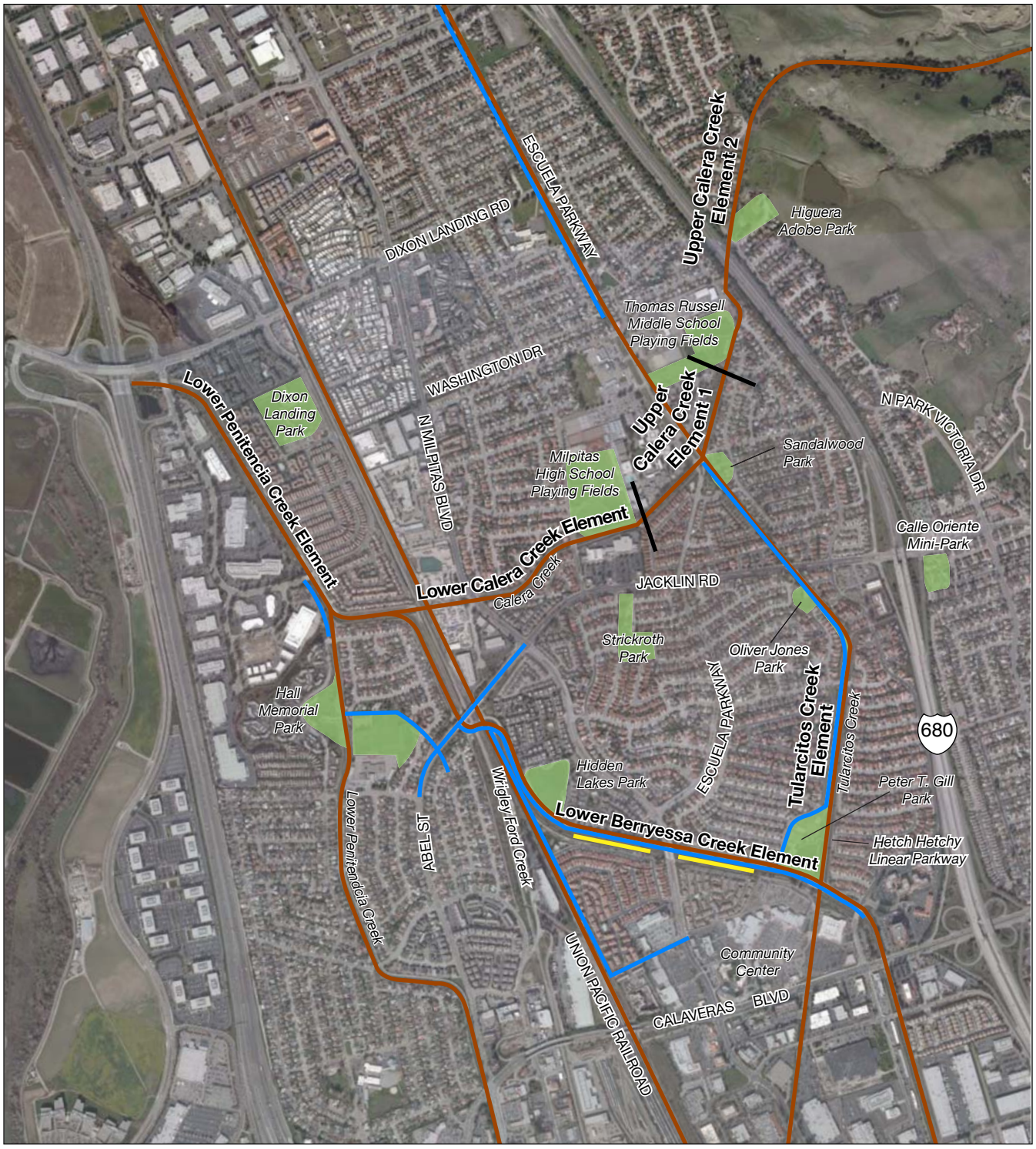
The City has a joint-use agreement with the Milpitas Unified School District (MUSD) that allows mutual use of school facilities. The Milpitas High School and Thomas Russell Middle School are located adjacent to the Calera Creek elements and provide playing fields and basketball courts. Two privately-owned par courses are located in the residential development along the outside boundary of the southern levee of Lower Berryessa Creek. Table 3.L-1 summarizes the parks and locations in relation to the elements.

TABLE 3.L-1
RECREATIONAL RESOURCES IN THE PROGRAM AREA

Element	Recreational Resource	Location	Facilities	Jurisdiction
Lower Berryessa Creek Element	Hidden Lake Park (adjacent to program area)	North Milpitas Boulevard and Escuela Parkway; approximately 600 feet from the program area	6.5-acre park with two barbeque units, three tables, parking for five cars, and a lake	City of Milpitas
	Peter T. Gill Memorial Park	Paseo Refugio and Santa Rita Road; approximately 200 feet from the program area	8.1-acre park with a lighted ball diamond, three tennis courts, two handball courts, a basketball court, four barbeques, eight tables, play equipment, restrooms, and parking for 20 cars	City of Milpitas
	Hall Memorial Park	La Honda Drive and Coyote Street; approximately 800 feet from the program area	9.5-acre park with barbecue pits, six tables, four tennis courts, play equipment, restrooms, and parking for 18 cars	City of Milpitas
	Berryessa Creek Trail	Trail runs along Lower Berryessa Creek for the length of the program element	Maintenance road used for casual recreation (walking, etc.)	City of Milpitas
	Par Course	Private par course adjacent to Berryessa Creek; approximately 100 feet from the program area	Small par course and trail	Privately Owned
	Strickroth Park	Martil Way and Gemma Drive; approximately 2,000 feet from the program area	5.7-acre park with parking for 25, play equipment, two barbeque units, and six tables	City of Milpitas
Lower Calera Creek Element	Milpitas High School Playing Fields	1285 Escuela Parkway; approximately 100 feet from the program area	Playing fields, and basketball and tennis courts	MUSD
	Calera Creek Trail	Trail runs along Calera Creek for the length of the element	Levee trail for walking and jogging	City of Milpitas
	Strickroth Park	Martil Way and Gemma Drive; approximately 1,000 feet from program area	5.7-acre park with parking for 25, play equipment, two barbeque units, and six tables	City of Milpitas
Upper Calera Creek Element 1	Sandalwood Park	Escuela Parkway and Russell Avenue; approximately 600 feet from the program area	3.5-acre neighborhood park with three barbeque units, three tables, and play equipment	City of Milpitas
	Hetch Hetchy Linear Parkway	East side of Santa Rita Road; approximately 50 feet from the element	Open space and greenbelt for causal recreation	City of Milpitas
	Milpitas High School Playing Fields	1285 Escuela Parkway; approximately 100 feet from the program area	Playing fields, and basketball and tennis courts	MUSD
	Thomas Russell Middle School Playing fields	1500 Escuela Parkway; approximately 100 feet from the program area	Playing fields and basketball courts	MUSD

TABLE 3.L-1 (Continued)
RECREATIONAL RESOURCES IN THE PROGRAM AREA

Element	Recreational Resource	Location	Facilities	Jurisdiction
Upper Calera Creek Element 1 (cont.)	Calera Creek Trail	Runs adjacent to the creek for the length of the element	Existing levee maintenance road used for casual recreation by nearby residents	City of Milpitas
	Hetch Hetchy Multi-use Path	Approximately 50 feet from the program area	Paved multi-use path for bikes and pedestrians	City of Milpitas
Upper Calera Creek - Element 2	Thomas Russell Middle School Playing Fields	1500 Escuela Parkway; approximately 100 feet from the program area	Playing fields and basketball courts	MUSD
	Higuera Adobe Park	North Park Victoria Drive and Wessex Place; approximately 50 feet from the program area	An historic adobe house sits on 5.5-acre park site, with eight barbeque units, 16 tables, play equipment, and parking for 20 cars	City of Milpitas
	Calera Creek Trail	Runs adjacent to Calera Creek for the length of the element	Gravel levee trail used for walking and jogging	City of Milpitas
Tularcitos Creek Element	Peter T. Gill Memorial Park	Paseo Refugio and Santa Rita Road; approximately 200 feet from the program area	8.1-acre park has a lighted ball diamond, three tennis courts, two handball courts, a basketball court, four barbeques, eight tables, play equipment, restrooms, and parking for 20 cars	City of Milpitas
	Oliver Jones Park	Jacklin Road and Hillview Ave; approximately 700 feet from the program area	5.2-acre park with a par course, play equipment, two barbecue pits, and five tables	City of Milpitas
	Calle Oriente Mini-Park	Calle Oriente off North Park Victoria Drive; approximately 600 feet from the program area	Neighborhood park with two handball courts, two tables, and play equipment	City of Milpitas
	Hetch Hetchy Linear Parkway	Approximately 50 feet from the program area	Greenbelt and open space	City of Milpitas
	Hetch Hetchy Multi-use path	Approximately 100 feet from program area	Paved multi-use path for bikes and pedestrians	City of Milpitas
	Berryessa Creek Trail	Runs adjacent to Berryessa Creek; approximately 200 feet from the program area	Gravel levee trail used for walking and jogging	City of Milpitas
Lower Penitencia Creek Element	Dixon Landing Park	Dixon Landing Road and Milmont Drive. Approximately 500 feet from the program area	11 acre park, three tennis courts, six barbecue pits, ten picnic tables, a basketball hoop, play equipment, restrooms, and parking for 84 cars	City of Milpitas
	Penitencia Creek Trail	Trail runs along Lower Penitencia Creek for the length of the program element	Improved trail providing access to industrial core and Coyote Creek Trail ; paralleled by existing levee maintenance road used for casual recreation by nearby residents	City of Milpitas



SOURCE: GlobeXplorer; ESA

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Figure 3.L-1
Recreational Resources in the Program Vicinity

Bikeways and Trails

Within the program vicinity, there are several bike paths or multi-use paths and trails used by nearby residents for casual recreation and transportation. These paths are considered Class I bikeways and are bike paths with exclusive right-of-way (ROW) for use by bicyclists or pedestrians. Class I bike paths in the program vicinity include North Abel Street, Wrigley Creek / Union Pacific Railroad Trail, Berryessa Creek Trail, and the Hetch Hetchy Linear Parkway. In addition to bike paths or multi-use paths, there are several bicycle routes within the program vicinity that are used for recreational and transportation purposes. Class II bikeways are bike lanes striped with the paved areas of roadways and established for the preferential use of bicycles and Class III bikeways are signed bike routes that allow bicycles to share streets or sidewalks with vehicles or pedestrians. Many of the routes overlap with major arterials, such as North Milpitas Boulevard, Paseo Refugio, and East Calaveras Boulevard. Section 3.M, Transportation, lists the characteristics of roadways in the program vicinity and discusses potential traffic impacts on roads and bicycle routes.

Levee maintenance roads within Lower Berryessa, Calera, Tularcitos, and Lower Penitencia Creeks are also called creekside levee trails and are used by nearby residents for casual recreation such as walking or jogging. The creekside levee trails are generally gravel paths and may be designated or undesignated recreational trails by the City of Milpitas. Table 3.L-1 summarizes the trails within the program vicinity. No specific data on level of use of the creek levee trails is available. However, observations of the program area indicate that the trails are not heavily used and that use is mainly by local residents walking or bicycle riding. Observations from both weekday and weekend site visits indicate that at any given time, only one to two people were using the levee trails. Several pedestrian bridges connect the various paths, trails, and residential streets to other recreational facilities such as the Hetch Hetchy Linear Parkway, Peter T. Gill Memorial Park, and others.

3.L.2 Regulatory Setting

Federal and State Regulations

There are no state or federal parks or other state- or federally-managed recreational facilities in or near the program area. Therefore, no state or federal laws, regulations, or codes regarding recreational resources apply to the Program.

Local Plans and Policies

City of Milpitas General Plan

The City of Milpitas General Plan includes principles and policies regarding parks and recreational facilities, as well as standards relating to park size, distribution, and primary service area, to guide implementation of park and recreation proposals (City of Milpitas, 2002).

The City of Milpitas General Plan also includes principles and policies that must be taken into account when a project may interfere with recreational facilities.

- *Guiding Principle 4.a-G-2*. Develop a diversified trail system along streamsides and other public rights of way to provide recreational opportunities and link facilities.

- *Implementing Policy 4.g.I.13*. Develop the section of Berryessa Creek which runs through the Town Center into a scenic as well as recreation resource for the Town Center.

- *Implementing Policy 4.a-I-1*. Provide 5 acres of neighborhood and community parks for every 1,000 residents outside of the Midtown Specific Plan Area, and 3.5 acres of special use parks for every 1,000 residents within the Midtown Specific Plan Area.

Milpitas Trails Master Plan

The City of Milpitas Trails Mater Plan includes the development of 37 acres of trails and plans to interconnect trails with on-street connectors (City of Milpitas, 1997). The majority of the trails identified in the plan follow creeks, rail corridors, and utility ROWs that traverse the City. The plan identifies goals and objectives and priorities for trail development. The Trails Master Plan fulfills the City Council's direction to develop a comprehensive plan for city-wide bicycle trails (City of Milpitas, 1997).

City of Milpitas Bikeway Master Plan and Update

The City of Milpitas Bikeway Master Plan identifies trail types and specific corridors including regional trails, city trails, neighborhood trails, and on-street connectors (City of Milpitas, 2009a). The plan describes goals, objectives, and development priorities for bicycle transportation and recreation. Included in the plan are goals and objectives to increase bicycle use within the City both for recreation and as transportation. Goals include increasing accessibility to schools, parks, and community amenities. The goals and objectives in the plan are consistent with the City of Milpitas General Plan's guiding principle of providing a comprehensive system of sidewalks, bicycle lanes and routes, and off-street trails that connect all parts of the City (City of Milpitas, 2009a).

3.L.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on recreation if it were to:

- Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated; or

- Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Due to the nature of the Program, this EIR applies the following additional criterion, in addition to those described above, and considers that the Program would have a significant effect on recreational resources if it were to:

- Physically degrade existing recreational resources by causing environmental impacts (such as air quality or noise effects) that would indirectly result in deterioration in the quality of the recreational experience.

Approach to Analysis

Methods used to assess potential impacts on recreational resources included site visits to the program area in 2009 and 2010 and review of local planning documents and maps to identify the recreational resources in the program vicinity that, because of their proximity, could be directly or indirectly affected by the Program. Program-related construction and operations activities were assessed for their potential to result in direct adverse impacts on recreational resources given the proximity of the identified resource, the type of recreational activity expected to occur, and the availability and proximity of alternative recreational resources. Program-related indirect effects on recreational resources were identified through the same means, as well as by reviewing the impact findings of Sections 3.B, Aesthetics; 3.M, Transportation; 3.C, Air Quality; and 3.K, Noise.

No Impact Significance Determinations

Based on the nature of the Program, there would be no impact related to the following criteria:

> *Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment*. The Program does not include recreational facilities and no construction would occur at neighborhood parks or schools that are used for recreation. The Program would not result in neighborhood population growth or residential housing that would require the construction or expansion of additional recreational facilities. Therefore, this significance criterion is not applicable and is not discussed further.

Impact Summary

Table 3.L-2 provides a summary of recreation impacts by element and implementation phase (construction and operations). Table 3.L-3 provides a summary of applicable mitigation measures by element and implementation phase (construction and operations).

Impacts and Mitigation Measures

Impact 3.L-1: Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated. (Less than Significant)

Construction Impacts

All Elements

Implementation of the Program entails the construction of raised levees and floodwalls and sediment removal along or adjacent to trails currently used as designated or undesignated recreational resources. Where levee walls would be raised and maintenance roads improved, existing trails would be excavated and reconstructed and would not be available for

TABLE 3.L-2
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL RECREATION IMPACTS

	Impact 3.L-1		Impact 3.L-2	
	Increased use of existing parks or other recreational facilities		Indirect impacts on the recreational experience	
	construction	operations	construction	operations
Project-Level Elements				
Lower Berryessa Creek Element	LTS	LTS	SM	SM
Lower Calera Creek Element	LTS	LTS	LTS	LTS
Program-Level Elements				
Upper Calera Creek Element 1	LTS	LTS	LTS	LTS
Upper Calera Creek Element 2	LTS	LTS	LTS	LTS
Tularcitos Creek Element	LTS	LTS	LTS	LTS
Lower Penitencia Creek Element	LTS	LTS	SM	SM

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact

TABLE 3.L-3
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.D-6a	
	Tree and Shrub Replacement	
	construction	operations
Project-Level Elements		
Lower Berryessa Creek - Element	✓	✓
Lower Calera Creek Element	–	–
Program-Level Elements		
Upper Calera Creek Element 1	–	–
Upper Calera Creek Element 2	–	–
Tularcitos Creek Element	–	–
Lower Penitencia Creek	✓	✓

✓ = Applicable Impact
– = No Impact

recreational uses during construction. Construction on the creek levee trails within the program area would result in a temporary restriction of access to the trails, entirely or in segments, during construction.

When creek levee trails are closed during construction, recreationists would have access to other trails within the vicinity and/or could use residential streets to connection to portions of trails not under construction. The temporary disruption is anticipated to be short-term, up to approximately seven weeks during construction of each element of the Program. The temporary disruption is not expected to substantially increase the use of alternative recreational trails within the program vicinity such that these facilities become degraded. As

described in Section 3.L.1, Environmental Setting, existing use is considered to be generally low and consists mainly of local residents for casual recreation such as walking, jogging, or bicycling. Within the program vicinity, there are sufficient alternatives such that no single recreation alternative would be used to replace all recreation uses within the elements. Therefore, impacts on other recreational facilities would be less than significant.

Operations Impacts

All Elements

Operational activities associated with the Program would include maintenance of levee maintenance roads and maintenance within the creeks. Details on maintenance activities are provided in Chapter 2, Program Description, and generally would include minor debris and vegetation removal. The majority of the maintenance activities that would be required are currently ongoing within the elements. Newly required maintenance activities would include activities associated with the new floodwalls, concrete box culvert, and new pump station.

New maintenance activities could result in temporary closures of levee trails or portions of levee trails where maintenance is required. Closure of trails during maintenance would be temporary and would not be expected to occur over more than a few weeks at any given location. Based on existing maintenance practices, planned maintenance at creeks and levee trails would occur approximately every two to three years. If trails were to be closed temporarily for maintenance, other nearby trails or residential streets could be used for recreational activities. Because trail use is not considered to be heavy, and because of the availability of alternative recreational resources, this impact would be less than significant.

Improvements to the maintenance roads along Lower Berryessa Creek would allow the City of Milpitas to incorporate the Lower Berryessa Creek area into their designated trail system. Implementation of the Milpitas Trails Master Plan is addressed in Chapter 5, Cumulative Impacts.

Best Management Practices: None required.

Mitigation: None required.

Impact 3.L-2: Indirect impacts on the recreational experience caused by construction. (Less than Significant with Mitigation)

Construction Impacts

All Elements

Several neighborhood parks, playing fields, and trails are located within close proximity (100 feet or less) of the program area (see Table 3.L-1) and could be indirectly and temporarily affected by construction activities. Construction of the Program would include the use of heavy

equipment as described in Chapter 2, Program Description. Use of this equipment could temporarily increase noise and reduce air quality that could diminish the quality of the recreational experience in areas close to the program area. However, indirect impacts on the quality of the recreational experience associated with noise and air quality effects would only occur during construction and would diminish with distance from a construction site. Also, there are sufficient recreational facilities within the program vicinity that could be used during construction such that users of park areas and trails affected by the proposed construction areas would have other alternatives for recreation. Therefore, indirect impacts on the recreational experience resulting from construction noise and air quality effects would be less than significant. Although not required to address indirect impacts on the recreational experience during construction, it is noted that mitigation measures under Sections 3.C, Air Quality, and 3.K, Noise, would reduce air quality and noise impacts during construction, and would therefore further diminish the effect of construction activities on recreational resources.

Tree removal would not be required and/or there are no recreation opportunities that would be affected by tree removal for the Lower Calera Creek Element, Upper Calera Creek Element 1, and Tularcitos Creek Element. As described in Section 3.B, Aesthetics, vegetation removal associated with the Upper Calera Creek Element 1 would not be noticeable from Higuera Adobe Park. However, as described in Section 3.B, Aesthetics, trees and shrubs that would be removed along reaches E, F, and G of the Lower Berryessa Creek Element, and that could potentially be removed along the Lower Penitencia Creek Element, are a major contributing factor to the scenic quality of the creek corridors in an area used by recreationists along the pedestrian paths along the creeks. The trees add a natural and scenic quality to views that would otherwise appear largely industrial or indistinctive. The creeks are essentially a human-made conveyance structure for stormwater and creek flows. Removal of the trees and shrubs could cause a significant change in the character of the recreation resources associated with the Lower Berryessa Creek Element and the Lower Penitencia Creek Element. As described in Chapter 2, Program Description, following grading and earthwork, the ground surface would be hydroseeded and landscaped. Without specific provisions for tree and shrub replacement, however, the removal of the trees and shrubs would have a substantial long-term impact on the character of the pedestrian path along the Lower Berryessa Creek Element and the levee maintenance access road along the Lower Penitencia Creek Element, and would result in a potentially significant impact on the enjoyment of the levee trails for regular users.

Operations Impacts

All Elements

The Program would include maintenance activities as described in Chapter 2, Program Description would generally include removal of sediment and debris, and vegetation management. Maintenance activities would occur adjacent to neighborhood parks and recreational facilities and would be of short duration. Maintenance activities would be the same as, or similar to, current maintenance activities and could result in temporary, indirect effects on the recreation experience. Table 3.L-1 lists the available recreational resources within

the program vicinity that could be used during maintenance activities and demonstrates that sufficient alternative recreation opportunities are available. Indirect impacts on the recreational experience during operation would be less than significant, with the exception of the Lower Berryessa Creek Element and the Lower Penitencia Creek Element. As described above for construction impacts, removal of the trees and shrubs along the Lower Berryessa Creek and Lower Penitencia Creek Elements would cause a potentially significant change in the character of the recreation resources associated with the creeks and could result in a substantial long-term impact during the Program's operational phase on the character of the pedestrian paths along both of these elements, resulting in a potentially significant impact on the enjoyment of the levee trails for regular users.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation: Implement Mitigation Measure 3.D-6a (Lower Berryessa Creek Element and Lower Penitencia Creek Element).

Significance after Mitigation: Less than Significant. This mitigation measure would reduce Lower Berryessa Creek Element and Lower Penitencia Creek Element impacts on the recreational experience to a less-than-significant level because visual conditions would be restored along these creeks.

3.L.4 References

City of Milpitas, City of Milpitas General Plan, 1994, as amended through 2002.

City of Milpitas, Bikeway Master Plan Update, June 2009a, available online at http://www.ci.milpitas.ca.gov/_pdfs/trans_bikeway_master_plan.pdf, accessed on April 15, 2010.

City of Milpitas, "Parks", 2009b, available at http://www.ci.milpitas.ca.gov/government/recreation/parks.asp, accessed April 22, 2010.

City of Milpitas, Milpitas Trails Master Plan, prepared by Sokale/Landry Collaborative, adopted June 3, 1997.

3.M Transportation and Traffic

This section describes the existing transportation facilities in the program vicinity, including local and regional roadways, transit service, and bicycle routes, as well as existing traffic conditions. This section addresses construction effects, including potential impacts on (1) roadways that are adjacent to or within the construction corridor of the program area and could therefore be affected by construction, and (2) roadways that are potential routes that construction workers, materials delivery, and other equipment trucks could use to access construction areas. The effects on traffic circulation from program operations are also addressed. The Santa Clara Valley Water District (District) best management practices (BMPs) designed to avoid or minimize impacts are identified. If program-related impacts are found to exceed thresholds of significance, mitigation measures are identified.

3.M.1 Setting

The program area is located entirely within the City of Milpitas city limits, generally within the area bounded by East Calaveras Boulevard to the south, Interstate 880 (I-880) to the west, Dixon Landing Road to the north, and within 1,000 feet of Interstate 680 (I-680) to the east. The Union Pacific Railroad (UPRR) tracks run in a north-south direction in the western portion of the Lower Berryessa Creek Program area and cross program reaches in two locations. The roadway network that would be used for access for construction workers and construction vehicles (including trucks that would transport construction materials, excess excavated spoils, and fill materials to and from the work zone) consists of regional highways and local roadways. See Figures 2-1 and 2-2A through 2-2E in Chapter 2, Program Description, for locations of regional highways and local roadways in the program vicinity.

Existing Traffic Circulation Network

Regional Access

I-680, I-880, and State Route 237 (SR 237) provide regional access to the program area (see Figure 2-1). Within the program vicinity, I-680 is a four-lane north-south highway with ramps to and from Dixon Landing Road, Jacklin Road, and SR 237. I-880 is an eight- to 12-lane north-south freeway that borders the western side of Milpitas. SR 237, which connects I-680 and I-880 in the program vicinity, is a four- to six-lane east-west highway and is commonly referred to as East Calaveras Boulevard in the program vicinity. All three regional roadways are designated Caltrans truck routes.

The most recent data published by the California Department of Transportation (Caltrans) indicates that average daily traffic volumes on freeways near the program area range between 73,000 and 178,000 vehicles (Caltrans, 2010a). Trucks comprise four to six percent of the daily traffic volume on all freeways (Caltrans, 2010b). Table 3.M-1 presents the average daily traffic volumes and truck percentages for the regional transportation facilities in the program vicinity.

TABLE 3.M-1
DAILY TRAFFIC VOLUMES ON REGIONAL ROADWAYS IN PROGRAM VICINITY

Regional Roadways	Location	Daily Traffic (Vehicles Per Day)	Trucks (as percentage of daily traffic)
I-680	Landess Avenue to Jacklin Road	122,000-139,000	4.6%
I-880	Great Mall Parkway to Dixon Landing Road	159,000-178,000	5.7%
SR 237	I-680 to I-880	73,000-77,000	4% to 6%

SOURCE: Caltrans, 2010a; Caltrans 2010b.

Local Roadways

Figures 2-2A through 2-2E in Chapter 2, Program Description, depict the roadway locations in the vicinity of the six flood protection related improvement program areas (or "elements"). Table 3.M-2 presents a summary of the above-discussed roadway characteristics in the program vicinity.

Lower Berryessa Creek Element Access Roads

North Milpitas Boulevard is a four-lane, north-south roadway with bike lanes on both sides of the roadway. The road generally is divided by a raised median, except Between Hanson Court and Arbor Way where there are no median. There are sidewalks on both sides of North Milpitas Boulevard. On-street parking is not permitted.

East Calaveras Boulevard is a six-lane, divided, east-west roadway. As mentioned earlier, this roadway is also referred to as SR 237. There are sidewalks on both sides of East Calaveras Boulevard, but no bike lanes. On-street parking is not permitted. According to the General Plan, the roadway is a designated truck route westward from Evans Road.

Abel Street is a four-lane road that intersects Reaches B and C of the Lower Berryessa Creek Element. Abel Street ends at the Abel Street / North Milpitas Boulevard intersection; at this point the road turns into Jacklin Road in the eastward direction. Abel Street does not have sidewalks, and on-street parking is not permitted. According to the General Plan, the northern portions of the roadway, between Weller Lane and Calaveras Boulevard; and the southern portion of the roadway, between Curtis Avenue and Main Street, are designated truck routes.

Hanson Court is a two-lane road that has a sidewalk on the eastern side of the street. Hanson Court is not a through street. Parking is permitted on both sides of the street.

Lower Calera Creek Element Access Roads

Jacklin Court is a two-lane residential street and is located just south of Reach B of Lower Calera Creek. Jacklin Court has sidewalks on both sides of the street. On-street parking is permitted on both sides of the street.

TABLE 3.M-2
CHARACTERISTICS OF ROADWAYS IN PROGRAM VICINITY

Street Name	Number of Lanes	Daily Traffic Volumes (vehicles per day)	Bike Facilities	Sidewalks	On-Street Parking	Public Transit
North Milpitas Boulevard	4 (divided)	15,030 (2006)	Class II lane	Yes	No	AC Transit 217
East Calaveras Boulevard	6 (divided)	50,835 (2005)	No	Yes	No	AC Transit 217, VTA 47
Abel Street	4	19,958 (2007)	Class I path	No	No	VTA 66, 46
Hanson Court	2	Not available	No	Yes (east side)	Yes	No
Jacklin Court	2	Not available	No	Yes	Yes	No
Jacklin Road	4 (divided)	21,077 (2005)	Class II lane	Yes	No	VTA 66, 46
Arizona Avenue	2	4,500 (2005)	No	Yes	Yes[a]	VTA 46, 66
Washington Drive	2	Not available	Class III route	Yes	Yes	No
Escuela Parkway	2	6,564 (2003)	Class II lane	Yes	No	VTA 66, 46
Russell Lane	2	Not available	No	Yes	Yes	No
North Hillview Drive	2	10,450 (2004)	No	Yes	Yes	No
North Victoria Parkway	2	Not available	Class II lane	Yes	Yes	VTA 46
Wessex Place	2	Not available	No	Yes	Yes	No
Paseo Refugio	2	Not available	No	Yes (west side)	Yes (west side)	No
Santa Rita Drive	2	Not available	No	Yes	Yes	No
Tramway Drive	2	Not available	No	Yes	Yes	No
Dixon Landing Road	6 (divided)	35,933 (2007)	Class III route	Yes (south side)	No	No
Milmont Drive	2	Not available	Class II lane	Yes	No	No
California Circle	5 (divided)	4,387 (2007)	Class II lane	Yes	No	No
North McCarthy Boulevard	4 (divided)	Not available	Class II lane	Yes	No	No

[a] On-street parking not permitted during school hours (8 a.m. – 3 p.m.)

SOURCES: Traffic volume data – City of Milpitas, 2007; Transit Information – VTA, 2010; AC Transit, 2010; Bicycle Facilities – City of Milpitas, 2002

Jacklin Road is a four-lane, east-west roadway that consists of medians and dividers. Jacklin Road has a sidewalk and bike lane on both sides of the road. On-street parking is not permitted.

Arizona Avenue is a two-lane road that borders the western side of Milpitas High School. Arizona Avenue has sidewalks on both sides of the street. No parking is permitted on Arizona Avenue during school hours (8:00 a.m. to 3:00 p.m., Monday through Friday).

Upper Calera Creek Element 1 Access Roads

Washington Drive is a two-lane road that has sidewalks on both sides of the street. There is a bicycle route on this road. Parking is permitted on both sides of the street.

Escuela Parkway is a two-lane road that has a median at the Russell Lane / Escuela Parkway intersection. Escuela Parkway borders the eastern side of Milpitas High School and has a sidewalk and bike lane on both sides. On-street parking is not permitted on either side of the street in the program vicinity.

Russell Lane is a two-lane road that intersects Escuela Parkway to the west and North Hillview Drive to the east. This street has sidewalks on both sides of the street, and parking is permitted on both sides of the street.

Upper Calera Creek Element 2 Access Roads

North Hillview Drive is a two-lane residential street that parallels the western side of I-680. North Hillview Drive has sidewalks on both sides of the street. Parking is permitted on both sides of the street.

North Victoria Parkway is a two-lane road that parallels the eastern side of I-680 in the eastern portion of Milpitas. The road has bike lanes on both sides of the road. On-street parking is permitted on the north-bound side of the street.

Wessex Place is a two-lane road that lies adjacent to Higuera Adobe Park and intersects North Park Victoria Parkway. The street has a sidewalk on the residential side of the street and parking is permitted on both sides of the street.

Tularcitos Creek Element Access Roads

Paseo Refugio is a two-lane road that parallels Lower Berryessa Creek (Reach E) and intersects the southern end of the Tularcitos Creek Element. Paseo Refugio has a sidewalk on the westbound side of the street, and on-street parking is available on the westbound side of the street.

Santa Rita Drive is a two-lane, north-south residential road that parallels the Tularcitos Creek Element. The road has a sidewalk on both sides of the street. Parking is available on both sides of the street.

Tramway Drive is a two-lane, residential road that intersects Santa Rita Road in the program vicinity. The road has a sidewalk on both sides of the street. Parking is available on both sides of the street.

Lower Penitencia Creek Element Access Roads

Dixon Landing Road is a six-lane divided roadway that parallels Lower Penitencia Creek at the northern end of the Lower Penitencia Creek Element. This road provides access to I-880 and has a sidewalk on the eastbound side of the road in the program vicinity. There is a bicycle route on this road. On-street parking is not permitted on either side of the street. According to the General Plan, the roadway is a designated truck route, between North Milpitas Boulevard and its terminus at North McCarthy Boulevard.

Milmont Drive is a two-lane residential road that intersects Lower Penitencia Creek at the southern end of Lower Penitencia Creek Element. The southwestern end of the road turns into California Circle. Milmont Drive has a sidewalk and bike lane on both sides of the street and is divided by a median. On-street parking is not permitted on either side of the street in the program vicinity.

California Circle is a five-lane road that crosses Lower Penitencia Creek at the northern end of the Lower Penitencia Creek Element. California Circle has a sidewalk and bike lane on both sides of the street. On-street parking is not permitted on either side of the street in the program vicinity. According to the General Plan, the roadway is a designated truck route, between Dixon Landing Road and its terminus at Fairview Way.

North McCarthy Boulevard is a four-lane divided road that parallels the western side of I-880 and crosses Coyote Creek near the Lower Penitencia Creek and Coyote Creek confluence. North McCarthy Boulevard consists of bike lanes on both sides of the street and provides access to the Coyote Creek Trail. On-street parking is not permitted on either side of the street in the program vicinity.

Transit Service

The Santa Clara Valley Transportation Authority (VTA) and Alameda-Contra Costa County Transportation District (AC Transit) provide bus and light rail service in the program vicinity. VTA Route 47 runs east-west along East Calaveras Boulevard. VTA Routes 66 and 46 run east-west along Abel Street and Jacklin Road, respectively. AC Transit Route 217 runs north-south along North Milpitas Boulevard. Table 3.M-2 indicates the program vicinity roadways served by the bus lines, which are further described below.

Route 47 serves the Great Mall and McCarthy Ranch Shopping Center. This route operates between 6:25 a.m. and 9:35 p.m. with 30- to 50-minute headways[1] on weekdays. On weekends, service is provided between 8:06 a.m. and 7:49 p.m. with 30- to 60-minute

[1] Headway is defined as the difference in time between two vehicles traveling in the same direction over the same course.

headways. Route 47 serves East Calaveras Boulevard and intersects North Milpitas Boulevard in the program vicinity.

Route 217 (AC Transit) serves the Great Mall, Kaiser Permanente Milpitas Medical Center, and Milpitas City Hall. Route 217 continues north along North Milpitas Boulevard on to Warm Springs Road, Mission Boulevard, and to Ohlone College, and ends at the Fremont BART station. On weekdays Route 217 operates from 5:24 a.m. to 10:06 p.m. with 30-minute headways. On weekends, this route operates from 7:40 a.m. to 7:00 p.m. with 40-minute headways. Route 217 operates on East Calaveras Boulevard and North Milpitas Boulevard in the program vicinity (AC Transit, 2010).

Route 66 serves the Great Mall, Milpitas High School, and Russell Middle School. This route operates from 5:37 a.m. to 10:19 p.m. with 15- to 60-minute headways on weekdays. On weekends, service is provided from 6:00 a.m. to 10:16 p.m. with 27- to 60-minute headways. Route 66 operates on Abel Street, Jacklin Road, Escuela Parkway, Washington Drive, Arizona Avenue, and North Milpitas Boulevard in the program vicinity.

Route 46 serves the Great Mall, Rancho Milpitas Middle School, Russell Middle School, and Milpitas High School. Route 46 operates from 6:27 a.m. to 6:40 p.m. with 24- to 60-minute headways on weekdays. On weekends, service is provided from 8:46 a.m. to 9:15 p.m. with 60-minute headways. Route 46 operates on the following roads in the program vicinity: Jacklin Road, Escuela Parkway, Washington Drive, Arizona Avenue, and North Milpitas Road.

Bikeways/Pedestrian Circulation

Bikeways are typically classified as Class I, Class II, or Class III facilities as defined by the State of California in the California Streets and Highway Code, §890.4. Class I bikeways are bike paths with exclusive right-of-way (ROW) for use by bicyclists or pedestrians; Class II bikeways are bike lanes striped with the paved areas of roadways and established for the preferential use of bicycles; and Class III bikeways are signed bike routes that allow bicycles to share streets or sidewalks with vehicles or pedestrians. Class I bike paths in the program vicinity include North Abel Street, Wrigley Creek / Union Pacific Railroad Trail, Berryessa Creek Trail, and the Hetch Hetchy Linear Parkway. The Program would occur in the vicinity of the following Class II bike lanes: North Milpitas Boulevard, Jacklin Road, North Park Victoria Drive, Milmont Drive, and California Circle. In addition, a Class III bicycle route borders the northern portion of the program area along Dixon Landing Road (City of Milpitas, 2009).

As described in Section 3.L, Recreation, levee maintenance roads along Lower Berryessa, Calera, and Tularcitos Creeks are also referred to as creek levee trails and are used by nearby residents for casual recreation such as walking or jogging. The Berryessa Creek Trail is considered a Class I bikeway and is used for casual recreation and transportation. The Hetch Hetchy Linear Parkway is also used by walkers and joggers. North Park Victoria Drive is the only on-street connector in the program area (City of Milpitas, 2002).[2] In addition, there are two

[2] An on-street connector links segments of the off-street trail system where no other route is available.

privately-owned par courses i.e., fitness trails) in the residential development along the outside edge of the Lower Berryessa Creek southern levee with access via Edgewater Drive and Sutterwind Drive.

Refer to Figure 3.L-1 in Section 3.L, Recreation, for a map of bicycles paths and creek levee trails in the program vicinity.

Traffic Volumes

The theoretical daily carrying capacity (i.e., the highest traffic volume that can travel on a roadway in a day) ranges up to about 15,000 vehicles for a two-lane road, about 25,000 vehicles for a four-lane undivided road, and about 30,000 vehicles for a four-lane divided road. The theoretical peak hour capacity is generally 10 percent of the daily capacity. As indicated in Table 3.M-2, the carrying capacities for all local roads with available traffic counts are below the theoretical carrying capacities. Traffic volumes for all other streets listed in Table 3.M-2 were not available.

Parking Conditions

Table 3.M-2 indicates whether on-street parking is provided on roadways that would be affected by the Program. On-street parking is permitted on Hanson Court, Jacklin Court, Washington Drive, Russell Lane, North Hillview Drive, North Victoria Parkway, Wessex Place, Paseo Refugio, Santa Rita Drive, and Tramway Drive. Parking on Arizona Avenue is not permitted during school hours from 8 a.m. to 3 p.m., Monday through Friday. On-street parking is not available on East Calaveras Boulevard, North Milpitas Boulevard, Abel Street, Jacklin Road, Escuela Parkway, Dixon Landing Road, Milmont Drive, California Circle, or North McCarthy Boulevard.

3.M.2 Regulatory Setting

Federal and State Regulations

Caltrans is responsible for planning, designing, constructing, operating, and maintaining all state-owned roadways in Santa Clara County. Federal highway standards for interstates (e.g., I-680) are implemented in California by Caltrans. Caltrans has the discretionary authority to issue special permits for the movement of vehicles/loads exceeding statutory limitations on the size, weight, and loading of vehicles contained in Division 15 of the California Vehicle Code. Requests for such special permits require the completion of an application for a Transportation Permit. The California Highway Patrol is notified about transportation of oversize/overweight loads.

Local Plans and Policies

Policies regarding traffic level of service (LOS) on roadways for Milpitas apply to long-term, not short-term, traffic conditions.[3] In Milpitas, the traffic LOS standard (i.e., minimum acceptable LOS) is LOS E. If the baseline LOS for a roadway is LOS F, then the LOS must be maintained as LOS F, and mitigation measures must be implemented when program-specific impacts could result in an LOS exceeding the threshold. The LOS standard for designated roadways and intersections in the Santa Clara County Congestion Management Plan (CMP) network is LOS D. CMP-designated roadways in the program vicinity include I-680, I-880, and SR 237, and CMP-designated intersections include Calaveras Boulevard (SR 237) / Abel Street and Calaveras Boulevard (SR 237) / North Milpitas Boulevard.

The Circulation Element of the City of Milpitas General Plan contains Guiding Principles and Implementing Policies to inform agencies of the City-approved ways to maintain an efficient circulation network (City of Milpitas, 2002). Most of these principles and policies pertain to long-term traffic conditions for Milpitas and provide for maintaining City and CMP LOS standards and goals for the roadway system in Milpitas (Policy 3.a-I-1); promoting measures that increase transit use (Guiding Principle 3.C-G-1); and cooperating with other agencies to promote local and regional transit serving Milpitas (Guiding Principle 3.C-G-2). Applicable principles and policies that pertain to pedestrian and bicycle circulation include enhancement of bicycle and pedestrian systems and incorporating bicycle and pedestrian facilities into the design of capital improvement projects (Implementing Policy 3.d-I-3); providing recreational and transportation use of the trail system (Trail Policy 3.d-I-17); and the consideration of building bridges or undercrossings across creek channels, railroad lines, and roadway to facilitate bicycling and walking (Trail Policy 3.d-I-21). The General Plan also provides principles and policies that pertain to goods movement and the provision of adequate circulation and off-street parking for truck vehicles, and the restriction of truck traffic on non-designated routes (Guiding Principle 3.e-G-1).

The City of Milpitas *Municipal Code* enforces rules, regulations, and requirements pertaining to operations and maintenance of the transportation network within its respective jurisdiction. According to the *Code*, designated truck routes are to be utilized for any goods movement, and any vehicle exceeding a maximum gross weight limit of three tons, the Chief Police Officer is authorized to designate such street or streets by appropriate signs as "Truck Traffic Routes" for the movement of vehicles exceeding a maximum gross weight limit of three tons. In addition, a permit request regarding parking time duration is required to be filed with the Chief Police Officer and the parking of any vehicle on any streets or portions thereof facing onto a City Park between the hours of 9:00 p.m. and 6:00 a.m. is prohibited unless authorized by the Chief Police Officer (City of Milpitas, 2008).

[3] Level of service (LOS) is a qualitative description of a facility's performance based on average delay per vehicle, vehicle density, or volume-to-capacity ratios. Levels of service range from LOS A, which indicates free-flow or excellent conditions to short delays, to LOS F, which indicates congested or overloaded conditions with extremely long delays.

For any work within a City-owned right-of-way (ROW), an encroachment permit must be filed with the Milpitas Department of Engineering. General provisions of the encroachment permit requires the permittee to repair or replace existing roadways, to notify the Public Works Inspection at least 48 hours prior to any work, and to abide by the *California Department of Transportation Manual of Traffic Controls for Construction and Maintenance Work*. Encroachment permits may be required from the VTA as well. No work is anticipated with the City ROW, but the encroachment permit process is referenced here for information purposes.

3.M.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant impact on transportation and traffic if it were to:

- 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 congestion management program, including but not limited to level of service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways;
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks;
- Substantially increase hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment);
- Result in inadequate emergency access; or
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

Approach to Analysis

Construction of the Program would generate vehicle traffic (construction workers, equipment, and trucks) traveling to and from the program area on area roadways. All program elements would generate daily commute trips by construction workers, and trucks traveling to and from the program area would include deliveries of materials/equipment as well as offsite haul trips of excavated or fill material, trees, and other vegetation. The construction impacts identified below for each element allow a general assessment of the nature and magnitude of potential construction impacts associated with each element. Estimated traffic generation is described for individual program elements.

Standard transportation engineering methodologies were used in conducting the transportation impacts analysis. This assessment focuses primarily on the potential Program-specific, short-term, construction-related impacts on roadways that could result from construction-related changes in roadway capacities or increases from construction-related traffic. Construction-related transportation impacts are not generally considered significant because of their limited duration. However, because Program construction would occur at varying levels of intensity over two construction seasons, between mid-April to mid-October, such impacts would be longer in duration and therefore could be significant. Construction activities that affect roadway operations are typically regulated through permits and construction requirements to ensure that traffic flow is not unduly disrupted.

Construction activities would create a temporary parking demand for construction worker vehicles and equipment. Parking would primarily be located within the District ROW and designated staging areas. Some use of on-street parking and nearby roads could occur; however, the Program area includes sufficient on-street parking opportunities such that existing levels of on-street parking would not be displaced. Therefore, parking was not analyzed within the EIR.

No Impact Significance Determinations

Based on the nature of the Program, there would be no impact related to the following criteria:

> *Change Air Traffic Patterns*. The nearest airport to the Program is the San José International Airport, which is located approximately four miles from the program area. Moffett Federal Airfield is located approximately seven miles from the program area and Reid-Hillview Santa Clara Airport is located eight miles from the program area. There are no private airstrips within the vicinity of the Program. The program area is not located within any airport-related special planning zones (ESA, 1996). Because the Program is located more than two miles from an airport, and the Program would not involve the installation of structures that could interfere with air space, impacts related to air traffic patterns and safety risks associated with airport operations are not applicable, and there would be no impact. Therefore, this significance criterion is not applicable and is not discussed further.
>
> *Conflict with adopted policies, plans, or programs supporting alternative transportation*. Implementation of the Program would not permanently change the existing or planned transportation network in the affected jurisdictions in the City of Milpitas or Santa Clara County and therefore would not conflict with policies, plans, or programs related to transit, bicycle, or pedestrian travel. When the Program is completed, operations and maintenance activities are expected to be similar to existing conditions and would not result in long-term increases in transit demand. Therefore, this significance criterion is not applicable and will not be discussed further.

Impact Summary

Table 3.M-3 provides a summary of transportation and traffic impacts by element and implementation phase (construction and operations). Table 3.M-4 provides a summary of applicable mitigation measures by element and implementation phase.

TABLE 3.M-3
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL TRANSPORTATION/TRAFFIC IMPACTS

	Impact 3.M-1		Impact 3.M-2		Impact 3.M-3	
	Conflict with local policies, plans, and congestion management programs		Increased traffic safety hazards		Impaired emergency access	
	construction	operations	construction	operations	construction	operations
Project-Level Elements						
Lower Berryessa Creek Element	SM	LTS	SM	LTS	SM	LTS
Lower Calera Creek Element	SM	LTS	SM	LTS	SM	LTS
Program-Level Elements						
Upper Calera Creek Element 1	SM	LTS	SM	LTS	SM	LTS
Upper Calera Creek Element 2	SM	LTS	SM	LTS	SM	LTS
Tularcitos Creek Element	SM	LTS	SM	LTS	SM	LTS
Lower Penitencia Creek Element	SM	LTS	SM	LTS	SM	LTS

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact

TABLE 3.M-4
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.M-1		Measure 3.M-2	
	Traffic Control Plan		Road Repair	
	construction	operations	construction	operations
Project-Level Elements				
Lower Berryessa Creek Element	✓	–	✓	–
Lower Calera Creek Element	✓	–	✓	–
Program-Level Elements				
Upper Calera Creek Element 1	✓	–	✓	–
Upper Calera Creek Element 2	✓	–	✓	–
Tularcitos Creek Element	✓	–	✓	–
Lower Penitencia Creek Element	✓	–	✓	–

✓ = Applicable Impact
- = No Impact

Impacts and Mitigation Measures

Impact 3.M-1: Conflict with local plans and policies related to the City's existing transportation and circulation system (including mass transit, and non-motorized travel) as well as the Santa Clara County CMP. (Less than Significant with Mitigation)

As described in Section 3.M.2, Regulatory Setting, the traffic LOS standard is LOS E in the City of Milpitas and the LOS standard for roadways and intersections within the Santa Clara County CMP network is LOS D. The Circulation Element in Milpitas' General Plan (2002) is intended to regulate long-term traffic impacts due to future development and provides for maintaining City and CMP LOS standards and goals for the roadway system in the City of Milpitas (Policy 3.a-I-1); promoting measures that increase transit use (Guiding Principle 3.C-G-1); cooperating with other agencies to promote local and regional transit serving Milpitas (Guiding Principle 3.C-G-2); providing recreational and transportation use of the trail system (Trail Policy 3.d-I-17), and providing adequate circulation for goods movement, and restricting truck traffic on non-designated routes (Guiding Principle 3.e-G-1). The General Plan and documented congestion management plans do not apply to temporary construction projects, and because program operations would not result in a substantial change in vehicle trips over an extended period of time (due to periodic operations and maintenance activities on an annual, monthly, or as-needed basis), LOS impacts on CMP or City roadways during operation of the Program is not considered.

Standard transportation engineering methodologies were used in conducting the transportation impacts analysis. As discussed, construction-related transportation impacts are not generally considered significant because of their limited duration. However, because program construction would occur at varying levels of intensity over a multi-month period, such impacts could be deemed significant. Therefore, the analysis focuses on the short-term increases in traffic due to construction activities relative to existing traffic load and capacity levels on roadways in the program vicinity, and program-induced impacts to the existing circulation system and transportation facilities within the system are presented.

Construction Impacts

Traffic-generating construction activities would include trucks hauling equipment and materials to and from the worksite, as well as the daily arrival and departure of construction workers to and from the worksite.

Lower Berryessa Creek Element

Traffic Impacts. In total, there would be a crew of up to 50 workers at the Lower Berryessa Creek Element program area. The workers would generate up to 100 one-way commute trips (50 inbound to the worksite in the morning and 50 away from the worksite in the evening), Given the work hours of 7:00 a.m. to 7:00 p.m., construction workers would commute to and from the worksite primarily before or after peak traffic hours. Four construction staging areas would be established for this and the Lower Calera Creek Element. These include a 16,875-square-foot staging area on the south side of Abel Street,

a 33,750-square-foot staging area on Hanson Court at the end of the cul-de-sac, a 20,250-square-foot staging area in a 30-foot strip along Arizona Avenue and the north bank of Calera Creek, and a 13,250-square-foot staging area in the Embassy Suites parking lot on the east bank of Lower Berryessa Creek. Worker and equipment parking would be provided on access roads and in the 0.33-acre parking area within the designated construction work areas.

Levee reconstruction along Lower Berryessa Creek would require a total of approximately 20,300 truckloads of imported fill, cement, soil treatment, concrete, and other construction supplies. Approximately 164,000 cubic yards of material would be excavated from the existing levee, some of which would be reused onsite as fill to increase the height and width of the existing levee. On average, 178 one-way truck trips (or 89 round-trips) would occur on a daily basis. This also equates to approximately 22 one-way truck trips per hour during a typical, eight-hour workday.

Increases in traffic associated with construction vehicle trips (truck trips and worker trips) would contribute to existing traffic volumes along roadways in the Program vicinity (e.g., I-680, SR 237, North Milpitas Boulevard, East Calaveras Boulevard, and Abel Street). Tables 3.M-1 and 3.M-2 present the existing daily traffic volumes available for affected regional and local roadways, respectively. Based on the above-described program construction-generated trips, the highest level of truck traffic would generate an average of about one truck every 2.5 minutes, and program-generated traffic would increase the daily traffic volume on local roadways by less than two percent, and by no more than about 0.5 percent on regional roadways. Those percent increases in traffic volumes would not be substantial, and program traffic would not significantly disrupt daily traffic flow on these roadways. Construction-related truck traffic occurring on roadways in the peak direction during the weekday peak traffic hours would coincide with peak hourly traffic and would have the greatest potential to impede traffic flow. The primary impact from construction truck traffic would be a temporary and intermittent reduction of roadway capacities due to the slower movements of trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a construction truck. Impedance to traffic flow during the weekday peak traffic hours is considered a short-term potentially significant impact.

Transit Impacts. As indicated in Table 3.M-2, VTA local bus routes 46 and 66 and AC Transit route 217 run throughout the Lower Berryessa Creek Element vicinity. Relocation of bus stops would not occur because construction activities associated with the Program would not directly interfere with the location and use of bus stops. Program construction vehicles would cause temporary and intermittent increased traffic congestion. Thus, construction activities could cause temporary service delays and could conflict with each transit agency's established level of service goals, resulting in a potentially significant impact.

Bicycle Impacts. A Class I bicycle path currently exists between North Milpitas Boulevard and Redwood Avenue, where it connects to Abel Street at the Abel Street Bridge. The increase in construction vehicles on local roadways could cause short-term conflicts with the City's

policies related to the provision of bicycle access, resulting in a potentially significant impact. However, access would be restored once construction is complete.

Pedestrian Impacts. As described in Chapter 2, Program Description, construction of this element would include raising the pedestrian bridge across from Peter T. Gill Park to accommodate the height of the proposed levees. Access would be restored once construction is complete. In addition, as presented in Figure 3.L-1, there are parks, parkways, creekside trails and levees (including the Berryessa Creek Trail) and par course trails that are located within the program area. Area roadways include sidewalks as described under the Setting section. These facilities are used by nearby residents for casual recreation, such as walking or jogging. The increase in construction vehicles within, and along local roadways could cause conflicts where construction traffic may interfere with, impede, or restrict access to and from existing pedestrian facilities. However, there are sufficient alternatives such that pedestrian passage and recreational opportunities would not be significant.

Lower Calera Creek Element

Traffic Impacts. A total of 40 construction workers would be required for the Lower Calera Creek Element. The workers would generate up to 80 one-way commute trips (40 inbound to the worksite in the morning and 40 away from the worksite in the evening), Given the work hours of 7:00 a.m. to 7:00 p.m., construction workers would commute to and from the worksite primarily before or after peak traffic hours. Construction staging area would be shared with those established for the Lower Berryessa Creek Element (see description above). Worker and equipment parking would be provided on access roads and in a 0.10-acre parking area within the designated limits of construction.

In total, construction activities for the Lower Calera Creek Element would require 700 truckloads of imported fill, cement, soil treatment, concrete, and other construction supplies. Approximately 2,000 cubic yards of material would be cut from one side of Lower Calera Creek just upstream of Milpitas Boulevard and approximately 2,000 cubic yards of material would be excavated for floodwalls. Minor quantities of this material would be used onsite as fill. Approximately 12 one-way trips per day would be required to off-haul the remaining excavated material.

Increases in traffic associated with construction vehicle trips (truck trips and worker trips) would contribute to existing traffic volumes along roadways in the program vicinity (e.g., I-680, SR 237, North Milpitas Boulevard, Jacklin Road, Arizona Avenue, and Jacklin Court). Tables 3.M-1 and 3.M-2 present the existing daily traffic volumes available for affected regional and local roadways, respectively. Based on the above-described program construction-generated trips, the highest level of truck traffic would generate an average of about one truck every five minutes, and program-generated traffic would increase the daily traffic volume on local roadways by less than two percent, and by no more than about 0.1 percent on regional roadways. Those percent increases in traffic volumes would not be substantial, and program traffic would not significantly disrupt daily traffic flow on these roadways. Construction-related truck traffic occurring on roadways in the peak direction

during the weekday peak traffic hours would coincide with peak hourly traffic and would have the greatest potential to impede traffic flow. The primary impact from construction truck traffic would be a temporary and intermittent reduction of roadway capacities due to the slower movements of trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a construction truck. Impedance to traffic flow during the weekday peak traffic hours is considered a potentially significant impact.

Transit Impacts. Similar to the Lower Berryessa Creek Element, VTA and AC Transit local bus routes provide service to the Lower Calera Creek Element area. Relocation of bus stops would not occur because construction activities associated with the Program would not directly interfere with the location and use of bus stops. Program construction vehicles would cause temporary and intermittent increased traffic congestion. Thus, construction activities could cause temporary service delays and could conflict with each transit agency's established level of service goals, resulting in a potentially significant impact.

Bicycle Impacts. As described for the Lower Berryessa Creek Element, a Class I bicycle path currently exists between North Milpitas Boulevard and Redwood Avenue, where it connects to Abel Street at the Abel Street Bridge. The increase in construction vehicles on local roadways could cause short-term conflicts with the City's policies related to the provision of bicycle access, resulting in a potentially significant impact. However, access would be restored once construction is complete.

Pedestrian Impacts. As presented in Figure 3.L-1, there are parks, parkways, creekside trails and levees (including the Calera Creek Trail and Hetch Hetchy Multi-Use Path) that are located within the program area. These facilities are used by nearby residents for casual recreation, such as walking or jogging. Area roadways include sidewalks as described under the Setting section. The increase in construction vehicles within, and along local roadways could cause conflicts where construction traffic may interfere with, impede, or restrict access to and from existing pedestrian facilities. However, there are sufficient alternatives such that pedestrian passage and recreational opportunities would not be significant.

Upper Calera Creek Element 1, Upper Calera Creek Element 2, Tularcitos Creek Element, and Lower Penitencia Creek Element

Preliminary information on construction material and disposal requirements for these program-level elements has not been developed. However, the transport, use, and disposal of construction materials would be similar to those described for the Lower Berryessa Creek Element and Lower Calera Creek Element. As with the project-level elements, construction-related traffic increases, including truck traffic would occur in the vicinity of the four program-level elements.

Traffic Impacts. Similar to the Lower Berryessa Creek Element, increases in traffic associated with construction vehicle trips (truck trips and worker trips) could contribute to existing traffic volumes along roadways in the program vicinity, with the potential for construction-related truck traffic on roadways in the peak direction during peak traffic hours, having the greatest potential to impede traffic flow. The primary impact from construction

truck traffic would be a temporary and intermittent reduction of roadway capacities due to the slower movements of trucks compared to passenger vehicles. Drivers could experience delays if they were traveling behind a construction truck. Therefore, impacts associated with the construction of the four program-level elements and the temporary effect on the existing circulation system is considered a potentially significant impact.

Transit Impacts. Similar to the Lower Berryessa Creek Element, VTA and AC Transit local bus routes provide service to the program element areas. Relocation of bus stops would not occur because construction activities associated with the Program would not directly interfere with the location or use of bus stops. Program construction vehicles would cause temporary and intermittent increased traffic congestion. Thus, construction activities could cause temporary service delays and could conflict with each transit agency's established level of service goals, resulting in a potentially significant impact.

Bicycle Impacts. There are several bicycle facilities near the program element areas, including Class II facilities along North Victoria Parkway, Milmont Drive, California Circle, and North McCarthy Boulevard, and a Class III facility along Dixon Landing Road. The increase in construction vehicles on local roadways could cause short-term conflicts with the City's policies related to the provision of bicycle access, resulting in a potentially significant impact. However, access would be restored once construction is complete.

Pedestrian Impacts. As described in Chapter 2, Program Description, construction of these elements would include pedestrian bridge reconstruction. Access would be restored once construction is complete. In addition, as presented in Figure 3.L-1, there are parks, parkways, creekside trails, and levees (including the Calera Creek Trail and Hetch Hetchy Multi-Use Path) that are located within the program area. These facilities are used by nearby residents for casual recreation, such as walking or jogging. Area roadways include sidewalks as described under the Setting section. The increase in construction vehicles within, and along local roadways could cause conflicts where construction traffic may interfere with, impede, or restrict access to and from existing pedestrian facilities. However, there are sufficient alternatives such that pedestrian passage and recreational opportunities would not be significant.

Operations Impacts

All Elements

The majority of the maintenance activities required by program operation, including periodic maintenance of program facilities and periodic sediment removal, are currently ongoing within the elements. New trips would be generated only by newly required maintenance activities, including activities associated the new floodwalls, the concrete box culvert, and the pump station. New periodic operations and maintenance activities would not substantially increase traffic; therefore operations impacts would be considered less than significant.

Best Management Practices: None applicable.

Mitigation Measures

Measure 3.M-1: *Traffic Control Plan*. The District shall prepare or cause to be prepared a Traffic Control Plan in accordance with professional traffic engineering standards to show methods for maintaining traffic flows on roadways directly affected by construction. The District and construction contractor(s) shall coordinate development and implementation of this plan with the City of Milpitas. Elements of the Traffic Control Plan are expected to include, but not be limited to, the following:

- Truck trips shall be scheduled outside of peak morning and evening commute hours to the extent possible.
- Circulation plans shall be developed to minimize impacts on local street circulation. Flaggers and/or signage shall be used to guide vehicles through and/or around the construction zone.
- The District shall notify all emergency service providers in advance of construction to inform them of the construction activities.
- Truck routes shall be identified in the Traffic Control Plan. Haul routes shall utilize City of Milpitas and Caltrans designated haul routes and minimize truck traffic on local roadways and residential streets to the extent possible.
- Sufficient staging areas shall be provided for trucks accessing construction zones to minimize disruption of access to adjacent land uses.
- Access to driveways and private roads shall be maintained. If access must be restricted for brief periods, property owners shall be notified in advance.
- Lane closures shall be limited during peak hours to the extent possible. Outside of allowed working hours or when work is not in progress, roads shall be restored to normal operations.
- Pedestrian and bicycle access and circulation shall be maintained during construction where safe to do so. If construction activities encroach on a bicycle lane, warning signs shall be posted.
- All equipment and materials shall be stored in designated contractor staging areas on or adjacent to the worksite, in such a manner as to minimize obstruction of traffic.
- Roadside safety protocols shall be implemented. Advance “Road Work Ahead” and “Trucks Entering Roadway” warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) shall be provided to achieve required speed reductions for safe traffic flow through the work zone.
- Construction shall be coordinated with facility owners or administrators of sensitive land uses such as police and fire stations (including all fire protection agencies), transit stations, hospitals, and schools (including Milpitas High School and Thomas Russell Middle School). Facility owners or operators shall be notified in advance of the timing, location, and duration of construction activities.

- The District shall coordinate with UPRR for work within the ROW and avoid disruption to the rail corridor.

- Construction shall be coordinated with local traffic agencies, VTA, and AC Transit, to minimize disruption to service on local bus routes.

- Roadway ROWs and trails if applicable shall be repaired or restored to their original conditions or better upon completion of construction.

- The District shall coordinate with the school district to identify peak circulation periods at schools (i.e., the arrival and departure of students) and require contractor(s) to avoid construction and truck traffic during those periods, or shall provide flaggers and crossing guards (the latter as needed to supplement the school-provided crossing guards) to ensure pedestrian and traffic safety when trucks are present on roads adjacent to schools. If some construction must occur during the school year, the District shall coordinate with the school district prior to construction to identify alternatives to their Safe Route to School program as part of the Traffic Control Plan. School-related vehicle and pedestrian access shall be maintained during construction.

- The District shall coordinate construction near schools when schools are not in session (i.e., summer or holiday breaks) to the extent feasible.

Significance after Mitigation: Less than Significant. Implementation of this mitigation measure would reduce transportation impacts to a less-than-significant level during program construction because it would require the contractor(s) to (1) schedule truck trips outside of peak morning and evening commute hours as needed to avoid adverse impacts on traffic flow, (2) minimize disruption to local bus routes by coordinating with all local traffic agencies, VTA, and AC Transit prior to construction, (3) identify haul routes and detour routes, and (4) establish a suite of traffic safety measures.

Impact 3.M-2: Increase potential traffic safety hazards for vehicles, bicyclists, and pedestrians on public roadways. (Less than Significant with Mitigation)

Construction Impacts

All Elements

For all elements, construction vehicles transporting excavated materials to offsite locations and delivering equipment and supplies (e.g., imported fill, cement, concrete, and other construction supplies) would share the roadways with other vehicles, with the greatest number of daily truck trips projected to travel along Abel Road, Jacklin Road, and North Milpitas Boulevard. The presence of these large, slow-moving construction vehicles and equipment on local roadways in the program vicinity could result in safety hazards on these roadways especially in the vicinity of schools and residential areas. In particular, construction traffic and the presence of construction vehicles near Milpitas High School,

Pomeray Elementary School, Thomas Russell Middle School near Escuela Parkway, Columbus Drive, and North Hillview Drive could potentially pose safety hazards for drivers, bicyclists, and pedestrians.

Implementation of District BMP TR-1 (Public Safety Measures) would require installation of fences, barriers, lights, flagging, guards, and/or signs as determined appropriate by the contractor to provide adequate warning to the public of construction and minimize impacts related to construction. While implementation of BMP TR-1 would generally avoid confusion for drivers, the presence of construction vehicles and equipment in the vicinity of schools would still pose a significant impact regarding traffic safety.

Increased Safety Hazards Related to Wear-and-Tear of Designated Haul Routes. The use of large trucks to transport equipment and material to and from the program worksite(s) for construction could affect road conditions and increase traffic safety hazards on the designated haul routes by increasing the rate of road wear. Although haul routes have not been designated, routes for the project- and program-level elements could include:

- *Lower Berryessa Creek Element*: I-680, Jacklin Road, Abel Street, North Milpitas Boulevard, and Hanson Court;
- *Lower Calera Creek Element*: I-680, Jacklin Road, Jacklin Court, Arizona Avenue, and/or North Milpitas Boulevard;
- *Upper Calera Creek Element 1*: I-680, Jacklin Road, Escuela Parkway, and Russell Lane;
- *Upper Calera Creek Element 2*: Reach A – I-680, Jacklin Road, and North Hillview Drive; Reach B – I-680, North Park Victoria Parkway, Wessex Place, and/or London Drive;
- *Tularcitos Creek Element*: I-680, Calaveras Road, North Hillview Drive, Paseo Refugio, and/or Tramway Drive; and
- *Lower Penitencia Creek Element*: I-880, Dixon Landing Road, California Circle, and/or North McCarthy Boulevard.

The degree to which this impact would occur depends on the design (pavement type and thickness) and existing condition of the road. Freeways and major arterials are designed to accommodate a mix of vehicle types, including heavy trucks; consequently, no significant wear and tear from trucks would be expected on I-680, I-880, or East Calaveras Boulevard. Local streets, specifically residential and collector streets, generally are not built with a pavement thickness that would withstand substantial truck traffic volumes. Thus, wear-and-tear on designated haul routes could cause increased traffic safety hazards for drivers and cyclists, resulting in a potentially significant impact.

Operations Impacts

All Elements

The majority of the maintenance activities required by program operations, including periodic maintenance of program facilities and periodic sediment removal, are currently ongoing within the elements. New trips would be generated by newly required maintenance activities; including activities associated the new floodwalls, the concrete box culvert, and the pump station. Further, new program operations and maintenance activities would not introduce a new vehicle class to public roadways nor alter the existing public roadway grades and curves geometry. Therefore, program operations would not substantially increase traffic safety hazards, including traffic safety hazards related to increased wear-and-tear of haul routes. This impact would be less than significant and no mitigation is required.

Best Management Practices

The following summarizes District BMPs that would be required to address impacts associated with increased traffic safety hazards:

- TR-1: Public Safety Measures – applicable to the construction phase of all elements.

Mitigation Measures

Implement Mitigation Measure 3.M-1 (Traffic Control Plan).

Measure 3.M-2: *Road Repair.* The District and the City of Milpitas shall enter into an agreement prior to construction that will detail pre-construction conditions and the post-construction requirements of a roadway rehabilitation program. Roads damaged by construction shall be repaired to a structural condition equal to that which existed prior to construction activity.

Significance after Mitigation: Less than Significant. Mitigation Measure 3.M-1 would reduce potential short-term safety impacts from program construction activities to a less-than-significant level because it requires a Traffic Control Plan that includes provisions such as: installation of signs warning motorists, bicyclists, and pedestrians of the construction zones; notification of detour routes for vehicles and alternate routes for bicyclists; and use of safety signs to slow approaching traffic at program access points to reduce traffic hazards during construction.

Mitigation Measure 3.M-2 would reduce safety impacts caused by road damage to a less-than-significant level because roads damaged by construction would be repaired to a structural condition equal to that which existed prior to construction activity.

Impact 3.M-3: Impair access to adjacent roadways and land uses for both general and emergency response traffic. (Less than Significant with Mitigation)

Construction Impacts

All Elements

Construction activities would generally be conducted in the established construction areas and within the District's ROW. This analysis assumes that the District would comply with all construction and permanent easements obtained from the UPRR, City of Milpitas, Milpitas High School, and Thomas Russell Middle School. While lane closures are not anticipated, construction equipment could result in increased traffic congestion and could temporarily impede emergency access, resulting in a potentially significant impact

Operations Impacts

All Elements

As described under Impact 3.M-2, operation and maintenance activities would not alter the grades and curves of the existing public roadways. Access to the program area would be provided using existing access roads and access to local roadways would not be impaired. Therefore, impacts related to impaired emergency access due to operation and maintenance activities would be less than significant and no mitigation is required.

Best Management Practices: None applicable.

Mitigation Measure

Implement Mitigation Measure 3.M-1 (Traffic Control Plan).

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 3.M-1 (Traffic Control Plan), which would require the District to provide advanced information and notification to emergency service providers regarding potential detours and the timing, location, and duration of construction activities, would reduce impacts related to emergency access to a less-than-significant level.

3.M.4 References

Alameda-Contra Costa Transit District (AC Transit), 2010, AC Transit (Local Service) Route: 217 website, http://transit.511.org/accessible/schedules/RouteInfo.aspx?cid=AC&rte=22421, accessed April 15, 2010.

California Department of Transportation (Caltrans), *2009 Traffic Volumes on California State Highways*. 2010a.

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City of Milpitas, General Plan, Chapter 3: Circulation Element, March 19, 2002.

City of Milpitas, Municipal Code, Title V – Chapter 100: Traffic, Section 12 and Section 15, December, 2008.

City of Milpitas, 2007, Traffic Volume Map, last updated 12/4/07, http://www.ci.milpitas.ca.gov/_pdfs/trans_traffic_volume_map.pdf, accessed April 15, 2010.

City of Milpitas, 2009, Bikeway Master Plan Update, June 2009, http://www.ci.milpitas.ca.gov/_pdfs/trans_bikeway_master_plan.pdf, accessed April 15, 2010.

Environmental Science Associates (ESA), San José International Airport Master Plan Update, State Clearinghouse #95073066, prepared for the City of San José, October 1996.

Valley Transportation Authority (VTA), 2010, City of Milpitas Routes, http://www.vta.org/schedules/schedule_milpitas.html, accessed April 14, 2010.

3.N Utilities and Service Systems

This section provides an assessment of potential impacts on utilities and service systems in the vicinity of the Program. Utilities and service systems discussed in this section include natural gas, electricity, stormwater drainage, water supply distribution systems, wastewater collection and treatment systems, and solid waste disposal. This section also identifies mitigation measures that would reduce significant impacts to a less-than-significant level.

3.N.1 Environmental Setting

Water Supply

The City of Milpitas (City) receives its potable water from the Santa Clara Valley Water District (District) and the San Francisco Public Utilities Commission (SFPUC). The City purchases approximately 65 percent of its water from the District regional water system, as described in detail in Chapter 2, Program Description.

The District water is primarily from the Sacramento-San Joaquin Delta watershed and is supplemented by local sources such as Anderson and Calero Reservoirs. In 2008, the City supplied an average of 10 million gallons of water per day (mgd) to approximately 16,000 homes and businesses for indoor and outdoor use.

The City and County of San Francisco (CCSF), through the SFPUC, owns and operates a regional water system that extends from the Sierra Nevadas to San Francisco and serves over 2.4 million people in San Francisco, San Mateo, Santa Clara, Alameda, and Tuolumne Counties. In the Bay Area, 25 cities, including the City of Milpitas, and water districts as well as two private utilities purchase water wholesale from the SFPUC, and the SFPUC provides water supplies directly to retail customers in San Francisco.

The water purchased by the City from SFPUC is primarily water from the Hetch Hetchy watershed located in the Sierra Nevada Mountains, supplemented by treated water produced from SFPUC's local watershed in Alameda County.

The City purchases recycled water from the South Bay Water Recycling Program (SBWRP) for irrigation, industrial, and other purposes. The SBWRP is an ongoing multi-year effort to use high-quality recycled water from the San José / Santa Clara Water Pollution Control Plant (WPCP) for irrigation, industrial, and other purposes.

Solid Waste

The City currently contracts with Allied Waste Services for the collection, transportation, and disposal of solid waste and recyclables within the City. There are five active landfills in Santa Clara County and two active landfills in Alameda County that could potentially receive construction waste from the Program: Guadalupe Sanitary Landfill, Kirby Canyon Recycling and Disposal Facility, Newby Island Landfill, Zanker Material Processing Facility, Zanker

Road Resource Recovery Operations Landfill in Santa Clara County; and Altamont Landfill and Resource Recovery and Vasco Road Sanitary Landfill in Alameda County. The California Integrated Waste Management Board (CIWMB) provides an annual profile of these facilities, and information from the profile is summarized in Table 3.N-1 (CIWMB, 2010b). The California Integrated Waste Management Act requires that each jurisdiction reuse, recycle, compost or otherwise divert 50 percent of their annual waste away from landfills or show a good faith effort to reach this goal. Since 2003, the City of Milpitas has met its diversion goal, in addition to adopting the necessary plans and policies to comply with the act (CIWMB, 2010a). According to the Countywide Integrated Waste Management Plan, Santa Clara County has sufficient landfill capacity for approximately the next 23 years.

Stormwater Drainage

The City owns and operates the majority of the stormwater drainage system that serves the Program area. These facilities are maintained by the City's Engineering Department (City of Milpitas, 2010a). The City prepared a Storm Drain Master Plan in 2001 ~~that concluded that the storm drain system was adequate and set a low priority for storm drain improvements.~~, which identifies some localized collection system deficiencies resulting from the 10-year and 100 year storm systems.

Sanitary Sewer and Wastewater

The City's sanitary sewer/wastewater treatment system has two distinct components: (1) a network of sewer mains and pipes that collects and conveys effluent from its sources to the San José / Santa Clara WPCP (located in Alviso), and (2) the WPCP that treats the effluent, including a system of mains and pipes that transports a portion of the treated wastewater for non-potable uses (e.g., irrigation of landscaping, agricultural irrigation, dust suppression during construction, etc.).

The Milpitas Sanitary Sewer System is owned and operated by the City. Currently, all wastewater collected within the City is pumped via the Main Pump Station to the San José / Santa Clara WPCP. The WPCP treats wastewater originating from San José, Santa Clara, Milpitas, Campbell, Cupertino, Los Gatos, Saratoga, and Monte Sereno. The plant treats water through an advanced, tertiary system. Secondary treated water is discharged to the San Francisco Bay, while tertiary treated water is distributed to users throughout the southern part of the San Francisco Bay (City of San José, 2010). The plant has a wastewater treatment capacity of 167 mgd. The City of Milpitas ~~is contracted to use up to 13.5 mgd of the plant's capacity~~ recently increased its sanitary sewer treatment capacity from 13.5 million gallons per day to 14.25 million gallons per day ~~(City of Milpitas, 2010b)~~.

TABLE 3.N-1
ACTIVE LANDFILLS IN ALAMEDA AND SANTA CLARA COUNTIES

Jurisdiction	Total Estimated Permitted Capacity (cubic yards)	Total Estimated Capacity Used (cubic yards)	% Used	Remaining Estimated Capacity (cubic yards)	Remaining Capacity Date	% Remaining Capacity	Closure Date	Waste Types Accepted/Permitted
Santa Clara County								
Guadalupe Sanitary Landfill	28,600,000	14,000,000	49%	14,600,000	As of 06/11/01	51%	11/1/2025	Construction/demolition, green materials, industrial, mixed municipal
Kirby Canyon Recycling and Disposal Facility	36,400,000	20,871,507	57%	15,528,493	As of 06/11/01	43%	12/31/2022	Construction/demolition, industrial, tires, green materials, mixed municipal
Newby Island Landfill	50,800,000	32,525,047	64%	18,274,953	As of 9/30/06	36%	6/1/2025	Construction/demolition, contaminated soil, green materials, industrial, mixed municipal, sludge (biosolids), tires
Zanker Material Processing Facility	540,100	41,100	8%	499,000	As of 04/01/04	92%	12/31/2018	Construction/demolition, other designated
Zanker Road Resource Recovery Operations Landfill	3,200,000	2,500,000	78%	700,000	As of 05/16/06	22%	1/1/2029	Construction/demolition, green materials, industrial, tires
Alameda County								
Altamont Landfill and Resource Recovery	62,000,000	16,280,000	26%	45,720,000	As of 08/22/05	74%	1/1/2029	Ash, construction/demolition, contaminated soil, green materials, industrial, mixed municipal, other designated, tires, shreds
Vasco Road Sanitary Landfill	31,942,205	22,071,501	69%	9,870,704	As of 06/19/07	31%	1/1/2015	Contaminated soil, industrial, mixed municipal, other designated, green materials, construction/demolition

SOURCE: CIWMB, 2010b

Electricity, Natural Gas, and Telecommunications

Electricity and Natural Gas

Electrical power and natural gas in the program area are provided by Pacific Gas and Electric Company (PG&E). PG&E is regulated by the California Public Utilities Commission (CPUC) and is the primary provider of gas and electrical power to Santa Clara County. PG&E obtains its energy supplies from both renewable and nonrenewable resources, with power derived from fossil fuels, nuclear sources, and hydroelectric sources, as well as from energy purchased outside its service area and delivered through transmission lines (see Section 3.O, Energy Conservation, for more detail on PG&E).

Telecommunications

AT&T and Comcast provide telecommunications services within the City. Several AT&T lines occur within the program area.

3.N.2 Regulatory Setting

Federal Regulations

No federal regulations related to public utilities and service systems are applicable to the Program.

State Regulations

California Integrated Waste Management Act of 1989

The California Integrated Waste Management Act of 1989 (Public Resources Code [PRC], Division 30), enacted through Assembly Bill (AB) 939 and modified by subsequent legislation, requires all California cities and counties to implement programs to reduce, recycle, and compost at least 50 percent of wastes by the year 2000, and to divert at least 75 percent by 2010 (PRC §41780). The state determines compliance with this mandate to divert 50 percent of generated waste (which includes both disposed and diverted waste) through a complex formula. This formula requires cities and counties to conduct empirical studies to establish a “base year” waste generation rate against which future diversion is measured. The actual determination of the diversion rate in subsequent years is arrived at through deduction, not direct measurement; rather than counting the amount of material recycled and composted, the city or county tracks the amount of material disposed of at landfills, and then subtracts the disposed amount from the base-year amount (PRC §41780.2). As of 2006, the most recent year for which jurisdiction summary information is available, Milpitas’ diversion rate was 60 percent; this rate is consistent with AB 939.

Utility Notification Requirements

Title 8, Section1541 of the California Code of Regulations requires excavators to determine the approximate locations of subsurface installations such as sewer, telephone, fuel, electric, and water lines (or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation.

California law (California Government Code §4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center, such as Underground Service Alert Northern California (USA North). USA North receives planned excavation reports from public and private excavators, and transmits that information to all participating members who may have underground facilities at the location of excavation. The USA North members mark or stake their facility, provide information, or give clearance to dig (USA North, 2010).

Local Plans and Policies

City of Milpitas Sewer Master Plan

The 2009 Sewer Master Plan Update defines the sewer collection system improvements necessary to accommodate the City's future land use development plans to build-out, including assorted General Plan Amendments and the Milpitas Transit Area. The objectives of the 2009 Sewer Master Plan Update are to update land uses under three development scenarios; identify pipe and pumping deficiencies that may result from increased development; and recommend projects to relieve these deficiencies (RMC, 2009a).

City of Milpitas Water Master Plan

This 2009 Water Master Plan Update is an update to the City's 2002 Water Master Plan, which defines the water system improvements necessary to meet the City's 2002 water demand and future demand associated with future development plans for 2008, 2018, and build-out year of 2021. The 2009 Water Master Plan Update is a reevaluation of the City's water system capacity based on updated land use information from several near- and long-term development projects currently in the planning process. The objectives of this planning document are to update the land use information for three potential development scenarios; identify transmission and storage deficiencies caused by this change in water demand; and recommend projects to relieve these deficiencies. Each water supply area (i.e., SFPUC and SCVWD supply zones) was evaluated independently (RMC, 2009b).

City of Milpitas General Plan

The following policies from the City of Milpitas General Plan address utilities and waste management:

Public Facilities and Utilities

2.d-I-1. Coordinate capital improvement planning for all municipal service infrastructure with the location and timing of growth.

2.d-I-2. Periodically update the City's water and sewer master plans.

Waste Management and Recycling

4.h-I-1. Implement measures specified in the City's Source Reduction and Recycling Element and the City's Household Hazardous Waste Element.

3.N.3 Impacts and Mitigation Measures

Significance Criteria

Implementation of the Program would have a significant effect on utilities and service systems if it were to:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board (RWQCB);
- Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Require or result in the construction of new stormwater drainage facilities, or expansion of existing facilities, the construction of which could cause significant environmental effects;
- Be located such that there are insufficient water supplies available to serve the project from existing entitlements and resources, or require new or expanded entitlements;
- Result in a determination by the wastewater treatment provider that would serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments;
- Fail to be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs; or
- Fail to comply with federal, state, and local statutes and regulations related to solid waste.

This section specifically addresses impacts on utilities and service systems, including solid waste disposal. Due to the nature of the Program, this EIR applies the following additional criterion in addition to those described above, and considers that the Program would have a significant effect on utilities and service systems if it were to:

- Disrupt operation or require relocation of local utilities.

Approach to Analysis

The analysis of program effects related to utilities and service systems focuses on temporary construction-related impacts. Program implementation would not have a direct, long-term impact on public utilities or have direct long-term impacts on the demand for public utilities. However, during construction, short-term temporary disruption of service could occur if

existing utilities were accidentally damaged during relocation or other program-related construction activities.

The analysis also identifies potential impacts on landfill capacity due to the disposal of construction waste. The largest potential source of solid waste is excavated soil, sediment, concrete, and vegetation collectively refer to as 'construction waste'. While it is expected that much of the construction waste would be reused onsite to reconstruct levees, and that most of the excess waste would be recycled or reused offsite, a portion of the excess construction could be disposed of in landfills; thus, the potential effects of such disposal on the available capacity of local landfills are included in the analysis.

No Impact Significance Determinations

Based on the Program's characteristics and location, it would not result in impacts related to several of the significance criteria listed above, for the following reasons:

Wastewater Treatment Requirements. No wastewater will be generated during construction or operations of the Program, with the exception of construction worker use or portable restrooms that would be off hauled by the contractor for treatment. Short term increase in wastewater generation would not increase the volume of wastewater in the system, nor would it result in a decrease in quality of flows into the San José / Santa Clara WPCP. Such that the Program would affect compliance with wastewater treatment requirements issued by the San Francisco Bay RWQCB, the agency that issues permits for discharge from the plant.

Water or Wastewater Facilities / Wastewater Treatment Capacity. The Program would not require additional water supply or increase wastewater generation; therefore, no new water or wastewater treatment facilities are required for the Program. Water required for dust control measures would be trucked to construction sites by the Program contractor. The Program would not produce wastewater during construction or operations and would not affect the capacity of the San José / Santa Clara WPCP. Therefore, the Program would not require construction or expansion of water or wastewater facilities or affect the existing wastewater treatment capacity.

Sufficient Water Supply Availability and Entitlements. The Program would not require new water supplies, water resources, or entitlements. The Program entails improvements to existing flood control facilities and does not entail expansion of the District's potable water supply facilities. As a result, there would be no need for expanded water supplies or entitlements.

Require or result in the construction of new stormwater drainage facilities, or expansion of existing facilities. Construction and operations of the Program would not result in increased stormwater runoff within the program area. Therefore, the Program would not require the construction of new stormwater drainage facilities or expansion of existing facilities.

Impact Summary

Table 3.N-2 provides a summary of utilities impacts by element and implementation phase (construction and operations). Table 3.N-3 provides a summary of applicable mitigation measures by element and implementation phase.

Impacts and Mitigation Measures

Impact 3.N-1: Adequate landfill capacity to accommodate the Program's solid waste disposal needs. (Less than Significant with Mitigation)

All Elements

Estimates of construction waste volumes were calculated based on the linear extent of the Program as well as anticipated excavation widths and depths along each program element. Construction of the Program would generate at least 418,200 cubic yards of construction waste. The Lower Berryessa Creek Element would result in approximately 164,000 cubic yards of construction waste (District, 2010a). The Lower Calera Creek Element would generate approximately 4,200 cubic yards of construction waste. The amount of other construction waste, such as vegetation, produced by the Program would be minimal.

Specific information on solid waste disposal needs for the program-level elements is unavailable at this time. As currently proposed, it is estimated that the construction waste associated with program-level elements is approximately 250,000 cubic yards based on the proposed size and length of the elements, improvements, and, anticipated construction methods for the program-level elements as compared to the project-level elements.

There are several factors that would reduce the amount of construction waste being deposited in local landfills. To the extent feasible, the District would re-use any suitable construction waste as fill material when reconstructing the raised levees and maintenance roads. However, the specific amount of construction waste that could be reused onsite is currently unknown.

Altamont Landfill, Vasco Road Sanitary Landfill, Guadalupe Sanitary Landfill, and Newby Island Sanitary Landfill accept certain types of waste that are used as alternative daily cover. Alternative daily cover consists of different types of materials; depending on the solid waste facility, it can be used to cover the active landfill area at night to protect it from invasion by insects and vermin. All four of the above facilities use contaminated soils and green materials (vegetation and woody debris) for cover and, with the exception of Altamont Landfill, all use construction and demolition waste as alternative daily cover. Alternative daily cover is not included in the calculation of landfill capacity; therefore, when materials are used for this purpose, it would not result in a reduction of landfill capacity. It is anticipated that a large portion of any unused construction waste resulting from the Program would qualify for use as alternative daily cover. However, the specific amount of construction waste that could be reused as alternative daily cover is unknown.

TABLE 3.N-2
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL UTILITIES AND SERVICE SYSTEMS IMPACTS

	Impact 3.N-1		Impact 3.N-2		Impact 3.N-3	
	Adequate landfill capacity		Interference with existing utilities		Compliance with federal, state, and local regulations	
	construction	operations	construction	operations	construction	operations
Project-Level Elements						
Lower Berryessa Creek Element	SM	LTS	SM	LTS	SM	LTS
Lower Calera Creek Element	SM	LTS	SM	LTS	SM	LTS
Program-Level Elements						
Upper Calera Creek Element 1	SM	LTS	SM	LTS	SM	LTS
Upper Calera Creek Element 2	SM	LTS	SM	LTS	SM	LTS
Tularcitos Creek Element	SM	LTS	SM	LTS	SM	LTS
Lower Penitencia Creek Element	SM	LTS	SM	LTS	SM	LTS

SM = Significant Impact, Can Be Mitigated
LTS = Less than Significant Impact

TABLE 3.N-3
SUMMARY OF APPLICABLE MITIGATION MEASURES

	Measure 3.N-1		Measure 3.N-2a		Measure 3.N-2b		Measure 3.N-2c		Measure 3.N-2d		Measure 3.N-3	
	Appropriate Landfill Use		Preconstruction Utility Identification and Coordination		Protection of Other Utilities During Construction		Advance Notification		Emergency Response Plan and Notifications		Waste Management Plan	
	construction	operation	construction	operations	construction	operations	construction	operations	construction	operations	construction	operations
Project-Level Elements												
Lower Berryessa Creek Element	✓	–	✓	–	✓	–	✓	–	✓	–	✓	–
Lower Calera Creek Element	✓	–	✓	–	✓	–	✓	–	✓	–	✓	–
Program-Level Elements												
Upper Calera Creek Element 1	✓	–	✓	–	✓	–	✓	–	✓	–	✓	–
Upper Calera Creek Element 2	✓	–	✓	–	✓	–	✓	–	✓	–	✓	–
Tularcitos Creek Element	✓	–	✓	–	✓	–	✓	–	✓	–	✓	–
Lower Penitencia Creek Element	✓	–	✓	–	✓	–	✓	–	✓	–	✓	–

✓ = Applicable Impact
– = No Impact

In addition to using certain types of wastes as alternative daily cover, most landfills separate construction and other debris for re-use. Materials such as concrete and demolition materials would be typically used for recycling were possible. The separation of construction waste for recycling would further reduce the amount of construction waste counted towards landfill capacity. However, the specific amount of construction waste that could be recycled by landfill operators is unknown.

The facility that would receive construction waste from the Program would be determined by the District and its selected construction contractor at the time of program implementation but could include the facilities listed in Table 3.N-4. Landfills in the program vicinity have available permitted capacities ranging from 540,100 cubic yards to 62,000,000 cubic yards with expected site lives of 8 to 19 years. The maximum disposal requirements for the Program would be approximately 83.8 percent of the available permitted capacity of the smallest local solid waste facility and 0.91 percent of the largest. As noted, some of the construction waste would be used as onsite fill and most of these landfill facilities would use materials disposed from the Program as alternative daily cover or separate construction debris for recycling as described above. This would minimize the amount of waste from the Program entering a solid waste facility as fill. However, since the specific amount of construction waste that could be re-used or recycled is currently unknown, it is assumed that the entire amount of construction waste generated by the Program could be deposited in local landfills. In most cases, the amount of construction waste generated by the Program would not adversely affect landfill capacity. However, if all construction waste were to be deposited at the Zanker Materials Processing Plant or the Zanker Road Resource Recovery Operations Landfill, it would reduce these facilities' overall capacity by 83.8 percent and 59.7 percent respectively. Depositing all construction waste at either facility would result in a potentially significant impact given the high percentage of the available capacity that would be used for the Program.

TABLE 3.N-4
CAPACITY OF LOCAL LANDFILLS USED BY PROGRAM

Jurisdiction	Maximum Percent Capacity to be Used by Program
Santa Clara County	
Guadalupe Sanitary Landfill	2.9%
Kirby Canyon Recycling and Disposal Facility	2.7%
Newby Island Landfill	2.3%
Zanker Material Processing Facility	83.8%
Zanker Road Resource Recovery Operations Landfill	59.7%
Alameda County	
Altamont Landfill and Resource Recovery	0.91%
Vasco Road Sanitary Landfill	4.2%

SOURCE: CIWMB, 2010b; ESA, 2010

Operations Impacts

All Elements

During program operations for all elements, maintenance of the concrete channels, culverts, and hydraulic structures would require sediment and vegetation removals if the depths become greater than one foot above design conditions. As described in Chapter 2, Program Description, the material would be disposed at a landfill or other suitable materials disposal sites. The specific amounts of solid waste that would be deposited at landfills as a result of maintenance during program operations are currently unknown. However, maintenance activities that would occur during program operations would be the same or similar to current maintenance activities and would not be expected to produce a significant increase in the amount of solid waste for deposit at landfill facilities. In addition, the solid waste deposited at local landfills from ongoing maintenance activities would likely be soils and green material that would used as alternative daily cover and would therefore not reduce the capacity of landfill facilities. The impacts on landfill capacity resulting from program operations on solid waste facilities would therefore be considered less than significant.

Best Management Practices: None applicable.

Mitigation Measures

> **Mitigation Measure 3.N-1: *Appropriate Landfill Use*.** In order to ensure that construction waste generated by the Program does not significantly reduce the capacity of local landfills, the District shall require contractors not to exclusively dispose of construction waste at the Zanker Material Processing Facility or the Zanker Road Resource Recovery Operations Landfill.

Significance after Mitigation: Less than Significant. This mitigation measure would reduce impacts on landfill capacity to less-than-significant levels by avoiding disposal of program construction waste in landfills with capacity limitations.

Impact 3.N-2: Potential to interfere with existing utilities. (Less than Significant with Mitigation)

Construction Impacts

All Elements

Construction activities for all of the elements could result in damage to or interference with existing above- and below-ground utilities including, but not limited to, water supply, natural gas, oil, telecommunications, cable (fiber optic), electrical, sanitary sewer, and storm drainage lines. Excavation for construction, depending on depth, could result in damage to existing underground utilities. Use of construction equipment could result in damage or disruption of aboveground utilities as well. Without protection or relocation these facilities could be damaged, resulting in safety hazards and/or disruption of utility service. The District has not completely identified the specific utility lines that could be disrupted. However, preliminary

engineering drawings available for the project-level elements indicate the general location and type of utilities that may be in conflict with proposed construction. Table 3.N-5, below, shows these utilities along with their type and location. Additionally, storm drains are located within existing levee and floodwall structures which would be reconstructed in-place and would not result in disruption or flooding.

TABLE 3.N-5
EXISTING UNDERGROUND UTILITIES LOCATED ALONG LOWER BERRYESSA ALIGNMENT[a]

Location Description	Station Number	Utility	Diameter (inches)
South of Summerwind Drive North of Pescadero Street	11+55	Utilities crossing to be protected in place	TBD
Beneath North Abel Street	24+40	Sewer	27
South of North Abel Street	25+50	Telephone	12
	25+75	TBD	TBD
	25+80	TBD	TBD
	26+20	TBD	TBD
	26+30	Oil	10
	27+50	Oil	8
	28+5	Telephone	12
Southwest of Folsom Circle North of Edgewater Drive	42+80	Utilities crossing to be protected in place	TBD
West of North Milpitas Boulevard	54+95	Sewer	24
Beneath North Milpitas Boulevard	55+30	Cable	8
	55+40	TBD (4 utilities)	TBD
	56+55	Water	16
South of Paseo Refugio North of Town Center Drive	74+40	Water	78
	74+60	Water	96
South of Paseo Refugio East of Town Center Drive	76+10	Storm Drain	30
	76+20	TBD	12
Beneath Hillview Drive	79+65	Telephone	TBD
	79+85	Telephone	12
	80+25	Water	12

[a] Due to the nature of underground construction, the exact location of under ground utilities cannot be guaranteed based on construction documents; the precise location can only be determined by careful probing or hand digging, in compliance with Article 6 of the Cal/OSHA Construction Safety Orders.

TBD = to be determined

SOURCE: District, 2010b

The District would be responsible for coordination of the relocation and protection of utilities during and/or prior to construction. However, due to the presence of numerous underground utility lines within and adjacent to the program area, relocation of existing utilities, potential damage to the existing utilities, and/or temporary service disruptions would be considered a potentially significant impact.

Operations Impacts

All Elements

Operation of the Program would entail sediment, soil, and vegetation removal to maintain facilities. Future maintenance activities would be the same or similar to current maintenance activities and are not expected to interfere with or disrupt utilities. Therefore, impacts on utilities resulting from program operations would be considered less than significant.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.N-2a: *Preconstruction Utility Identification and Coordination*. Prior to construction activities, the District shall locate overhead and underground utility lines, such as natural gas, electricity, sewer, telephone, fuel, and water lines that may be encountered during excavation work. Pursuant to state law, the District shall notify USA North and have them locate underground utilities prior to conducting any ground-disturbing activities. Information regarding the exact location of existing utilities shall be marked and confirmed before construction activities begin. Utilities may be located by customary techniques such as geophysical methods and hand excavation.

The District shall notify all affected utility service providers of the construction plans and schedule, in advance. The District shall make arrangements with these entities regarding the protection, relocation, or temporary disconnection of services prior to the start of construction, and promptly reconnect services, as required.

Mitigation Measure 3.N-2b: *Protection of Other Utilities During Construction*. The District shall prepare detailed specifications as part of the design plans to include procedures for the excavation, support, and fill of areas around subsurface utilities, cables, and pipes. If it is not feasible to avoid an overhead utility line during pipeline construction, the District shall coordinate with the affected utility owner to either temporarily or permanently support the line, or to de-energize the line while temporarily supporting the overhead line.

Mitigation Measure 3.N-2c: *Advance Notification*. Two to four days prior to construction, the District shall provide advance notification to residents and businesses that could be affected by a potential utility service disruption. The notification shall provide information about the timing and duration of the potential service disruption.

Mitigation Measure 3.N-2d: *Emergency Response Plan and Notification*. The District shall develop an emergency response plan prior to commencing construction activities that identifies response measures in the event of a leak or explosion resulting from a utility rupture. In addition, the District) shall notify local fire departments any time damage to a gas utility results in a leak or suspected leak and whenever damage to any utility results in a threat to public safety.

Significance after Mitigation: Less than Significant. These mitigation measures reduced interference with utility operations to a less-than-significant level by requiring utility identification, protection, and notification of utility customers prior to and during construction

of the Program. Additionally, an emergency response plan shall be required to reduce potential impacts from damaged utilities.

Impact 3.N-3: Impacts related to compliance with federal, state, and local statutes and regulations related to solid waste. (Less than Significant with Mitigation)

Construction Impacts

All Elements

This analysis focuses on compliance with federal and state statutes related to solid waste as a significance threshold, but also includes consideration of local regulations.

The CIWMB found that the City of Milpitas achieved the State of California's 50 percent solid waste diversion goal between 1999 and 2006 (CIWMB, 2010a). Program construction would result in the generation of an estimated minimum of 168,200 cubic yards of excavated soil requiring offsite reuse or disposal, assuming none of the excavated material would be reused onsite. While the precise quantity of total waste materials to be disposed of in nearby landfills (which, in addition to excavated soil, includes certain construction debris and demolition materials) is not known at this time, the District intends to reuse much of the material. It is expected that most of the generated construction waste could be diverted for recycling and reuse, with only a small portion of the construction waste (which has not been quantified) being disposed at one or more of the landfills listed above. As discussed in Chapter 2, Program Description, reused materials would include clean soil that would be used onsite during construction. However, if the total amount of construction-related waste were not reused or recycled in accordance with the CIWMB diversion goals, impacts related to compliance with federal, state, and local solid waste statutes would be considered significant.

Operations Impacts

All Elements

Program operations would include maintenance activities what would entail the removal of soil and sediment and depositing these materials into local landfill facilities**.** Future maintenance activities would be the same as or similar to current maintenance activities and, therefore, the amounts of solid waste removed for future maintenance is not expected to be significantly more than the amounts currently being removed and deposited in landfills. According to the CIWMB, the City of Milpitas has met the 50 percent waste diversion goal from 1999 to 2006 (CIWMB, 2010a). Maintenance activities associated with the Program are not expected to prevent the City of Milpitas from meeting the 50 percent diversion goal; therefore, the impact would be less than significant.

Best Management Practices: None applicable.

Mitigation Measures

Mitigation Measure 3.N-3: *Waste Management Plan*. The District shall require construction contractor(s) to prepare a waste management plan and submit the plan to the District for review and approval. A copy of the plan shall be given to the City of Milpitas. The plan shall include:

- Identification of the types of debris that will be generated by the Program and how all waste streams will be handled;
- Actions to reuse or recycle construction debris and clean excavated soil to the extent feasible; and
- Actions to divert asphalt and concrete construction debris from disposal in a landfill.

Upon completion of construction of each element, the contractor(s) shall be required to submit a debris diversion and disposal report to the District, documenting the actual tonnage or volume of material recycled and disposed of and stating that the waste reuse, recycling, and disposal requirements set forth above have been achieved.

Significance after Mitigation: Less than Significant. This mitigation measure would reduce impacts related to compliance with solid waste statutes and regulations to less-than-significant levels through reducing the amount of excavated soil and construction debris disposed in local landfills.

3.N.4 References

California Integrated Waste Management Board (CIWMB), Solid Waste Profiles, http://www.calrecycle.ca.gov/Profiles/Juris/, accessed April 5, 2010a.

California Integrated Waste Management Board (CIWMB), http://www.calrecycle.ca.gov/Profiles/Facility/Landfill/default.asp?VW=JSELECT&MTYPE=Landfill, accessed April 5, 2010b.

City of San José - Water Pollution Control Plant, http://www.sanjoseca.gov/esd/wastewater/water-pollution-control-plant.asp, accessed April 5, 2010.

City of Milpitas – Engineering, http://www.ci.milpitas.ca.gov/government/engineering/default.asp, accessed April 8, 2010a.

City of Milpitas – Demographics, http://www.ci.milpitas.ca.gov/business/demographics_2.asp, accessed April 8, 2010b.

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Santa Clara Valley Water District (District), Lower Berryessa Creek Project – Planning Study Report, prepared by Winzler & Kelly, March 2010a.

Santa Clara Valley Water District (District), 30% Preliminary Map and Construction Plan for Lower Berryessa Creek Project, June 16, 2010b.

Underground Service Alert North (USA North), http://www.usanorth.org/about.php?user=excavators, accessed April 11, 2010.

3.O Energy Conservation

This section describes the environmental and regulatory setting of the Program, including energy resources that could be consumed through implementation of the Program including oil, natural gas, electricity, and renewable energy. It provides an assessment of potential impacts on energy conservation in terms of supplies, production capacity, demand/use, and existing energy standards and state and federal energy conservation goals. Mitigation measures are identified to avoid or reduce significant impacts.

3.O.1 Environmental Setting

Energy Supplies

California's energy system includes electricity, natural gas, and petroleum resources. California's energy system provides 73.2 percent of the electricity, 12.9 percent of the natural gas, and 38.1 percent of the petroleum of the state's energy demand. The rest of California's energy resources are imported from outside of the state and include electricity from the Pacific Northwest and the Southwest; natural gas purchases from Canada, the Rocky Mountain States, and the Southwest; and crude oil imported from Alaska and foreign sources (CEC, 2010a).

Electricity

The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear. Of the electricity generated in-state, 58.6 percent is generated by natural gas-fired power plants, 2.0 percent is generated by coal-fired power plants, 10.1 percent comes from large hydroelectric facilities, and 15.6 percent comes from nuclear power plants. The remaining 13.6 percent of the in-state total electricity production is supplied by renewable sources, including small hydroelectric generation stations (1.8 percent), biomass (2.7 percent), geothermal (6.2 percent), solar (0.3 percent), and wind (2.7 percent) (CEC, 2010b).

Pacific Gas & Electric (PG&E), the local public utility and energy supplier, produces and purchases electricity from both renewable and nonrenewable resources, with power derived from fossil fuels, nuclear sources, and hydroelectric sources. PG&E has an electricity generation portfolio that totals 6,000 megawatts (MW) and consists of 44 percent hydroelectric, 54 percent nuclear (from the Diablo Canyon plant), and two percent from fossil fuels and this portfolio supplies about 43 percent of PG&E's demand (PG&E, 2008). To meet the electricity demands of its customers, PG&E supplements its generation portfolio by procuring about 57 percent of its electricity demand from other independent power producers or co-generators, as well as from other utilities outside of the state (PG&E, 2008).

Petroleum

Approximately 38.1 percent of California's petroleum supply comes from in-state sources while 48.5 percent is imported from foreign sources and 13.4 percent is imported from Alaska (CEC, 2010a). In 2007, California consumed approximately 682.6 million barrels (28.7 billion gallons) of petroleum (EIA, 2010). California's oil fields comprise the fourth-largest petroleum producing area in the United States, behind Federal Offshore production, Texas, and Alaska. Crude oil is moved within California through a network of pipelines that carry it from both onshore and offshore oil wells to the refineries that are located in the San Francisco Bay Area, the Los Angeles area, and the Central Valley.

Most petroleum fuel, or crude oil, produced in California is used in on-road motor vehicles and is refined within California to meet state-specific formulations required by the California Air Resources Board (CARB). The major categories of petroleum fuels are gasoline and diesel for passenger vehicles, transit, rail vehicles, and construction equipment; and fuel oil for industry and electrical power generation. Other liquid petroleum fuels include kerosene, jet fuel, and residual fuel oil for marine vessels.

Energy Demand

Electricity

Electricity is transported to Santa Clara County through a regional transmission system and within the County by local distribution lines. PG&E currently provides electricity to the program vicinity via overhead and underground transmission and distribution lines. The program area is surrounded by a combination of residential and commercial uses. Land uses adjacent to the program area have been developed and are served by existing transmission and distribution lines. The estimated electricity consumption for Santa Clara County was 16,387 gigawatt-hours (GWh) in 2007 (CEC, 2010c). Of that amount, approximately one percent (177 GWh) was used for agriculture and water pumping.

Petroleum

Currently, 14 petroleum refineries in California process transportation quality fuels (CEC, 2007). In 2007, the transportation sector accounted for approximately 39 percent of the total statewide energy end-uses (EIA, 2010). To meet transportation-related energy demand, the state relies almost exclusively on petroleum products. The majority of the petroleum produced is refined into gasoline or diesel for use in on-road vehicles. The CEC estimates that an additional 20 million to 48 million barrels (840 and 2016 million gallons, respectively) per year will be produced by California refineries for use in the transportation sector over the next five years (CEC, 2008). Petroleum supplies used for fueling the Program's construction and operations vehicles would be purchased by the individual users at nearby fueling stations.

3.O.2 Regulatory Setting

Federal Regulations

Energy Policy Act of 2005

The Energy Policy Act of 2005 seeks to reduce reliance on nonrenewable energy resources and provide incentives to reduce current demand for these resources. For example, under the Act consumers and businesses can attain federal tax credits for purchasing fuel-efficient appliances and products. Additionally, tax credits are available for the installation of qualified fuel cells, stationary microturbine power plants, and solar power equipment. Because driving fuel-efficient vehicles and installing energy-efficient appliances can provide benefits including lower energy bills, increased indoor comfort, and reduced air pollution, businesses are eligible for tax credits for buying hybrid vehicles, building energy efficient buildings, and improving the energy efficiency of commercial buildings.

State Regulations

State of California Integrated Energy Policy

The CEC submits a report of findings biannually to the governor and to the legislature. In 2002, the legislature passed Senate Bill 1389, mandating the preparation of an integrated statewide energy plan for electricity, natural gas, and transportation fuels. In 2003, the CEC adopted the first Integrated Energy Policy Report (IEPR). The California Energy Commission adopts an IEPR every two years and an update every other year. The most recent IEPR is from 2007 with a 2008 update.

The IEPR calls for the State to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including: assistance to public agencies and fleet operators in implementing incentive programs for Zero Emission Vehicles (ZEVs); addressing infrastructure needs; encouragement of urban designs that reduce vehicle miles traveled; and, accommodation of pedestrian and bicycle access.

Title 24 Building Energy Efficiency Standards

Title 24, Part 6, of the California Code of Regulations is the California Building Code, governing all aspects of building construction. Included in Part 6 are standards mandating energy efficiency measures in new construction. Since its establishment in 1977, the building efficiency standards (along with standards for energy efficiency in appliances) have contributed to a reduction in electricity and natural gas usage and costs in California. The standards are updated every three years to incorporate new energy efficiency technologies. The latest update to the Title 24 standards became effective on January 1, 2010. The standards regulate energy consumed in buildings for heating, cooling, ventilation, water heating, and lighting. Title 24 is implemented

through the local planning and permit process. Title 24 regulations would be applicable to the construction of the pump station and ancillary lighting associated with program operations.

Local Plans and Policies

City of Milpitas General Plan

The City of Milpitas General Plan does not contain policies related to energy resources or energy conservation.

Santa Clara County General Plan

The Santa Clara County General Plan, Countywide Issues and Polices, include various policies to increase energy efficiency and resource conservation within Santa Clara County (Santa Clara County, 1994). The policies pertaining to energy efficiency and conservation can be summarized as follows:

- Energy efficiency and conservation efforts should occur across sectors/industries and be consistent with the state energy plan.
- Santa Clara County should reduce energy use and fossil fuel dependency in the transportation sector.
- Alternatives to nonrenewable energy sources should be integrated into building and structural design to the extent possible.

3.O.3 Impacts and Mitigation Measures

Significance Criteria

Appendix F of the CEQA *Guidelines* provides guidance for assessing energy impacts of projects or programs. The appendix provides three goals for energy conservation:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on natural gas and oil; and/or
- Increasing reliance on renewable energy sources.

Approach to Analysis

To evaluate the Program's potential impacts to energy conservation, the analysis considers two program phases: construction and operation. Potential energy usage during these two phases is compared against baseline conditions described in the setting sections (environmental and regulatory) above. The extent to which the Program's energy usage meets the three general CEQA Appendix F goals for energy conservation is evaluated. The Program's impact would be considered significant if it failed to generally meet these three energy conservation goals or used substantial amounts of energy in either program phase. The program-specific factors considered in this analysis are potential usage of energy for

transportation activities during construction and operation, as well as, electrical power usage during construction and operation.

Consistent with Appendix F, environmental impacts evaluated in this analysis include:

- The Program's energy requirements by amount and fuel type for each stage of the Program, including construction, operation, maintenance, and/or removal;
- The effects of the Program on local and regional energy supplies and on requirements for additional capacity;
- The effects of the Program on peak and base period demands for electricity and other forms of energy;
- The degree to which the Program complies with existing energy standards;
- The effects of the Program on energy resources; or
- The Program's projected transportation energy use requirements and its overall use of efficient transportation alternatives.

No Impact Significance Determinations

Based on the nature of the Program, there would be no impact related to the following criterion:

> *Increase in peak and base period demands for electricity*. Impacts to electricity demands would occur if significant amounts of electricity were required for construction or operation of the Program such that electricity providers would be required to increase their available supply or production capacity. There would be a temporary increase in use of electricity resources during construction and a long-term increase during operations. However, given the negligible amount of electricity required for the Program, neither construction nor operations would impact peak or base power demands. Additionally, the Program would not impact electricity-generation facilities' ability to provide and maintain existing levels of service during peak and base period demands. Therefore, the Program's effects on peak and base period demands for electricity would not constitute an impact.

Impact Summary

Table 3.O-1 provides a summary of energy and conservation impacts by element and implementation phase (construction and operations). Table 3.O-2 provides the estimated fuel consumption during the construction of all Program elements.

TABLE 3.O-1
SUMMARY OF POTENTIAL PROJECT-LEVEL AND PROGRAM-LEVEL ENERGY CONSERVATION IMPACTS

	Impact 3.O-1		Impact 3.O-2		Impact 3.O-3	
	Effects on energy resources		Effects on regional and local energy supplies and capacity requirements		Conflicts with energy standards	
	construction	operations	construction	operations	construction	operations
Project-Level Elements						
Lower Berryessa Creek Element	LTS	LTS	LTS	LTS	LTS	LTS
Lower Calera Creek Element	LTS	LTS	LTS	LTS	LTS	LTS
Program-Level Elements						
Upper Calera Creek Element 1	LTS	LTS	LTS	LTS	LTS	LTS
Upper Calera Creek Element 2	LTS	LTS	LTS	LTS	LTS	LTS
Tularcitos Creek Element	LTS	LTS	LTS	LTS	LTS	LTS
Lower Penitencia Creek Element	LTS	LTS	LTS	LTS	LTS	LTS

LTS = Less than Significant Impact
SM = Significant Impact, Can Be Mitigated
– = No Impact

TABLE 3.O-2
ESTIMATED PETROLEUM FUEL CONSUMPTION DURING CONSTRUCTION

Program Phase	Vehicle Type and Time of Use	Miles/day	Average Fuel Economy (mpg)[b]	Gallons per day	Total Gallons per day[c]	Total Gallons Consumed During Program Phase
Construction	Weekday LDV[a]	1320	21.1	63	483	135,240
	Weekday MDT[a]	120	7.6	16		
	Weekday HDT[a]	2424	6.1	404		

NOTE: Vehicle type, miles/day and average fuel economy estimates are consistent with those used in RoadMod (see Appendix C) for the Air Quality impact analysis. The values were multiplied along with the estimated number of construction days to determine total gallons consumed during the construction phase.

[a] LDV = Light Duty Vehicles (average of Light Duty Auto and Light Duty Truck); MDT = Medium Duty Trucks; HDT – Heavy Duty Trucks
[b] The average fuel economy for light duty vehicles in 2009 was 21.1 miles per gallon (EPA, 2010). The average fuel economy for medium and heavy-duty trucks in 2003 was 7.6 mpg and 6.1 mpg, respectively (IEA, 2008)
[c] Construction would occur over a maximum of two, seven-month seasons. This assumes 280 week days during which construction would occur.

SOURCE: EPA, 2010; IEA, 2008, ESA, 2010

Impacts and Mitigation Measures

Impact 3.O-1: Effects on conservation of energy resources such as fuel (including transportation energy) and electricity. (Less than Significant)

Construction Impacts

All Elements

Construction of the Program could negatively affect the conservation of energy resources through the wasteful or unnecessary consumption of petroleum-based fuels and electricity associated with the use of heavy equipment, automobiles to transport workers to and from the work sites and the use of hand tools and equipment. Precise electricity requirements for program construction would be based on the variety of equipment to be used and the variance in the time of use of an individual piece of equipment but is anticipated to be negligible. Some construction equipment required for construction, such as hand tools and drills, would require electricity and each would be used periodically over the 14-month construction period. It is reasonable to assume that in general, the contractor would keep all electricity-powered equipment in good condition and that the equipment would be energy efficient. The amount of electricity that would be used would be the minimum required for construction. Thus overall, electricity consumed by construction power equipment would be relatively minimal, as would electricity required for operation of ancillary electrical equipment. Electricity demand for construction would not permanently increase reliance on energy resources that are not renewable. Consequently, construction impacts on energy conservation, in particular electricity resources, would be less than significant.

Construction of the Program could negatively affect the conservation of energy resources through the short-term consumption of petroleum-based fuels generally associated with the use of gasoline- and diesel-powered mobile construction equipment and the use of automobiles to transport workers to and from the program area. Transportation energy use that would result in wasteful consumption of such resources would be considered significant. Based on the projected vehicle miles traveled, the project-level elements would consume approximately 135,240 gallons of fuel during the construction phase (see Table 3.O-2 and Appendix C). Consumption of fuel would result in impacts on energy conservation if it were used inefficiently throughout construction. However, the District would ensure that fuel is used as efficiently as possible. As described in Chapter 2, Program Description, staging and storage areas would be located close to construction locations to reduce the length of vehicle trips to and from the construction site. A local labor force would be used to reduce the vehicle miles traveled to and from the program area by construction personnel. And construction debris would be off-hauled from the Program area to a local landfill to reduce the amount of fuel used to depose of construction. Additionally, construction activities would not result in long-term consumption of petroleum-based energy resources and would not permanently increase reliance on petroleum based resources. Consequently, construction impacts on energy conservation, in particular petroleum-based energy resources associated with transportation, would be less than significant.

Although not required to reduce impacts to a less-than-significant level, implementation of **Mitigation Measure 4.3-2a (Exhaust Emissions Reduction Measures)**, which is described and analyzed in Section 4.3, *Air Quality*, would further ensure that fuel energy consumed in the construction phase would not be wasted through unnecessary idling or through the operation of poorly maintained equipment. These mitigation measures would also ensure that equipment is in good condition and maintained to manufacturers specifications to maintain fuel efficiency and that equipment not being used would be shut off.

Operations Impacts

All Elements

Operation of the Program could negatively affect the conservation of energy resources through the long-term consumption of petroleum-based fuels associated with the use of heavy equipment, automobiles to transport workers to and from the work sites for maintenance, and for operation of the pump station proposed as part of the Tularcitos Creek Element. The majority of the maintenance activities required by program operations, including periodic maintenance of program facilities and periodic sediment removal, are currently ongoing within the elements. New vehicle trips would be generated only by newly-required maintenance activities, including: activities associated with the new floodwalls, the concrete box culvert, and the pump station. Based on the frequency and duration of new maintenance activities (less than once per year at each location) expected to result from program implementation, it is anticipated that there would be few new vehicle trips generated. Operations could also require use of electricity for lighting and operation of ancillary electrical equipment. However, electricity use requirements for operations are negligible at all elements. Therefore, operations impacts related to energy conservation of fuel and electricity would be less than significant.

Tularcitos Creek Element

As currently proposed, the pumps for the new pump station would be diesel-driven and would only be activated in the event that the Berryessa Creek water surface level is high enough to create backwater effects in Tularcitos Creek. It is expected that the pumps would operate for a maximum of 100 days per year. Periodic maintenance would also require the operation of the pumps and the use of small amounts of fuel. Although the design of the pump station is at the program-level, it is assumed that final design of the pump station would include energy efficient equipment and that the equipment would be maintained to ensure energy efficiency. As discussed in Section 3.C, Air Quality, diesel-powered pump operations would be subject to the CARB requirements for Tier 2 or 3 standards for diesel engines that requires efficiency for fuel consumption and exhaust emissions in engine design. These standards would ensure the pump station be designed and operated in an energy efficient manner. Given that such a pump station would be required to operate at maximum fuel efficiency and use a minimal amount of fuel at any given time, fuel use requirements for diesel-powered pump station operations at this element would not be considered wasteful or inefficient. Thus, operation of the pump station would have a less than significant impact on energy conservation.

Best Management Practices: None applicable.

Mitigation: None required.

Impact 3.O-2: Effects on regional and local energy supplies and capacities of fuel and electricity. (Less than Significant)

Construction Impacts

All Elements

The Program would affect petroleum production capacities if it were to require large-scale consumption of fuel (on the order of billions of gallons) within a timeframe too short for such a quantity to be extracted, refined, and provided to a local supplier. Program construction would require approximately 135,240 gallons of fuel over the 14 month construction period. Fuel consumption for program-level elements is anticipated to be similar in order of magnitude to that of the project-level elements. However, specific calculations for fuel consumption would occur during subsequent environmental review for these elements. The overall amount of fuel required during the construction period is not large enough to exceed the capacity of regional or local petroleum suppliers at any given time. It is reasonable to assume that the required quantity of fuel would be made available by local suppliers. Thus construction effects on local fuel supplies and production capacities would constitute a less than significant impact.

The Program would impact electricity production capacities if it were to require large-scale consumption of electricity, such that the grid was unable to provide sufficient electricity to the Program at any given time. As discussed in Impact 3.O-1, the electricity requirements for construction are minimal and would be used for powering hand tools or for lighting equipment, but would not exceed the production capacity of PG&E, the local electricity provider for the Program. Thus, construction effects on local energy supplies and production capacities would constitute a less than significant impact.

Operations Impacts

All Elements

Program operations would result in use of fuel for transportation energy for all elements and, potentially, use of diesel fuel to power the pump station at the Tularcitos Creek Element. Operational use of transportation energy would be minimal (see Impact 3.O-1) and would not significantly affect the capacity of local fuel providers. As discussed above, it is expected that the Tularcitos Creek pump station would operate for a maximum of 100 days per year and it is assumed that final design of the pump station would include energy efficient equipment and that the equipment would be maintained to ensure energy efficiency. Although the design details for the pump station have not been finalized, the amount of fuel that would be

required to refill diesel fuel tanks at the pump station would not significantly affect the capacity of local fuel providers.

The Program's long-term operational electricity requirements at any given time would constitute a negligible percentage[1] of Santa Clara County's consumption in 2007 (177 GWh[2]). It would not affect the capacity of local electricity providers. Thus, fuel and electricity requirements for program operations would result in a less than significant impact on the capacities of fuel and electricity providers.

Best Management Practices: None required.

Mitigation: None required.

Impact 3.O-3: Conflicts with existing energy conservation standards. (Less than Significant)

Construction Impacts

All Elements

Energy standards such as the Energy Policy Act of 2005, the State of California Integrated Energy Policy, and Title 24 promote strategic planning and building standards that reduce consumption of fossil fuels, increase use of renewable resource, and enhance energy efficiency. Additionally, the Santa Clara County General Plan calls for a reduction in fossil fuel use as well as integration of alternative and renewable resources into structural design. In general, these regulations and policies specify strategies to reduce fuel consumption and increase fuel efficiencies and energy conservation. If the Program were to use energy resources in a wasteful manner or be designed to increase dependency on non-renewable energy resources, it would conflict with state and local energy standards.

Construction of the Program would be considered short term and would not result in the increased use of non-renewable energy resources. As described in Chapter 2, Program Description, the Program would reduce fuel use by locating staging and storage areas near the program area, using a local labor force, and using local landfills for construction debris. Construction of the Program would be consistent with the goals and strategies of local and state energy standards and therefore, conflicts with energy conservation standards would be less than significant.

1 In this case negligible constitutes less than 0.0001 percent consumption.
2 The most recent data available for the County of Santa Clara's energy consumption was for the 2007 year.

Operations Impacts

Operation of the Program would include on-going maintenance activities which require the use of trucks and equipment which use nonrenewable fuels and electricity resources. During program operations, petroleum-based resources would be required for new vehicle trips and operations of the Tularcitos pumps station (discussed below). Only a few new trips are anticipated beyond current activities because these trips would be generated only by newly-required maintenance activities as described in Chapter 2, Program Description. Operations could also require use of electricity for lighting and operation of ancillary electrical equipment such as hand tools, and would be negligible and would only occur periodically. Energy use for program operations would be minimal, requiring a negligible percentage of the overall energy supplied to Santa Clara County. Maintenance and operation of the Program are not anticipated to result in an increased use of fuel or electricity and therefore operations would not conflict with current energy conservation standards.

Tularcitos Creek Element

The pump station at the Tularcitos Creek Element, as currently proposed, would be diesel-powered. The pump station would only operate under specific conditions as described in Chapter 2, Program Description, and is not expected to operate for more than 100 days per year, on average. The pump station would include diesel pumps that would be designed to meet current CARB requirements and would therefore meet current energy standards. Therefore, operations of the Tularcitos Pump Station would not result in a conflict with energy conservation standards and the impact would be less than significant.

Best Management Practices: None required.

Mitigation: None Required.

3.O.4 References

California Energy Commission (CEC), California's Petroleum Infrastructure Overview and Import Projections. 2007.

California Energy Commission (CEC), 2008 Best Permitting Practices Guidelines for Liquid Transportation Fuels Infrastructure, Publication no. CEC-700-2008-002SF, May 2008.

California Energy Commission (CEC), California's Major Sources of Energy, updated April 4, 2009, http://energyalmanac.ca.gov/overview/energy_sources.html, accessed April 19, 2010a.

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CHAPTER 4
Analysis of Alternatives

4.A Introduction and Approach

The California Environmental Quality Act (CEQA) Guidelines Section 15126.6(a) states that an environmental impact report (EIR) must describe and evaluate a reasonable range of alternatives to the Program that would feasibly attain most of the Program's basic objectives, but that would avoid or substantially lessen any identified significant adverse environmental effects of the Program. An EIR is not required to consider every conceivable alternative to a proposed project. Rather, it must consider a reasonable range of potentially feasible alternatives that will foster informed decision-making and public participation.

CEQA Guidelines Section 15126.6(e) states that, "The specific alternative of 'no project' shall also be evaluated along with its impact." The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Program. Specifically, the CEQA Guidelines set forth the following criteria for selecting and evaluating alternatives:

- The discussion of alternatives should focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives or would be more costly (CEQA Guidelines §15126.6[b]).

- The range of potential alternatives should include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects (CEQA Guidelines §15126.6[c]).

- The specific alternative of "No Project" (referred to as the No Project Alternative) should also be evaluated along with its impact (CEQA Guidelines §15126.6[e][1]).

- The alternatives should be limited to ones that would avoid or substantially lessen any of the significant effects of the project. Of those alternatives, the EIR need examine in detail only the ones that the lead agency determines could feasibly attain most of the basic objectives of the project. The range of feasible alternatives should be selected and discussed so as to foster meaningful public participation and informed decision making (CEQA Guidelines §15126.6[f]).

4.B Alternatives Analysis

This section describes the alternatives that were selected and analyzed according to the CEQA Guidelines § 51526.6(a). These alternatives include the No Project Alternative, and a reasonable range of alternatives to the Program that would feasibly attain most of the Program's objectives and would avoid or substantially lessen significant adverse environmental impacts of the Program. The alternatives were based on engineering options previously considered by the District as well as an assessment of ways to reduce significant impacts of the Program. The four alternatives selected for detailed analysis in this EIR include the No Project Alternative, one floodplain alternative and two engineering alternatives:

- Alternative 1: No Project Alternative
- Alternative 2: Managed Floodplain Alternative
- Alternative 3: Raised Levees Outside Right of Way
- Alternative 4: Floodwalls

Table 4-1 provides a brief description of these alternatives, highlights how they differ from the Program, and identifies the program impacts the alternative is intended to address.

This section evaluates the comparative merits of the selected alternatives relative to those of the Program. The evaluation is based on the available information and reasonable assumptions about how each alternative would be implemented. For each alternative, this section presents the following:

- A description of the alternative, including associated construction techniques, and key components. Each description includes assumptions regarding the construction methods that would be used;
- Analysis of the environmental impacts of each alternative compared to those of the Program; and,
- Evaluation of the alternative's ability to meet program objectives.

The program objectives and significant environmental impacts of the Program are summarized below, followed by an analysis of impacts associated with each alternative compared to the Program.

4.B.1 Program Objectives

The District's objectives for the Program include the following:

- Provide flood protection for the design flows;
- Improve access for long-term channel maintenance;
- Incorporate opportunities to integrate levees with the City of Milpitas' trail system;
- Identify opportunities for riparian and stream habitat enhancement and/or restoration; and
- Complete construction of the two project-level elements prior to completion of construction of the joint USACE/SCVWD Upper Berryessa Creek Project.

TABLE 4-1
SELECTED ALTERNATIVES FOR CEQA ANALYSIS

Alternative / Description	How Does the Alternative Differ from the Proposed Program?	What Program Impacts are the Alternative Intended to Avoid or Minimize?
Alternative 1: No Project – No improvements would be constructed.	• No flood control improvements would be constructed	• Included as required by CEQA
Alternative 2: Managed Floodplain Alternative	• A widened floodplain is created in Lower Berryessa Creek only • No floodwalls or raised levees would be constructed • No improvements to Calera, Tularcitos Creek, or Lower Penitencia would be implemented. • Pump station would not be constructed	• Avoids significant air quality, aesthetics and noise impacts resulting from operation of the future Tularcitos Creek pump station • Avoids impacts on historical resources and biological resources along Calera Creek
Alternative 3: Raised Levees outside the Right of Way and Sediment Removal	• Levees would be raised for the entire length of the program area • Pump station would not be constructed	• Avoids significant air quality, aesthetics, and noise impacts resulting from operation of the future Tularcitos Creek pump station
Alternative 4: Floodwalls and Sediment Removal	• Floodwalls would be installed for the entire length of the program area • Pump station would not be constructed	• Avoids significant air quality, aesthetics, and noise impacts resulting from operation of the future Tularcitos Creek pump station

4.B.2 Overview of the Program's Significant Environmental Impacts

In addition to meeting most of the program objectives, appropriate alternatives for EIR analysis are those that would avoid or substantially lessen one or more of the significant environmental impacts of the Program. The following section summarizes the Program's significant impacts as discussed in Chapter 3.

Aesthetics. Construction and operation of the Lower Berryessa Creek and Lower Penitencia Creek elements would result in potentially significant impacts related to damage to scenic resources and change to the existing character or quality of the surrounding area associated with the removal of trees along the creek levee path. Operation of the new pump station along Tularcitos Creek could result in potentially significant impacts related to changes to the existing character or quality of the surrounding area and introduction of a new source of substantial light and/or glare.

Air Quality. Construction of the Program would result in emissions of fugitive dust and criteria pollutants, and would result in exposure of sensitive receptors to criteria pollutants during construction of all elements. Operation of the Tularcitos Creek pump station would expose sensitive receptors to objectionable odors and criteria pollutants.

Biological Resources. Program implementation would result in temporary and permanent impacts on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities. Temporary impacts on San Francisco dusky-footed woodrat could occur during construction of the Upper Calera Creek elements. Removal of mature trees could conflict with the City of Milpitas Tree Ordinance. These impacts would be considered potentially significant.

Cultural Resources. Implementation of the Program could result in potentially significant impacts on unknown historical and archeological resources within Upper Calera Creek Elements 1 and 2 and on known archaeological and historical resources for Upper Calera Creek Element 2 during construction.

Geology and Soils. Program implementation could result in potentially significant impacts resulting from secondary seismic groundshaking and liquefaction, and from construction on expansive soils.

Hazards and Hazardous Materials. Implementation of the Program has the potential to expose workers, the public, and the environment to contaminated soil during program construction and the potential to interfere with an adopted emergency response plan or emergency evacuation plan.

Noise. Program construction would temporarily increase noise levels during construction. Operation of pump station could permanently increase noise levels for sensitive receptors along Tularcitos Creek near the future pump station.

Recreation. Program construction would have indirect effects on recreation experience associated with the removal of trees along Lower Berryessa Creek and Lower Penitencia Creek.

Transportation and Traffic. Construction would temporarily increase traffic volumes within the program vicinity and create additional traffic hazards for vehicles and bicyclists on public roadways. The Program would also conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, and temporarily impair access to roadways for emergency response traffic.

Utilities and Services. Implementation of the Program would require the relocation or protection in place of existing utilities within the program vicinity. Construction would result in approximately 418,200 cubic yards of solid waste that would be deposited in a local landfill facility that could result a significant reduction in landfill capacity and a conflict with state solid waste statutes.

Cumulative Impacts. Implementation of the Program could contribute to cumulative impacts if, in combination with other past, present, or future projects, significant impacts would occur. Possible cumulative projects are described in Chapter 5, Cumulative Impacts.

The Program would result in cumulative impacts related to aesthetics as described in Chapter 5, Cumulative Impacts. Significant aesthetics impacts associated with tree and shrub removal would occur. Thus, the Program's contribution to cumulative visual quality and character impacts would be cumulatively considerable and significant.

The Program would result in cumulative impacts related to air quality as described in detail in Chapter 5, Cumulative Impacts, Significant air quality impacts associated with construction-related emissions would occur, based on BAAQMD's significance thresholds. Implementation of the Program would result in a cumulatively considerable contribution to exceedance of nitrogen oxide (NOx) thresholds and to the region's nonattainment status for ozone.

The operation of the anticipated Tularcitos Creek Element is currently proposed to include diesel powered pumps. This would be considered to be a significant air quality impact because it cannot be determined with certainty that the pump station emissions would be reduced below the 2010 BAAQMD significance thresholds.

The Program would result in cumulative biological resources impacts as described in detail in Chapter 5, Cumulative Impacts. Although the Program and the cumulative projects would be required to adhere to the City of Milpitas' criteria for tree removal permits, which stipulate tree protection measures, the Program's contribution to this impact would be cumulatively considerable and would be significant.

The Program would also result in cumulative impacts related to cultural resources as described in Chapter 5, Cumulative Impacts. Ground disturbing activities associated with program construction could result in impacts on previously unknown archaeological resources. The Program's contribution to this cumulative impact on unknown cultural resources would be cumulatively considerable and significant.

The Program would result in cumulative impacts related to geology and soils as described in Chapter 5, Cumulative Impacts. Significant impacts associated with the program's location on liquefiable soils and on soils that have a high potential for expansion, the Program's contribution to cumulative seismic impacts would be cumulatively considerable and significant.

The Program would result in cumulative impacts related to hazards and hazardous materials as described in Chapter 5, Cumulative Impacts. Program impacts associated with the potential for hazardous material releases and impairment of implementation of an adopted emergency plan would contribute to cumulative hazards and hazardous materials impacts that would be cumulatively considerable and significant.

The Program would result in cumulative impacts related to noise as described in detail in Chapter 5, Cumulative Impacts. Construction of the Program and overlapping construction projects would elevate noise levels from construction over an extended period of time. Thus, the Program's contribution to cumulative noise impacts would be cumulatively considerable and significant.

The Program would result in cumulative recreation impacts as described in Chapter 5, Cumulative Impacts. Tree removal along Berryessa Creek would cause a significant change in character of recreation resources. Therefore, the Program's contribution to adverse changes in the character of recreation resources would be cumulatively considerable and would be significant.

The Program would result in cumulative impacts related to transportation and traffic as described in detail in Chapter 5, Cumulative Impacts, Program construction-related traffic congestion could temporarily impede emergency access and would contribute to a construction-related cumulative safety hazards impact.

The Program would result in cumulative utilities and service system impacts as described in Chapter 5, Cumulative Impacts. The Program would entail construction activities that could result in disruption of utilities and would contribute to cumulative utility disruption impacts.

4.B.3 Alternative 1: No Project Alternative

Description

Discussion of the No Project Alternative must examine the existing conditions and reasonably foreseeable future conditions that would exist if the Program were not approved (CEQA Guidelines § 15126(e)). The purpose of describing and analyzing a No Project Alternative is to allow decision-makers to compare the impacts of approving a proposed project with the impacts of not approving a proposed project (CEQA Guidelines § 15126.6[e][1]).

Under the No Project Alternative, the District would not implement the Program. No improvements to the exiting flood control channels would occur. No improvements to the existing maintenance roads would occur and the stormwater pump station at Tularcitos Creek would not be built. On-going maintenance and operation of existing facilities would continue and would include sediment and vegetation removal. Currently, ongoing maintenance is hindered because of access, limiting the extent of maintenance activities. Under the No Project Alternative, access issues would continue to impede some maintenance activities.

However, under the No Project Alternative, flooding within the program vicinity would be expected to continue. Currently, Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks cannot contain the 100 year flow with the appropriate freeboard requirements. According to the Project Study Report (PSR) (Winzler and Kelly, 2010), Lower Berryessa and Calera creeks flood approximately every four years. In the probable event of flooding, creek flows would exceed the levee banks and flood the surrounding areas. The extent of flooding would be dependent upon the rainfall but flood waters would likely result in the closure of streets and highways. Flooding would also result in damage to homes, schools, and businesses that are located within the flood zone. Emergency repairs would be required and would include removal of large amounts of sediment that would be deposited by floodflows, repair of levees, roadways, and other facilities that could become inundated during flooding.

The No Project Alternative includes those activities that would reasonably be expected to occur in the foreseeable future if the Program were not approved. These activities include emergency repairs to existing facilities in the event of flooding within the Lower Berryessa Creek watershed, including sediment and debris removal repair to roadways and homes, businesses, and schools.

Environmental Impacts

Aesthetics. This alternative would not directly result in any changes to the existing visual environment because no new facilities would be constructed nor would any improvements to the existing facilities be constructed. No trees would be removed and the pump station and its appurtenances at Tularcitos Creek would not be constructed. Ongoing maintenance activities would continue on existing facilities including sediment and vegetation removal within the creek channels but this activity would not affect scenic resources.

However, in the event of ongoing flooding within the program vicinity, changes to the existing visual environment could occur. Sediment and debris would continue to be deposited by floodflows throughout the vicinity resulting in a temporary degradation on scenic resources following a flood event. Flood flows could damage trees and other vegetation affecting the existing character of the area. Because flooding is anticipated within the area every four years on average, these conditions would be expected to occur repeatedly under the No Project Alternative, possibly resulting in long term degradation of scenic resources and the permanent alteration to the character of the surrounding environment. Compared to the Program, impacts on existing scenic resources and the character of the surrounding area would be more severe under Alternative 1 than the Program.

Air Quality. Alternative 1 would not result in any construction-related emission of fugitive dust or any temporary or cumulatively considerable increase in criteria pollutants or diesel particulate matter because no construction would occur. The alternative would not construct the future pump station and, therefore, no sensitive receptors would be exposed to criteria pollutants or objectionable odors. Maintenance activities would continue to occur but would not result in increased impacts on air quality.

However, in the probable event of flooding, construction activities associated with the cleanup of the flooded areas and repair of damaged facilities would result in temporary effects on air quality. Construction equipment, similar to the equipment used for construction of the Program, would be used to repair areas damaged during flooding and would result in similar emissions of fugitive dust and criteria pollutants during construction as for the Program and on a cumulatively considerable level. The area that would be flooded is difficult to estimate, but it could be assumed to cover a larger area than the program, exposing more sensitive receptors to potential air quality impacts compared with the Program. There is greater potential for long term exposure to criteria pollutants compared to the Program because flooding is expected to continue approximately every four years under Alternative 1. Overall, air quality impacts under Alternative 1 would be similar to the Program.

Biological Resources. Since no construction would occur under Alternative 1, there would not be any temporary impacts on biological resources. Maintenance activities would continue but would not result in increased impacts on biological resources.

Biological resources would be damaged in the event of flooding. Trees, wetlands, and other vegetation communities would be flooded and possibly damaged or destroyed. Sediment and vegetation within the creek channels would be carried away by peak flows during flooding resulting in temporary and permanent impacts on wetland habitats. Trees and other habitat for nesting birds and raptors could be damaged or destroyed by flood waters and fast moving flood flows. Under Alternative 1, impacts on biological resources would not be contained within the flood control channels and could result in impacts to additional habitats not analyzed under the Program. Once flows leave the banks of the creeks, impacts on biological resources could occur within a broader area depending on the extent of flooding.

Under Alternative 1, flooding is expected to continue approximately every four years on average. Repeated flooding would likely result in long term damage or destruction of biological resources under Alternative 1, within the same area as under the Program. Overall, the potential temporary and permanent impacts on biological resources that could result from flooding under Alternative 1 would be similar in severity to the potential temporary and permanent impacts on biological resources that could result from Program implementation.

Cultural Resources. Alternative 1 would not result in any construction-related impacts on known and unknown archeological or known historical resources. No excavation or construction would occur that could cause impacts on these resources.

However, in the probable event of flooding, unknown and known archeological and/or historical resources could be damaged. Emergency repairs and construction of replacement facilities could result in further destruction of these resources, particularly if emergency construction activities were performed in areas where surveys have not been conducted. Extensive flooding could cause erosion within the creek channels, and depending on the extent of erosion, archaeological resources could be permanently lost. In addition, flooding in Upper Calera Creek could result in damage to the “Casino” or the José Higuera Adobe, which are listed as protected under the City of Milpitas’s Cultural Resources Preservation Ordinance. With the potential of flooding every four years on average, this alternative could result in more severe impacts on cultural and historical resources relative to those of the proposed Program after a flooding event.

Geology and Soils. Alternative 1 would not result in the construction of new facilities and thus would not have any construction-related impacts related to geology and soils. Maintenance activities, including sediment and vegetation removal would continue but would not result in impacts on geology and soils.

In the probable event of flooding, a significant amount of sediment would be disturbed and deposited elsewhere in the watershed by flood flows, resulting in significant impacts related

to soil erosion and loss of top soil greater than the Program. Because flows would not be contained within the creek banks as with the Program, loss of top soil or impacts related to erosion would be expected to occur over a much larger area compared to the Program. Because flooding is expected to occur every four years on average, the loss of top soils and impacts resulting from erosion would be greater than the Program.

Greenhouse Gases. Alternative 1 would not generate GHG emissions that would have a significant impact on the environment. In the probable event of flooding, construction equipment would be used to remove sediment and repair damaged structures. However, similar to the Program, use of the equipment would not generate GHG emissions that would have a significant impact on the environment.

Hazards and Hazardous Materials. Alternative 1 would not require any changes in the use of hazardous materials and would not have any impacts related to hazards or hazardous materials. Maintenance activities including vegetation and sediment removal within the channels would continue to occur and would not result in a change in the use of hazardous materials.

If flooding were to occur, the environment, construction workers, and the general public could be exposed to hazardous materials in the soil, if present, during removal of sediment deposited by flood flows. Flooding could result in the dispersal of contaminated soils, if present, throughout a much wider area than the program area, resulting in greater potential for impacts compared to the Program.

In the event of flooding, roads and emergency access routes could be closed because of flooding resulting in significant impacts related to emergency response or evacuation plans. Overall, effects related to hazards and hazardous materials would be greater under Alternative 1 in the event of flooding.

Hydrology and Water Quality. Under Alternative 1, the flooding conditions in Lower Berryessa would be expected to continue. The flooding conditions in Lower Berryessa Creek that would create backwater effects in Calera and Tularcitos creeks would also continue. Alternative 1 would result in increased erosion and sedimentation within Lower Berryessa Creek when peak flows cannot be contained within the current levees. Alternative 1 would result in more severe impacts compared to the Program.

Land Use and Planning. Alternative 1 would not result in construction of new facilities and would therefore not result in changes to existing land uses.

However, in the event of flooding within Lower Berryessa and Calera creeks, disruption of existing land uses could occur. Flooding would likely result in effects to surrounding land uses including commercial and retail establishments, local streets and roadways, and other facilities. Flooding within roadways could result in physically dividing the existing community by the closure of roads and highways for an unknown period of time. Depending on the extent of flooding, this effect could result in more permanent closures exacerbating the

severity of impact under Alternative 1. Therefore, impacts related to land use and planning are more severe under Alternative 1 compared to the Program.

Noise. Since no facilities would be constructed under Alternative 1, there would be no construction-related impacts on sensitive receptors or changes in the noise environment. The pump station at Tularcitos Creek would not be constructed and therefore no permanent noise impacts would occur. Maintenance activities would occur and would be similar to current activities and would therefore not result in impacts on sensitive receptors or increases in the noise environment.

In the probable event of flooding, significant impacts on the noise environment and sensitive receptors would result. Flooding would require excavation of sediment deposited by floodflows and repairs of existing facilities damaged by flooding requiring the use of construction equipment. Because of the emergency nature of the clean up and repairs, construction would likely occur for 24 hours per day resulting in significant increase in the ambient noise within the flood zone. While no permanent noise impacts would occur, overall impacts related to increases in the noise environment would be slightly greater under Alternative 1 in comparison to the Program.

Recreation. Since no construction would occur under Alternative 1, there would not be any direct or indirect adverse effects on the parks, trails and other recreational resources within the program vicinity. Maintenance of the existing facilities would continue but would not result in impacts on recreation.

In the probable event of flooding, significant indirect and direct effects on recreational resources would occur. Park facilities, including playing fields, picnic areas, open space, trees, and other vegetation within the parks could either be damaged or destroyed by flood waters. Trees along creeks, within the public viewshed, would likely be damaged when flood waters overtop levees.

In the event of flooding within Lower Berryessa, Calera, and Lower Penitencia creeks, significant direct effects on recreational resources would result. Many of the parks, trails, and recreation facilities occur adjacent to the creeks and in the event of flooding, damage to these facilities would likely be extensive. Playing fields, picnic areas, and other resources would likely be damaged or destroyed during flooding. Damage to these facilities would require repair and could result in closures of parks and recreation facilities. Because closures would likely occur adjacent to the Program areas and would include all recreational resources within the flooded area, alternative recreational resources would not likely be available. Compared to the Program, Alternative 1 would result in greater effects on recreation resources.

Transportation and Traffic. Alternative 1 would not result in any construction and would therefore not result in any construction-related increases in traffic volumes or traffic hazards in the program area compared to existing conditions. Maintenance activities would occur but would not result in significant increases in traffic.

In the probable event of flooding, increased traffic hazards would occur because local streets and roadways would be flooded within the program vicinity. Flooding would likely be most severe in areas adjacent to the confluence of Lower Berryessa and Calera creeks such as North Milpitas Boulevard. Closure of North Milpitas Boulevard would result in detours of major arterials and the use of surrounding streets increasing traffic congestion and hazards.

Flooding would likely result in damage to streets and roadways requiring emergency repairs resulting in degradation of roadways and bike paths thereby increasing potential traffic hazards. Additionally, flooded roadways would result in impairment of emergency access within the flooded areas with the closure of roadways and emergency access routes. These potential effects would represent an overall increase in traffic and transportation impacts under Alternative 1 compared to those of the Program.

Utilities and Service Systems. Alternative 1 would not result in the construction of new facilities and would therefore not result in construction-related impacts on utilities or service systems. Maintenance activities would continue to occur but would not result in impacts on utilities and service systems.

In the probable event of flooding, extensive damage to existing utilities could occur. Flooding would require the repair of existing facilities and removal of sediment and debris deposited by flood flows and could result in the disruption of service due to the emergency timing of these repairs while utilities are being relocated or protected in place. Therefore, impacts related to interference with existing utilities would be more severe than under the Program.

Flooding would result in the deposition of significant amounts of sediment and debris that would require the excavation and deposition in the local landfill. Depending on the extent of flooding and the amount of sediment and debris removed, this could result in a significant reduction in local landfill capacity. Additionally, since flooding is expected to occur every four years, over the long term, Alternative 1 could result in significant impacts related to landfill capacity, if smaller local landfills were used for all of waste generated under Alternative 1, and thus a conflict with state solid waste statutes. Overall, these potential effects would be similar compared to those of the Program.

Cumulative Impacts. The joint USACE/SCVWD Upper Berryessa Creek Project would be implemented upstream the Lower Berryessa Creek Element from East Calaveras Boulevard in Milpitas upstream to Old Piedmont Road in San José. This project entails improvements to Upper Berryessa Creek that would increase conveyance capacity of Berryessa Creek upstream of the program area. The increase in conveyance capacity could result in downstream flooding effects in Lower Berryessa Creek, thereby increasing the existing flooding potential within Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks. Under the Alternative 1, none of the improvements associated with the Program would be constructed. Therefore, in the probable event of flooding, the extent and severity of the cumulative impacts associated with the implementation of the joint USACE/SCVWD Upper Berryessa Creek Project would increase. Alternative 1: No Project Alternative and the joint USACE/SCVWD Upper Berryessa Creek Project would increase the potential for cumulative

impacts associated with hydrology and water quality, aesthetics, cultural resources, geology, hazards and hazardous materials, land use, noise, recreation, traffic and transportation, and utilities and service systems.

The timing of flooding events and construction activities associated with clean-up of flooded areas could overlap with specific cumulative projects discussed in Chapter 5. Therefore, construction-related cumulative impacts related to air quality and biological resources could be similar to the Program.

4.B.4 Alternative 2: Managed Floodplain Alternative

Description

Alternative 2 would create a managed floodplain, consisting of a low-flow channel with a wide floodplain in Lower Berryessa Creek that would attain the District's objective of containing the 100 year flow. This alternative would only require improvements along Lower Berryessa Creek, and would therefore eliminate the need for construction of the other elements, including a pump station at Tularcitos Creek. Under this alternative, the levee banks would be set back and the width of the existing channel would increase to 250 feet for approximately 8,700 linear feet of Lower Berryessa Creek. The new floodplain would be constructed upstream of Lower Berryessa Creek's confluence with Lower Penitencia Creek to the downstream face of East Calaveras Boulevard. Levees would be approximately seven feet high and located outside the 250 feet wide channel. Maintenance access would be necessary and would require an additional 50 feet for a total of a 300 foot right of way. Two 18-foot wide access roads would be constructed on each side of the new channel, on top of the new levees. The design of the managed floodplain and construction of access roads would accommodate the City of Milpitas' trail system.

Implementation of Alternative 2 would require that all land and structures within the anticipated managed floodplain be acquired by the District. Approximately 100 homes and four commercial properties would need to be acquired to provide a floodplain of sufficient width. All existing road crossings and railroad bridges currently within the required floodplain area would need to be replaced to accommodate the wider floodplain. Excavation to establish the wider floodplain would require removal of all existing vegetation within the 300 foot wide flood right of way. The existing levees would be removed and new levees would be constructed outside of the widened channel. Construction would likely require a total of 14 months between April and October, over a two year construction period.

Construction equipment required for Alternative 2 would be the same as or similar to equipment required for the Program, including excavators, bulldozers, and trucks to off-haul excavated materials. Excavated materials would be reused if feasible, but it is assumed the majority of excavated materials would be hauled off-site and deposited at a local landfill. Maintenance of the new managed floodplain would likely be less intensive than current practices and would include the removal of some trash or large debris (shopping carts, etc.). Current maintenance activities such as vegetation and sediment removal are not anticipated

to occur under Alternative 2 because sediment is anticipated to distribute over the length of the widened floodplain of Lower Berryessa Creek and not accumulate as it does under current conditions or would occur under the Program.

Environmental Impacts

Aesthetics. Implementation of Alternative 2 would result in temporary damage to scenic resources associated with trees and vegetation removal required to construct the new floodplain. The impact would be considered temporary but would include removal of all vegetation within the construction area of the new floodplain and would result in a substantial change to the character of the existing scenic environment during construction and until new vegetation could establish. Eventually, the managed floodplain would result in a more natural riparian corridor for 8,700 linear feet of Lower Berryessa Creek that would allow for trees outside the low flow channel. The riparian corridor would create a new and higher quality scenic resource and would change the character and quality of the resource compared to current conditions and to the Program. Additionally, Alternative 2 would avoid impacts related to new sources of light and glare because the construction of the pump station would be avoided. Overall, the temporary aesthetics impacts under this alternative during construction would be slightly greater than the Program during construction, but Alternative 2 would eventually result in a benefit to the quality and character of scenic resources.

Air Quality. Implementation of Alternative 2 would result in significant impacts related to emission of fugitive dust and criteria pollutants; as well as, cumulatively considerable impacts related to criteria pollutants during demolition of existing structures and construction of the widened floodplain. Impacts related to emissions of criteria pollutants during construction would be slightly greater than the Program because the length of construction is anticipated to be longer and the intensity of construction, specifically excavation, would be greater. However, Alternative 2 would avoid permanent impacts on air quality because the alternative would not include installation of a pump station on Tularcitos Creek. Overall, Alternative 2 would result in slightly greater air quality impacts during construction but would avoid the Program's significant operational air quality impacts.

Biological Resources. Excavation of the widened floodplain would require the removal of vegetation, including trees, and wetlands for approximately 8,700 linear feet. These impacts would be considered temporary but would occur until the revegetated areas have re-established. The new floodplain would be planted with native species and would be allowed to develop into a natural greenbelt which would improve the extent and quality of biological resources over the long-term. Alternative 2 would avoid impacts on the San Francisco dusky-footed woodrat because it avoids construction in Upper Calera Creek. Ultimately, Alternative 2 would create a riparian corridor within Lower Berryessa Creek which likely would significantly increase the amount and quality of riparian habitat compared to existing conditions, and would also result in a benefit to wetlands and riparian habitat.

Cultural Resources. Implementation of Alternative 2 could result in discovery of unknown historical, archeological, and cultural resources. The greater extent of excavation required to

implement Alternative 2 could result in impacts related to unknown historical, cultural and archeological resources greater than the Program. Alternative 2 would avoid impacts on the "Casino" and the José Higuera Adobe because no construction would occur in Upper Calera Creek. However, there could be additional known historic resources within the larger Alternative 2 area. Overall Alternative 2 would result in greater potential for cultural resources impacts than the Program.

Geology and Soils. Construction of Alternative 2 is in the same general area as the Lower Berryessa Creek Element and would therefore be expected to encounter the same soils and geologic conditions as the Program. Alternative 2 would result in the construction of a wider floodplain and construction of levees in areas that could contain expansive soils. Additionally the construction of the wider floodplain and laidback levees would be subjected to secondary effects of ground-shaking similar to the Program. Impacts from geology and soils under Alternative 2 would be similar to those of the Program.

Greenhouse Gases. GHG emissions during construction would be slightly greater than the Program because the length of construction is anticipated to be longer and the intensity of construction, specifically excavation, would be greater. However, the GHG emissions would not differ substantially from the program construction emissions estimates. Alternative 2 would not include installation of a pump station on Tularcitos Creek and would thereby avoid the contribution to GHG emissions from stationary sources. Therefore, Alternative 2 would not generate GHG emissions that would have a significant impact on the environment.

Hazards and Hazardous Materials. Construction of Alternative 2 would require the excavation of materials and demolition of structures that could contain hazardous materials, including asbestos and lead, which would expose workers and the public to hazardous materials. Impacts related to exposure would be greater than the Program, because more extensive excavation and demolition of existing structures could, create a greater potential for hazards. Alternative 2 would occur within the same general area as the Program and therefore impacts associated with impairing an adopted emergency evacuation plan would be similar. Overall, Alternative 2 would result in slightly greater impacts related to hazards and hazardous materials compared to the Program.

Hydrology and Water Quality. Alternative 2 would create a managed floodplain that would accommodate the 100 year flow and would reduce velocities within the creek channel creating a more natural erosion and deposition process. Flows within the widened floodplain are expected to be reduced, thereby reducing the potential for erosion and sedimentation downstream. Implementation of this alternative would alter the drainage patterns within Lower Berryessa Creek, but the wider floodplain would reduce sedimentation and not result in flooding downstream in Lower Penitencia Creek. Impacts related to downstream flooding as a result of Lower Berryessa Creek actions would therefore be similar to the Program.

Land Use. Alternative 2 would require the acquisition of approximately 100 homes and 4 commercial properties, resulting in a permanent change in land use. Construction of the managed floodplain would change existing land uses in the areas where homes and

businesses would need to be acquired and removed. Land uses would change from residential and commercial to more open space and could be in conflict with the Milpitas General Plan or other local plans and policies regarding land use, which would result in a significant impact. The widened floodplain would also function as a physical barrier between the residential communities that currently surround the program area and thereby result in a significant impact. Currently, the areas proposed for the managed floodplain include zoning for medium-density- and low-density single-family residential housing. Implementation of Alternative 2 could require amendment(s) to the Milpitas General Plan and a zoning reclassification where areas currently classified as residential could be re-classified as open space. Since Alternative 2 could conflict with policies in local plans and physically divide an established community, its impacts on land use could be significant and worse than the Program's.

Noise. Alternative 2 would result in the temporary, increased noise levels during demolition of existing structures and construction of the widened floodplain. Demolition of existing structures and construction of the managed floodplain would entail construction for a longer period than the Program and would, therefore, result in greater temporary noise impacts compared to the Program. However, Alternative 2 would avoid noise-related impacts associated with the operation of the pump station on Tularcitos Creek. Overall, when compared with the Program, Alternative 2 would result in slightly greater temporary noise-related impacts and less long-term noise impacts.

Recreation. Implementation of Alternative 2 would result in recreation experience effects during the construction phase due to indirect effects on recreational resources related to aesthetics, air quality, and noise impacts. Implementation of Alternative 2 would require the removal of trees and other vegetation that would result in damage to scenic resources within the viewshed of recreation resources during construction. Alternative 2 would accommodate the City's trail system and would create a natural greenbelt increasing the quality of the recreation resources within Lower Berryessa Creek. Overall, the temporary impacts on recreation that would occur under Alternative 2 during construction would be greater than those of the Program. However, this alternative would ultimately result in a benefit to this resource.

Transportation and Traffic. Alternative 2 would occur within the same general area as the Program but would include additional truck trips related to the demolition of existing structures, off-hauling of the demolished materials, and off-hauling of an increased volume of excavated materials. Therefore, increases in traffic volume and traffic hazards would be slightly greater compared to the Program. Construction of the widened floodplain would require the widening and/or replacement of bridges at street and railroad crossings to accommodate the new floodplain. Construction at bridges crossing the new floodplain would require road closures and detours resulting in temporary increases in the potential for traffic hazards to vehicles, bicyclists and pedestrians. Therefore impacts to transportation and traffic would be greater than the Program under Alternative 2.

It is also reasonable to assume that roadways would be included in the required acquisition of real estate and that these permanent road closures would, in turn, result in conflicts with local policies, plans, and congestion management programs. Overall, impacts related to traffic and transportation would be greater than the Program under Alternative 2.

Utilities and Service Systems. The construction footprint for Alternative 2 is greater than the proposed Program and construction of this alternative would be expected to encounter more underground utilities. This alternative includes the removal of 100 homes and 4 commercial centers where above- and below ground utilities likely occur. Utilities currently serving the homes and commercial centers would need to be relocated outside of the widened floodplain to ensure maintenance access and reduce potential hazards. Potential impacts related to relocating or damaging public utilities would likely be more severe than the proposed Program and could result in temporary disruptions.

Implementation of Alternative 2 would require the excavation of unknown volumes of soil, sediment, concrete, wood, vegetation, and other debris during construction of the widened floodplain and demolition of existing structures. Because the construction footprint for Alternative 2 is greater than the proposed Program, the amount of excavation is expected to be greater than the Program. Further, construction debris would include materials from the demolition of approximately 100 homes and four commercial properties. While some of these materials may be used to reconstruct the widened floodplain, it is assumed that much of it would be hauled from the site and deposited in landfill facilities. Because the amount of construction debris generated by Alternative 2 is expected to be greater than the Program, impacts associated with reducing the capacity of landfill facilities, if smaller local landfills were used, would be significant and greater than the Program's impacts.

Cumulative Impacts. The joint USACE/SCVWD Upper Berryessa Creek Project described in Chapter 5, Cumulative Impacts, would increase conveyance capacity of Berryessa Creek upstream of the program area and could result in downstream flooding effects in Lower Berryessa Creek thereby increasing the flooding effects within Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks. Implementation of Alternative 2 would create a widened floodplain that could contain the 100 year flood within Lower Berryessa Creek, including flows from the upstream reach. However, the joint USACE/SCVWD Upper Berryessa Creek Project would be implemented independently of Alternative 2 and, if the Upper Berryessa Creek Project is completed prior to the completion of Alternative 2, downstream flooding effects could occur. The timing of real estate acquisition required for Alternative 2 would preclude this alternative from being constructed prior to the implementation of the joint USACE/SCVWD Upper Berryessa Creek Project. Should the joint USACE/SCVWD Upper Berryessa Creek Project be implemented before Alternative 2, flooding potential would increase and cumulative impacts, specifically associated with downstream flooding, would be greater than under the Program.

If Alternative 2 were to overlap temporally with construction of cumulative projects described in Chapter 5 and cumulative construction-related impacts associated with air quality,

unknown cultural resources, hazards and hazardous materials, land use, noise, recreation, utilities, and traffic and transportation would increase compared to the Program. Cumulative impacts related to aesthetics, biological resources, known cultural resources and geology would be similar to the Program for reasons described above.

4.B.5 Alternative 3: Raised Levees Outside of Existing Right of Way and Sediment Removal

Description

Under this alternative, the existing creek levees would be raised outside of the District's right of way (ROW). Installation of the raised levees would provide for 100 year flood containment and would meet the District's objective for flood control. Alternative 3 differs from the Program in that levees would be raised, outside of the District's existing ROW, for the entire length of each reach. Alternative 3 would not entail the construction of a new pump station, which would avoid significant impacts related to air quality during operation. Extension of the levees would allow for flatter slopes and a widened creek channel to convey flows. Levee banks would be raised approximately one to five feet and the width of the channels would be widened by approximately 10 feet.

Alternative 3 would occur within the same creek reaches as the Program. Within Lower Berryessa, levees would be raised two to five feet from the confluence with Lower Penitencia Creek upstream to the downstream face of bridge at East Calaveras Boulevard. Within Calera Creek, levees would be raised two to five feet from the confluence with Lower Berryessa upstream to beyond I-680 or approximately 8,300 linear feet. The banks of Tularcitos Creek would be extended and raised approximately one to four feet from the confluence with Lower Berryessa Creek upstream to the drop structure at I-680. Maintenance roads would be constructed on the top of the new levees and would accommodate the City's trail plans. 18-foot wide maintenance roads would be constructed, consistent with District maintenance road standards. Implementation of Alternative 3 would require the removal of all trees within and outside of the District's existing ROW to make room for the new levees and the widened channel area. Tree removal would be considered a permanent impact as no trees or woody vegetation could be planted within the channels.

Construction of the raised levees would entail excavation of the existing levees and reconstructing the levees outside of the District's existing ROW, and would use similar methods as the Program. Levees would be contoured to a 2:1 slope and compacted to ensure structural stability. Levees would be hydroseeded for erosion protection.

Equipment, similar to the Program, would be used to construct the new levees and maintenance roads. Maintenance activities associated with Alternative 3 would be the same or similar to maintenance of the Program. Storage and staging areas for Alternative 3 would be the same as for the Program. The construction schedule would be the similar to the Program.

Under Alternative 3, work in Lower Penitencia Creek would include removal of sediment and vegetation to restore design capacity as described under the Program. The capacity of Lower Penitencia Creek from its confluence with Lower Berryessa downstream to its confluence with Coyote Creek has been compromised because of sediment buildup within the channel. Lower Penitencia Creek could be restored to design capacity by the removal of sediment and vegetation within the existing channel and, therefore, the installation of floodwalls or raising levees would not be required. Thus, removal of sediment and vegetation within Lower Penitencia Creek would be the same under Alternative 3 as under the Program.

Aesthetics. Implementation of Alternative 3 would result in damage to existing scenic resources similar to the Program. Construction of new levees within Lower Berryessa and Calera creeks, and sediment and vegetation removal in Lower Penitencia Creek would require the removal of trees and shrubs. Construction outside the District's existing ROW could preclude replanting of trees within Lower Berryessa and Calera creek. Therefore, the impacts on existing scenic resources associated with recreation-related viewsheds along Lower Berryessa Creek and impacts on the existing visual character and quality of the program area would be permanent and thus would be greater than the Program. Alternative 3 would not include a new pump station and thus impacts associated with new sources of light and glare would be avoided. Overall, Alternative 3 would result in greater impacts related to aesthetics than the Program.

Air Quality. Construction of Alternative 3 would be similar to the Program in scope and magnitude. Excavation and restructuring of the new levees would require construction equipment similar to that of the Program and therefore the emission of criteria pollutants during construction would be similar to the Program. Alternative 3 would avoid the Program's significant operational air quality impact because the alternative would not include installation of a pump station on Tularcitos Creek. Thus Alternative 3 would have construction air quality impacts similar to the Program's, but would avoid the Program's significant operational air quality impacts.

Biological Resources. Implementation of Alternative 3 would result in greater impacts on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities than the Program within Lower Berryessa, Calera, and Tularcitos creeks because wetlands within the creek channels would be excavated to accommodate construction of the new wider channel and construction access for new levees. Wetland impacts on Lower Penitencia Creek would be the similar to the Program. Ruderal habitats on the levee banks and adjacent to the existing levees would be removed to accommodate the wider channel and the new levees. While it is anticipated that wetland habitats would recolonize within the channels after construction is completed, the construction-related impacts would be greater than the Program's impacts on wetlands.

Trees and riparian habitat within Upper Calera Creek would be removed to accommodate the new levees and maintenance roads. Impacts on the San Francisco dusky-footed woodrat would occur because removal of riparian habitat could directly or indirectly impact this

species. The wider channel would result in the permanent removal of riparian habitat within Calera Creek and would result the loss of potentially suitable habitat for woodrats. Overall, Alternative 3 would result in more severe impacts on biological resources within Calera Creek compared to the Program.

Cultural Resources. Alternative 3 would result in potential impacts to unknown cultural resources that are slightly greater compared to the Program because construction of Alternative 3 would occur outside the District's existing ROW; therefore, the potential for discovery of unknown cultural resources would increase with inclusion of a larger construction area than that of the Program. Installation of the new levees would be closer to the known historical resources at the José Higuera Adobe Park, including the circa 1859 "Casino," compared to the Program; therefore, this alternative could result in more severe impacts on these resources compared to the Program.

Geology and Soils. Because Alternative 3 would be constructed in the same general area as the Program, it is expected that the same soil and geologic conditions occur. As such, impacts related to secondary ground shaking and expansive soils would be similar to the Program.

Greenhouse Gases. Construction of Alternative 3 would be similar to the Program in scope and magnitude and GHG emissions would not differ substantially from the program construction emissions estimates. Alternative 3 would not include installation of a pump station on Tularcitos Creek and would thereby avoid the contribution to GHG emissions from stationary sources. Therefore, Alternative 3 would not generate GHG emissions that would have a significant impact on the environment.

Hazards and Hazardous Materials. Under Alternative 3, excavation of the existing levees could result in exposing the construction workers and the public to hazardous substances found within the excavated soils. Construction of Alternative 3 would occur in the same general area as the Program; however, additional excavation would occur increasing the potential for encountering contaminated soils. Alternative 3 is located within the same general area as the Program and therefore would have impacts related to impairment of an evacuation plan similar to the Program.

Hydrology and Water Quality. Implementation of Alternative 3 would include installation of raised levees along Lower Berryessa, Calera, and Tularcitos creeks and would include removal of sediment and vegetation along Lower Penitencia Creek similar to the Program. Implementation of Alternative 3 would therefore result in similar impacts related to hydrology and water quality as compared with the Program.

Land Use and Planning. Since Alternative 3 would construct levees outside of the District's existing ROW, it is likely that additional construction and permanent easements would need to be acquired for construction and operation of the Program. However, implementation of Alternative 3 would not result in significant changes to existing land uses and impacts associated with land use and planning would therefore be similar to the Program.

Noise. Alternative 3 is located within a similar footprint; would use similar equipment; and would have approximately the same construction schedule as the Program. Therefore, construction related noise impacts would be similar to the Program. Alternative 3 does not include the construction of a pump station and would therefore avoid long-term impacts related to noise.

Recreation. Implementation of Alternative 3 would occur within the same vicinity as the Program and would include construction methods similar to those of the Program. Therefore, impacts related to indirect effects on the recreation experience under Alternative 3 would be similar to the Program.

Transportation and Traffic. Implementation of Alternative 3 would result in temporary increases in traffic volume and traffic hazards on the surrounding streets and roadways. Alternative 3 is located in the same general area as the Program and haul routes and access roads would be the same. Therefore, Alternative 3 would result in temporary increases in traffic volume and hazards to vehicles, bicyclists, and pedestrians during construction similar to the Program.

Utilities and Service Systems. Alternative 3 would have effects on utilities and service systems similar to that of the Program. Alternative 3 would be constructed within the same general area as the Program and utilities would be present within the work area that would need to be relocated or protected in place during construction. Impacts associated with protection and relocation of existing utilities would therefore be similar to the Program.

Alternative 3 would require the disposal of solid waste generated by excavation of the existing levees and the removal of sediment and vegetation within Lower Penitencia Creek. Alternative 3 would require approximately the same amount of excavation as the Program. Similar to the Program, excavated materials could be used to construct the new levees, but it is anticipated that most of the materials would be off hauled to local landfill facilities. Construction materials resulting from Alternative 3 could result in significant reduction in capacity if smaller local landfills were used for all of construction waste generated under Alternative 3. Overall, impacts associated with landfill capacity would be slightly greater compared to the Program.

Cumulative Impacts. If Alternative 3 were to overlap with construction of cumulative projects described in Chapter 5, cumulative construction-related impacts related to biological resources, cultural resources, geology and soils, hazards and hazardous materials, air quality, noise, utilities, and traffic and transportation could result and would be similar to cumulative impacts of the Program. Also, similar to cumulative impacts of the Program, implementation of both Alternative 3 and the joint USACE/SCVWD Upper Berryessa Creek Project would result in long-term cumulative impacts related to aesthetics, air quality and recreation.

4.B.6 Alternative 4: Floodwalls and Sediment Removal

Description

Under Alternative 4, new floodwalls, ranging in height approximately from one to four feet would be installed along Lower Berryessa, Calera, and Tularcitos creeks within the same areas as the Program. Alternative 4 differs from the Program in that it would install floodwalls for the entire length of each creek reach and would not include installation of a pump station, thereby avoiding significant impacts related to air quality and aesthetics associated with operation of the Program.

The existing levees would be removed and floodwalls would be installed on both sides of the Lower Berryessa Creek Element. Floodwalls would be installed at the top of the existing levees on Lower Calera, Upper Calera, and Tularcitos creek elements. Alternative 3 also would include installation of an 18-foot wide maintenance road on both sides of the channels. Maintenance roads would be constructed on top of the levees on one side of the creek and a lower maintenance road would be constructed within the channel on the opposite side of the creek. Installation of floodwalls and maintenance roads would use the same construction methods and equipment as the Program. Construction of the in-channel access roads would require the excavation of wetland and other vegetation within the channel. Floodwalls would be constructed using pour-in-place methods with wood or rebar frames.

Under Alternative 4, work in Lower Penitencia Creek would include removal of sediment and vegetation to restore design capacity as described under the Program. The capacity of Lower Penitencia Creek from its confluence with Lower Berryessa downstream to its confluence with Coyote Creek has been compromised because of sediment buildup within the channel. Lower Penitencia Creek could be restored to design capacity by the removal of sediment and vegetation within the existing channel; therefore, installation of floodwalls or raising levees would not be required. Removal of sediment and vegetation within Lower Penitencia Creek would be the same under Alternative 4 as with the Program.

Aesthetics. Implementation of Alternative 4 would affect the existing visual character or quality of the surrounding environment with the installation of floodwalls throughout the entire program area. Installation of the floodwalls would create a more engineered environment compared to existing conditions and that of the Program. At Upper Calera Creek, implementation of Alternative 4 would introduce flood protection facilities where none currently exist. The riparian habitat located within Upper Calera Creek would be temporarily removed during construction resulting in a degradation of the existing scenic environment. While Alternative 4 would avoid aesthetic impacts related to pump station light and glare, impacts related to scenic resources and the quality and character of the existing environment would be greater under Alternative 4 compared to the Program because of the installation of floodwalls within Upper Calera Creek.

Air Quality. Emission of fugitive dust and criteria pollutants would occur during construction and would be similar to the Program. Alternative 4 would occur within the same footprint as the

Program and construction both in duration and intensity would be approximately the same. Therefore, significant impacts related to air quality would be similar to the Program. However, Alternative 4 would avoid the Program's significant operational impacts on air quality because the alternative would not include installation of a pump station on Tularcitos Creek.

Biological Resources. Alternative 4 would result in greater temporary and permanent impacts on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities than the Program. Installation of the floodwalls would result in temporary impacts on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities. Because Alternative 4 would include in-channel maintenance roads for the entire extent of the program area, it would result in greater permanent impacts on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities compared to the Program. In-channel construction activities would result in removal of trees within Upper Calera Creek, and greater impacts associated with special-status species, such as San Francisco dusky-footed woodrat. Overall, Alternative 4 would result in greater impacts on biological resources compared to the Program.

Cultural Resources. Alternative 4 would result in potential impacts to unknown cultural resources similar to the Program. The area of earth disturbance under Alternative 4 is approximately the same as the Program; therefore, the potential to encounter unknown cultural resources would be considered approximately the same. Installation of the floodwalls within Upper Calera Creek would have the same potential to impact known historical resources, including the circa 1859 "Casino," at the José Higuera Adobe Park. Overall, Alternative 4 would have similar impacts related to cultural resources compared to the Program.

Geology and Soils. Because Alternative 4 would be constructed in the same general area as the Program and includes similar excavation and construction requirements, impacts related to secondary ground shaking and expansive soils would be similar to the Program.

Greenhouse Gases. Construction of Alternative 4 would be similar to the Program in scope and magnitude and GHG emissions would not differ substantially from the program construction emissions estimates. Alternative 4 would not include installation of a pump station on Tularcitos Creek and would thereby avoid the contribution to GHG emissions from stationary sources. Therefore, Alternative 4 would not generate GHG emissions that would have a significant impact on the environment.

Hazards and Hazardous Material. Alternative 4 would likely have the same construction footprint as the Program and would, therefore, have similar impacts to the Program related to hazards and hazardous materials. This includes potential exposure of workers or the public to hazardous materials and impeding an adopted emergency evacuation plan.

Hydrology and Water Quality. Alternative 4 would construct floodwalls for the extent of the program area and would include sediment and vegetation removal in Lower Penitencia Creek; requiring similar construction activities as the Program. Therefore, impacts related to

hydrology and water quality resulting from implementation of Alternative 4 would be similar to the Program.

Land Use and Planning. Alternative 4 would occur within approximately the same area as the Program and would therefore have impacts on land use and planning similar to the Program.

Noise. Implementation of Alternative 4 would result in a temporary increase in noise during construction. Because Alternative 4 would occur in the same general area as the Program, and would be similar in the extent and intensity of construction, impacts related to noise would be similar. However, Alternative 4 would avoid noise impacts related to operation of the pump station at Tularcitos Creek.

Recreation. Implementation of Alternative 4 would occur within the same vicinity as the Program and would include construction methods similar to those of the Program. Therefore, impacts related to indirect effects on the recreation experience under Alternative 4 would be similar to the Program.

Transportation and Traffic. Alternative 4 would occur in the same vicinity as the Program and the same access roads and haul routes would be used. Impacts associated with traffic volume and traffic hazards would be similar to the Program.

Utilities and Services. Alternative 4 would occur within the same area as the Program and would have the same impacts related to utility relocation or protection in place.

Alternative 4 would require the disposal of solid waste generated by excavation of the existing levees and the removal of sediment and vegetation within Lower Penitencia Creek. Also, Alternative 4 would result in removal of soil to install new floodwalls and would not likely re-use any of the excavated materials; therefore, it would require the disposal of all excavated materials that could result in significant reduction of landfill capacity, if smaller local landfills were used for all of construction waste, similar to the Program.

Cumulative Impacts. If Alternative 4 were to overlap with construction of cumulative projects described in Chapter 5, cumulative construction-related impacts related to biological resources, cultural resources, geology and soils, hazards and hazardous materials, air quality, noise, utilities, and traffic and transportation could result and would be similar to cumulative impacts of the Program. Also, similar to cumulative impacts of the Program, implementation of both Alternative 4 and the joint USACE/SCVWD Upper Berryessa Creek Project would result in long-term cumulative impacts related to aesthetics, air quality, and recreation.

4.C Comparison of Alternatives

4.C.1 Comparison of Environmental Impacts

Table 4-2 presents a comparison of the significant environmental impacts of the Program with the impacts of each alternative. If it is determined that the No Project Alternative is the environmentally superior alternative, then the EIR should also identify an environmentally superior alternative from among the other alternatives (CEQA Guidelines §15126.6[e]).

No Project Alternative

In the absence of flooding, Alternative 1, the No Project Alternative, would avoid significant impacts related to air quality, an increase in the noise environment, and aesthetics impacts resulting from implementation of the Program's future Tularcitos Creek pump station. Alternative 1 would also reduce significant construction-related impacts that would occur with the Program related to aesthetics, air quality, biological resources, cultural resources, geology and soils, hazards and hazardous materials, noise, recreation, traffic and transportation, and utilities and service systems.

However, in the probable event of flooding, Alternative 1 would result in greater impacts than the Program on several resources. Currently, Lower Berryessa Creek and Calera Creek do not contain design flows and the District's levee freeboard policies. Lower Berryessa Creek from Calaveras Boulevard to its confluence with Lower Penitencia Creek does not have adequate capacity to convey design flows and meet freeboard requirements (Winzler and Kelly, 2010). Regarding cumulative impacts, the Corps and the District may proceed with the joint USACE/SCVWD Upper Berryessa Creek Project, increasing the conveyance capacity of the upper reaches of Berryessa Creek, thereby exacerbating flooding conditions in Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks under Alternative 1.

Flooding would result in deposition of large amounts of sediment and debris throughout the flood zone requiring excavation and repair. Recurrent flooding would require emergency clean-up of flooded areas and could result in greater impacts because it could include contaminated soils that would expose workers to hazardous conditions. Additionally, the amount of soil and debris removed, then deposited to local landfill facilities, would be greater than the Program. Depending on the extent of flooding, impacts related to biological resources and recreation would be greater compared with the Program because flood flows would be expected to remove vegetation within the flood zone and flood parks, possibly resulting in permanent impacts to these resources.

Overall, impacts related to aesthetics, cultural resources, hazards and hazardous materials, hydrology and water quality, geology and soils, land use, noise, recreation, traffic and transportation, and utilities and service systems would be more severe compared to the Program. Alternative 1 would not meet any of the Program's objectives as described in Section 4.2.1.

TABLE 4-2
COMPARISON OF THE SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE ALTERNATIVES

Parameter	Proposed Program	Alternative 1 No Project Alternative	Alternative 2 Managed Floodplain	Alternative 3 Raised Levees Outside Right of Way and Sediment Removal	Alternative 4 Floodwalls and Sediment Removal
Aesthetics					
Impacts related to damage to scenic resources and related to a change in the existing visual character or quality of the site and its surroundings	**Significant**	**Increased** Periodic flooding within the program vicinity could damage trees and vegetation resulting in reoccurring, but temporary visual impacts.	**Decreased** Temporary damage to scenic resources during construction. However, trees and vegetation would be restored and potentially result in a long-term increase in visual quality.	**Increased** Removal or damage to trees and vegetation outside of the District's existing ROW would result in a permanent decrease in visual quality.	**Increased** Permanent floodwalls would be installed creating an engineered aesthetic in the area.
Impacts from new sources of light or glare with operation of a future pump station	**Significant**	**Decreased** Impacts associated with pump station would be avoided.	**Decreased** Impacts associated with pump station would be avoided.	**Decreased** Impacts associated with pump station would be avoided.	**Decreased** Impacts associated with pump station would be avoided.
Air Quality					
Emission of fugitive dust during construction	**Significant**	**Similar** Periodic flooding within the program vicinity could require clean up and repair. These activities would result reoccurring but temporary increases in fugitive dust.	**Increased** Increased construction area would result in increase in fugitive dust.	**Similar** Construction impacts would be similar to the Program.	**Similar** Construction impacts would be similar to the Program.
Emission of criteria pollutants	**Significant**	**Similar/Decreased** Periodic flooding within the program vicinity would require clean up and repair. These activities would result reoccurring but temporary increases in criteria pollutants emissions. Operational impacts from the pump station would be avoided.	**Increased/Decreased** Increased construction area would result in an increase in criteria pollutant emissions. Operational impacts from the pump station would be avoided.	**Similar/Decreased** Construction impacts would be similar to the Program. Operational impacts from the pump station would be avoided.	**Similar/Decreased** Construction impacts would be similar to the Program. Operational impacts from the pump station would be avoided.
Expose sensitive receptors to criteria pollutants	**Significant**	**Similar/Decreased** Periodic flooding within the program vicinity would require clean up and repair. These activities temporarily expose sensitive receptors to criteria pollutants. Operational impacts from the pump station would be avoided.	**Increased/Decreased** Increased construction duration would result in longer temporary exposure of sensitive receptors to criteria pollutants. Operational impacts from the pump station would be avoided.	**Similar/Decreased** Construction impacts would be similar to the Program. Operational impacts from the pump station would be avoided.	**Similar/Decreased** Construction impacts would be similar to the Program. Operational impacts from the pump station would be avoided.

TABLE 4-2 (Continued)
COMPARISON OF THE SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Parameter	Proposed Program	Alternative 1 No Project Alternative	Alternative 2 Managed Floodplain	Alternative 3 Raised Levees Outside Right of Way and Sediment Removal	Alternative 4 Floodwalls and Sediment Removal
Air Quality (cont.)					
Expose sensitive receptors to objectionable odors during operation of the pump station	**Significant**	**Decreased** Operational impacts from the pump station would be avoided.	**Decreased** Operational impacts from the pump station would be avoided.	**Decreased** Operational impacts from the pump station would be avoided.	**Decreased** Operational impacts from the pump station would be avoided.
Biological Resources					
Temporary and permanent impacts on federally or state protected wetlands or waters and riparian habitats	**Significant**	**Similar** Periodic flooding within the program vicinity and the subsequent clean up would result in reoccurring damage to biological resources including federally or state protected wetlands or waters and riparian habitats	**Decreased** Permanent impacts would be avoided. Alternative 2 would result in an overall benefit to biological resources.	**Increased** Permanent impacts to federally or state protected wetlands or waters and riparian habitats would increase to accommodate a wider channel.	**Increased** Permanent impacts to federally or state protected wetlands or waters and riparian habitatswould increase to accommodate in-channel maintenance roads.
Impacts on San Francisco dusky-footed woodrat	**Significant**	**Similar** Periodic flooding within the program vicinity and the subsequent clean up would result in reoccurring damage to biological resources including San Francisco dusky-footed woodrat.	**Decreased** Impacts on the San Francisco dusky-footed woodrat would be avoided.	**Increased** Permanent removal of riparian habitat would result in the loss of potentially suitable habitat for San Francisco dusky-footed woodrat.	**Increased** In-channel construction activities would result in the loss of potentially suitable habitat for San Francisco dusky-footed woodrat.
Conflicts with local policies and ordinances, including tree ordinances	**Significant**	**Decreased** Tree removal would not occur (flood related damage to trees).	**Similar** Trees and vegetation would be removed during construction, potentially conflicting with policies and ordinances.	**Increased** Removal or damage to trees and vegetation outside of the existing District ROW would be permanent and would potentially violate local policies and ordinances.	**Increased** Permanent removal of trees along Upper Calera would potentially violate local policies and ordinances.
Cultural Resources					
Impacts on unknown historical resources, archeological resources or human remains	**Significant**	**Increased** Erosion caused by periodic flooding within the program vicinity and ground disturbance during the subsequent clean up could result in permanent loss of unknown cultural resources.	**Increased** A greater extent of construction could be required and would increase the likelihood of discovering and damaging or destroying unknown cultural resources.	**Increased** A greater extent of construction could be required and would increase the likelihood of discovering and damaging or destroying unknown cultural resources.	**Similar** A similar extent of construction could be required and the likelihood of discovering archeological resources would be approximately the same.

TABLE 4-2 (Continued)
COMPARISON OF THE SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Parameter	Proposed Program	Alternative 1 No Project Alternative	Alternative 2 Managed Floodplain	Alternative 3 Raised Levees Outside Right of Way and Sediment Removal	Alternative 4 Floodwalls and Sediment Removal
Cultural Resources (cont.)					
Impacts on known archaeological and historical resources	**Significant**	**Increased** Erosion caused by periodic flooding within the program vicinity and ground disturbance during the subsequent clean up could result in the permanent loss of archeological resources and reoccurring damage to historic resources.	**Decreased** The impact would be avoided.	**Increased** Construction would occur in closer proximity to the José Higuera Adobe Park and would increase the probability of damaging those resources.	**Similar** A similar extent of construction could be required and the likelihood of damaging historical resources would be approximately the same.
Geology and Soils					
Impacts related to fault rupture, strong seismic ground-shaking and secondary groundshaking effects	**Significant**	**Decreased** The impact would be avoided.	**Similar** The expanded area would be subject to potential strong seismic ground shaking and related secondary effects similar to those anticipated for the Program.	**Similar** Alternative 3 would be subject to potential strong seismic ground shaking and related secondary effects similar to those anticipated for the Program.	**Similar** Alternative 4 would be subject to potential strong seismic ground shaking and related secondary effects similar to those anticipated for the Program.
Impacts related to erosion or loss of topsoil	**Less than Significant**	**Increased** Erosion caused by periodic flooding within the program vicinity and could result in loss of top soil and increased sedimentation.	**Similar** Erosion impacts would be less than significant.	**Similar** Erosion impacts would be less than significant.	**Similar** Erosion impacts would be less than significant.
Impacts related to expansive soils	**Significant**	**Decreased** The impact would be avoided.	**Similar** The expanded area would be subject to potential impacts from expansive soils similar to those anticipated for the Program.	**Similar** Alternative 3 would be subject to potential impacts from expansive soils similar to those anticipated for the Program.	**Similar** Alternative 4 would be subject to potential impacts from expansive soils similar to those anticipated for the Program.
Hazards and Hazardous Materials					
Exposure of hazardous materials	**Significant**	**Increased** Periodic flooding within the program vicinity could expose hazardous materials in the soil and disperse the contaminated soil over a broad area.	**Increased** More expansive demolition and grading would increase potential for exposure to contaminated soils and/or hazardous materials encountered in the demolition of structures.	**Increased** More expansive demolition and grading would increase potential to encounter contaminated soils.	**Similar** A similar extent of construction could be required and the potential to encounter contaminated soils would be approximately the same.

TABLE 4-2 (Continued)
COMPARISON OF THE SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Parameter	Proposed Program	Alternative 1 No Project Alternative	Alternative 2 Managed Floodplain	Alternative 3 Raised Levees Outside Right of Way and Sediment Removal	Alternative 4 Floodwalls and Sediment Removal
Hazards and Hazardous Materials (cont.)					
Impair adopted emergency response plan or emergency evacuation plan	**Significant**	**Increased** Emergency access roads could also be blocked during flooding and prevent the execution of emergency response or evacuation plans.	**Similar** Construction would occur within the same vicinity as the Program and consequently have similar impacts on implement the adopted emergency response or evacuation plan.	**Similar** Construction would occur within the same vicinity as the Program and consequently have similar impacts on implement the adopted emergency response or evacuation plan.	**Similar** Construction would occur within the same vicinity as the Program and consequently have similar impacts on implement the adopted emergency response or evacuation plan.
Hydrology and Water Quality					
Alteration of drainage patterns and downstream flooding	**Less than Significant**	**Increased** Periodic flooding along Lower Berryessa Creek and the secondary flooding effects created in Calera and Tularcitos creeks would continue.	**Similar** Similar to the Program, implementation would reduce impacts of sedimentation and downstream flooding.	**Similar** Similar to the Program, implementation would reduce impacts of sedimentation and downstream flooding.	**Similar** Similar to the Program, implementation would reduce impacts of sedimentation and downstream flooding.
Land Use					
Conflict with a Land Use Plan or Policy	**No Impact**	**Similar** No land use impacts would occur.	**Increased** Required land use changes could be in conflict with the Milpitas General Plan or other local plans and policies regarding land use.	**Similar** No land use impacts would occur.	**Similar** No land use impacts would occur.
Division of an established community	**Less Than Significant**	**Increase** Flooding within roadways could result in physically dividing the existing community by the closure of roads and highways for an unknown period of time.	**Increase** The widened floodplain would physically divide an established community.	**Similar** No changes in land use would be required.	**Similar** No changes in land use would be required.
Noise					
Temporary and permanent increase in noise levels	**Significant**	**Increased/Decreased** Periodic flooding within the program vicinity and the subsequent clean up would result in reoccurring increases in ambient noise levels. Operational impacts from the pump station would be avoided.	**Increased/Decreased** Noise from demolition and excavation would occur over a longer construction period than that of the proposed program. Operational impacts from the pump station would be avoided.	**Similar/Decreased** Temporary increases in noise levels would be similar to the Program. Operational impacts from the pump station would be avoided.	**Similar/Decreased** Temporary increases in noise levels would be similar to the Program. Operational impacts from the pump station would be avoided.

TABLE 4-2 (Continued)
COMPARISON OF THE SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Parameter	Proposed Program	Alternative 1 No Project Alternative	Alternative 2 Managed Floodplain	Alternative 3 Raised Levees Outside Right of Way and Sediment Removal	Alternative 4 Floodwalls and Sediment Removal
Recreation					
Indirect impact on recreation experience caused removal of trees	**Significant**	**Increased** Periodic flooding within the program vicinity could damage or destroy recreational facilities adjacent to the creeks resulting in long-term closures.	**Increased/Decreased** Tree removal and vegetation impacts would be greater than the Program during construction. However, after restoration activities, the recreation experience would be enhanced.	**Similar** Construction would occur in the same vicinity and using similar methods as the Program.	**Similar** Construction would occur in the same vicinity and using similar methods as the Program.
Transportation and Traffic					
Conflict with local plans and policies	**Significant**	**Decreased** All impacts avoided.	**Increased** Permanent road closures resulting from the required acquisition of real estate could conflict with local policies, plans, and congestion management programs.	**Similar** Construction would occur in the same vicinity and using the same hauling and access roads as the Program.	**Similar** Construction would occur in the same vicinity and using the same hauling and access roads as the Program.
Increase traffic safety hazards	**Significant**	**Increased** Periodic flooding within the program vicinity could increase traffic hazards by obstructing and degrading local roadways.	**Increased** Traffic volumes would increase to accommodate off-haul of excavated materials and road closures would be required. Permanent roadway closures could also occur.	**Similar** Temporary increases in traffic volume and hazards to vehicles, bicyclists, and pedestrians during construction would be similar to the Program.	**Similar** Temporary increases in traffic volume and hazards to vehicles, bicyclists, and pedestrians during construction would be similar to the Program.
Impair access to roadways for emergency response traffic	**Significant**	**Increased** Periodic flooding within the program vicinity could increase traffic hazards by impairing emergency access to and through the program vicinity.	**Increased** Traffic volumes would increase to accommodate off-haul of excavated materials and road closures would be required. Permanent roadway closures could also occur.	**Similar** Temporary increases in traffic volumes would have a similar affect on emergency access as the Program.	**Similar** Temporary increases in traffic volumes would have a similar affect on emergency access as the Program.
Utilities and Service Systems					
Interference with existing utilities	**Significant**	**Increased** Periodic flooding within the program vicinity could result in interference with existing utilities.	**Increased** Construction activities are anticipated to encounter more underground utilities than the Program.	**Similar** It is expected that the same utilities could be encountered during construction as for the Program.	**Similar** It is expected that the same utilities could be encountered during construction as for the proposed program.

TABLE 4-2 (Continued)
COMPARISON OF THE SIGNIFICANT ENVIRONMENTAL IMPACTS OF THE CEQA ALTERNATIVES

Parameter	Proposed Program	Alternative 1 No Project Alternative	Alternative 2 Managed Floodplain	Alternative 3 Raised Levees Outside Right of Way and Sediment Removal	Alternative 4 Floodwalls and Sediment Removal
Utilities and Service Systems (cont.)					
Reduce capacity of landfill	**Significant**	**Similar** Periodic flooding within the program vicinity could result in periodic disposal of sediment and debris which would reduce local landfill capacity.	**Increased** The volume of spoils and debris required to be hauled off site is anticipated to be greater than the Program.	**Increased** Less of the spoils would be used on-site and a slightly greater volume of spoils and debris could be disposed at local landfills.	**Increased** Less of the spoils would be used on-site and a slightly greater volume of spoils and debris could be disposed at local landfills.
Compliance with federal, state, and local solid waste statutes	**Significant**	**Similar** Periodic flooding within the program vicinity could result in the need for periodic removal of sediment and debris which could conflict with state solid waste statutes.	**Increased** The volume of spoils and debris required to be hauled off site is anticipated to be greater than the Program.	**Increased** Less of the spoils would be used on-site and a slightly greater volume of spoils and debris could be disposed at local landfills	**Increased** Less of the spoils would be used on-site and a slightly greater volume of spoils and debris could be disposed at local landfills
Cumulative Impacts					
Cumulative Impacts	**Significant**	New cumulative impacts associated with land use, and hydrology and water quality, including impacts associated with increased flooding potential. Greater cumulative impacts associated with cultural resources, geology, hazards and hazardous materials, noise, recreation, traffic and transportation, and utilities and services systems. Similar cumulative impacts related to aesthetics, air quality and biological resources.	New cumulative impacts associated with land use, and hydrology and water quality, including impacts associated with increased flooding potential. Greater cumulative impacts associated with air quality, unknown cultural resources, hazards and hazardous materials, noise, recreation, traffic and transportation, and utilities and services systems. Similar or less severe cumulative impacts related to aesthetics, biological resources, known cultural resources, and geology.	All cumulative impacts would be similar to the Program.	All cumulative impacts would be similar to the Program.

Alternative 2: Managed Floodplain

When compared with the Program, Alternative 2, Managed Floodplain, would avoid significant impacts associated with activity in the Upper Calera program elements including impacts to known historical resources and the San Francisco dusky-footed woodrat. Alternative 2 also would avoid significant impacts related to air quality, an increase in the noise environment, and aesthetics resulting from implementation of the Program's future Tularcitos Creek pump station. Alternative 2 would potentially result in improved conditions for aesthetics, biological resources, and recreation.

However, because of the larger program area and greater extent in excavation, construction-phase air quality impacts would be significant; and, greater impacts related to cultural resources, hazards and hazardous materials, land use, noise, recreation, transportation and traffic, and utilities and service systems would occur if Alternative 2 were to be implemented. For example, the larger program area and greater extent in excavation would result in greater potential to encounter unknown cultural and archeological resources, an increase in construction waste requiring additional truck trips, and more construction equipment in use for a longer period, resulting in a greater increase in the noise environment.

Alternative 2 would meet all of the program objectives with the exception of the objective to implement project-level elements prior to the construction of the joint USACE/SCVWD Upper Berryessa Creek Project. Due to land acquisition requirements, and the longer construction period required to construct the floodplain, this alternative would not likely be constructed prior to the completion of the joint USACE/SCVWD Upper Berryessa Creek Project. If the joint USACE/SCVWD Upper Berryessa Creek Project were to be completed prior to improvements in the Lower Berryessa Creek watershed, extensive flooding could occur in Lower Berryessa, Calera, Tularcitos, and Lower Penitencia creeks as a result of increased conveyance capacity within Upper Berryessa Creek. This cumulative impact would occur until improvements in the Lower Berryessa Creek area could be implemented.

Alternative 3: Raised Levees Outside District's Right of Way

The majority of impacts associated with Alternative 3, Raised Levees outside the District's existing ROW, would be the same or similar as the Program. Alternative 3 would avoid significant impacts related to air quality, noise, and aesthetics associated with operation of the future pump station on Tularcitos Creek.

Alternative 3 would result in slightly greater impacts on biological resources and aesthetics compared to the Program, because additional vegetation would need to be removed to accommodate the slightly wider creek channel and the new raised levees. Permanent impacts to federally or state protected wetlands or waters and riparian habitats would increase to accommodate a the wider creek channel. Alternative 3 would result in greater impacts related to San Francisco dusky-footed woodrat, because riparian vegetation within Upper Calera Creek would, at least, be temporarily impacted. The greater extent of construction would increase the potential for encountering unknown cultural resources or

hazardous contaminated soils. Construction would occur in proximity to known cultural resources increasing the potential for damage to these resources. Finally, less of the excavation spoils would be used on-site and a slightly greater volume of spoils and debris could be disposed at local landfills resulting in a greater impact to landfill utilities.

Some permanent easements would be required for implementation but would not impede or delay implementation of Alternative 3. Alternative 3 would meet all Program objectives identified in Section 2.C.2.

Alternative 4: Floodwalls

The majority of impacts associated with Alternative 4, Floodwalls, would be the same or similar as the Program. Alternative 4 would avoid significant impacts related to air quality, noise, and aesthetics associated with operation of the future pump station on Tularcitos Creek.

Alternative 4 would result in slightly greater impacts related to aesthetics because it would be introducing a more engineered approach compared with both existing conditions and the Program. Construction of in-channel maintenance roads would increase permanent impacts to federally or state protected wetlands or waters and riparian habitats, affect trees and other riparian vegetation within Upper Calera Creek, and thus result in greater impacts on the San Francisco dusky-footed woodrat. Finally, less of the excavation spoils would be used on-site and a slightly greater volume of spoils and debris could be disposed at local landfills resulting in a greater impact to landfill utilities.

Alternative 4 would meet all Program objectives identified in Section 2.C.2.

4.C.2 Environmentally Superior Alternative

Based on the evaluation above, the Program is considered to be the environmentally superior alternative. Compared with Alternative 2, the Program has a smaller construction area and timeframe and is able to meet the Program objectives identified in Section 2.C.2. Alternatives 3 and 4, while meeting Program objectives, result in slightly greater impacts associated with aesthetics, biological resources, and recreation. When compared to Alternatives 3 and 4, the Program has fewer overall environmental impacts while meeting all Program objectives.

4.D Alternatives Identification and Screening

A range of preliminary alternatives was considered for the Program over an eight year period with input from stakeholders, including the City of Milpitas. The preliminary alternatives were formulated from public input and engineering feasibility. Table 4-3 summarizes the criteria used to screen preliminary alternatives and to select a reasonable range of preliminary alternatives for evaluation (along with the No Project Alternative) in this EIR.

TABLE 4-3
ALTERNATIVES ANALYSIS FEASIBILITY SCREENING CRITERIA

Project Objective Category	Screening Criteria
Flood Protection	The project must accommodate the future design flows based on existing flood control needs and the anticipated Upper Berryessa Creek project upstream, and meet District standards for levee freeboard. Any improvements to the levee system must be engineered for satisfactory long term stability and seepage control.
Maintenance Access	The District has a maintenance program that includes removal of debris and trash that collects within the flood control channels. They also implement a vegetation/sediment removal program that consists of clearing half of the low flow channel of vegetation with some sediment removal each year, and the alternate half undergoing maintenance the subsequent year. These operations require access by District personnel and equipment.
City of Milpitas Trail System	The City of Milpitas has two, planned trails along the Berryessa Creek Levees as part of their trail master plan defined in a City Feasibility Report prepared in 1999. The trails are intended to integrate with the natural environment and provide recreation and alternative transportation benefits to businesses, schools and neighborhoods. Trail development is also intended to provide an opportunity to enhance the creek corridors as habitat for wildlife and as a scenic open space for trail users.
Habitat Enhancement/ Restoration	The project improvements should include habitat enhancement within the project limits beyond what would be affected by the project. This could include improved riparian and wetlands habitat within the low flow channel as well as improved aesthetics to the levee banks by seeding and/or plantings. This will help reduce the onsite erosion of banks and fit in well with the trail system.
Completion of Construction	The Corps and the District are proceeding with the planning of flood protection improvements upstream of Calaveras Boulevard (joint USACE/SCVWD Upper Berryessa Creek Project). Since the upstream improvements would result in increased downstream flows, implementation of the downstream Program improvements must be completed prior to starting construction on the Upper Berryessa Creek project.
Project Budget	The approved project budget for this project is $12 million. The total costs for engineering, design, environmental compliance and construction should not exceed this amount.

SOURCE: Winzler & Kelly, 2010.

4.E Alternatives Considered but Rejected from Further Analysis

Table 4-4 summarizes the preliminary alternatives rejected from further analysis in this EIR, and the reasons for their rejection. The alternatives listed in Table 4-4 were rejected mainly because of an inability to meet all fundamental program objectives without being combined with other alternatives.

TABLE 4-4
ALTERNATIVES CONSIDERED BUT REJECTED FROM FURTHER CONSIDERATION

Potential Alternative Identified	Description	Ability to Meet Program Objectives and Feasibility Screening Criteria
Option 1. Raised Levees Within the District's Right of Way	Raising existing levees for the entire length of the Program area within the District's right of way. Levees would be raised 1.5 to 4 feet. Maintenance roads would be constructed on top of levees.	**Partially fails to meet fundamental project objectives** - Provides less than 100 year flood protection - Only feasible if combined with modification of railroad bridges or other creek improvements, otherwise the levee system would overtop at the railroad bridges. **Reason for Rejection** - Would not meet goal of providing 100 year flood protection
Option 2. Detention Basins	Several detention basins would be constructed within the upper and lower watersheds to capture high flows. Locations of basins would be in the upper watershed; to the west side of Lower Berryessa Creek; and, near Paseo Refugio and Santa Rita Road.	**Partially fails to meet fundamental project objectives** - Provides less than 100 year flood protection - Existing levee slope instability would remain **Constraints** - Would require real estate acquisition - Storm drain systems would need to be modified - Basins would require yearly maintenance to remove sediment - Existing levee slope instability would remain **Reason for Rejection** - Fails to meet 100 year flood protection
Option 3. Bypass Channel	A bypass channel would be constructed to divert peak flows. A concrete box culvert would be constructed to carry peak flows around the flood zone and discharge at Lower Penitencia Creek.	**Partially fails to meet fundamental project objectives** - Provides less than 100 year flood protection - Existing levee slope instability would remain **Constraints** - Maintenance would be required to keep conduit free of sediment - Only feasible if combined with other alternatives, otherwise the levee system will overtop at the railroad bridges. **Reason for Rejection** - Provides less than 100 year flood protection

CHAPTER 5
Cumulative Impacts

This chapter addresses the cumulative impacts of the Lower Berryessa Creek Program (Program). The purpose of this analysis is to disclose significant cumulative impacts that would result from implementation of the Program in combination with past, present, and reasonably foreseeable probable future projects in and beyond the program area. "Cumulative impacts" refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts (CEQA Guidelines §15354).

5.A CEQA Analysis Requirements

CEQA Guidelines Section 15130 requires that an EIR discuss a Program's contribution to cumulative impacts. The cumulative impact analysis may be less detailed than the analysis of a given project's individual effects (CEQA Guidelines § 15130(b)). The cumulative impact from several projects is defined as:

> ….the change in the environment which results from the incremental impact of the project added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individual minor but collectively significant projects taking place over a period of time (CEQA Guidelines § 15355(b)).

Section 15130(b) requires one of the following approaches for an adequate discussion of significant cumulative impacts of a Program:

- A list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency.
- A summary of projections contained in an adopted general plan or related planning document or in an adopted or certified environmental document that described or evaluated regional or area-wide conditions contributing to the cumulative impact.

This EIR cumulative impact analysis uses the first ("list") approach.

5.B Projects Considered in Cumulative Analysis

Table 5-1 lists past, present, and reasonably probable future projects within and near the program area whose impacts could add to the Program's impacts. This table presents the planning jurisdiction, a brief description, the estimated construction schedule associated with each project, and the distance of that project to the program area. Cumulative project information listed in Table 5-1 is based on information supplied by the City of Milpitas and the District, as well as information from other entities, review of EIRs, and review of information posted on agency websites.

TABLE 5-1
PRELIMINARY LIST OF PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE LOWER BERRYESSA PROGRAM VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Program	Potential Cumulative Impact Topics	Schedule/Status
OTHER DISTRICT PROJECTS						
1	*SCVWD South Bay Advanced Recycled Water Treatment Facility Project*	*East of Alviso in northern San Jose across the street from the San Jose / Santa Clara Water Pollution Control Plant on Zanker Road, approximately 0.55 mile north of State Route 237.*	*Project is a joint effort between the District and the City of San Jose. Project includes construction of an advanced recycled water treatment facility capable of producing up to 10 million gallons of ultra-pure recycled water per day using advanced treatment technologies including microfiltration, reverse osmosis, and ultraviolet disinfection (SCVWD, 2010a).*	*Proposed water treatment facility would be approximately 2 miles southwest of program area.*	*Construction-related traffic impacts on local access roads and associated air quality and noise impacts.*	*Fall 2010 – Summer 2012. Construction would be phased and would last for approximately 22 months (SCVWD, 2011).*
2	*SCVWD Raw and Treated Water Pipelines Rehabilitation Project*	*Rehabilitative efforts would occur at 23 pipeline locations throughout Santa Clara County and in minor portions of Merced and San Benito Counties.*	*Project involves major rehabilitation of raw and treated water pipelines under the District's Pipeline Maintenance Plan. Some of the project activities include air release valve maintenance, leak repair, cathodic protection / corrosion control and monitoring, access road repairs, and creek bank stabilization and management (SCVWD, 2010f).*	*Maintenance of the Milpitas Pipeline would occur approximately 1.5 miles south of the program area.*	*Potential for short-term construction-related traffic impacts on local access roads and associated air quality and noise impacts.*	*2010-2017*
3	*SCVWD Stream Maintenance Program*	*Various locations throughout Santa Clara County.*	*The Stream Maintenance Program authorizes the District to implement routine stream and canal maintenance activities that allows the District to meet flood protection mandates. The program entails sediment removal, vegetation management, repair work to levees damaged by burrows, and bank protection activities.*	*Nearest sediment removal project is approximately 0.25 mile southeast of the program area (near State Route 237 and I-680 intersection); nearest bank protection projects are approximately 1 mile southeast of the program area.*	*Potential for short-term construction-related and operations-related traffic impacts on local access roads and associated air quality and noise impacts.*	*EIR certified in August 2001. Ongoing maintenance activities underway (SCVWD, 2010e).*
4	*SCVWD Lower Silver Creek Project*	*4.4-mile stretch of Lower Silver Creek from the confluence with Coyote Creek to Cunningham Avenue.*	*Project would ensure flood protection and restore a 4.6-mile long segment of Lower Silver Creek. Purpose of the project is to provide flood protection from the 100-year flood event, restore the stream's habitat, beautify the creek banks, and provide opportunities for future trails along the creek*	*Reach 4 is approximately 7 miles southeast of the program area.*	*Although there is potential overlap of construction periods, due to distance from the Project, construction-related traffic impacts are unlikely.*	*Construction began in late August through October 2009. Second construction season began in spring of 2010. Construction estimated to be complete by fall of 2011.*

TABLE 5-1 (Continued)
PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE LOWER BERRYESSA PROGRAM VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Program	Potential Cumulative Impact Topics	Schedule/Status
OTHER DISTRICT PROJECTS (cont.)						
4 (cont.)			*maintenance roads. The District completed construction of the project between Coyote Creek and I-680 (reaches 1 – 3) (SCVWD, 2010b).*			
5	SCVWD Coyote Creek Flood Protection Project	Central portion of the Coyote Watershed. Project extends 6.1 miles between Montague Expressway and I-280.	This project would enhance Coyote Creek's conveyance and would thereby protect nearby homes, schools, businesses, and highways from the 100-year flood event. Project would also improve fisheries and habitat values and provide public access opportunities (SCVWD, 2010c).	Northernmost reach of the Coyote Creek Flood Protection Project is located near Montague Expressway approximately 3 miles southwest of the program area.	No construction-related impacts since this project is in the planning phase. Long-term improvements would result in beneficial effects for Milpitas.	Currently in the planning phase. Construction within Reaches 4 and 5 (of Coyote Creek between Montague Expressway and I-880) is tentatively scheduled to occur between 2012 and 2013.
OTHER PUBLIC INFRASTRUCTURE AND FLOOD PROTECTION/RESTORATION PROJECTS						
6	Santa Clara Valley Transportation Authority (VTA) Freight Railroad Relocation Project	Along the UPRR throughout the southern portion of Fremont and Milpitas.	The project would relocate approximately 8 miles of railroad from Fremont to Milpitas to a parallel location within the railroad right-of-way. The project would help secure vital space for a future mass transit system to be built alongside the existing railroad tracks. The project would also depress and lower Warren Avenue and Kato Road beneath the railroad tracks to help ease congestion, enhance safety, and improve local traffic circulation in Fremont and Milpitas.	Overlaps with the Lower Berryessa Element south of the Abel Street bridge.	Potential construction overlap, but project work at the Lower Berryessa Creek Element should be complete by the time that the Project commences. Potential construction-related impacts relate to trail closures along the Berryessa Creek Trail.	Lower Berryessa Creek culvert work and Abel St. Bridge construction scheduled for completion in May 2011 (Pearse, 2011).
7	U.S. Army Corps of Engineers (USACE)/ SCVWD Upper Berryessa Creek Project	Begins at Calaveras Boulevard in Milpitas (upstream limit of the Lower Berryessa Creek Project) to Old Piedmont Road in San Jose	Project proposes to increase flood protection throughout Upper Berryessa Creek to ensure adequate flood protection from the Corps' 100-year flood event.	Adjacent to the upstream end of the Lower Berryessa Creek Element near the intersection of Paseo Refugio and North Hillview Drive.	Construction-related traffic impacts on local access roads and associated air quality and noise impacts. Potential temporary adverse effects on biological resources. Program is designed to address potential impacts on downstream flooding.	EIR/EIS was scheduled for completion in 2011 Construction scheduled to begin in May 2014 (Cheong, 2011).

TABLE 5-1 (Continued)
PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE LOWER BERRYESSA PROGRAM VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Program	Potential Cumulative Impact Topics	Schedule/Status
OTHER PUBLIC INFRASTRUCTURE AND FLOOD PROTECTION/RESTORATION PROJECTS (cont.)						
8	*Bay Area Rapid Transit (BART) Silicon Valley – Berryessa Extension Project*	*South of the future Warm Springs Station in Fremont through Milpitas, San Jose, and Santa Clara*	*BART and VTA are working together in extending the BART rail system to San Jose, Milpitas, and Santa Clara. The Berryessa Extension is the first phase of BART Silicon Valley, beginning south of the future BART Warm Springs Station in Fremont and proceeding alongside the UPRR through Milpitas and end in the Berryessa area near Las Plumas Avenue. On-site mitigation work (creek restoration and planting) and bridge construction would also occur near the future Berryessa Station.*	*Overlaps with the Lower Calera Creek Element and the Lower Berryessa Creek Element as the BART extension would occur along the existing UPRR alignment.*	*Potential overlap of construction periods; therefore, construction- related traffic, noise, air quality impacts could occur.*	*Construction anticipated to occur between late 2012 and 2018 (VTA BART, 2010; Pearse, 2011). On-site mitigation work at Upper Penitencia Creek is expected to begin in summer 2013 (Calnan, 2011).*
9	*Corps and SCVWD Upper Penitencia Creek Flood Protection Project*	*Within San Jose, beginning at the confluence of Coyote Creek and ends at Dorel Drive (4.2-mile stretch)in Upper Penitencia Creek*	*The Corps and the District are jointly pursuing this project which would ensure flood protection from a 100-year flood event. Flooding from Upper Penitencia Creek reaches in San Jose and portions of Milpitas and is a major problem in this area.*	*Approximately 4 miles south of the program area.*	*Potential overlap of construction periods, but, due to distance from the Program, construction-related traffic impacts unlikely. Long-term improvements in flood protection would result in beneficial effects for Milpitas.*	*Draft and Draft EIR/EIS scheduled for completion in 2009.Construction anticipated to begin in May 2015 (Cheong, 2011).*
10	*City of San Jose's Newby Island Landfill and the Recyclery Rezoning*	*128 Dixon Landing Road, San Jose*	*Planned development rezoning of the Newby Island Sanitary Landfill and the adjacent Recyclery. The purpose of the proposed rezoning is to allow the maximum height of the active portions of the landfill to be raised to 245 feet above mean sea level (City of San Jose, 2009).*	*Landfill is approximately 1.25 miles northwest of the program area.*	*Construction-related traffic impacts on local access roads and associated air quality and noise impacts.*	*Unknown; permits pending.*
11	*City of San Jose Zanker Road Materials Recovery Facility*	*675 Los Esteros Road, Alviso*	*The project would include construction of a 200,000-square-foot materials recovery facility and closure of a portion of the landfill (City of San Jose, 2007).*	*Approximately 2.5 miles southwest of the program area.*	*Potential for overlap of construction periods. Thus, potential construction-related traffic impacts on local access roads and associated air quality and noise impacts.*	*Draft EIR published October 2007. Construction tentatively scheduled to commence between 2012 and 2014. Construction would require about one year.*

TABLE 5-1 (Continued)
PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE LOWER BERRYESSA PROGRAM VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Program	Potential Cumulative Impact Topics	Schedule/Status
OTHER PUBLIC INFRASTRUCTURE AND FLOOD PROTECTION/RESTORATION PROJECTS (cont.)						
12	*City of Fremont Creekside Landing Project*	*At the interchange of I-880 & Dixon Landing Road in the City of Fremont*	*The project would extend Fremont Boulevard to Dixon Landing Road and include construction of a new retail center consisting of approximately 524,000 square feet of commercial/retail uses.*	*Approximately one mile northwest of the program area.*	*Potential for construction period overlap with project due to the close vicinity of the Program. However, since the Creekside Landing Project is pending approval due to funding issues, construction-related impacts are unlikely.*	*Revised Final EIR published December 2009. Pending approval due to funding issues (Silicon Valley/ San Jose Business Journal, 2009).*
13	City of San Jose's San Jose / Santa Clara Water Pollution Control Plant (WPCP) Master Plan	700 Los Esteros Road, San Jose	The City of San Jose is currently in the planning stages for a Master Plan for the WPCP. The Master Plan will address how to improve and expand the wastewater treatment facility and use the 2,600-acre property.	Plant is approximately 2 miles southwest of program area.	No overlap of construction periods.	Currently in the planning phase. The Master Plan and EIR are tentatively scheduled for completion by the end of 2012.
RESIDENTIAL PROJECTS						
14	Aspen Family Apartments	1666 South Main Street, Milpitas	Construction of three 4-story buildings consisting of 101 apartments on 2.69 acres (City of Milpitas, 2010b).	Approximately 1.5 miles southwest of the program area.	No overlap of construction periods since construction of the apartments is complete.	Completed in December 2009.
15	Paragon Condominiums	1696 South Main Street and 75 Montague Expressway, Milpitas	Construction of 147 condominiums on 4.56 acres. Three stories with tandem parking (City of Milpitas, 2010b).	Approximately 1.5 miles southwest of the program area.	Potential construction-related traffic impacts on local access roads and associated air quality and noise impacts.	Under construction.
16	*Citation Dwelling Units*	*Piper Drive near Montague Expressway, Milpitas*	*Construction of 638 dwelling units in three buildings (City of Milpitas, 2010b).*	*Approximately 1.5 miles southwest of the program area.*	*Although unlikely, there is potential overlap in construction period with the Project. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Permits approved. Construction schedule to be determined.*
17	*Fairfield Murphy Ranch*	*Murphy Ranch Road, Milpitas*	*Construction of 659 new units (285 town homes and 374 apartments) on 21.73 acres total (City of Milpitas, 2010b).*	*Approximately 1.75 miles southwest of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*In the design phase (Ahsing, 2010).*

TABLE 5-1 (Continued)
PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE LOWER BERRYESSA PROGRAM VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Program	Potential Cumulative Impact Topics	Schedule/Status
RESIDENTIAL PROJECTS (cont.)						
18	*Fairfield Murphy Ranch*	*600 Barber Lane, Milpitas*	*New 18-story tower (mixed use) consisting of 375 dwelling units (City of Milpitas, 2010b).*	*Approximately 1.5 miles southwest of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Permits approved. Construction schedule to be determined.*
19	*Matteson*	*South Main Street and South Abel Street*	*126 condominiums on 2.72 acres (City of Milpitas, 2010b).*	*Approximately 1.5 miles southwest of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Permits approved. Construction schedule to be determined.*
20	*Mixed Use Project*	*1880 North Milpitas Boulevard*	*Three-story mixed use project consisting of retail space on the ground floor, dental office on the second floor, and three one-bedroom units on the third floor (City of Milpitas, 2010b).*	*Approximately 1 mile north of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Permits approved. Construction schedule to be determined.*
21	*Sinclair Renaissance*	*253 Sinclair Frontage Road*	*80 new detached single-family units on 9.65 acres (City of Milpitas, 2010b).*	*Approximately 0.5 mile south of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Permits approved. Construction schedule to be determined.*
COMMERCIAL DEVELOPMENT PROJECTS						
22	*Campus at McCarthy Ranch*	*115-245 North McCarthy Boulevard*	*Additional 424,814 square feet of office and research and development space (City of Milpitas, 2010a).*	*Approximately 1.5 miles southwest of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Approved. Construction schedule to be determined.*

TABLE 5-1 (Continued)
PROJECTS EVALUATED FOR CUMULATIVE IMPACTS IN THE LOWER BERRYESSA PROGRAM VICINITY

Project Number	Project Name	Location	Project Description	Distance from Proposed Program	Potential Cumulative Impact Topics	Schedule/Status
COMMERCIAL DEVELOPMENT PROJECTS (cont.)						
23	Market Place	1535 Landess Avenue	Convert 89,704 square feet of commercial building space to a retail center (City of Milpitas, 2010a).	Approximately 1.75 miles southwest of the program area.	Construction-related traffic impacts on local access roads and associated air quality and noise impacts.	Under construction (AhSing, 2010).
24	*Milpitas Child Care Center*	*1312 South Main Street*	*New 5,374-square-foot child care center (City of Milpitas, 2010a).*	*Approximately 1.5 miles southwest of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Approved. Construction schedule to be determined.*
25	*Wal-Mart Store Expansion and Remodel*	*301 Ranch Drive*	*18,457-square-foot addition to existing Wal-Mart store and related improvements (City of Milpitas, 2010a).*	*Approximately 1 mile southwest of the program area.*	*Although unlikely, there is potential overlap in construction period with the Program. Therefore, consider potential for cumulative construction effects such as noise, traffic, and air quality.*	*Pending approval.*
Other						
26	*City of Milpitas' Trails Master Plan*	*Throughout the City of Milpitas*	*The Trails Master Plan describes and maps the trail corridors recommended for inclusion in the City of Milpitas' General Plan (City of Milpitas, 1997).*	*Several trails are located within the project area including the Calera Creek Trail and the Berryessa Creek Trail.*	*Potential for construction-related cumulative effects related to construction of trails by the City and temporary closure of proposed and existing trails listed in the Trails Master Plan (i.e., Berryessa Creek Trail). As identified in Chapter 3, Project Description, one of the objectives of the Program is to incorporate opportunities to integrate levees with the City's trail system.*	*Plan was adopted in 1997. Implementation of trails is currently underway.*

All cumulative projects are considered in the impact analysis, as appropriate for each resource topic, as defined in the geographic slope for each topic. Projects shaded in gray on Table 5-1 are those that would contribute directly to cumulative physical environmental effects because they are in close proximity (within one mile) to program facilities. Projects in *italics* are those with tentative construction schedules that could potentially overlap with the construction schedule for the Program (between 2011 and 2015), resulting in cumulative effects. Although, as described below, the geographic scope of potential cumulative impacts differs for each resource area, the projects that are shaded in grey and in italics could overlap spatially and temporally with the Program, thereby increasing the likelihood that cumulative impacts could result. As indicated in Table 5-1, four projects are located proximate to the program facilities and also have construction schedules that could overlap with the Program:

- The SCVWD Raw and Treated Water Pipelines Rehabilitation Project;
- The SCVWD Stream Maintenance Program, with ongoing maintenance being implemented by the District;
- The first phase of the Bay Area Rapid Transit (BART) Silicon Valley Project (BART Berryessa Extension) in coordination with VTA scheduled for construction beginning in 2012;
- The Milpitas Trail Master Plan, adopted in 1997 by the City of Milpitas, outlines and maps the trail corridors recommended for inclusion in the General Plan. Implementation is currently underway, with no firm timeline.

5.C Cumulative Impact Analysis

5.C.1 Significance Criteria

Implementation of the Program would have significant cumulative impacts if it were to:

- Have impacts that would be individually limited but cumulatively considerable ("cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past, present, and probable future projects).

This EIR has determined that the Program would have no impacts related to Agriculture and Forest Resources, Mineral Resources, Population and Housing, and Public Services (see Chapter 3 Environmental Setting, Impacts and Mitigation Measures). Therefore, the Program would not contribute to cumulative impacts related to these topics. The remaining topics addressed in Chapter 3 are described below.

5.C.2 Impact Summary

Potential cumulative impacts related to the construction and operations of the Program are described in this section by environmental resource topic, since the geographic scope of the impact can vary by topic. Each impact discussion below assesses the potential for the Program

to contribute to significant cumulative impacts when considered in combination with the effects of other projects listed in Table 5-1. Table 5-2 presents a summary of the cumulative impacts.

TABLE 5-2
SUMMARY OF CUMULATIVE IMPACTS

Impact Number and Topic	Significance of Program's Contribution to Impact Before Mitigation	Significance Determination After Mitigation
5.A: Aesthetics	S	LTS
5.B: Air Quality	SU	SU
5.C: Biological Resources	S	LTS
5.D: Cultural Resources	S	LTS
5.E: Geology and Soils	S	LTS
5.F: Greenhouse Gases	LTS	-
5.G: Hazards and Hazardous Materials	S	LTS
5.H: Hydrology and Water Quality	LTS	-
5.I: Land Use and Planning	LTS	-
5.J: Noise	S	LTS
5.K: Recreation	S	LTS
5.L: Transportation and Traffic	S	LTS
5.M: Utilities and Service Systems	S	LTS
5.N: Energy Conservation	LTS	-

NOTE: The significance determinations presented in this table assume implementation of all applicable federal, state, and local regulations as well as the mitigation measures identified in Chapter 3.

LTS = Less than Significant impact after mitigation
S = Significant impact
SU = Significant and Unavoidable impact

Aesthetics

Impact 5.A: Cumulative impacts on scenic resources (vistas, roadways, and designated scenic areas) or the visual character of the program area and immediate vicinities. (Less than Significant with Mitigation)

For visual impacts, the geographic scope of potential cumulative impacts includes the program area and immediate vicinity.

Cumulative aesthetics impacts could occur if the Program and the projects identified in Table 5-1 involved the removal of trees, construction of new facilities, or other changes that would affect the same visual resources. Temporary cumulative aesthetics impacts could occur if the cumulative projects' construction schedules overlap with the Program. With the exception of the SCVWD Stream Maintenance Program and the BART Berryessa Extension Project (listed in Table 5-1), all of the cumulative projects are located more than 0.5 mile from the program area and would not cumulatively contribute to potential aesthetics impacts associated with the Program. Although the joint USACE/SCVWD Upper Berryessa Creek Project would not overlap in construction with the Program, this project would occur immediately after

construction of the Program is complete. However, the three above-referenced projects involve improvements in the vicinity of the Lower Berryessa Creek Element and could result in cumulative impacts related to visual resources. Only the northern end of the joint USACE/SCVWD Upper Berryessa Creek Project would be partially visible from the program area, as the Lower Berryessa Creek Element ends immediately north of East Calaveras Boulevard and the joint USACE/SCVWD Upper Berryessa Creek Project ends immediately south of East Calaveras Boulevard.

Since the Program would primarily involve levee improvements and would not modify the street, sidewalks, or other aesthetic features of the streetscape, the Program would not result in substantial adverse visual impacts on scenic collector roads. Similarly, the SCVWD Stream Maintenance Program, BART Berryessa Extension Project, and the joint USACE/SCVWD Upper Berryessa Creek Project would be located within or adjacent to Berryessa Creek and would not likely substantially affect scenic collector roads. Thus, construction-related cumulative impacts on scenic collector roads would not be significant.

The Program would, however, result in both short-term and long-term significant impacts on scenic resources related to the removal of trees located within public viewsheds (see Impact 3.B-1). Construction activities associated with the SCVWD Stream Maintenance Program would consist of sediment removal maintenance work and would occur approximately 0.25 mile from the program area. Construction of the BART Silicon Valley Project is scheduled to begin in 2012 and would overlap with the Lower Berryessa Project and may require tree removal within the Program's viewshed. The joint USACE/SCVWD Upper Berryessa Creek Project is scheduled to commence after completion of the Program and would consist of flood improvements similar to the Program along Upper Berryessa Creek. The overlap of the SCVWD Stream Maintenance Program and BART Berryessa Extension Project with the Program and the sequence of joint USACE/SCVWD Upper Berryessa Creek Project may contribute to cumulative impacts on scenic resources; some of these projects are in the preliminary phase (i.e., the joint USACE/SCVWD Upper Berryessa Creek Project) and could include tree removal activities. Without project-level mitigation, the Program's contribution to this impact could be cumulatively considerable and significant.

Program-related impacts on the visual character or quality of the program area and its surroundings could result from the long-term effects of tree removal (Lower Berryessa Creek Element and Lower Penintencia Creek Element) and from long-term operation of the proposed pump station under the Tularcitos Creek Element. As noted above, the only cumulative projects within the viewshed of the Program elements are the SCVWD Stream Maintenance Program, the BART Berryessa Extension Project, and the joint USACE/SCVWD Upper Berryessa Creek Project, which are in the vicinity of the Lower Berryessa Creek Element. Construction of the SCVWD Stream Maintenance Program would not involve installation of new above-ground facilities in the project vicinity; therefore, this project would not result in a cumulative impact on visual resources. The BART Berryessa Extension Project would entail construction of the future BART extension and would likely be visible in the vicinity of the existing UPRR. Since the joint USACE/SCVWD Upper Berryessa Creek Project

is still in the preliminary design phase, it is unknown whether this project would substantially alter the visual character of the program area. However, the joint USACE/SCVWD Upper Berryessa Creek Project is also a flood control project and would likely have similar aesthetic resources impacts as the proposed Program, such as potential tree removal effects on public viewpoints. Although only the northern end of the joint USACE/SCVWD Upper Berryessa Creek Project is within the same viewshed as the Program, potential tree removal associated with this project and the Program could result in significant cumulative impacts on visual quality and character. Therefore, the Program's contribution to cumulative visual quality and character impacts would be cumulatively considerable and significant.

The Program could result in potentially significant operations impacts if the new lighting for the pump station (as proposed under the Tularcitos Creek Element) is not adequately placed or designed. Although the proposed improvements for the above-mentioned cumulative projects would not occur in the vicinity of the pump station, the Program's contribution to cumulative aesthetics impacts related to new sources of light or glare would add to other background sources of light and glare in the pump station vicinity, and would therefore be cumulatively considerable and significant.

Mitigation Measures

Implement Mitigation Measure 5.C-3a (Tree and Shrub Replacement) as described under Impact 5.C.

~~**Mitigation Measure 5.A-1: *Tree Replacement*.** The District shall implement Mitigation Measure 3.B-1 (Tree Replacement), and the related projects removing trees should implement similar mitigation measures.~~

Mitigation Measure 5.A-1~~2~~: *Aesthetically Compatible Design.* The District shall implement Mitigation Measure 3.B-2 (Aesthetically Compatible Design), and the related projects should implement similar mitigation measures.

Mitigation Measure 5.A-2~~3~~: *Placement and Design of Nighttime Security Lighting*. The District shall implement Mitigation Measure 3.B-3 (Placement and Design of Nighttime Security Lighting), and the related projects should implement similar mitigation measures.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.~~A-1~~C-3a (Tree and Shrub Replacement) would ensure that the visual conditions of the segment along Lower Berryessa Creek are restored after completion of construction and that substantial permanent damage to scenic resources does not occur as a result of Program implementation. Therefore, the Program's contribution to this cumulative impact would not be cumulatively considerable, and would be less than significant. Implementation of tree replacement mitigation measures along Berryessa Creek by the other related projects would further reduce the magnitude of this impact.

In addition, implementation of Mitigation Measures 5.A-1~~2~~ (Aesthetically Compatible Design) and 5.A-2~~3~~ (Placement and Design of Nighttime Security Lighting) would ensure that the pump station would not contrast substantially with the existing character of the neighborhood

and would minimize the Program's light and glare impacts, respectively. Therefore, the Program's contribution to these impacts would not be cumulatively considerable, and would be less than significant.

Air Quality

Impact 5.B: Cumulative construction and operations emissions of criteria pollutants. (Significant and Unavoidable)

The geographic scope of potential cumulative air quality impacts encompasses the immediate project vicinity for particulates and the San Francisco Bay Area Basin for criteria pollutants. Any proposed project that would individually have a significant air quality impact would also be considered to have a significant cumulative air quality impact. Cumulative impacts could occur if implementation of the Program and the projects listed in Table 5-1 resulted in increased construction emissions that violated air quality standards, contributed substantially to the regions non-attainment status for ozone and particulate matter or exposed sensitive receptors to pollutants.

Impact 3.C-3 describes cumulative construction and operations emissions of criteria pollutants as a result of the Program. The proposed Program and other projects in the region, including those listed in Table 5-1 could result in emissions of criteria pollutants, which would be considered a significant impact. As concluded under Impact 3.C-3, construction-related criteria pollutant emissions impacts and NOx emissions would be significant. There would be a cumulative contribution from the Program and the other projects listed in Table 5-1 to the air basin's non-attainment status for ozone. In addition, operation of the proposed pump station within the Tularcitos Creek channel would constitute a new source of emissions. Since design of the pumps has not been finalized, operation of the proposed pump station could contribute to operations related cumulative air quality impacts. Therefore, the Program's contribution to both construction related and operations related cumulative air quality impacts with respect to the region's non-attainment status for ozone would be cumulatively considerable and thus would be significant.

Impact 3.C-4 describes the impacts related to exposure of criteria pollutant concentrations on sensitive receptors during construction of the Program. The proposed Program and other projects in the region, including those listed in Table 5-1 could result in exposure of criteria pollutant concentrations on sensitive receptors, a significant impact. As concluded under Impact 3.C-4, concentrations of $PM_{2.5}$ concentrations would exceed BAAQMD guidelines. c. The Program's contribution to construction related cumulative air quality impacts with respect to the exposure of pollutant concentrations of $PM_{2.5}$ concentrations on sensitive receptors would be cumulatively considerable and thus would be significant.

Exhaust and fugitive dust emissions from the operation of Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2

and the Lower Penitencia Creek Element would be less than significant based on the 2010 BAAQMD CEQA guidelines. However, the Tularcitos Creek Element's operation of the new pump station would result in significant exhaust emissions. Of the projects listed in Table 5-1, operation of the future BART Berryessa Extension Project would have an effect on existing air quality conditions in the vicinity of the Program. Although operation of the BART project would likely reduce exhaust emissions in the project area, it is conservatively assumed that there would be a contribution from the Program and the BART project related to exhaust emissions. The Program's contribution to operations related cumulative air quality impacts would be significant.

As discussed under Impact 3.C-5 in Section 3.C, Air Quality, operation of the proposed pump station as proposed under the Tularcitos Creek Element could result in odorous emissions from the diesel-driven pumps. There would be a cumulative contribution from the Program and other projects listed in Table 5-1 related to exposing sensitive receptors to objectionable odors. Therefore, the Program's contribution to operations related cumulative odor impacts would be significant.

Mitigation Measures

Mitigation Measure 5.B-1: *Dust Control Measures*. The District shall implement Mitigation Measure 3.C-1 (Dust Control Measures), and the related projects that would overlap in schedule with the Program should implement similar mitigation measures.

Mitigation Measure 5.B-2a: *Exhaust Emissions Reduction Measures*. The District shall implement Mitigation measure 3.C-2a (Exhaust Emissions Reduction Measures), and related projects that would generate exhaust emissions should implement similar mitigation measures.

Mitigation Measure 5.B-2b: *Emissions Reduction Plan*. The District shall implement Mitigation Measure 3.C-2b (Emissions Reduction Plan), and related projects that would generate exhaust emissions should implement similar mitigation measures.

Mitigation Measure 5.B-2c: *Air Pollutant Emissions Analysis*. The District shall implement Mitigation Measure 3.C-2c (Air Pollutant Emissions Analysis), and related projects that would generate operations-related emissions should implement similar mitigation measures.

Significance after Mitigation. Significant and Unavoidable. Implementation of Mitigation Measure 5.B-1 (Dust Control Measures) along with District best management practices (BMPs) related to dust control and air quality would reduce the Program's fugitive PM_{10} and $PM_{1.5}$ emissions to a less-than-significant level. Furthermore, implementation of Mitigation Measure 5.B-2a (Exhaust Emissions Reduction Measures) and Mitigation Measure 5.B-2b (Emissions Reduction Plan) would help reduce construction-related exhaust emissions. However, even with implementation of these mitigation measures, the mitigated emissions would still exceed BAAQMD's significance threshold for NO_x emissions. As for operations-related exhaust emissions, implementation of Mitigation Measure 5.B-2c (Air Pollutant Emissions Analysis) would ensure that emission controls are incorporated into the pump design for the Tularcitos Creek Element, reducing cumulative pollutant emissions as well as cumulative odorous emissions to a less-than-significant level. Since the Program would

exceed the BAAQMD's significance threshold for NO_x emissions, the Program's contribution to construction-related exhaust emissions impacts would be cumulatively considerable and would thus be significant and unavoidable.

Biological Resources

Impact 5.C: Cumulative loss of sensitive biological resources during construction and operations. (Less than Significant with Mitigation)

The geographic scope of potential biological resources encompasses the jurisdictional waters, and habitats for special-status species within the program area as well as biologically linked areas in the Coyote Watershed. This regional approach is appropriate because the habitats and wildlife species that could be affected by the Program and the projects identified in Table 5-1 are part of a broader ecosystem, and the potential disturbance of individual areas could have repercussions for a wider region than the immediate program vicinity.

As discussed in Section 3.D, Biological Resources, the Program could adversely affect sensitive habitats used by special-status species including California red-legged frog, western pond turtle, special-status birds and bats, and San Francisco dusky-footed woodrat (see Impacts 3.D-1 through 3.D-3). Implementation of various District BMPs related to water quality and biological resources would minimize the Program's potential impacts on special status birds and bats, western pond turtle and California red-legged frog. Some of the projects listed in Table 5-1 could also have the potential to affect these species, resulting in a significant cumulative impact. In particular, construction-related biological impacts associated with the BART Berryessa Extension Project would in the vicinity of Lower Berryessa Creek and the Lower Calera Creek elements and could result in similar biological impacts as the Program.

As discussed in Section 3.D, Biological Resources, the Program could temporarily and permanently affect jurisdictional wetlands and waters that are located within the stream reaches (see Impact 3.D-4). The joint USACE/SCVWD Upper Berryessa Creek Project and the BART Berryessa Extension Project (listed in Table 5-1), which would also occur along separate reaches of Berryessa Creek, could also result in similar impacts on wetlands. Some of the projects listed in Table 5-1 could also have the potential to affect wetlands, resulting in a potentially significant cumulative impact. However, implementation of the District's BMPs would sufficiently minimize temporary project-level impacts. Similar BMPs would also likely be implemented for the joint USACE/SCVWD Upper Berryessa Creek Project as that project is being led in conjunction between the District and the Corps.

As described in Section 3.D, Biological Resources, the Program would result in a less-than-significant impact on movement corridors for fish and wildlife species since the habitats in the program area do not provide a unique resource. Therefore, the Program's contribution to movement corridor impacts would not be cumulatively considerable and would be less than significant.

The Program could conflict with local policies or ordinances protecting biological species because construction would require removal of some trees that are under the jurisdiction of the City of Milpitas' local tree protection ordinance (see Impact 3.D-6). It is likely that several projects listed in Table 5-1 would also remove protected trees, particularly the joint USACE/SCVWD Upper Berryessa Creek Project and the BART Berryessa Extension Project. Although the Program and the cumulative projects would be required to adhere to the City of Milpitas' criteria for tree removal permits, which stipulate tree protection measures, the Program's contribution to this impact would be cumulatively considerable, and would be significant.

Mitigation Measures

Mitigation Measure 5.C-1: *Protection of San Francisco Dusky-footed Woodrat*. The District shall implement Mitigation Measure 3.D-3 (Protection of San Francisco Dusky-footed Woodrat), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.

Mitigation Measure 5.C-2a: *Wetland and Riparian Habitat Avoidance and Minimization*. The District shall implement Mitigation Measure 3.D-4a (Wetland Avoidance and Minimization), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.

Mitigation Measure 5.C-2b: *Compensate for Wetland and Riparian Habitat Loss*. The District shall implement Mitigation Measure 3.D-4b (Obtain Regulatory Permits), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.

Mitigation Measure 5.C-3a: *Tree and Shrub Replacement ~~and Compensation~~.* The District shall implement Mitigation Measure 3.D-6a~~5c~~ (Tree and Shrub Replacement ~~Compensate for Wetland Loss~~), and related projects removing trees should implement similar mitigation measures.

Mitigation Measure 5.C-3b: *Tree Protection Measures.* The District shall implement Mitigation Measure 3.D-6~~5~~b (Tree Protection Measures) and related projects affecting trees should implement similar mitigation measures.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.C-1 (Protection of San Francisco Dusky-footed Woodrat) would ensure that the Program's contribution to this impact would not be cumulatively considerable and would be less than significant. Implementation of San Francisco Dusky-footed Woodrat protection mitigation measures by other related projects would further reduce the magnitude of this impact.

Mitigation Measures 5.C-2a (Wetland and Riparian Habitat Avoidance and Minimization) and 5.C-2b (Compensate for Wetland and Riparian Habitat Loss) would reduce permanent impacts on federally or state protected wetlands or waters to a less-than-significant level. With implementation of these measures, impacts on federally and state protected wetlands and waters would be minimized and the Program's contribution to this impact would not be cumulatively considerable and would be less than significant. In addition, implementation of

similar mitigation measures by other related projects would further reduce the magnitude of this impact.

Further, the Program's impacts related to tree removal would be less than significant with implementation of Mitigation Measure 5.C-3a (Tree and Shrub Replacement ~~and Compensation~~) and Mitigation Measure 5.C-3b (Tree Protection Measures). With implementation of these two mitigation measures, potential conflicts with local tree ordinances and policies would be minimized and the Program's contribution to this impact would not be cumulatively considerable and would be less than significant. Implementation of similar mitigation measures by other related projects would further reduce the magnitude of this impact.

Cultural Resources

Impact 5.D: Cumulative increase in impacts on archaeological, paleontological, and historical resources. (Less than Significant with Mitigation)

The geographic scope of potential cumulative impacts on cultural resources encompasses the archaeological and architectural area of potential effects (APE) for the program area and immediate vicinity. The Program would contribute to cumulative impacts on cultural resources, including historical, archeological, and paleontological resources if the Program and other projects listed in Table 5-1 were to adversely affect the same historical or cultural resources within the program vicinity.

As discussed in Section 3.E, Cultural Resources, the Program has the potential for discovery of unknown historical resources and unknown archaeological resources although no archaeological sites were identified by records search or found during surface surveys. Implementation of District BMPs CU-2 (Archaeological Finds) and CU-3 (Burial Finds) would minimize potential impacts on unknown archaeological resources and human remains for all project-level and program-level elements. Since the site design and work area for program-level elements has not been finalized, there is also potential for archaeological resources and human remains to be present within the program area, if the final program design includes areas not surveyed during preparation of this EIR. Most of the projects listed in Table 5-1 would likely involve ground disturbing activities and could encounter previously undiscovered archaeological resources during construction. Thus, cumulative impacts on unknown cultural resources could be potentially significant and the Program's contribution to cumulative impacts on unknown cultural resources would be cumulatively considerable and significant.

As discussed in Section 3.E, Cultural Resources, there are no known archaeological resources located in the APEs for the Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, and the Tularcitos Creek Element. There are no known archaeological resources in the general area of the Lower Penintencia Creek Element based on the records search conducted on October 22, 2010 (File No. 10-0394). The Program could

potentially affect two known archaeological resources located along the Upper Calera Creek Element 2 adjacent to the APE. There are no known cumulative projects located within the vicinity of these archaeological resources. Thus, there is no cumulative impact beyond that disclosed for the proposed Program.

As discussed in Section 3.E, Cultural Resources, there are no known historical resources located in the APEs for the Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Tularcitos Creek Element, and Lower Penitencia Creek Element. The Program could potentially affect a historical resource located near the Upper Calera Creek Element 2, the ca. 1859 'Casino' outbuilding associated with the ca. 1829 José Higuera Adobe. There are no known cumulative projects located within the vicinity of the José Higuera Adobe. Thus, there is no cumulative impact beyond that disclosed for the proposed Program.

As discussed in Section 3.E, Cultural Resources, the program area has little to no potential to yield paleontological resources because it is predominantly underlain by artificial fills, which are engineered mixtures of sand, silt or gravel that would not contain unique or significant fossils. Excavation and earthwork associated with the elements, including levee reconstruction, access road improvements, and the pump station, could possibly encounter Holocene alluvium as well; however, this unit is unlikely to contain paleontological resources because the area is highly disturbed from previous construction, as well as ongoing maintenance, and the minimal depth of disturbance in native soils. Most of the projects listed in Table 5-1 would also involve ground disturbing activities and could result in impacts on paleontological resources. Thus, cumulative impacts on paleontological resources could be potentially significant. However, because the program area has little to no potential to yield paleontological resources, the Program's contribution to impacts on paleontological resources would not be cumulatively considerable and would be less than significant.

Mitigation Measures

Mitigation Measure 5.D-1: *Cultural Resources Survey and Impact Assessment*. The District shall implement Mitigation Measure 3.E-1 (Cultural Resources Survey and Impact Assessment for Program-Level Elements), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.

Mitigation Measure 5.D-2: *Extended Archaeological Survey.* The District shall implement Mitigation Measure 3.D-2 (Extended Archaeological Survey), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.

Mitigation Measure 5.D-3: *Vibration Monitoring*. The District shall implement Mitigation Measure 3.E-3 (Vibration Monitoring), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.D-1 (Cultural Resources Survey and Impact Assessment) would require additional

survey and analysis of new program areas, if any, when program-level elements are designed. Therefore, program-related impacts on unknown historical resources, archaeological resources and human remains would be less than significant. Implementation of this measure would ensure that any cultural resources encountered during construction would be recovered and appropriately managed. Thus, with mitigation, the Program's contribution to this impact would not be cumulatively considerable and would be less than significant. Implementation of similar cultural resources surveys and impact assessments by other related projects in the immediate vicinity would further reduce the magnitude of this impact.

Impacts on known archaeological resources in the vicinity of Upper Calera Creek Element 2 would be reduced to a less-than-significant level with implementation of Mitigation Measure 5.D-2 (Extended Archaeological Survey), requiring an extended archaeological survey in the APE adjacent to the two known archaeological sites prior to construction activities. Thus, with implementation of Mitigation Measure 5.D-2, the Program's contribution to this cumulative impact on known archaeological resources would not be cumulatively considerable and would be less than significant.

In addition, impacts on historic resources in the vicinity of Upper Calera Creek Element 2 would be reduced to a less-than-significant level with implementation of Mitigation Measure 5.D-3 (Vibration Monitoring), requiring a vibration monitoring device to be attached to these historic buildings to ensure that the peak construction vibration levels do not exceed the potential building damage threshold. Therefore, with implementation of Mitigation Measure 5.D-3, the Program's contribution to this cumulative impact on historic resources would not be cumulatively considerable and would be less than significant.

Geology and Soils

Impact 5.E: Cumulative exposure of people or structures to geologic and seismic hazards. (Less than Significant with Mitigation)

The geographic scope of potential cumulative geologic and seismic impacts encompasses the program area and immediate vicinity. Although many of the projects listed in Table 5-1 could have similar geologic impacts as the Program, geologic and seismic impacts are generally site specific and depend on local geologic and soil conditions.

As described in Section 3.F, Geology and Soils, potential geologic and seismic impacts associated with implementation of the Program could include fault rupture, ground-shaking effects and secondary ground-shaking effects (Impact 3.F-1). Potential effects associated with fault rupture would be less than significant since the Program would not alter conditions in a way that would expose people or property to additional risk. In addition, program-related impacts with respect to ground shaking would be less than significant since program construction would follow

current engineering practices for the San Francisco Bay Area and building code requirements. However, as indicated in geotechnical investigations for the Program, the presence of liquefiable soils in the program area could result in secondary ground-shaking effects and directly affect the Program. With the exception of the Stream Maintenance Project and the BART Berryessa Extension Project, none of the projects listed in Table 5-1 fall within the same footprint as the Program and would not contribute to cumulative geologic and seismic impacts. The SCVWD Stream Maintenance Program includes routine stream and canal maintenance activities in a manner that allows the District to meet designed flood control mandates in an environmentally sensitive matter and would not be expected to result in significant geologic and seismic impacts because it does not entail construction of new structures. Within the program area, the Berryessa Extension Project would occur along the existing UPRR alignment (adjacent to the Lower Berryessa Creek Element and Lower Calera Creek Element). Since the Berryessa Extension Project would include construction of a new facility in the program area and given the presence of liquefiable soils in the program area, the Program's contribution to cumulative seismic impacts would be cumulatively considerable and significant.

As described in Section 3.F, Geology and Soils, program construction and operations would require significant earthwork activities such as excavation, stockpiling, and transportation of soils and could result in substantial erosion and loss of topsoil. However, implementation of various District BMPs that would avoid or minimize soil erosion and off-site sediment transport would adequately prevent impacts associated with erosion and sediment delivery, resulting in a less than significant impact. As described in the paragraph above, of the projects listed in Table 5-1, the SCVWD Stream Maintenance Program and the Berryessa Extension Project are the only listed projects that fall within the same footprint as the Program. Since the SCVWD Stream Maintenance Program is a SCVWD project, this project would be subject to the same or similar BMPs as the Program. The Berryessa Extension Project would also likely require significant earthwork activities and it is assumed that this project would include similar measures to address these same construction-related impacts. Therefore, the Program's contribution to cumulative impacts associated with erosion and loss of topsoil would not be cumulatively considerable and would be less than significant.

Construction and operation activities associated with all program elements are not anticipated to occur in areas susceptible to slope failures or in designated landslide zones due to the local topography of the program area and due to the nature of the proposed improvements. Projects listed in Table 5-1 would occur within the general vicinity of the Program and would therefore not be anticipated to occur in areas susceptible to slope failures or in designated landslide zones. Therefore, the Program's contribution to cumulative impacts related to landslides, lateral spreading, subsidence or collapse would not be cumulatively considerable and would be less than significant.

As discussed in Section 3.F, Geology and Soils, program facilities could be damaged due to settlement of weak or saturated subsurface soils and underlying soils could have a high potential for expansion. With the exception of the SCVWD Stream Maintenance Program and the

Berryessa Extension Project, none of the projects listed in Table 5-1 fall within the same footprint as the Program and would not contribute to cumulative geologic and seismic impacts regarding expansive soils. As mentioned above, the SCVWD Stream Maintenance Program would not be expected to result in significant geologic and seismic impacts as it includes routine stream and canal maintenance activities. However, as both the Berryessa Extension Project and the Program would include construction of new above-ground facilities above soils that have a high potential for expansion, the Program's contribution to cumulative seismic impacts would be cumulatively considerable and significant.

Mitigation Measures

Mitigation Measure 5.E-1: *Geotechnical Investigations.* The District shall implement Mitigation Measure 3.F-1 (Geotechnical Investigations), and the related projects should implement similar mitigation measures.

Mitigation Measure 5.E-2: *Geotechnical Explorations*. The District shall implement Mitigation Measure 3.F-3 (Geotechnical Explorations), and the related projects with underlying expansive soils should implement similar mitigation measures.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.E-1 (Geotechnical Investigations) would require a California licensed geotechnical engineer or engineering geologist to conduct geotechnical investigations of all program components and facilities prior to final design and to prepare recommendations. This measure would also require additional geotechnical investigations to specify seismic and geologic hazards which would further reduce slope instability impacts. Implementation of similar geotechnical investigation mitigation measures in the program area by the other related projects would further reduce the magnitude of this impact.

In addition, implementation of Mitigation Measure 5.E-2 (Geotechnical Explorations) would require geotechnical explorations prior to siting of new facilities and would reduce program impacts regarding expansive soils to a less-than significant level. Implementation of similar geotechnical exploration mitigation measures by the other related projects would further reduce the magnitude of this impact. Therefore, with implementation of the Mitigation Measures 5.E-1 and 5.E-2, the Program's contribution to geologic and soil conditions would not be cumulatively considerable, and would be less than significant.

Greenhouse Gases

Impact 5.F: Cumulative construction effects related to greenhouse gas emissions. (Less than Significant)

The geographic scope of potential cumulative greenhouse gas (GHG) emissions, while theoretically global, is considered in regional and statewide terms for practical purposes. The Program's GHG emissions would contribute to cumulative climate change effects, as described under Impact 3.G-1.

As discussed in Section 3.G, Greenhouse Gases, calculations using the Roadmod construction emissions model indicate that an estimated 4,531 metric tons of CO2e emissions from project-level construction activities would be emitted over the course of the 16 month construction period of Lower Berryessa and Lower Calera Creeks. This calculation includes CO_2e GHG emissions from off-road equipment, trucks, and workers during construction and energy consumption associated with facility operations (detailed in Appendix C). It should be noted that GHG impacts are considered to be exclusively cumulative impacts; there are no non-cumulative GHG emission impacts (i.e., impacts associated with a specific project only) from a climate change perspective. Although the design and operations requirements of the new pump station proposed under the Tularcitos Creek Element has not been defined, the GHG emissions of a pump station operating two 1,280-horsepower diesel pumps running 24 hours per day, for 100 days a year was estimated for the comparative purposes using URBEMIS 2007 version 9.2.4 (see Appendix C). These emissions would not exceed the BAAQMD adopted GHG significance threshold for stationary sources (10,000 metric tons/year of CO_2e). As stated in Section 3.G, when compared to regional and statewide GHG emissions, as well as adopted BAAQMD significance thresholds for GHGs, the Program's GHG emissions would meet the State goals outlined in Assembly Bill (AB) 32. All of the projects listed in Table 5-1 would also be subject to the same regional and statewide GHG regulations. The joint USACE/SCVWD Upper Berryessa Creek Project would entail flood control improvements which are similar activities to the Program, and that these projects would not likely result in significant increases in GHG emissions or conflict with state goals. Therefore, cumulative impacts related to increase in GHG emissions and conflict with state goals would be less than significant.

Mitigation: None required.

Hazards and Hazardous Materials

Impact 5.G: Cumulative effects related to hazardous conditions and exposure to or release of hazardous materials. (Less than Significant with Mitigation)

The geographic scope of potential cumulative hazards and hazardous materials impacts encompasses the program area and immediate vicinity. Hazards and hazardous materials impacts are generally site-specific and depend on past, present, and future industrial uses and existing soil, sediment, and groundwater conditions. With the exception of the SCVWD Stream Maintenance Program and the BART Berryessa Extension Project, none of the projects listed in Table 5-1 share the same footprint as the Program.

As described in Section 3.H, Hazards and Hazardous Materials, the potential for encountering hazardous materials during excavation of levees is generally considered to be low in most of the program area except near the Milpitas Materials facility where the potential is considered moderate. Implementation of the District's BMP HM-12 (Hazardous Materials Management) would address the potential hazard of encountering hazardous materials and

requires that all field personnel understand the appropriate procedures to be followed in the event of encountering hazardous materials. Of the projects listed in Table 5-1, only the SCVWD Stream Maintenance Program and the Berryessa Extension Project share the same footprint as the Program. The Stream Maintenance Program is a District project and would implement BMP HM-12 to minimize potential impacts related to hazardous materials to a less-than-significant level. It is also assumed that the Berryessa Extension Project would require similar mitigation measures to reduce potential exposure of hazardous materials. However, if hazardous material releases occurred as a result of the Program, the SCVWD Stream Maintenance Program, or the Berryessa Extension Project, potentially significant cumulative impacts could occur. Therefore, the Program's contribution to cumulative hazardous materials exposure impacts would be cumulatively considerable and significant.

As described in Section 3.H, Hazards and Hazardous Materials, hazardous materials would be transported routinely to and from the program area during construction. District BMP HM-12 would be implemented during construction to minimize impacts associated with the accidental release of hazardous materials. The SCVWD Stream Maintenance Program and the Berryessa Extension Project are the only projects listed in Table 5-1 that overlap with the footprint of the Program. The Stream Maintenance Program is a District project and would implement BMP HM-12 to avoid and minimize impacts related to hazardous materials. It is also assumed that the Berryessa Extension Project would require similar standard mitigation measures to minimize impacts related to accidental release of hazardous. Therefore, the Program's contribution to cumulative impacts related to the accidental release of hazardous materials would not be cumulatively considerable and would be less than significant.

As described in Section 3.H, there are six schools within approximately ¼-mile of the program area, including two schools (Milpitas High School and Thomas Russell Junior High School) that are adjacent to portions of the program area. Construction activities would generally occur during the dry season months but could overlap two months at the beginning and end of the school year; however, work in any one particular reach that might be in the vicinity of a school could be shorter because of the linear progression of the work schedule. Construction activities would be temporary and the proposed type of construction does not generally involve significant hazardous emissions of toxics that would be considered an acute health hazard. Program construction would result in increased emissions of dust and exhaust that affects regional air quality standards (see Section 3.C, Air Quality); however, the acute health effects of these emissions would not be substantially greater than the hazards of ambient emissions from other traffic. Therefore, the potential human health impact from these dust and exhaust emissions to nearby schools is less than significant. Furthermore, implementation of various District BMPs, including HM-9 through HM-15, would minimize impacts associated with the handling, storage, and disposal of hazardous materials. Of the projects listed in Table 5-1, only the SCVWD Stream Maintenance Program and the Berryessa Extension Project overlap with the Program. The Stream Maintenance Program is a District project, would include the same BMPs and would require adherence to similar standard dust control and emission control measures as those described in Section 3.C, Air Quality. It is also assumed that the Berryessa Extension Project would require similar standard dust control and emission control

measures as this project would be subject to the same BAAQMD regulations. Therefore, the Program's contribution to cumulative impacts associated with emissions or use of hazardous materials within ¼ mile of a school would not be cumulatively considerable and would be less than significant.

As discussed in Section 3.H, Hazards and Hazardous Materials, program construction could interfere with an adopted emergency response plan or emergency evacuation plan if construction activities involved the complete or partial closure of roadways, interfered with identified evacuation routes, otherwise restricted access for emergency response vehicles, or restricted access to critical facilities such as hospitals or fire stations. The SCVWD Stream Maintenance Program and the Berryessa Extension Project have construction schedules that overlap with the Program and could also interfere with implementation of an adopted emergency response plan or emergency evacuation plan as a result of road closures, increased traffic, and traffic delays. Cumulative impacts associated with impairment of implementation of an adopted emergency response plan or emergency evacuation plan would be potentially significant. Therefore, the Program's contribution to these impacts would be cumulatively considerable and significant.

Although CAL FIRE does not identify any high fire hazard areas in the program area, the Program and all other cumulative projects located in Milpitas are located in an area identified as a fire-threatened community at the wildland-urban interface. The Program would be required to adhere to fire safety provisions of the Public Resources Code which would result in less than significant impacts related to exposure to risk of loss or injury from wildfires. Of the projects listed in Table 5-1, the SCVWD Stream Maintenance Program and the Berryessa Extension Project are the only projects that would overlap geographically with the Program. Both projects would also be required to implement safety provisions of the Public Resources Code. Therefore, the Program's contribution to cumulative wildfire impacts would not be cumulatively considerable and would be less than significant.

Mitigation Measures

> **Mitigation Measure 5.G-1:** ***Soil and Groundwater Management Plan.*** The District shall implement Mitigation Measure 3.H-1 (Soil and Groundwater Management Plan), and the related projects should implement similar mitigation measures.
>
> Implement Mitigation Measure 5.L-1 (Traffic Control Plan), as described under Impact 5.L.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.G-1 (Soil and Groundwater Management Plan) would reduce potential impacts related to exposure of hazardous materials during construction. Therefore, the Program's contribution to this cumulative impact would not be cumulatively considerable, and would be less than significant. Implementation of soil and groundwater management plan mitigation measures in the program vicinity by the other related projects would further reduce the magnitude of this project.

In addition, implementation of Mitigation Measure 5.L-1 (Traffic Control Plan), which would require coordination amongst various construction contractors for projects in the same vicinity as the Program, would reduce the project's contribution to the cumulative impacts related to impairment of an emergency response plan or emergency evacuation plan to less than significant.

Hydrology and Water Quality

Impact 5.H: Cumulative impacts related to the degradation of water quality, depletion of groundwater resources, alteration of drainage patterns and erosion or siltation, and alteration of drainage patterns and flooding hazards. (Less than Significant)

The geographic scope of potential cumulative hydrology and water quality impacts generally encompasses the program area, which includes the following water bodies: Lower Berryessa Creek, Upper and Lower Calera Creek, Tularcitos Creek, and Lower Penitencia Creek and the underlying Santa Clara sub-basin groundwater.

As described in Section 3.I, Hydrology and Water Quality, the Program has the potential to degrade water quality as a result of construction-related soil erosion and accidental discharges of hazardous materials into downstream water bodies (Impact 3.I-1). However, the Program's impacts on water quality would be minimized with implementation of District BMPs related to grading and excavation, stormwater management, bank protection, pesticide and herbicide use, vegetation management and removal, and sediment removal and storage. The District or its contractor would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) and would obtain a National Pollutant Discharge Elimination System (NPDES) Construction General Permit. Of the cumulative projects listed in Table 5-1, particularly the joint USACE/SCVWD Upper Berryessa Creek Project and the BART Berryessa Extension Project, have the potential to degrade water quality as a result of construction-related soil erosion and accidental discharges of hazardous materials into downstream water bodies within the vicinity of the Program. The above-referenced project would also be required to obtain authorization under the NPDES Construction General Permit. The Upper Berryessa Creek Project is partly a District project and would be required to implement District BMPs that would minimize impacts on water quality. Therefore, the Program's contribution to cumulative water quality impacts would not be cumulatively considerable and would be less than significant.

The Program and the projects listed in Table 5-1 have the potential to impact groundwater supplies, recharge, and quality. The Program's impacts on groundwater dewatering would be minimized through implementation of District BMPs relevant for dewatering activities and use of a temporary flow diversion (see Impact 3.I-2). Although details regarding the projects in Table 5-1 are somewhat limited, it is possible that the joint USACE/SCVWD Upper Berryessa Creek Project could also require groundwater dewatering. District dewatering BMPs would minimize these impacts. Therefore, the Program's contributions to cumulative

impacts related to supplies, recharge and quality of groundwater resources would not be cumulatively considerable, and would be less than significant.

As discussed in Section 3.I, Hydrology and Water Quality, the Program would result in altered drainage patterns in the long-term and could potentially result in downstream erosion or siltation depending on the change in flow velocity and subsequent increase in capacity of the channel to erode and mobilize bed and bank sediments (see Impact 3.I-3). Of the projects listed in Table 5-1, the BART Berryessa Extension Project and the joint USACE/SCVWD Upper Berryessa Creek Project could also have a potential to alter drainage patterns and cause subsequent erosion or siltation in the program area. Therefore, the Program, the BART Berryessa Extension Project, and the joint USACE/SCVWD Upper Berryessa Creek Project could result in potentially significant cumulative impacts regarding alteration of drainage patterns.

However, the Program's impacts on existing drainage patterns and sedimentation would likely be minimal given the largely depositional nature of the channel reaches within the Program elements. Further, because the joint USACE/SCVWD Upper Berryessa Creek Project, which would consist of similar flood control improvements as the Program, likely would also result in minimal effects on downstream drainage patterns and erosion or siltation. Thus, the Program's contribution to the cumulative impact of alteration of drainage patterns and erosion or siltation would not be cumulatively considerable and would be less than significant.

Under existing conditions, the 100-year flow causes flooding throughout the program area. In the future, there could potentially be higher flows due to projects upstream, such as the joint USACE/SCVWD Upper Berryessa Creek Project. The 100-year design flow determined by the District and the Corps includes future land use and increased flow associated with potential future projects (SCVWD, 2010d). At the confluence of Lower Penitencia Creek with Lower Berryessa Creek, the estimated 100-year design flow for Berryessa Creek is 7,200 cubic feet per second (cfs) (SCVWD, 2010d). According to the latest FEMA Flood Insurance Study (FEMA, 2009), the existing capacity of Lower Berryessa Creek at this confluence is approximately 3,700 cfs. The Program would accommodate the existing flow, as well as the100-year design flow.

Implementation of the Program would not result in increased flooding immediately upstream and downstream of the program area due to relatively rapid changes in channel hydraulics (e.g., backwater effects, downstream pooling),and program element design that accounts for potential future flooding. The joint USACE/SCVWD Upper Berryessa Creek Project entails flood control improvements to the upper reaches of Berryessa Creek that would increase the conveyance capacity of Upper Berryessa Creek resulting in increased flows in the lower portions of Lower Berryessa Creek. Construction of the Program would likely be completed prior to completion of the joint USACE/SCVWD Upper Berryessa Creek Project. However, the Program is designed to accommodate the potential for future projects that

could increase the flood potential. Therefore, the Program's contribution to cumulative flooding impacts would not be cumulatively considerable and would be less than significant.

Mitigation: None required.

Land Use

Impact 5.I: Cumulative disruption of established communities and changes in existing land patterns. (Less than Significant)

With respect to land use impacts, the geographic scope of potential cumulative land use impacts encompasses the program area and immediate vicinity, including proposed staging areas and detour routes.

Implementation of the Program would not result in the physical division of an established community. With the exception of the Stream Maintenance Project, BART Berryessa Extension project, and the joint USACE/SCVWD Upper Berryessa Creek Project listed in Table 5-1, all of the cumulative projects are located more than 0.5 mile from the Program. The SCVWD Stream Maintenance Project entails maintenance activities on the District's existing facilities. The BART Berryessa Extension project would occur along the existing UPRR alignment; although this transportation project would change the community, this project would not physically divide the community. The joint USACE/SCVWD Upper Berryessa Creek Project entails flood control improvements within existing ROWs and would not include changes to designated land uses. Because the cumulative projects would not result in land use changes, the Program's contribution to cumulative impacts associated with physical division of an established community would not be cumulatively considerable and would be less than significant. Cumulative impacts associated with would be less than significant.

Cumulative impacts related to conflicts with an applicable land use plan, policy, or regulation could occur if cumulative projects listed in Table 5-1 were to overlap with the Program and conflict with an applicable land use plan, policy, or regulation. The Program would not result in conflicts with any land use plans, policies, or regulations. Of the projects listed in Table 5-1, only the Stream Maintenance Project, the BART Berryessa Extension Project, and the joint USACE/SCVWD Upper Berryessa Creek Project overlap in area with the Program. The Stream Maintenance Project and the joint USACE/SCVWD Upper Berryessa Creek Project are District's projects that are similar in nature to the Program and would occur within the District's ROW, and therefore would not likely conflict with applicable plans, policies, and regulations. Thus, the Program's contribution to impacts related to cumulative conflicts with applicable land use plans, policies, and regulations would not be cumulatively considerable and would be less than significant.

Mitigation: None required.

Noise

Impact 5.J: Cumulative increases in construction noise in the program area and along construction haul and delivery routes. (Less than Significant with Mitigation)

The geographic scope of potential cumulative noise impacts encompasses the program area as well as areas adjacent to construction access and haul routes that are located near noise-sensitive land uses. Of the projects listed in Table 5-1, only the SCVWD Stream Maintenance Program and the BART Berryessa Extension Project would be located in the immediate vicinity of the Program. The SCVWD Raw and Treated Water Pipelines Rehabilitation Project would be under construction at the same time as the Program and haul routes could overlap.

As described in Section 3.K, Noise, construction activities within the program area would contribute to the noise environment. Since noise impacts are local in nature affecting only the receptors in the immediate vicinity, and since construction of the Program would occur in a linear fashion, it can be assumed that no individual receptor would be exposed to excessive noise levels from construction for an extended period of time. Implementation of District BMPs NO-1 and NO-2 would minimize noise impacts associated with construction activities; however, residual noise levels would be significant. Of the projects listed in Table 5-1, only the SCVWD Stream Maintenance Program and the BART Berryessa Extension Project would overlap geographically with the Program. The Stream Maintenance Program is a District project, and the District's BMPs NO-1 and NO-2 would be implemented as well. However, l noise impacts from this project could also be significant. It is also assumed that construction of the BART project would also be significant given the magnitude of this project. Therefore, the Program's contribution to cumulative noise impacts would be cumulatively considerable and significant.

As discussed in Section 3.K, Noise, the Program's construction and operation activities would not produce significant vibration levels that can cause architectural damage to nearby residences, and therefore this impact would be less than significant. Of the projects listed in Table 5-1, only the SCVWD Stream Maintenance Program and the BART Berryessa Extension Project would overlap geographically with the Program. The Stream Maintenance Program is a District project and entails maintenance activities such as sediment and vegetation removal that would be performed on existing structures and that would not result produce significant vibration levels that could cause damage to nearby residences. It is assumed that given the magnitude of this project, the BART project would likely result in significant noise and vibration impacts during both construction and operation. However, given the Program's minimal construction-related and operations-related vibration impacts, the Program's contribution to cumulative vibration impacts would not be cumulatively considerable and would be less than significant.

Mitigation Measures

Mitigation Measure 5.J-1a: *Noise Control Techniques.* The District shall implement Mitigation Measure 3.K-1a (Noise Control Techniques), and the related construction noise-generating projects should implement similar mitigation measures.

Mitigation Measure 5.J-1b: *Minimize Noise from Impact Equipment.* The District shall implement Mitigation Measure 3.K-1b (Minimize Noise from Impact Equipment), and the related construction noise-generating projects should implement similar mitigation measures.

Mitigation Measure 5.J-1c: *Minimize Noise from Stationary Sources*. The District shall implement Mitigation Measure 3.K-1c (Minimize Noise from Stationary Sources), and the related construction noise-generating projects should implement similar mitigation measures.

Mitigation Measure 5.J-1d: *Tularcitos Creek Noise Study*. The District shall implement Mitigation Measure 3.K-1d (Tularcitos Creek Noise Study), and the related construction noise-generating projects should implement similar mitigation measures.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measures 5.J-1a through 5.J-1d would reduce Program noise impacts to a less-than-significant level and would ensure that the Program's contribution to the cumulative increase in the noise environment would not be cumulatively considerable and would be less than significant. Implementation of noise control mitigation measures by other related projects in the Program vicinity would further reduce the magnitude of this impact.

Recreation

Impact 5.K: Cumulative effects on recreational resources during construction. (Less than Significant with Mitigation)

The geographic scope of potential cumulative recreation impacts encompasses the program area as well as park and recreational facilities, including bicycle routes, in the immediate program vicinity.

As discussed in Section 3.K, Recreation, the Program would result in a temporary restriction of access to creek levee trails, entirely or in segments, for up to approximately seven weeks during construction of each element and would result in short-term increases in use of other available trails and recreational resources in the City. However, during construction, recreationists would have access to other trails within the vicinity and/or could use residential streets to obtain access to other portions of trails not under construction resulting in a less than significant impact. If cumulative projects listed on Table 5-1 were to overlap geographically and construction schedule, cumulative impacts related to increased use of existing parks or other recreational facilities could occur. Of the projects listed in Table 5-1, only the SCVWD Stream Maintenance Program, BART Berryessa Extension Project, the joint USACE/SCVWD Upper Berryessa Creek Project, and City of Milpitas Trails Master Plan are located within the vicinity

of recreational resource potentially affected by the Program. The Stream Maintenance Program would consist of maintenance activities in several locations within the District's facilities and would largely occur outside the Program's construction schedule. Similar to the Program, construction of the BART Project, and joint USACE/SCVWD Upper Berryessa Creek Project would result in temporary closure of the Berryessa Creek Trail before and after the Program, respectively. The joint USACE/SCVWD Upper Berryessa Creek Project is currently in the planning phase and is scheduled for construction after the Program. Therefore, this project would not overlap in construction schedule with the Program. As for the Trails Master Plan, improvements to the maintenance roads along Berryessa Creek proposed as part of the Program would fulfill some of the objectives laid out in the City's Trail Master Plan. Construction of the BART Berryessa Extension project could overlap with construction of the Program; however, since closure of the Berryessa Creek Trail would be temporary and because there are several other parks and recreational facilities in the vicinity this impact would not be substantial. Implementation of the cumulative projects would not result in increased use of existing parks or recreational facilities, and therefore the Program's contribution to cumulative increased use of parks or recreational facilities would not be cumulatively considerable and would be less than significant.

As discussed in Section 3.L, Recreation, the Program would temporarily affect the quality of the recreational experience indirectly at adjacent recreational facilities due to air quality and noise impacts during construction. The SCVWD Stream Maintenance Program, joint USACE/SCVWD Upper Berryessa Creek Project, BART Berryessa Extension Project, and the City of Milpitas' Trails Master Plan are located within the immediate vicinity of recreational resources potentially affected by the Program and could also indirectly affect the recreation experience at nearby facilities. However, there are sufficient recreational facilities within the program vicinity that could be used during construction such that users of park areas and trails affected by the proposed construction areas would have other alternatives for recreation. Therefore, the Program's contribution to cumulative indirect construction impacts on parks or recreational facilities would not be cumulatively considerable and would be less than significant.

As discussed in Section 3.L, Recreation, tree removal is proposed to occur along reaches E, F, and G of the Lower Berryessa Creek Element and along the Lower Penintencia Creek Element. Since trees are a major contributing factor to the scenic quality of the creek corridor in an area used by recreationalists along the pedestrian path, removal of these trees would cause a significant change to the character of the recreation resources and results in a significant impact. The joint USACE/SCVWD Upper Berryessa Creek Project is also a flood control project and would likely have similar recreation resources impacts as the proposed Program, such as tree removal effects on the character of recreation resources. Therefore, the Program's contribution to cumulative adverse changes in the character of recreation resources would be cumulatively considerable and significant.

Mitigation Measures

Implement Mitigation Measure 5.~~A-1~~C-3a (Tree and Shrub Replacement), as described under Impact 5.~~A~~C.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.~~A-1~~C-3a (Tree and Shrub Replacement) would ensure that substantial permanent ~~significant~~ recreation resources impacts do not occur as a result of Program implementation. Therefore, the Program's contribution to this cumulative impact would not be considerable with Program mitigation and would be less than significant. Implementation of tree replacement mitigation measures along Berryessa Creek by other related projects would further reduce the magnitude of this project.

Transportation and Traffic

Impact 5.L: Cumulative traffic increases on local and regional roads. (Less than Significant with Mitigation)

The geographic scope of potential cumulative impacts related to transportation and traffic includes regional facilities (e.g., highways and freeways) and local roads providing access to the program vicinity. The Program is located entirely within the City of Milpitas, generally within the areas bounded by East Calaveras Boulevard to the south, Interstate 880 (I-880) to the west, Dixon Landing Road to the north, and within 1,000 feet of Interstate 680 (I-680) to the east. The potentially affected roadway system includes I-680 and I-880, State Route 237 (Calaveras Road), North Milpitas Boulevard, Jacklin Road, and Abel Street.

Traffic-related impacts resulting from the Program would be restricted to the construction phase. As discussed under Impact 3.M-2, increases in traffic and traffic hazards would occur as a result of use of large trucks for the delivery of equipment and materials, and hauling of materials from the program area. If the Program and other projects listed in Table 5-1 were under construction at the same time and affected the same roadways, significant cumulative impacts related to increased traffic levels and traffic hazards could result. Of the projects listed in Table 5-1, the SCVWD Raw and Treated Water Pipelines Rehabilitation Project, SCVWD Stream Maintenance Program, and the BART Berryessa Extension Project, would result in construction schedule overlap with the Program. Therefore, the Program's contribution to cumulative construction traffic impacts would be cumulatively considerable and significant. Additional short-term conflicts with local plans and policies related to the City's transportation and circulation system would include temporary transit service delays, conflicts related to the provision of bicycle access as a result of increased construction vehicles on local roadways. Implementation of District BMP TR-1 (Traffic Safety Measures) would minimize potential conflicts with local plans and polices regarding traffic safety. The Program's contribution to cumulative conflicts with local plans and policies regarding transportation and circulation would be significant.

All of the cumulative projects identified on Table 5-1 with overlapping construction schedules could result in an increase in the volume of traffic on the roadways. The SCVWD Raw and Treated Water Pipelines Rehabilitation Project, SCVWD Stream Maintenance Program, and BART Berryessa Extension Project overlap geographically with the Program and could temporarily exceed LOS goals established by both the Santa Clara Congestion Management Program and the City of Milpitas due to short-term increases in vehicle trips by construction workers and construction vehicles. Cumulative impacts related to conflicts with local plans and policies regarding transportation and circulation could be significant. Therefore, the Program's contribution to these impacts would be cumulatively considerable and significant.

As discussed in Section 3.M, Transportation and Traffic, the Program could result in increased construction-related traffic safety hazards especially in the vicinity of schools including Milpitas High School and Thomas Russell Middle School. The Program could also result in increased road safety hazards due to wear-and-tear of local roadways used by construction vehicles. The SCVWD Stream Maintenance Program and BART Berryessa Extension Project would require the use of trucks for the delivery of equipment to the project sites and off-hauling of materials from the project sites within the vicinity of the Program. Significant cumulative impacts associated with wear-and-tear on designated haul routes could cause increased traffic safety hazards for drivers and cyclists. Therefore the Program's contribution to cumulative temporary safety hazards would be cumulatively considerable and significant.

As discussed in Section 3.M, Transportation and Traffic, the presence of construction vehicles and construction equipment on local roadways could result in increased traffic congestion and could temporarily impede emergency access, a significant impact. The SCVWD Raw and Treated Water Pipelines Rehabilitation Project, SCVWD Stream Maintenance Program, and BART Berryessa Extension Project geographically overlap with the Program and could result in lane closures and/or increase traffic congestion, resulting in a significant cumulative impact. Therefore, the Program's contribution to this impact would be cumulatively considerable and significant.

Mitigation Measures

Measure 5.L-1: *Traffic Control Plan*. The District shall implement Mitigation Measure 3.M-1 (Traffic Control Plan), and the related projects that would overlap in construction with the Program should implement similar measures.

Measure 5.L-2: *Road Repair*. The District shall implement Mitigation Measure 3.M-2 (Road Repair), and the related projects that would overlap in construction with the Program should implement similar measures.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.L-1 (Traffic Control Plan) would require the District to coordinate with the City of Milpitas and other agencies responsible for reviewing and/or approving the construction of other identified development projects to minimize traffic impacts on local access roads. With mitigation, the Program's contribution to this cumulative impact related to temporary reductions in roadway capacities would not be cumulatively considerable and would be less

than significant. Implementation of coordinated traffic control plan mitigation measures by other related projects would further reduce the magnitude of this impact.

Implementation of Mitigation Measure 5.L-1 would also minimize cumulative conflicts with local plans and policies regarding transportation and circulation. With mitigation, the Program's contribution to this cumulative impact related to conflicts with local plans and policies would not be cumulatively considerable and would be less than significant. Implementation of coordinated traffic control plan mitigation measures by other related projects would further reduce the magnitude of this impact.

Furthermore, implementation of Mitigation Measure 5.L-2 (Road Repair), which would establish requirements for restoring roads damaged by construction, would reduce potential Program impacts to a less-than-significant level. With mitigation, the Program's contribution to this cumulative impact related to temporary traffic safety hazards would not be cumulatively considerable and would be less than significant. Implementation of similar road repair measures by other related projects would further reduce the magnitude of this impact.

Implementation of Mitigation Measure 5.L-1 (Traffic Control Plan) would require coordination with the City of Milpitas and other agencies responsible for reviewing and/or approving the construction of other identified development projects to minimize impaired access. With mitigation, the Program's contribution to this cumulative impact related to impaired access for emergency service providers would not be cumulatively considerable and would be less than significant. Implementation of coordinated traffic control plan mitigation measures by other related projects would further reduce the magnitude of this impact.

Utilities and Service Systems

Impact 5.M: Cumulative impacts related to disruption of utility service or relocation of utilities. (Less than Significant with Mitigation)

The geographic scope of potential impacts on utilities and service systems is limited to the immediate program vicinity where services could be disrupted and/or where utilities could require relocation. For landfill capacity, the geographic scope includes the service areas where disposal of construction-related waste could occur. For compliance with solid waste statutes and regulations, the geographic area encompasses the City of Milpitas.

As indicated under Impact 3.N-1, the Program would generate at least 418,200 cubic yards of construction waste. The Lower Berryessa Creek Element would result in approximately 164,000 cubic yards, the Lower Calera Creek Element would produce approximately 4,200 cubic yards, and an estimated 250,000 cubic yards of construction waste would result from implementation of the program-level elements. The exact facility that would receive project construction waste is unknown but if all materials from the Program were to be deposited at the Zanker Material Processing Facility or the Zanker Road Resource Recovery Operations

Landfill it would significantly reduce the capacity of these facilities and result in a potentially significant impact.

Two projects would overlap in schedule with the Program: the SCVWD Stream Maintenance Program and the BART Berryessa Extension Project. Both of these projects would include excavation and removal of construction debris that would be deposited at local landfill facilities. While other regional landfills have sufficient capacity to support the cumulative projects, if materials from these cumulative projects were to be deposited at Zanker Material Processing Facility or the Zanker Road Resource Recovery Operations Landfill a significant cumulative impact related to reduction in landfill capacity could occur. Therefore, the Program's contribution to cumulative landfill capacity impacts would be cumulatively considerable and significant.

Construction activities for all of the elements could result in damage to or interference with existing above- and below-ground utilities including, but not limited to, water supply, natural gas, oil, telecommunications, cable (fiber optic), electrical, sanitary sewer, and storm drainage lines. Excavation for construction, depending on depth, could result in damage to existing underground utilities. Use of construction equipment could result in damage or disruption of aboveground utilities as well. Without protection or relocation these facilities could be damaged, resulting in safety hazards and/or disruption of utility service, a significant impact.

Of the projects listed in Table 5-1, the SCVWD Stream Maintenance Program and the Berryessa Extension Project overlap with the Program. The Stream Maintenance Program includes ongoing maintenance activities including sediment and vegetation removal within the District's streams and would not likely result in significant disruption of utilities. However, the Berryessa Extension Project would also entail construction activities that could result in disruption of utilities. Therefore, the Program's contribution to cumulative utility disruption impacts would be cumulatively considerable and significant

The Program and all of the projects listed in Table 5-1 would generate waste that requires offsite disposal and could contribute to a significant cumulative impact related to compliance with solid waste statutes and regulations if they did not include waste diversion measures in accordance to Assembly Bill 939 or the City of Milpitas General Plan (or other jurisdiction, if applicable). Therefore, the Program's contribution to this impact would be cumulatively considerable and significant.

Mitigation Measures

Mitigation Measure 5.M-1: *Appropriate Landfill Use.* The District shall implement Mitigation Measure 3.N-1 (Appropriate Landfill Use), and the related projects that include excavation and disposal of construction debris and local landfills should implement similar mitigation measures.

Mitigation Measure 5.M-2a: *Preconstruction Utility Identification and Coordination.* The District shall implement Mitigation Measure 3.N-2a (Preconstruction Utility Identification and Coordination), and the related projects that could interfere with existing utilities should implement similar mitigation measures.

Mitigation Measure 5.M-2b: *Protection of Other Utilities During Construction.* The District shall implement Mitigation Measure 3.N-2b (Protection of Other Utilities During Construction), and the related projects that could interfere with existing utilities should implement similar mitigation measures.

Mitigation Measure 5.M-2c: *Advance Notification.* The District shall implement Mitigation Measure 3.N-2c (Advance Notification), and the related projects that could interfere with existing utilities should implement similar mitigation measures.

Mitigation Measure 5.M-2d: *Emergency Response Plan and Notifications.* The District shall implement Mitigation Measure 3.N-2d (Emergency Response Plan and Notifications), and the related projects that could interfere with existing utilities should implement similar mitigation measures.

Mitigation Measure 5.M-3: *Waste Management Plan.* The District shall implement Mitigation Measure 3.N-3 (Waste Management Plan), and the related projects that generate waste and require offsite generation should implement similar mitigation measures.

Significance after Mitigation: Less than Significant. Implementation of Mitigation Measure 5.M-1 (Appropriate Landfill Use) would ensure that construction waste generated by the Program does not significantly reduce the capacity of local landfills by prohibiting exclusive use of Zanker Material Processing Facility or the Zanker Road Resource Recovery Operations Landfill. Therefore, the project's contribution to cumulative landfill capacity impacts would not be cumulatively considerable and would be less than significant. Implementation of similar landfill use mitigation measures by other related projects would further reduce the magnitude of this impact.

Implementation of Mitigation Measures 5~~3~~.M-2a through 5~~3~~.M-2d, which require utility-locating safety practices prior to and during construction, would reduce the Program's impacts to a less-than-significant level. Implementation of these measures would ensure that the Program's impact on utility disruption would not be cumulatively considerable and would be a less than significant impact. Implementation of similar mitigation measures by the other related projects would further reduce the magnitude of this impact.

The Program and the cumulative projects listed in Table 5-1 would be required to implement source reduction, recycling, and composting measures as mandated by Assembly Bill 939 and specified in the City of Milpitas General Plan. Specific program compliance would be ensured through implementation of Mitigation Measure 5~~3~~.M-3 (Waste Management Plan), which requires the implementation of measures to reduce the amount of waste disposed in landfills (see Impact 3.N-3). Implementation of this measure would ensure that the Program's contribution to this cumulative impact would not be considerable and would be less than significant. Implementation of waste management plan mitigation measures by the other related projects would further reduce the magnitude of this impact.

Energy Conservation

Impact 5.N: Cumulative increases in the use of nonrenewable energy resources. (Less than Significant)

The geographic scope of potential cumulative impacts associated with energy resources encompasses the program area. Potential cumulative impacts related to regional and local energy supplies and requirements are evaluated on a regional basis.

Construction of the Program in combination with the other projects in the region, including those listed in Table 5-1 would require the operation of construction equipment during excavation, grading, and materials hauling and could contribute to the regional use of petroleum-based fuels and energy and therefore, cumulative effects on energy resources could be potentially significant. The amount of electricity used for the Program construction and operation of ancillary electrical equipment would be the minimal. Electricity demand for construction would not permanently increase reliance on energy resources that are not renewable. Consequently, impacts on energy resources, in particular electricity resources, would be less than significant. Because energy resource requirements are low, the Program's contribution to cumulative effects on energy resources would not be cumulatively considerable and would be less than significant.

Cumulative projects in the region, including those listed in Table 5-1 could require increased energy supplies and capacity and therefore, cumulative effects could be potentially significant. As state above, electricity requirements for Program construction and operation activities are minimal. The overall amount of fuel required for construction activities, including transportation uses, would be made available by local suppliers and electricity requirements would not exceed the production capacity of PG&E. Thus, construction and operation effects on local fuel supplies would be less than significant. The Program's contribution to this cumulative impact would not be cumulatively considerable and would be less than significant.

Cumulative projects in the region, including those listed in Table 5-1 could require increased peak and base energy demands and therefore, cumulative effects could be potentially significant. As described in Section 3.O, Energy Conservation, impacts to electricity demands would be negligible and would not significantly impact peak or base power demands during construction and operation of the Program, resulting in a less than significant impact. Similarly, the Program's contribution to cumulative peak and base demands would not be cumulatively considerable and would be less than significant.

The Program in combination with the projects listed in Table 5-1 would require the use of nonrenewable, fossil fuel-based energy resources during construction. If the cumulative projects and the Program were to use energy resources in a wasteful manner or be designed to increase dependency on non-renewable energy resources, it would conflict with state and local energy standards. The SCVWD Stream Maintenance Program is a maintenance project that would occur only at specific times when maintenance of facilities

is required. The BART Berryessa Extension Project would likely result in the increased use of non-renewable energy sources for long-term operational purposes. However, it is assumed that the BART Berryessa Extension Project would help promote energy conservation as automobile dependency is expected to decline and therefore demand for non-renewable energy resources (i.e., gasoline) would decrease as well. Construction of the Program would be considered short term and would not result in the increased use of non-renewable energy resources and would be consistent with the goals and strategies of local and state energy standards; therefore, conflicts with energy conservation standards would be less than significant. Therefore, the Program's contribution to cumulative conflicts with energy conservation standards would not be cumulatively considerable and would be less than significant.

Mitigation: None required.

5.D References

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Santa Clara Valley Water District (SCVWD), Lower Berryessa Creek Project – Planning Study Report, prepared by Winzler & Kelly, March 2010d.

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Santa Clara Valley Water District (SCVWD), Raw and Treated Water Pipelines Rehabilitation Project Engineer's Report, March 2010f.

Santa Clara Valley Water District (SCVWD), Advanced Water Treatment Facility project website, available online at http://www.valleywater.org/Services/AWT.aspx, accessed February 9, 2011.

Silicon Valley / San Jose Business Journal, 2009, *Creekside Landing in Fremont is placed on hold after losing Partner,* November 6, 2009, available online at http://sanjose.bizjournals.com/sanjose/stories/2009/11/09/story3.html, accessed April 2010.

CHAPTER 6
Other CEQA Requirements

This chapter addresses the growth-inducement potential, significant environmental effects that cannot be avoided if the project is implemented, and significant irreversible impacts of the Lower Berryessa Creek Program (Program).

6.A Growth Inducing Impacts

6.A.1 California Environmental Quality Act (CEQA) Definition of Growth Inducement

CEQA Guidelines (§15126.2(d)) require that an EIR evaluate the growth-inducing impacts of a proposed action:

> Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

A project can have direct and/or indirect growth-inducement potential. A project would induce direct growth if it involved construction of new housing. A project would induce indirect growth if it established substantial new permanent employment opportunities (e.g., commercial, industrial, or governmental enterprises) or involved a substantial construction effort with substantial short-term employment opportunities and therefore indirectly stimulated the need for additional housing and services to support the new employment demand. A project would also have an indirect growth-inducement effect if it would remove an obstacle to additional growth and development, such as removing a constraint on a required public service.

6.B Overview

6.B.1 Growth-Inducement Potential

Based on the CEQA definition above, assessing the growth-inducement potential of the Program involves answering the question: "Will implementation of the proposed project directly or indirectly support economic expansion, population growth, or residential construction?" As discussed in Chapter 2, Program Description, the Program is predominantly focused on reducing the risks of flooding occurring in the residential communities located in the vicinity of the Program elements (Lower Berryessa Creek, Calera Creek, Tularcitos, and Lower Penitencia Creek). No new residential or commercial development is proposed by the Program. Program construction would be performed by the large, existing work force within the San Francisco Bay Area and surrounding communities. The employment demand associated with the program construction would be relatively limited. There would be approximately 50 workers for the Lower Berryessa Creek Element and approximately 40 workers for the Lower Calera Creek Element. Although the program-level elements; Upper Calera Creek Element 1, Upper Calera Creek Element 2, Tularcitos Creek Element, and Lower Penitencia Creek Element are in the preliminary phase of design, the number of construction workers required for these elements would be similar to the number required for the project-level elements. Accordingly, the employment demand associated with program construction would be of insufficient magnitude to attract substantial relocation by construction workers to the local area. Consequently, the Program would not directly induce or result in population growth in the local area.

As stated in the CEQA Guidelines, growth is not necessarily beneficial, detrimental, or of little significance to the environment. However, growth inducement may constitute an adverse impact if the growth is not consistent with the land use plans and growth management plans and policies for the area affected. Land use plans in the program area provide for land use development patterns and include growth policies that allow for the orderly expansion of urban development supported by adequate urban public services, such as flood protection, as well as water supply, roadway infrastructure, sewer service and solid waste service.

Adequate flood protection is an important, though not the only, public service needed to support additional growth in the City of Milpitas. Other factors that influence business and residential or population growth in the planning area include the general plans and other policies of Milpitas, Santa Clara County, and other nearby cities, as well as the availability of water supply, wastewater disposal capacity, public schools, and transportation services. Additionally, economic factors greatly affect development rates and locations.

The Program proposes to provide improved flood protection for the existing residences and businesses within the Berryessa Creek flood zone. Enhanced flood protection is necessary, since future flows within Berryessa Creek are expected to increase as a result of upstream land use changes in the greater San Jose area. However, the City of Milpitas is highly built out and the Program would not change the current land uses within the City of Milpitas. No new employment would be added to the City of Milpitas from any new local businesses, nor

would the Program increase the future density of local housing development within the City of Milpitas. As a result, the Program would not induce any indirect population growth.

6.C Growth Analyses in the City of Milpitas

The planned-for growth in the City of Milpitas was analyzed recently as part of an environmental review of the Milpitas Water and Sewer Master Plan Updates (Master Plan Updates), which was done via the Milpitas Water and Sewer Master Plan Updates EIR (Master Plan Updates EIR), certified on May 4, 2010 (SCH# 2008082114). While the growth analysis in the Master Plan Updates EIR is based on the provision of potable water supply and sewer treatment in Milpitas (as described in the Master Plan Updates), it also includes a review of the development and growth issues associated with the approved Milpitas General Plan, and the level of development identified by the approved Milpitas General Plan represents the future development that the flood control components of the Program are designed to protect. Therefore, the Master Plan Updates EIR analyzed the same projected growth that the Program is designed to accommodate. A summary of the Master Plan Updates EIR and its conclusions are provided below.

6.C.1 Water and Sewer Master Plan Updates EIR

Chapter 5 of the Master Plan Updates EIR evaluated the growth-inducement potential and secondary effects of growth associated with the provision of potable water supply and sewer treatment within the City of Milpitas, as described in the Master Plan Updates. It notes that implementation of the near- and long-term developments are consistent with the city's proposed Transit Area Specific Plan as well as with the updated demand projections for large water users. The Master Plan Updates would provide the water and sewer capacity necessary to meet the anticipated demands of the City of Milpitas through build-out of the Milpitas General Plan and, therefore, would not indirectly support growth that is inconsistent with the City's General Plan or regional growth management projections.

6.C.2 Conclusion

Growth potential and secondary impacts of growth have been evaluated in the Master Plan Updates EIR. While the effects of that project differ from that of the District's Lower Berryessa Creek Program, the geographic area and level of growth analyzed is similar to that for the Program. The Master Plan Updates EIR concluded that the planned services outlined in the Master Plan Updates would provide adequate water and sewer capacity to meet anticipated demands of the City through build-out, and that the proposed near- and long-term developments would not indirectly support growth. Similarly, implementation of the Program would not directly or indirectly foster population growth or result in the construction of additional housing. Therefore, the Program would have no growth-inducing impacts nor would it contribute any cumulative effect with other currently planned or foreseeable future development to future growth in the area.

6.D Significant Environmental Effects that Cannot be Avoided if the Program is Implemented

In accordance with CEQA Guidelines § 21067 and with §§ 15126(b) and 15126.2(b), the purpose of this section is to identify program-related environmental impacts that could not be eliminated or reduced to less than significant with implementation of all mitigation measures. When a project is determined to have significant impacts after implementation of mitigation, the decision makers (i.e., the District) must then evaluate whether the benefits of the project outweigh the significant impacts to the environment. If the project is approved, a Statement of Overriding Considerations is required in accordance with CEQA *Guidelines* Section 15093. These findings are included with final determination by the Santa Clara Valley Water District Board of Directors as part of its certification of this EIR.

6.D.1 Significant and Unavoidable, and Potentially Significant and Unavoidable Effects of the Program

This section identifies program impacts that, even with the implementation of mitigation measures, would remain potentially significant, or significant, and therefore considered unavoidable. Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, describes the potential for environmental impacts of the Program and identifies mitigation measures to reduce impacts determined to be potentially significant or significant. Several potentially significant, and significant and unavoidable impacts were identified and are summarized below. With the exception of the impacts summarized below, all other Program impacts would either be less than significant, or reduced to less than significant by implementation of identified mitigation measures.

Construction Phase Air Quality Criteria Pollutant Emissions and Exposure, and Cumulative Criteria Pollutant Emissions: There would be significant and unavoidable impacts associated with the emissions generation of criteria pollutants and exposure of sensitive receptors to substantial pollutant concentrations during construction. Although implementation of Mitigation Measures 3.C-2a (Exhaust Emissions Reduction Measures) and 3.C-2b (Emissions Reduction Plan) would reduce exhaust emissions from construction vehicles, the levels of ROG and NOx would still exceed thresholds. Under the BAAQBD 2010 Guidelines, significant and unavoidable impacts associated with construction-related criteria pollutant emissions, and cumulative criteria pollutant emissions, would occur because the mitigated Program would exceed the significance thresholds in the 2010 BAAQMD CEQA Guidelines and would contribute to the region's nonattainment status for ozone.

6.E Significant Irreversible Environmental Changes

In accordance with CEQA § 21100(b)(2)(B) and CEQA Guidelines §§ 15126(c) and 15126.2(c), the purpose of this section is to identify significant irreversible environmental changes that would be caused by the Program. Because the Program would consist of modification

and improvements to existing facilities, there would be irretrievable or irreversible commitment of land.

For all program elements, the Program would require the commitment of energy resources to fuel and maintain construction equipment (such as gasoline, diesel, and oil) during the construction of the Program. Program construction would commit resources such as concrete, for the construction of the floodwalls and headwalls and the Program would commit soil material for the construction of the raised levees. However, as described in Chapter 2, Program Description, materials excavated from the existing levees would be used to reconstruct the new raised levees to the extent feasible.

Operation of the Tularcitos Creek Element would commit the use of gasoline, diesel, and oil when the pumps are activated. However implementation of the Program would not result in an increased demand for energy use during operations of the Program and thus, no significant irreversible changes associated with the long-term energy would result.

6.F References

City of Milpitas, Water and Sewer Master Plan Updates Final EIR, April 2010.

CHAPTER 7
~~Draft~~ EIR Authors

7.A Project Sponsor / Lead Agency

Santa Clara Valley Water District
David W. Dunlap, Senior Environmental Planner
5750 Almaden Expressway
San Jose, CA 95118-3614

7.B EIR Authors and Consultants

ESA
225 Bush Street, Suite 1700
San Francisco, California 94104

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Deputy Project Manager:	Elizabeth Kanner
Project Description:	Elizabeth Kanner, Lee Miles Bradford, Alisa Moore
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Air Quality:	Nicole Yeto, Jyothi Iyer, Matt Fagundes, Mike Ratte (KB Environmental)
Biological Resources:	Lara Thoreson, Lee Miles Bradford, Martha Lowe, Tom Roberts
Cultural Resources:	Heidi Koenig, Dylan Duvergé, Brad Brewster
Geology and Soils:	Eric Schniewind, Justin Taplin
Greenhouse Gases:	Donald Ambroziak, Matthew Morales
Hazards and Hazardous Materials:	Maryann Hulsman, Julie Moore, Eric Schniewind
Hydrology and Water Quality:	Annika Fain, Justin Gragg
Land Use and Planning:	Elizabeth Kanner, Alisa Moore
Noise:	Jyothi Iyer, Matt Fagundes
Recreation:	Maryann Hulsman, Alisa Moore
Transportation and Traffic:	Allison Chan, Leslie Lowe, Jack Hutchison
Utilities and Service Systems:	Kirstin Conti, Alisa Moore
Energy Conservation:	Kirstin Conti, Tim Morgan
Alternatives:	Lee Miles Bradford, Elizabeth Kanner, Alisa Moore
Cumulative Impacts:	Allison Chan, Alisa Moore
Growth-Inducting Impacts:	Allison Chan, Nik Carlson, Alisa Moore
Other CEQA Requirements	Lee Miles Bradford, Alisa Moore
Graphics:	Perry Jung, Ron Teitel, Wes McCullough
Technical Editing:	Maryann Hulsman
Word Processing:	Lisa Bautista

APPENDICES

Appendix A. Notice of Preparation Scoping Report

Appendix B. Best Management Practices Handbook, Santa Clara Valley Water District Comprehensive List

Appendix C. Air Quality Calculations (RoadMod, URBEMIS 2007 version 9.2.4, Greenhouse Gas Calculations)

Appendix D. HRA Calculations

Appendix E. List Special Status Species that have the Potential to Occur in the Project Area

Appendix F. Public and Agency Draft EIR Comment Letters

Appendix G. Draft EIR Response to Comments

Appendix H. Mitigation Monitoring and Reporting Program

APPENDIX A

Notice of Preparation Scoping Report

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ESA Water

225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.5900 phone
415.896.0332 fax

www.esassoc.com

memorandum

date March 13, 2008

to Youhan Lee, Tony Ndah, Susan Fizzell

from Alisa Moore, Lee Miles, Maryann Hulsman

subject Lower Berryessa Creek Flood Control Project
Scoping Report

Introduction

The Santa Clara Valley Water District (District) is undertaking the Lower Berryessa Creek Flood Protection Project (Project) to implement flood control improvements to contain a 100-year flood with adequate freeboard requirements. The proposed Project will meet the District's requirements for long-term maintenance and access; preserve wetland habitat values; improve durability of the levees; and integrate the City of Milpitas' proposed trail system with the levees.

The proposed Project would include construction of flood control improvements to portions of Berryessa Creek, Tularcitos Creek, and Calera Creek, as well as long-term maintenance of the improved creek reaches. The proposed Project area is located within the City of Milpitas. The creek reaches included in the Project are under the jurisdiction of the District, and the District is the Lead Agency for the Project under the California Environmental Quality Act (CEQA).

Notice of Preparation

The Notice of Preparation (NOP) was prepared by the District pursuant to the California Environmental Quality Act (CEQA), to notify interested parties that it will be preparing an Environmental Impact Report (EIR) to evaluate potential environmental impacts of the proposed Project.

The NOP (Attachment 1) contains a description of the proposed Project, a discussion of possible alternatives being considered, a map of the Project location and the area, a description of the relationship between the Project and other District activities, and a summary of the probable environmental effects of the Project to be addressed in the EIR. The NOP provides the public and resource agencies with the opportunity to review the Project and to provide comments or concerns on the scope and content of the environmental review document, including the range of actions, the alternatives, the mitigation measures, and the significant effects to be analyzed in depth in the EIR.

On September 19, 2007, the NOP was mailed to ten interested parties, including local, state, and federal agencies, the State Clearinghouse, and news publications. Copies of the NOP were made available for public review at the Santa Clara County Public Library in Milpitas and at the County Clerk's office, and the NOP was also available for downloading from the District's Web site (http://www.valleywater.org/News_and_events/CEQA_public_review).

Scoping Period

The 30-day scoping period for the Project, which began with the distribution of the NOP on September 24, 2007, remained open through November 24, 2007. During the scoping period, the District held a public scoping meeting in the Milpitas City Council Chambers, on October 11 from 6:30 – 8:30p.m.

The District mailed an invitation to the scoping meeting to approximately 3,000 area residents, and the invitation was also posted on their Web site (http://www.valleywater.org/Water/Watersheds_-_streams_and_floods/Watershed_info_&_projects/Coyote/_Project_pages/Lower%20Berryessa%20Creek.shtm) (Attachment 2).

An ad for the meeting (Attachment 3) was also placed in two newspapers on the following days:

- San Jose Mercury News, September 24 and 30, 2007
- Milpitas Post, September 27 and October 4, 2007

At the scoping meeting, District staff and consultants gave a presentation on the proposed Project and potential alternatives (Attachment 4), went over the environmental review process, and outlined the proposed schedule for the Project. Following the presentation, meeting participants were invited to ask questions and give comments, which were recorded.

Comments

As mentioned above, the District received comments on the proposed Project during the October 11, 2007, scoping meeting. Attendees had questions regarding several issues, including: graffiti management on floodwalls, alternative selection process and criteria, the public involvement process, and construction impacts. The full list of comments from the meeting (approximately 15 questions and comments) is attached to this memo (Attachment 5).

The District also received four unique comment letters from state and local agencies during the comment period. The four letters are attached to this memo (Attachment 6), but the following table provides a succinct summary of the agency comments and issues.

Agency	Comments
California Department of Fish and Game	• EIR should specifically address potential impacts to California red-legged frog and nesting migratory birds, in addition to impacts to the burrowing owl and western pond turtle. • Recommends that the District investigate project alternatives that include reducing the number of maintenance roads along the channel. • Discourages the use of floodwalls in favor of softer approaches such as widening of the floodplain. • DFG may require a Streambed Alteration Agreement.
California Department of Transportation	• Analysis must include a current archaeological record search if construction activities are proposed within state right-of-way. • Any work or traffic control within the state right-of-way will require an encroachment permit.

Agency	Comments
California Public Utilities Commission	• Plan project with consideration to the safety of the nearby rail corridor, and include impacts to the rail corridor in environmental documents. • Consider rail crossing issues in the routing of the City of Milpitas' proposed trail system.
California Regional Water Quality Control Board, San Francisco Bay Region	• Clarify changes in conditions that occurred between the implementation of the 1997 levee improvement project and the 2001 study resulting in the proposed project. • Explain with the project is being evaluated separately from the Upper Berryessa Flood Protection Project, and describe potential cumulative impacts for both proposed projects. • Describe how the proposed alternatives will affect existing maintenance activities in the project vicinity. (RWQCB supports the removal of excess maintenance roads.) • Consider project alternatives that would enhance and expand wetland habitats, including riparian woodland habitat, and include avoidance measures, best management practices, and compensatory mitigation to address any unavoidable impacts. • RWQCB is particularly interested in further analysis of Alternative 6. • Consider alternatives with setback levees in the DEIR. • Describe potential impacts from hazardous materials that may be exposed in soils or groundwater during construction. • Consider while assessing impacts that containing higher flood flows between top of bank levees and floodwalls will result in increased water in the channel and increased shear stress on the bed and banks. • Only consider project alternatives that will provide long-term positive impacts to water quality and beneficial uses of the project reaches. • Be sure to include impact assessment for aesthetics, biological resources, hazards and hazardous materials, hydrology and water quality, and cumulative impacts. • Describe baseline monitoring that will be used to determine project impacts and monitoring to assess post-construction and compensatory mitigation performance.

The next formal opportunity for public comments will be associated with the release of the Draft Environmental Impact Report, expected to be available by public review by mid-2008.

Contents of this Report

This Scoping Report contains documents pertinent to the scoping process. The following items are included:

Attachment 1: Notice of Preparation
Attachment 2: Invitation to Scoping Meeting
Attachment 3: Newspaper Announcement for the Scoping Meeting
Attachment 4: Scoping Meeting Presentation
Attachment 5: Scoping Meeting Comments and Notes
Attachment 6: Copies of all Comments Received by the District

NOTICE OF PREPARATION

September 24, 2007

From: Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Subject: Notice of Preparation for the Environmental Impact Report

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Project Title: Lower Berryessa Creek Flood Protection Project

The Santa Clara Valley Water District (District) is undertaking the Lower Berryessa Creek Flood Protection Project to implement flood control improvements to contain a 100-year flood, with adequate freeboard requirements. The proposed project will meet the District's requirements for maintenance access, preserve wetland habitat values, improve durability of the levees and integrate the City of Milpitas' proposed trail system with the levees.

Project Location: City of Milpitas, Santa Clara County, CA

The District will be the lead agency and will prepare an Environmental Impact Report (EIR) for the proposed project. The District requests the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may use the EIR prepared by our agency when considering your permit or other approvals for the project.

The project description, location and the potential environmental effects are contained in the attached material.

Due to the limits mandated by State law, your response must be sent at the earliest possible date, **but no later than October 24, 2007.**

Please send your response
Via U.S. Mail or E-mail:

Susan Fizzell
Environmental Planner
5750 Almaden Expressway
San Jose, CA 95118
408-265-2607 x2946
SFizzell@ValleyWater.org

We request the name and address for a contact person in your agency, or your name if you are an individual or representing a group.

A public Scoping Meeting will be held on **October 11, 2007 from 6:30 p.m. to 8:30 p.m. at the City of Milpitas City Hall Council Chambers – 455 E. Calaveras Blvd. Milpitas, CA 95035.**

Stanley Williams
Chief Executive Officer

9/18/2007
Date

NOTICE OF PREPARATION

ENVIRONMENTAL IMPACT REPORT FOR THE
PROPOSED LOWER BERRYESSA CREEK
FLOOD PROTECTION PROJECT
SANTA CLARA COUNTY, CALIFORNIA

SEPTEMBER 24, 2007

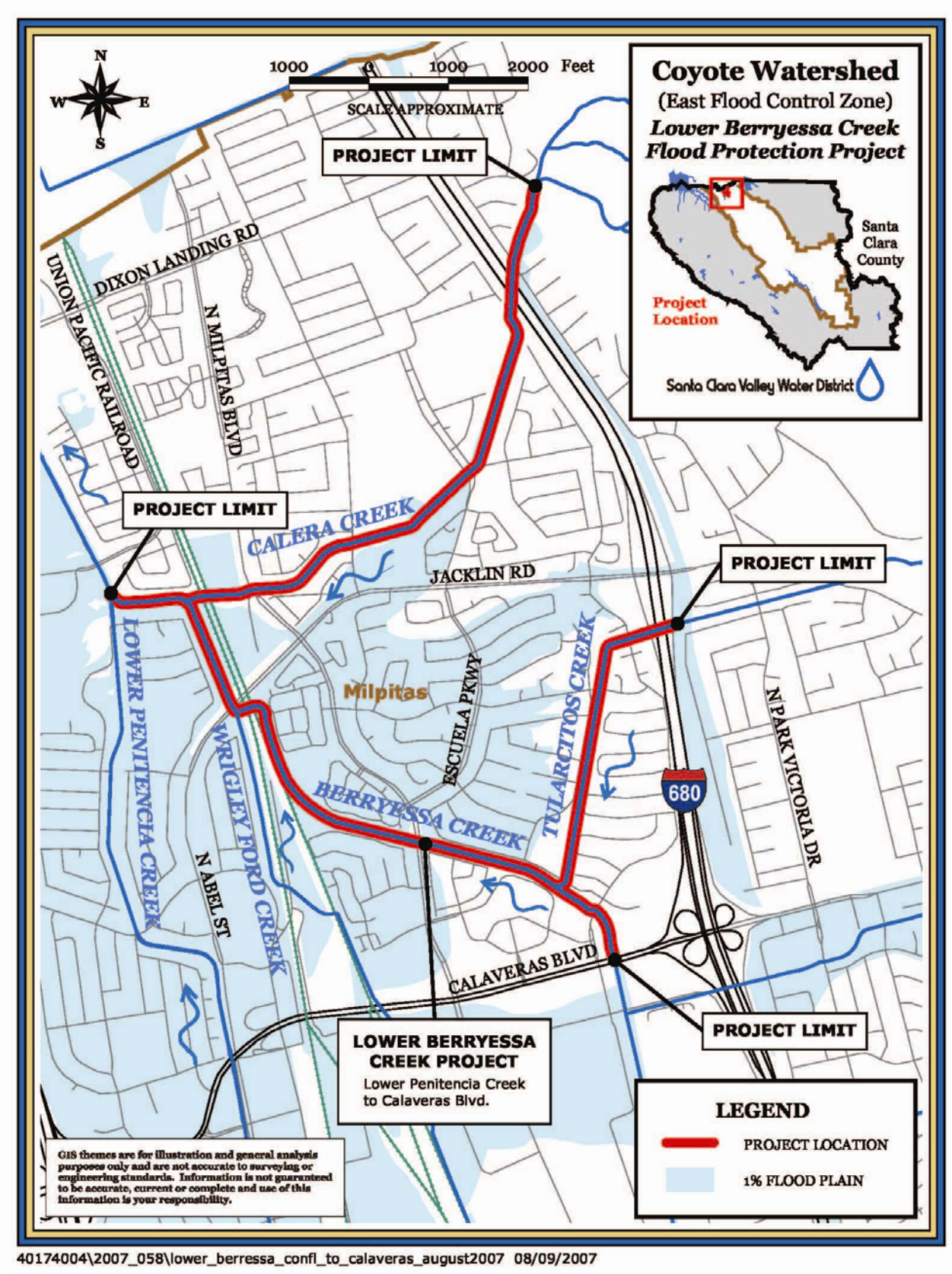
INTRODUCTION

The proposed Lower Berryessa Creek Project[1] (Project) would include the construction of flood control improvements to portions of Berryessa Creek, Tularcitos Creek, and Calera Creek (see Figure 1) and long-term maintenance of the improved creek reaches. The proposed Project area is located within the City of Milpitas. The creek reaches included in the proposed Project are under the jurisdiction of the Santa Clara Valley Water District (District) and the District is the Lead Agency for the proposed Project per the California Environmental Quality Act (CEQA).

NEED FOR ENVIRONMENTAL REVIEW

As the Lead Agency, the District has determined that the proposed Project could have potentially significant environmental effects, and will prepare an Environmental Impact Report (EIR) to provide opportunity for public disclosure as well as public participation in the planning and decision-making process. The purpose of the environmental review process is to assess the potential impacts of the proposed Project and its alternatives, and describe measures that avoid, minimize or mitigate significant effects on environmental resources to a less than significant level. The environmental review will describe and evaluate potential effects of each element of the proposed Project, address reasonable range of alternatives, and comply with related environmental laws and regulations. The EIR will include sufficient information for compliance with CEQA and potential approval of the proposed Project by the District's Board of Directors following completion of the CEQA process.

[1] The Lower Berryessa Creek Project denotes that portion of Berryessa Creek located downstream of Calaveras Boulevard to the confluence with Lower Penitencia Creek and includes portions of Calera and Tularcitos Creeks as shown on Figure 1. References to Berryessa Creek are for the entire creek and its watershed, with the exception of references to the U.S. Army Corps of Engineers Berryessa Creek project, which begins at Calaveras Boulevard and ends at Old Piedmont Road.


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SCALE APPROXIMATE
PROJECT LIMIT
Coyote Watershed
(East Flood Control Zone)
Lower Berryessa Creek
Flood Protection Project
Santa Clara County
Project Location
Santa Clara Valley Water District
DIXON LANDING RD
UNION PACIFIC RAILROAD
N MILPITAS BLVD
PROJECT LIMIT
CALERA CREEK
JACKLIN RD
PROJECT LIMIT
LOWER PENITENCIA CREEK
WRIGLEY FORD CREEK
Milpitas
ESCUELA PKWY
TULARCITOS CREEK
N PARK VICTORIA DR
680
BERRYESSA CREEK
N ABEL ST
CALAVERAS BLVD
PROJECT LIMIT
LOWER BERRYESSA CREEK PROJECT
Lower Penitencia Creek to Calaveras Blvd.
LEGEND
PROJECT LOCATION
1% FLOOD PLAIN
GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current or complete and use of this information is your responsibility.
40174004\2007_058\lower_berressa_confl_to_calaveras_august2007 08/09/2007

PUBLIC OUTREACH

The District has an extensive public outreach program for the proposed project that will allow interested individuals and organizations, residents within the project vicinity, stakeholders, and responsible agencies to participate in the project planning and CEQA process. The public outreach program includes the following:

1. The District has held and will continue to hold public outreach meetings during the preliminary environmental review process. Public outreach meetings held to date took place on: October 29, 2003, March 15, 2004, and September 28, 2005.

2. This Notice of Preparation (NOP) formally initiates the CEQA scoping process through which the District will identify and define the scope of issues that will be addressed in the EIR as well as identify potential significant environmental issues related to the proposed action and alternatives.

3. Public comment on this NOP and on the scope of issues to be included in the EIR will be accepted during the 30-calendar day NOP comment period: **September 24 through October 24, 2007**. A scoping meeting will be held on **October 11, 2007** from **6:30 to 8:30 p.m**. in the **Milpitas City Council Chambers**.

4. The District is consulting with local, state, and federal agencies with regulatory or implementation responsibility for, or expertise in, the resources in the area of investigation. These include, but are not limited to, the City of Milpitas, the County of Santa Clara Department of Environmental Health – Vector Control District, the California Department of Fish and Game (CDFG), the San Francisco Bay Regional Water Quality Control Board (SFBRWQCB), the U. S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration – Fisheries (NMFS), and the U.S. Army Corps of Engineers (Corps). Coordination will take place throughout the project design, CEQA process, and implementation phases, as necessary.

5. Meeting(s) with residents within the project vicinity, interested parties, and stakeholders may be held during the scoping period and after release of the Draft EIR.

6. The Draft EIR will include a 45-day EIR review period that will allow for public and agency review and comment on the Draft EIR.

NEED FOR THE PROPOSED PROJECT

It is the District's practice to implement flood protection improvements to contain a one-percent, or 100-year flood,[2] with adequate freeboard to meet the District's and the Federal Emergency Management Agency's (FEMA) requirements. The District modified lower Berryessa Creek in 1976 to provide flood protection. In 1997, based on hydrology

[2] A one-percent, or one-hundred year flood is the calculated maximum level of floodwater with a one-percent probability of occurring in any given year. Freeboard is the vertical distance between the high water level within the channel and the top of bank of the channel or levee.

and hydraulics available at the time, the District implemented a levee restoration project to restore existing, eroded levees to 100-year flood protection capacity by raising levees by up to 1.5 feet.

In February 2001, the District initiated an engineering planning study to investigate the condition of levees and channel capacity, develop solutions to improve flood protection, and achieve other project objectives. The updated 100-year design flows for lower Berryessa Creek, Calera Creek and Tularcitos Creek presented in the 2001 study indicate Berryessa Creek, from Calaveras Boulevard to the confluence with Lower Penitencia Creek (approximately 8,700 linear feet) does not have adequate capacity to convey a 100-year flood and meet the freeboard requirements.

In addition, the Corps is proceeding with a flood protection project on Berryessa Creek upstream of Calaveras Boulevard that would increase flows in the lower portions of Berryessa Creek. The baseline hydraulic analysis for the proposed Project reach indicates severe restrictions exist in the channel, preventing the 100-year design flood to pass without overtopping the existing levees. A major hydraulic restriction occurs at the concrete channel section at the railroad crossings. The proposed project would include modifications to lower Berryessa Creek, Calera Creek, and Tularcitos Creek to ensure that the increased flow associated with the Corps project and the predicted 100-year flood flows would be contained, with appropriate freeboard.

STUDY AREA LOCATION AND SETTING

LOWER BERRYESSA CREEK

Berryessa Creek is a major tributary of Coyote Creek that drains a large area of the City of Milpitas and a portion of the City of San Jose. The proposed Project reach of Berryessa Creek is located in the City of Milpitas and extends from Calaveras Boulevard downstream to the confluence with Lower Penitencia Creek. The proposed Project length, including tributaries, is approximately 15,500 linear feet. Surrounding land uses include the Milpitas Town Center, single-family homes, and open space areas. The San Francisco Public Utilities Commission Hetch Hetchy Aqueduct crosses Berryessa Creek just downstream of Hillview Drive.

Berryessa Creek originates in the Los Buellis Hills of the Diablo Range, between Ed R. Levin County Park and Alum Rock Park, east of the City of San Jose. It flows westerly to Interstate 680, then northward through the City of Milpitas to its confluence with Lower Penitencia Creek. Berryessa Creek has a drainage area of approximately 22 square miles. Upstream of the proposed project limits (upstream of Montague Expressway), Berryessa Creek is dry during the summer months. Within the proposed Project limits, Berryessa Creek is perennial, mainly due to urban runoff. Berryessa Creek has been modified throughout its length, except for the furthest upstream reaches in the hills.

Within the proposed project area, Berryessa Creek is contained in man-made, excavated earth trapezoidal channels within levees, with the exception of a concrete "S" or double 90-degree section located at the Southern Pacific and Union Pacific railroad crossings under North Abel Street (see Figure 1). The channel width is approximately 120 feet, with side slopes no steeper than 2:1 (i.e., 2 foot horizontal to 1 foot vertical). There are maintenance roads on both sides of the channel. The District conducts routine sediment and vegetation removal maintenance along the banks and in the channel.

The proposed Project reach of Berryessa Creek contains two natural communities, California annual grassland series and bulrush-cattail series (freshwater emergent marsh). Small patches of mixed willow series also occur (riparian woodland); however, the flood protection maintenance activities described above prevent expansion of the riparian woodlands. Downstream of the concrete lined railroad crossing, Berryessa Creek is influenced by the tidal patterns of the San Francisco Bay.

CALERA CREEK

Calera Creek originates in the Diablo Range in the northern part of the Ed R. Levin County Park, where it flows westward to its confluence with Berryessa Creek; its watershed is less than three square miles. The proposed Project limits on this tributary extend about 7,000 feet upstream from the confluence to approximately 1,000 feet upstream of I-680. Surrounding land uses consist of single-family homes, schools, open space and commercial or office parks. In the proposed Project reach, summer flows consist of urban runoff and range from zero to 2 cfs. The channel bed has a dense growth of vegetation and side slopes include California annual grassland series.

TULARCITOS CREEK

Tularcitos Creek originates in the foothills of the Diablo Range above Milpitas, where it flows westward to its confluence with Berryessa Creek; its watershed is less than two square miles. The proposed Project limits extend about 4,000 feet upstream from the confluence with Berryessa Creek to where Tularcitos Creek reaches a culvert under I-680. Surrounding land uses include single-family homes and a linear park that overlies the Hetch Hetchy Aqueduct. Upstream of I-680 and beyond the proposed Project limits, Tularcitos Creek is contained in a concrete pipe, except for the reach near its headwaters. As with Calera Creek, the channel bed has a dense growth of vegetation and side slopes include California annual grassland series.

PROJECT DESCRIPTION

The Project-level EIR will examine the impacts of construction and maintenance activities related to modifying lower Berryessa Creek, Calera Creek, and Tularcitos Creek to ensure that increased flows associated with the Corps project and the predicted 100-year flood flows would be safely contained, with appropriate freeboard.

PROJECT OBJECTIVES

The objectives of the proposed Project are as follows:

1. Provide 100-year flood protection to surrounding areas.
2. Meet the District's requirements for maintenance access.
3. Preserve wetland habitat values.
4. Improve the durability of the levees.
5. Integrate the City of Milpitas' proposed trail system with the levees.

PROJECT ALTERNATIVES

The proposed Project includes six alternatives for each reach that meet the Project objectives (see Table 1). Preliminary Project and alternative design details for each of the three creeks are currently being developed taking into consideration the input received during the above described public outreach process, will aid the District in determining the preferred project alternative(s) that will be evaluated in the EIR.

Table 1. Overview of Potential Alternatives under Consideration for Berryessa Creek Flood Protection Project.

LOWER BERRYESSA CREEK					
Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**	**Alternative 6**
Raised levees within the existing right-of-way.	Raised levees within the existing right-of-way and straightened double 90-degree bends at railroad crossing.	Raised levees beyond the existing right-of-way and a widened railroad crossing.	Raised levees beyond the existing right-of-way and straightened double 90-degree bends at the railroad crossing.	Raised levee, floodwall, and straightened double 90-degree bends at the railroad crossing.	Geomorphic - wider floodplain with low levees and low-flow channel.
CALERA CREEK					
Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**	**Alternative 6**
Pump station	Raised creek banks outside of right-of-way.	Raised creek banks within right-of-way.	Floodwalls along top-of-bank.	Sheet pile floodwall one side of creek; Raised levees on other side.	Sheet pile floodwalls both sides of creek.
TULARCITOS CREEK					
Alternative 1	**Alternative 2**	**Alternative 3**	**Alternative 4**	**Alternative 5**	**Alternative 6**
Pump station	Raised creek banks outside of right-of-way.	Raised creek banks within right-of-way.	Floodwalls along top-of-bank.	Sheet pile floodwall one side of creek; Raised levees on other side.	Sheet pile floodwalls both sides of creek.

LOWER BERRYESSA CREEK ALTERNATIVES

The alternatives for Berryessa Creek are:

1. Raised levees within the existing right-of-way.
2. Raised levees within the existing right-of-way and straightened double 90-degree bends at railroad crossing.
3. Raised levees beyond the existing right-of-way and a widened railroad crossing.
4. Raised levees beyond the existing right-of-way and straightened double 90-degree bends at the railroad crossing.
5. Raised levee, floodwall, and straightened double 90-degree bends at the railroad crossing.
6. Create a wider floodplain with low levees and low-flow channel.

CALERA AND TULARCITOS CREEKS ALTERNATIVES

The alternatives listed below are under consideration for both Tularcitos and Calera Creeks; each alternative will be evaluated separately for each creek.

1. Addition of a pump station.
2. Raise creek banks outside of the existing right-of-way.
3. Raise creek banks within the existing right-of-way.
4. Add floodwalls along the top-of-bank.
5. Sheet pile the floodwall on one side of the creek; raise creek bank on the other side.
6. Sheet pile the floodwalls on both sides of the creek.

RELATIONSHIP TO OTHER DISTRICT ACTIVITIES

ARMY CORPS' UPPER BERRYESSA CREEK PROJECT

The Upper Berryessa Creek project begins at Calaveras Boulevard (the upstream limit of the proposed Project) in Milpitas and ends 600 feet upstream of Old Piedmont Road in San Jose, a distance of about 4.3 miles. On average, Berryessa Creek floods approximately every four years. The most recent flood occurred in 1998 and resulted in significant damage to homes and automobiles. Because flooding is still a major problem in this area, the District asked that the Corps evaluate alternatives that would provide flood protection in an environmentally sensitive manner and are acceptable to the local community.

The Corps is anticipating completing a Feasibility Study and EIR/ Environmental Impact Statement (EIS) in 2008; and construction phase of the Upper Berryessa Creek Project is scheduled to begin in 2010.

ARMY CORPS' UPPER PENITENCIA CREEK PROJECT

Upper Penitencia Creek is a major tributary of Coyote Creek that drains portions of San Jose and unincorporated eastern Santa Clara County land. The project is located within the City of San Jose, beginning at the confluence with Coyote Creek and ending at Dorel Drive, a distance of 4.2 miles.

Flooding from Upper Penitencia Creek reaches portions of Milpitas and is a major problem in this area; the District has requested that the Corps evaluate alternatives that would provide flood protection in an environmentally sensitive manner.

The Corps is currently preparing a Draft Feasibility Study for the project and a Draft EIR/EIS is scheduled for completion in 2008.

LOWER SILVER CREEK PROJECT FROM COYOTE CREEK TO CUNNINGHAM AVENUE

The Lower Silver Creek project is a 4.6-mile long flood protection and creek restoration project that is located between Coyote Creek and Cunningham Avenue. The District completed construction of the project between Coyote Creek and I-680. However, construction on the reaches between I-680 and Lake Cunningham are on hold due to funding constraints.

STREAM MAINTENANCE PROGRAM

The District's Stream Maintenance Program (SMP) is designed to provide long-term guidance for District implementation of routine stream and canal maintenance projects that would allow the District to meet flood protection and water supply mandates in a feasible, cost-effective, and environmentally sensitive manner. The SMP applies to all of the District's routine stream maintenance activities, including: sediment removal, vegetation management, and bank protection. A total of 191 creeks, including Berryessa Creek, Calera Creek and Tularcitos Creek are covered by the SMP.

POTENTIAL PERMITTING REQUIREMENTS

The proposed Project will require permits from the Corps, CDFG and SFBRWQCB due to implementation-related effects, as well as long-term maintenance if significantly different from those maintenance activities described in the SMP. USFWS and NMFS are consulting agencies to the Corps. In addition, City of Milpitas and the Santa Clara Valley Transportation Authority encroachment permits will be required.

POSSIBLE ENVIRONMENTAL ISSUES

The following is an overview of the environmental issues that the proposed Project EIR will address. The EIR will, at a minimum, examine the potentially significant environmental effects in each of the environmental issue areas outlined below, identify mitigation measures, and evaluate whether such measures can reduce impacts to a less-than significant level:

- **Aesthetics.** All alternatives could result in a decrease in the aesthetic value of creeks in the proposed Project area during construction. Once completed, all alternatives have the potential to either improve or reduce the aesthetics of various aspects of the proposed Project area because of increased engineered components such as aesthetically treated concrete floodwalls, wider and longer concrete sections, taller levees, steeper levees, floodwalls, or pump stations. Increased wetland areas and/or plantings could offset some of the visual effects of the proposed Project, depending on the selected alternative.

- **Air Quality.** All alternatives could result in a temporary decrease in localized air quality (due primarily to dust and vehicle/equipment emissions) in the proposed Project vicinity, primarily during project construction. No long-term impacts are expected.

- **Biological Resources.** All alternatives could result in the disturbance and/or removal of existing biological resources (e.g., upland vegetation, wetlands, wildlife habitat, migration corridors) during construction; however, direct or indirect effects to special status species are not expected to occur.

- **Cultural Resources.** All alternatives have the potential to disturb subsurface archaeological resources, including human remains during construction.

- **Hazards and Hazardous Materials.** All alternatives have the potential to create a hazard to the public or the environment, primarily associated with the use of hazardous materials during construction.

- **Hydrology/Water Quality.** All alternatives could result in degradation of water quality during construction. All alternatives would result in reduced long-term risk of exposure to flooding. Reduced risk of flooding could result in reduced localized erosion and therefore, the proposed Project could result in increased water quality in the creeks within the project area.

- **Land Use and Planning, Population and Housing, and Recreation.** Implementation of the proposed Project could result in conflicts with existing adjacent land uses, including residential and recreation land uses.

- **Noise.** All alternatives could result in a temporary increase in ambient noise conditions in the Project vicinity during construction. No long-term impacts are expected.

- **Transportation/Traffic.** All alternatives could affect existing traffic patterns in the Project vicinity, primarily during construction.

- **Utilities and Service Systems.** The proposed Project could require ancillary improvements to utilities and service systems within the project limits. The proposed Project could also generate materials that would need to be off-hauled to a landfill.

public notice

topic **Lower Berryessa Creek Flood Control Project**

who Santa Clara Valley Water District (SCVWD)

what Public scoping meeting and Notice of Preparation of an Environmental Impact Report (EIR)

when **Public Review Period**: Public agencies and interested community members are encouraged to participate in the EIR feedback process to assist SCVWD in determining the range of issues to be addressed in the EIR. A 30-day public scoping period (to gather comments and opinions from the public) will begin on Sept. 24 and end on Oct. 24, 2007. Please submit any written comments no later than 5 p.m., Oct. 24, 2007 to:
Susan Fizzell, Environmental Planner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Public scoping meeting: A public scoping meeting is scheduled for Thursday, Oct. 11 2007 from 6:30 to 8:30 p.m. at the Milpitas City Hall Council Chambers, 455 E. Calaveras Boulevard Milpitas, 95035 to get feedback from community members and organizations. Your comments will help us address the issues and achieve our objectives concerning the Lower Berryessa Creek Flood Control Project. SCVWD staff will be able to answer your questions, concerns and comments.

The Lower Berryessa Creek Flood Protection Project spans 15,500 linear feet and includes two tributaries – Calera and Tularcitos Creeks. The proposed project starts at the confluence with Lower Penitencia Creek and ends at Calaveras Boulevard (Highway 237) in Milpitas. The project will improve flood protection, preserve habitat values, improve the durability of the levees and integrate the City of Milpitas' proposed trail system with the levees. The SCVWD is the lead agency for compliance with the California Environmental Quality Act (CEQA). An EIR will be prepared to provide ample opportunity for public disclosure and participation in the planning and decision-making process.

The purpose of EIR process is to evaluate impacts of and alternatives for this project, and to avoid and/or lessen the impact of significant adverse effects on environmental resources. Environmental issues that will be analyzed in depth in the EIR include appropriate levels of flood protection, potential adverse effects on vegetation and wildlife resources, endangered species, aesthetics, cultural resources, recreation, land use, fisheries, water quality, air quality, transportation, socioeconomics, and cumulative effects of related projects in the Lower Berryessa Creek watershed.

contact For more information: contact Susan Fizzell at (408) 267-2607 x2946 or by email at SFizzell@ValleyWater.org or visit www.valleywater.org

Santa Clara Valley Water District℠

Santa Clara Valley Water District

Lower Berryessa Creek Flood Protection Project

Public Scoping Meeting
Milpitas City Hall
October 11, 2007

Santa Clara Valley Water District

Meeting Objectives

- Provide project background information
- Discuss feasible alternatives being considered
- Describe next steps and opportunities for involvement
- Obtain public input

Santa Clara Valley Water District

Agenda

- Project Background
- Feasible Alternatives
- Environmental Review Process
- Schedule
- Questions/Comments

Santa Clara Valley Water District

Agenda

- Project Background
- Feasible Alternatives
- Environmental Review Process
- Schedule
- Questions/Comments

Lower Berryessa Creek project locations

- A Lower Berryessa Creek
- B Lower Berryessa Creek
- C Calera Creek
- D Tularcitos Creek



Berryessa Creek floods on average once every four years

Old Piedmont Road - January 1983



Berryessa Creek floods on average once every four years

Calera Creek Confluence March 1998



Berryessa Creek presents many challenges

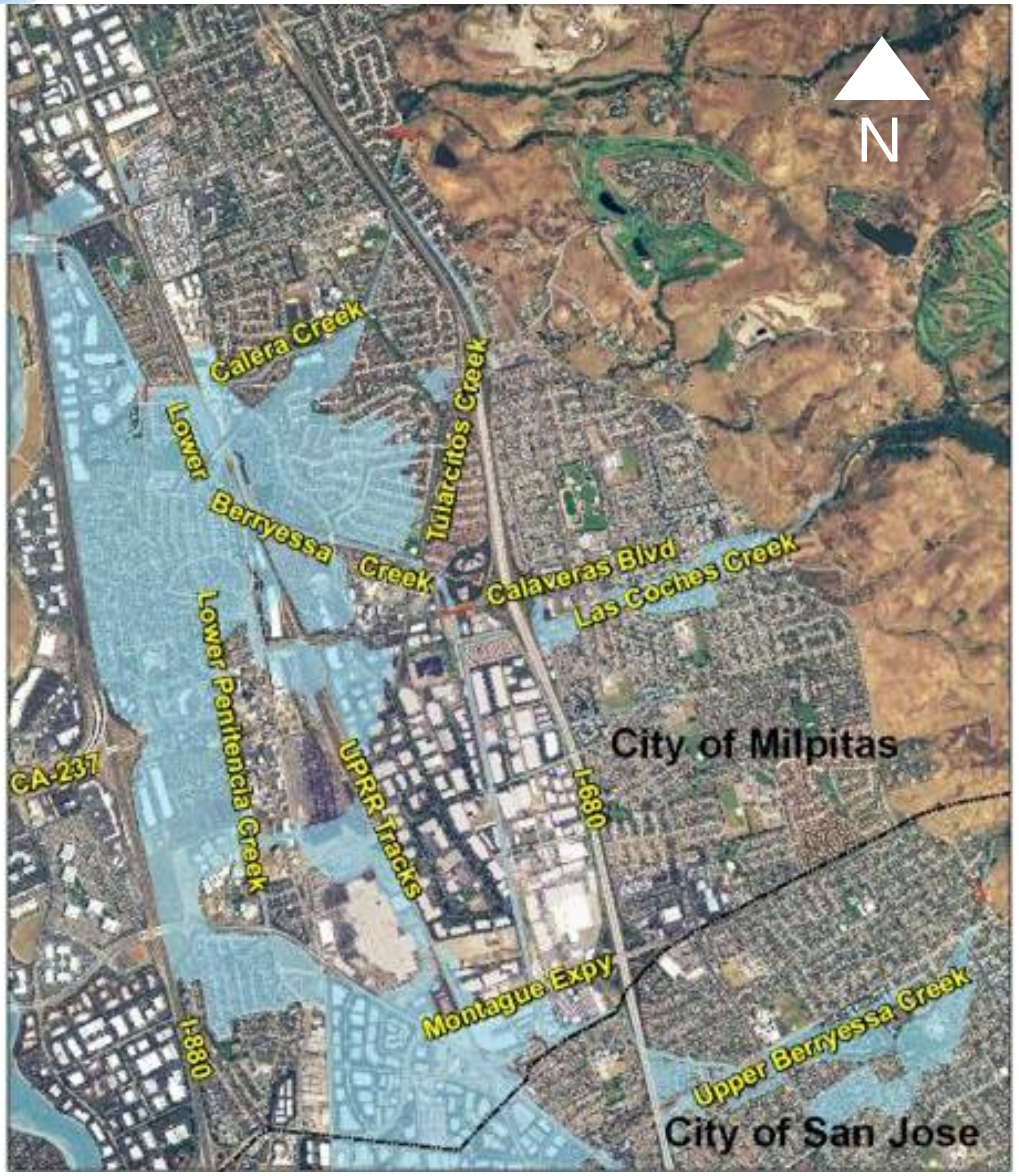
- Creek lacks capacity to keep 100-year flow in channel with upstream creek improvements
- Levee surface cracking and durability concerns
- Frequent and difficult sediment removal
- Trail access for community is inadequate

Project objectives

- Provide protection from the 100-year flood event
- Improve the structural integrity of the levees
- Improve maintenance access and safety for District staff
- Incorporate the City’s recreational trail projects

Current 100-year flood impacts

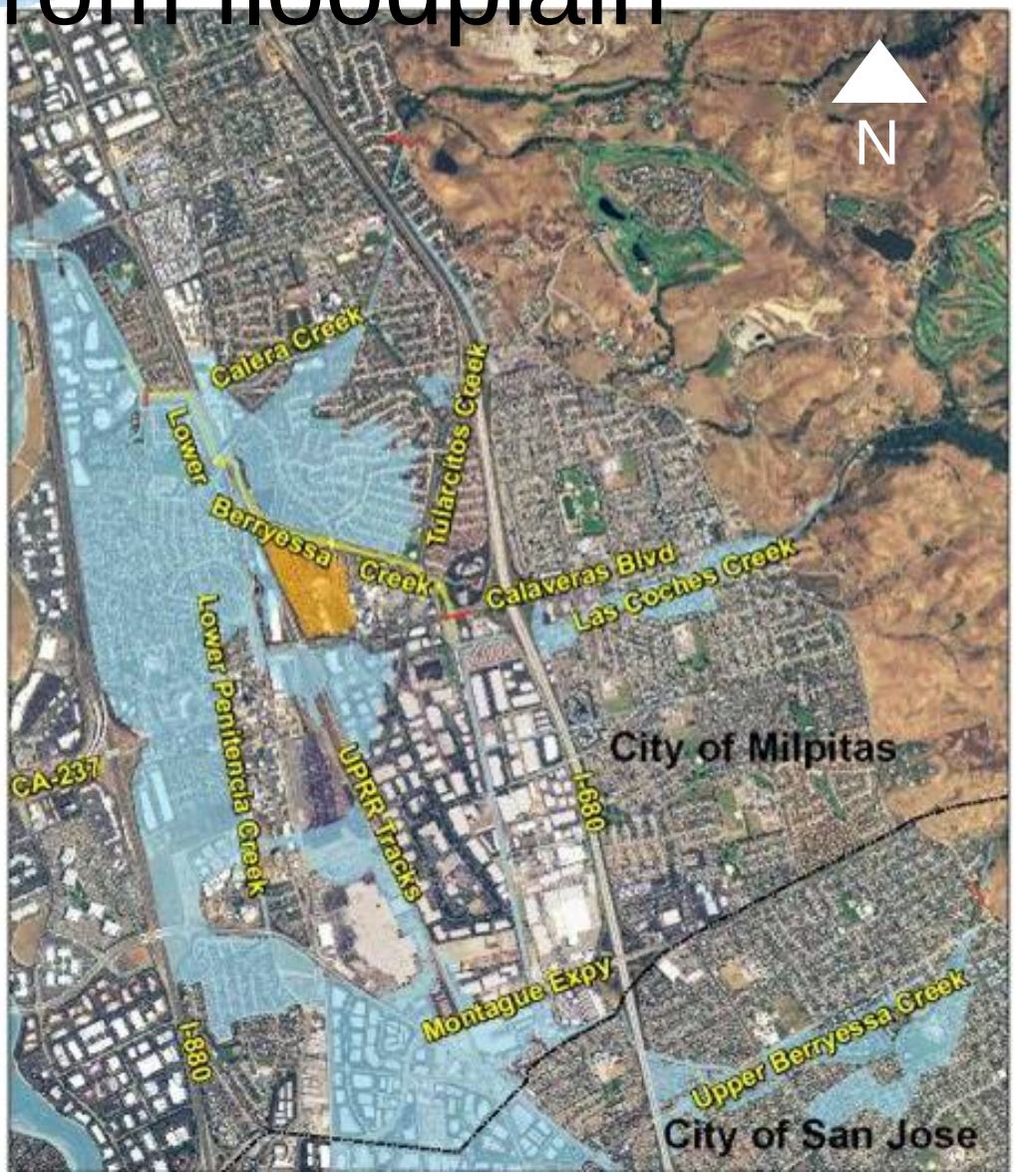
Current FEMA 100 year floodplain based on 1998 FIRM



Lower Berryessa Creek project removes parcels from floodplain

Current FEMA 100 year floodplain based on 1998 FIRM

Floodplain removed by Lower Berryessa project



Calera Creek project adds more protection

Current FEMA 100 year floodplain based on 1998 FIRM

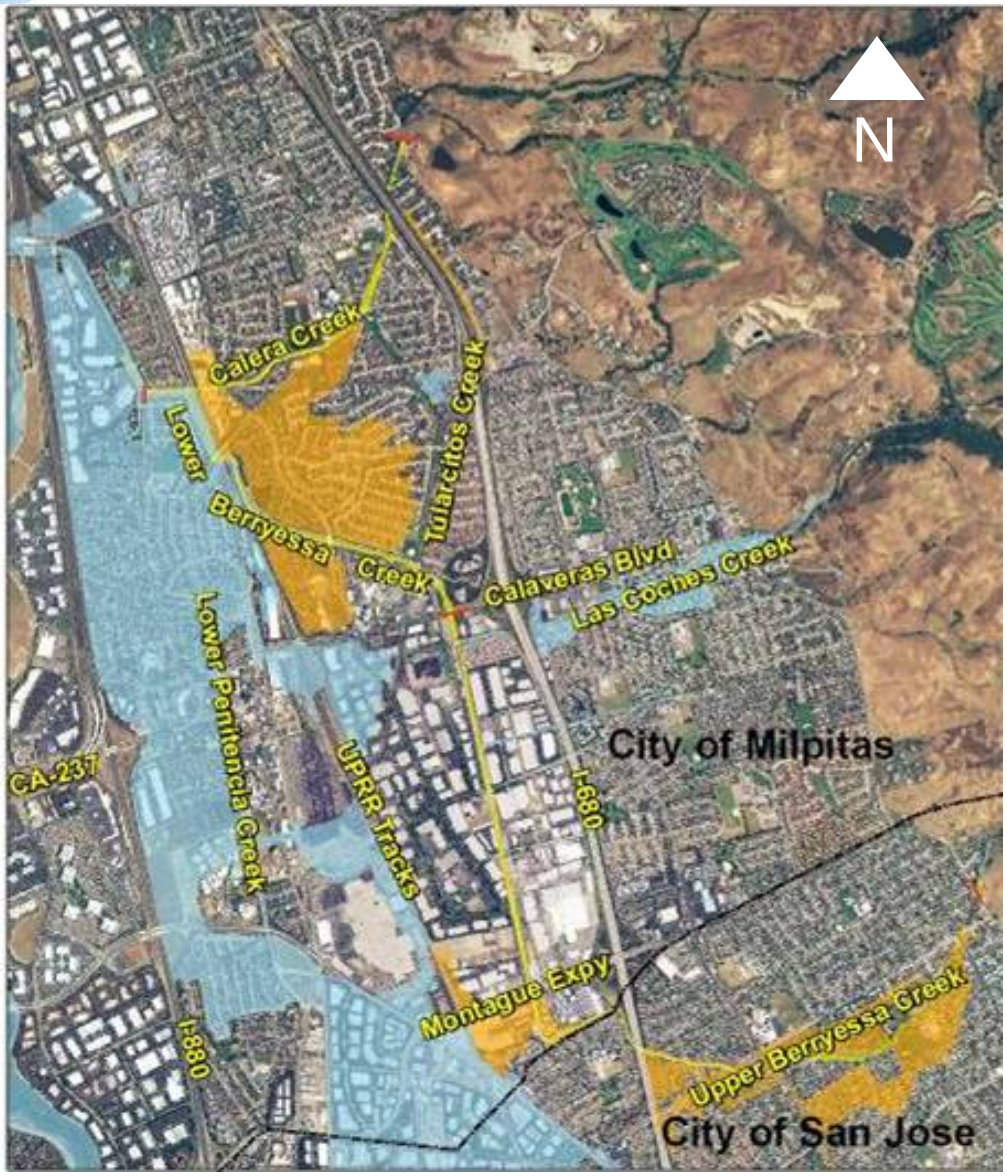
Floodplain removed by Lower Berryessa and Calera projects



Project on Upper Berryessa expands area protected

Current FEMA 100 year floodplain based on 1998 FIRM

Floodplain removed by all proposed projects



Santa Clara Valley Water District

Agenda

- Project Background
- Feasible Alternatives
- Environmental Review Process
- Schedule
- Questions/Comments

Lower Berryessa Creek

A

Current view



Lower Berryessa Creek

A

Alternative 1

- Raised levees and/or split-faced concrete flood walls varying in height from 4’ to 19’
- Maintenance roads



Lower Berryessa Creek

A

Alternative 2

- Riparian vegetation strip
- Split-faced concrete levee walls varying in height from 2’ to 24’
- Maintenance roads
- Raised levees



Lower Berryessa Creek

A

Alternative 3

- Riparian vegetation strip
- Split-faced concrete flood walls varying in height from 14’ to 22’
- Maintenance roads
- Raised levee



Lower Berryessa Creek

A

Alternative 4

- Riparian vegetation strips
- Split-faced concrete flood walls varying in height from 14’ to 22’
- Maintenance roads
- Raised levee



Lower Berryessa Creek

B

Current view



Lower Berryessa Creek

B

Alternative 1

- Split-faced concrete flood wall varying in height from 4’ to 10’
- Maintenance roads
- Raised levee



Lower Berryessa Creek

B

Alternative 2

- Riparian vegetation strip
- Split-faced concrete flood walls varying in height from 4’ to 10’
- Maintenance roads
- Raised levees



Lower Berryessa Creek

B

Alternative 3

- Riparian vegetation strip
- Split-faced concrete flood wall varying in height from 14’ to 16’
- Maintenance roads
- Raised levee



Lower Berryessa Creek

B

Alternative 4

- Riparian vegetation strips
- Split-faced concrete flood wall varying in height from 16’ to 17’
- Maintenance roads
- Raised levee



Santa Clara Valley Water District

Agenda

- Project Background
- Feasible Alternatives (cont.)
- Environmental Review Process
- Schedule
- Questions/Comments

Calera Creek

C

Current view



Calera Creek

C

Alternative 1

- Pump station with split-faced concrete flood walls varying in height from 1’ to 2’



Calera Creek

C

Alternative 2

- Erosion control mats
- Maintenance roads
- Raised levees



Calera Creek

C

Alternative 3

- Split-faced concrete flood walls varying in height from 2’ to 5.5’
- Maintenance roads



Calera Creek

C

Alternative 4

- Riparian vegetation strip
- Sheet-pile flood wall varying in height from 2’ to 5.5’ above the existing creek bank elevation
- Maintenance road
- Raised levee



Tularcitos Creek

D

Current view



Tularcitos Creek

D

Alternative 1

- Pump station with split-faced concrete flood walls varying in height from 1’ to 4’



Tularcitos Creek

D

Alternative 2

- New channel
- Maintenance road
- Raised levees outside of existing right-of-way



Tularcitos Creek

D

Alternative 3

- Split-faced concrete flood walls varying in height from 3’ to 5.5’
- Maintenance roads



Tularcitos Creek

D

Alternative 4

- New channel
- Riparian vegetation strip
- Sheet-pile flood walls varying in height from 3’ to 5.5’ above the existing creek bank elevation
- Maintenance road
- Raised levee



Santa Clara Valley Water District

Agenda

- Project Background
- Feasible Alternatives
- Environmental Review Process
- Schedule
- Questions/Comments

Purpose of scoping meeting:

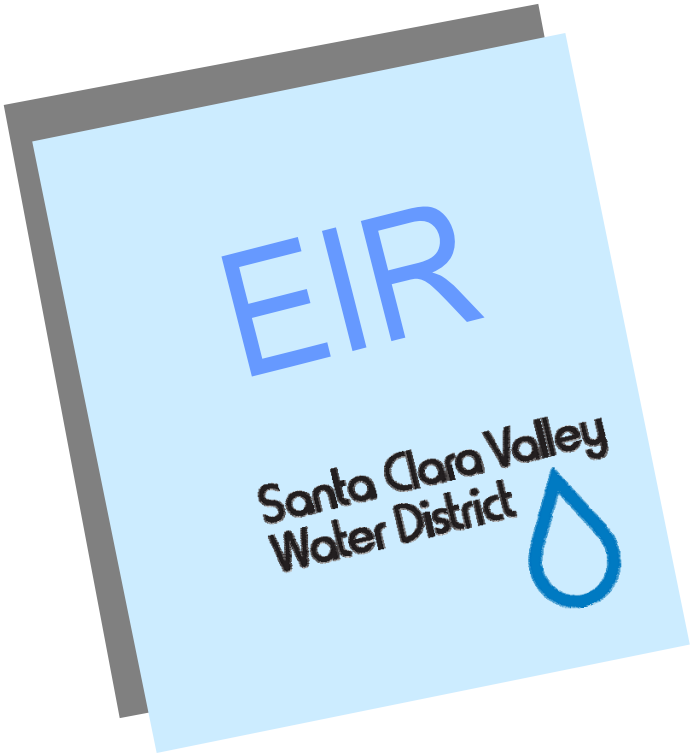
To define breadth of Environmental Impact Report (EIR) analysis

CEQA Guidelines Secs. 15082, 15083

- Identify potentially significant issues
- Get feedback on alternatives
- Consider some mitigation measures
- Document issues found not to be important

The EIR is an informational document

CEQA Guidelines Secs. 15120–15132



- Project description and objectives
- Description of environmental setting
- Analysis of project's impacts and mitigation measures
- Analysis of project alternatives, including no project

CEQA ensures thorough environmental analysis

CEQA Guidelines Sec. 15002

California
Environmental
Quality
Act

- Significant environmental effects
- Ways to avoid or reduce environmental damage - Mitigation measures or alternate approaches
- EIR required when project may have significant environmental effects

Partial list of CEQA impact considerations

- Aesthetics
- Air Quality
- Biological Resources
- Hydrology and Water Quality
- Land Use and Planning
- Noise—Potentially Significant
- Population and Housing
- Recreation
- Traffic
- Other Requirements

Environmental review process provides opportunity for public involvement

Santa Clara Valley Water District

- Issue Notice of Preparation
- Solicit input @ scoping meeting
- Prepare draft EIR
- Ensure 45-day review
- Respond to comments
- Prepare final EIR
- Board approves project

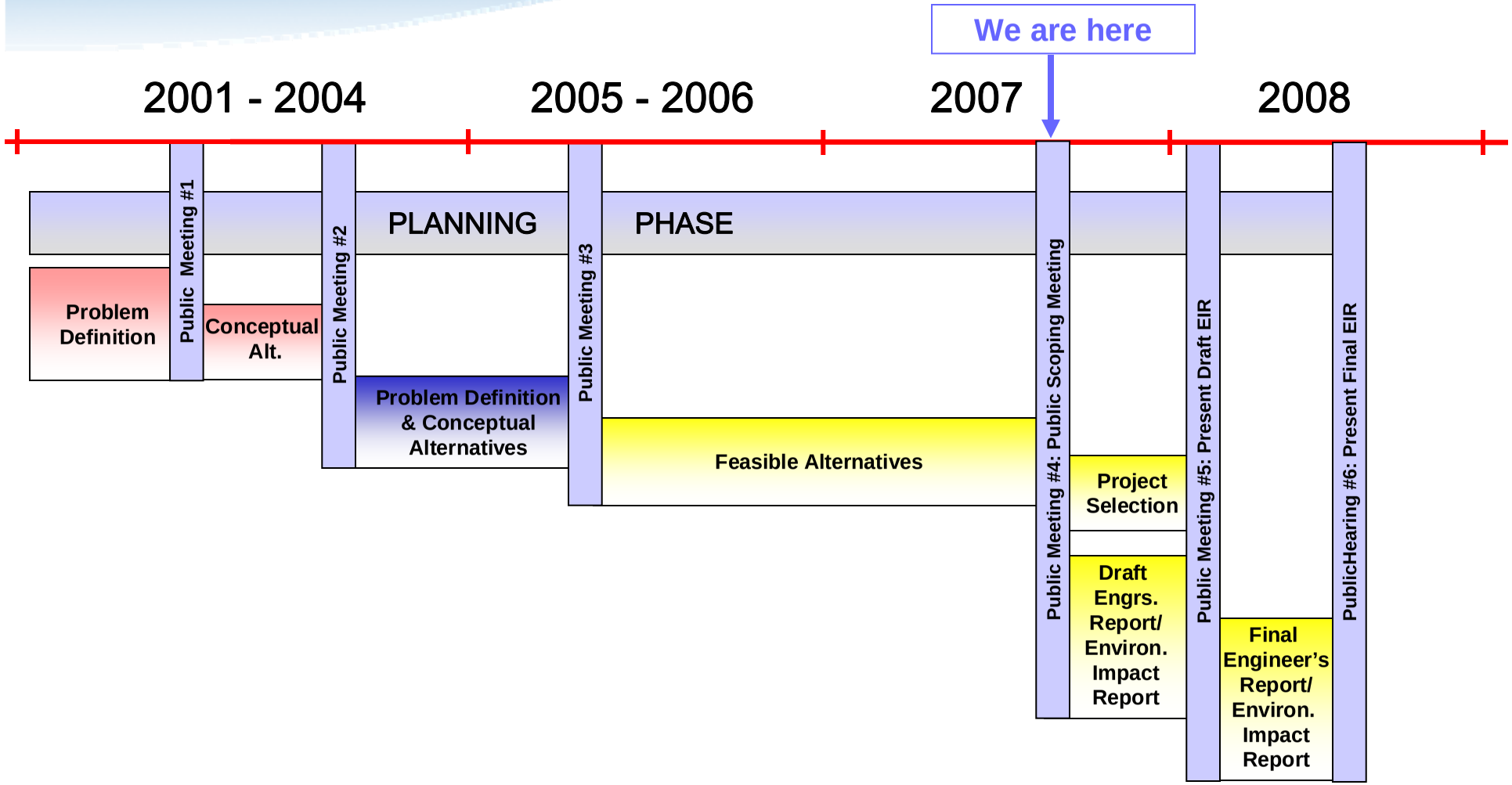


Santa Clara Valley Water District

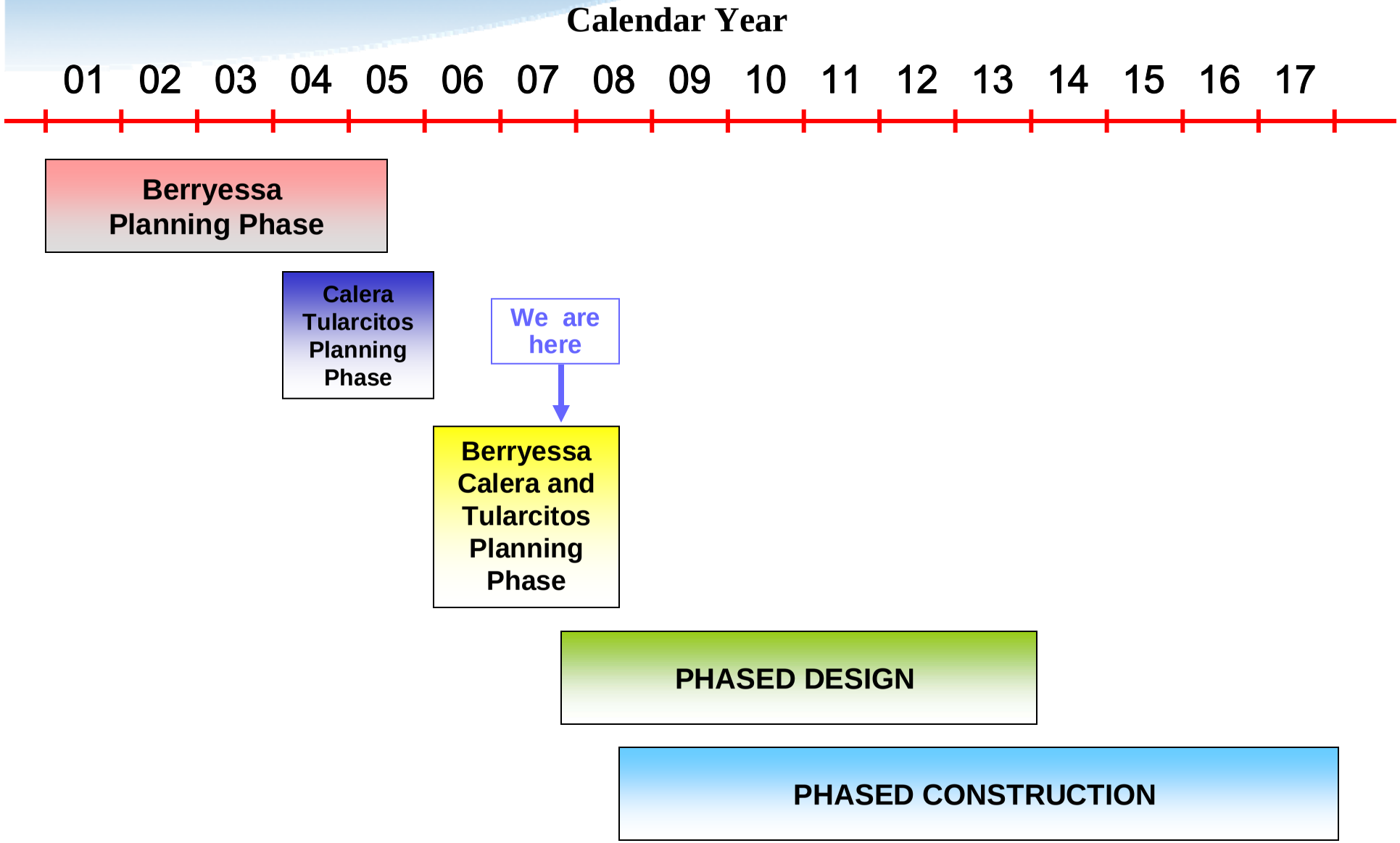
Agenda

- Project Background
- Feasible Alternatives
- Environmental Review Process
- Schedule
- Questions/Comments

Project planning schedule



Overall project schedule



Contact information

Santa Clara Valley Water District

The NOP is available at:

Santa Clara Valley Water District
Headquarters Building
5750 Almaden Expressway
San Jose, CA 95118

Milpitas Public Library
40 N. Milpitas Blvd
Milpitas, CA 95035

Or: http://www.vallewater.org/News_and_events/CEQA_public_review/indext.shtm

Written comments should be sent to:

Ms. Susan Fizzell
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118
sfizzell@valleywater.org

Written comments must be received no later than October 24, 2007

Santa Clara Valley Water District
Public Meeting

Lower Berryessa Creek Flood Protection Project

You are invited

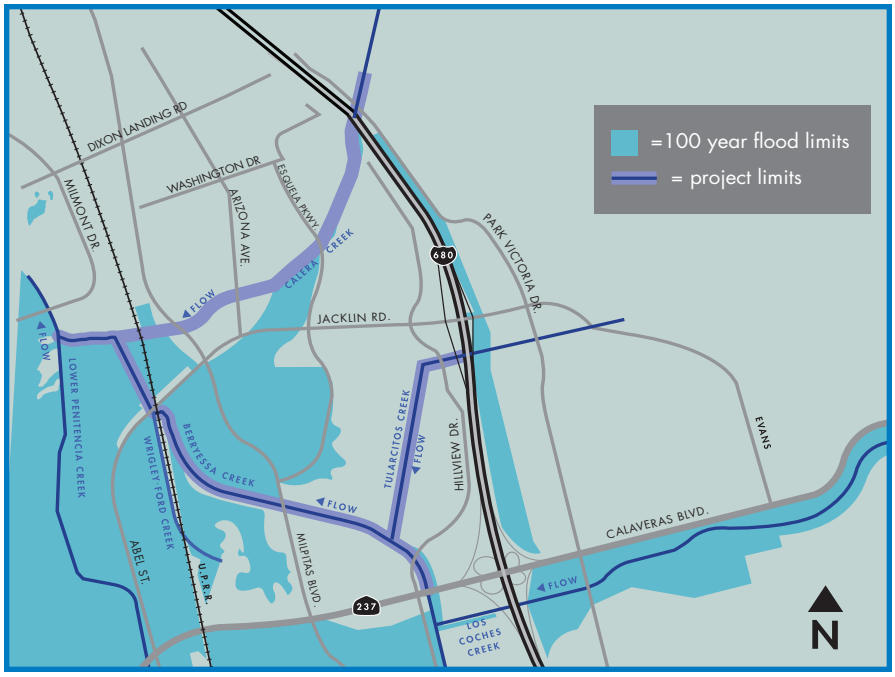
Date: Thursday, Oct. 11, 2007

Time: 6:30 - 8:30 p.m.

Place: Milpitas City Hall
Council Chambers
455 E. Calaveras Blvd., Milpitas

Please join the Santa Clara Valley Water District for a public meeting to learn about, and gather community-wide input on, potential alternatives for the Lower Berryessa Creek Flood Protection Project. Comments received at the meeting, formally known as a "scoping meeting," are part of a required process to define environmental issues and alternatives to be studied in a formal environmental review of the project.

The meeting is an opportunity for the water district to hear your concerns and solicit ideas as we continue planning efforts for this project.



The Lower Berryessa Creek Flood Protection Project extends approximately 1.7 miles through the city of Milpitas, from its confluence with Lower Penitencia Creek upstream to Calaveras Boulevard. The project also includes about 2.1 miles of Calera and Tularcitos creeks. These two smaller creeks are tributaries to Berryessa Creek and must also be modified to prevent water from overflowing their banks.

About the project

The water district is continuing its planning efforts to protect properties along Lower Berryessa Creek from flooding and to improve the creek's environmental conditions. A project team has been evaluating alternatives so the channel can safely carry the flows during a 100-year flood event.

The water district is also working with the city of Milpitas to incorporate features of the city's approved Trails Master Plan.

Contact us

If you have questions or concerns about this project, contact **Steve Bui** at **(408) 586-0110** or e-mail **sbui@valleywater.org**, or contact Senior Project Manager **George Fowler** at **(408) 265-2607**, ext. **2748**, or e-mail **gfowler@valleywater.org**.

Santa Clara Valley Water District

Project schedule on the back.

What is a Scoping Meeting?

A scoping meeting is part of a process to determine the scope of a legally required environmental document known as an Environmental Impact Report (EIR). This is in compliance with the California Environmental Quality Act (CEQA). An EIR ensures that issues are identified early and properly studied. Scoping ensures that a draft EIR produced for public review and comment is thorough and balanced. The scoping process helps to clearly define environmental issues and alternatives that should be examined in the EIR.

If there are important environmental or social impacts that the public wants considered, the time to raise those issues is at the scoping meeting. If there are additional alternatives to be considered, the scoping meeting is the place to ask that they be analyzed.



Map to meeting location

You're in a Watershed

No matter where you are, you're in a watershed. A watershed is the area of land that drains to a common waterway. In Santa Clara County, our creeks catch rain and runoff from storm drains and carry the water north to San Francisco Bay or south to Monterey Bay. Along the way, some of the water is used to fill reservoirs for drinking water, replenish the underground aquifers and create better habitat for fish and wildlife.

This project is in the Coyote Watershed. Sixteen major creeks drain this 350-square-mile-area. The county's largest watershed extends from the urbanized valley floor upward to the vast natural areas of the Mt. Hamilton range. Coyote Creek, its main waterway, is the longest creek in the county.

Partnership with VTA

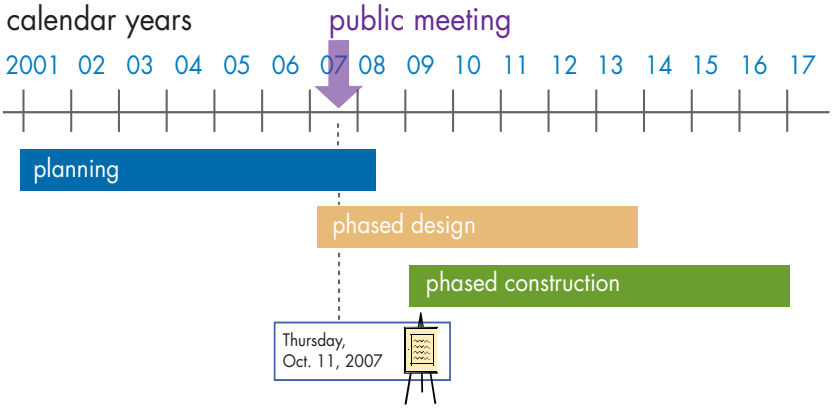
The water district has recently established a partnership with the Santa Clara Valley Transportation Authority to design and construct a new railroad crossing over Berryessa Creek near the Abel Street bridge.

The VTA needs this new crossing to support the future Silicon Valley Rapid Transit Corridor Project, a.k.a "BART," to Silicon Valley, and the water district needs it to safely convey flood flows beneath the railway.

What is a 100-year flood?

The maximum level of flood water expected to occur on average once every 100 years. Based on the expected water level, an area of inundation may be mapped out according to elevation above sea level. This area is carefully considered in planning flood protection projects, issuing building permits, developing environmental regulations and requiring flood insurance.

Project Schedule



Translations

此通知是關於聖塔克拉谷水利局 (Santa Clara Valley Water District) 將舉行公開會議的事宜。我們希望取得民眾的意見，以協助我們規劃此項工程。若您需要殘障人士專用的特別設施、中文翻譯人員的協助或取得關於此會議的其他資訊，請於會議召開至少三天前與我們聯絡。您可致電 (408) 265-2607 轉分機 2631。

Thông báo của Nha Cấp Nước Santa Clara Valley (Santa Clara Valley Water District) về buổi họp dành cho công chúng. Chúng tôi đang thu thập ý kiến của công chúng để giúp chúng tôi lập kế hoạch cho dự án này. Xin liên lạc với chúng tôi ít nhất ba ngày trước buổi họp nếu quý vị cần các giúp đỡ đặc biệt cho người khuyết tật, hay nếu quý vị cần thông dịch viên tiếng Việt, hoặc nếu quý vị muốn biết thêm chi tiết về buổi họp. Xin gọi cho chúng tôi ở số (408) 265-2607, số chuyển tiếp (ext) 2488.

Ito ay isang paunawa tungkol sa pampublikong pagpupulong ng Santa Clara Valley Water District. Kumukuha kami ng kuro-kuro mula sa publiko upang tulungan kami sa pagpaplano ng proyektong ito. Makipag-ugnayan sa amin sa loob ng tatlong araw bago ang araw ng pagpupulong kung kailangan ng akomodasyon para sa may kapansanan, kung kailangan ng tagasalin sa wikang Tagalog o kung kailangan ng karagdagang impormasyon. Mangyaring tumawag sa (408) 265-2607 extension 3714.

Este aviso es para informarle sobre una reunión pública del Distrito de Aguas del Valle de Santa Clara (Santa Clara Valley Water District). Estamos convocando al público a que nos den sus comentarios para ayudarnos a planificar este proyecto. Si necesita servicios especiales para personas con discapacidades, un intérprete en español o más información sobre la reunión, por favor llámenos al menos tres días antes de la reunión al (408) 265-2607, extensión 2297.

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Lower Berryessa Flood Protection public meeting- Oct. 11, 2007
Questions/statements captured

- On the powerpoint slide with Old Piedmont photo: what is the cross street?
- Steve's statement: Flooding once every four years— do we have documentation for the flooding that occurred?
- Regarding floodwalls (from alternatives) with walkways for people: will graffiti free paint be used?
    - SB response: If this alternative is chosen, it will be taken into consideration. Mentioned Lower Silver Creek as an example of anti-graffitti.
    - Marc response: we respond to graffiti right away. That discourages people from coming back.
- Will the water district be willing to provide the Neighborhood Association (Park Row) with paint so that they can take care of painting the walls themselves?
    - Marc response: the water district works with HOA's
    - Attendee: Wants the issue to be taken care of ASAP.
- What is sheet pile flood wall? Cannot see photo. Can find locations where we do that and show example.
- Does the water district have a preference for all the alternatives presented today?
- Is this the last meeting to decide on the alternatives?
- Re: the alternatives with vegetation: great idea, but as it grows, will it present a problem with falling over or will it block creek flow?
- Re: floodwall height: What determines the height?
- In EIR report: When/how are residents informed when the report is available? Can it be posted on the newspaper? Milpitas Post? (SB to verify)
- In EIR report: do we take into account communities/businesses when considering alternatives?
- When doing construction, does it take place during the day time?
- When working on alternatives, do we take into consideration everything that is underground? Ie: utility, pipes
- For Upper Berryessa: how will this impact schools? The school is right along the creek. If kids are in session and construction happens during school hours—how will that impact children to have access to site?

State of California – The Resources Agency
DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov

POST OFFICE BOX 47
YOUNTVILLE, CALIFORNIA 94599
(707) 944-5500

ARNOLD SCHWARZENEGGER, Governor

October 10, 2007

Ms. Susan Fizzell
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Ms. Fizzell:

Subject: Comments on Notice of Preparation for the Lower Berryessa Creek Flood Protection Project Environmental Impact Report (SCH # 2007092084)

The California Department of Fish and Game (DFG) has reviewed the Santa Clara Valley Water District's (District) Notice of Preparation (NOP) for the Lower Berryessa Creek Flood Protection Project Environmental Impact Report (EIR) (SCH # 2007092084). The District proposes to evaluate a range of alternatives that includes raising existing levees, building floodwalls, and widening the floodplain with low levees and creating a low-flow channel. The NOP identifies the following objectives of the proposed project: 1) provide 100-year flood protection to surrounding areas; 2) meet the District's requirements for maintenance access; 3) preserve wetland habitat values; 4) improve the durability of the levees; and 5) integrate the City of Milpitas' proposed trail system with the levees.

The project is located within the City of Milpitas and extends along Berryessa Creek from Calaveras Boulevard downstream to the confluence with Lower Penitencia Creek. The project also includes a portion of Calera Creek and Tularcitos Creek, which are tributaries to Berryessa Creek.

The NOP does not specifically identify any special status species that are expected to be impacted directly or indirectly by the project. During a site visit on December 20, 2006, a consultant for District staff Dr. Rene Langis, indicated that a habitat assessment for the Federally-threatened and state species of special concern California red-legged frog (*Rana aurora draytonii*) and additional surveys by Dr. Mark Jennings had been completed for the Berryessa watershed. While DFG expects the District will thoroughly analyze impacts to all special status species and all appropriate habitat potentially affected by the project, DFG recommends that the EIR specifically address potential impacts to California red-legged frog in addition to the state species of special concern burrowing owl (*Athene cunicularia*) and western pond turtle (*Clemmys marmorata*). DFG also

expects the District to address potential impacts to nesting migratory birds, including species that would be expected to nest in existing wetland habitat within the creek channels and under the Interstate 680 overpasses and the Union Pacific Railroad Bridge.

During the above-mentioned site visit in late 2007, DFG staff noted that at least some portions of the creek channels (Lower Berryessa Creek just below the confluence with Tularcitos Creek, for example) contained four maintenance roads (two upper maintenance roads and two lower maintenance roads). This excessive number of maintenance roads substantially reduces the habitat quality of the creek channel for wildlife, reduces channel capacity, and is not in line with the District's current approach to flood protection projects as environmental stewards. DFG strongly recommends that the District investigate project alternatives that include reducing the number of maintenance roads, allowing the opportunity to provide adequate flood conveyance capacity by widening the floodplain and increasing the habitat value of the creek channels.

Several of the design alternatives presented in the NOP include the use of floodwalls. Hardscape elements such as floodwalls increase the potential for erosion in the creek channels and may present a barrier to wildlife movement. DFG discourages the use of floodwalls in favor of softer approaches such as widening of the floodplain.

The District shall disclose best management practices and use adequate mitigation measures to avoid and minimize potential impacts to all biological resources. For any impacts that cannot be avoided, the District shall develop an appropriate mitigation plan to fully compensate for impacts to biological resources, including the replacement and enhancement of habitat for sensitive species.

For any activity that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of a river or stream, or use material from a streambed, DFG may require a Streambed Alteration Agreement (SAA), pursuant to Section 1600 et seq. of the Fish and Game Code. Issuance of SAAs is subject to the California Environmental Quality Act (CEQA). The CEQA document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for completion of the agreement. To obtain information about the SAA notification process, please access the DFG website at www.dfg.ca.gov/1600; or to request a notification package, contact the Streambed Alteration Program at (707) 944-5520.

DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5505
FAX (510) 286-5559
TTY 711

Flex your power!
Be energy efficient!

October 4, 2007

SCL-VAR
SCLVAR001
SCH2007092084

Ms. Susan Fizzel
Santa Clara Valley Water District
5750 Almaden Expressway
San José, CA 95118-3614

Dear Ms. Fizzel:

Lower Berryessa Creek Flood Protection Project – Notice of Preparation (NOP)

Thank you for including the California Department of Transportation (Department) in the environmental review process for the proposed project. We have reviewed the NOP and have the following comments to offer.

Cultural Resources
The project's environmental analysis needs to include documented results of a current archaeological record search from the Northwest Information Center (NIC) of the California Historical Resources Information System if construction activities are proposed within State right-of-way (ROW). Current searches must be no more than five years old. The Department requires the records search, and if warranted, a cultural resource study by a qualified, professional archaeologist, to ensure compliance with CEQA, Section 5024.5 of the California Public Resources Code, and Volume 2 of the Department's Environmental Handbook. Work subject to these requirements includes, but is not limited to: lane widening, channelization, auxiliary lanes, and/or modification of existing features such as slopes, drainage features, curbs, sidewalks and driveways within or adjacent to State ROW. These requirements, including applicable mitigation, must be fulfilled before an encroachment permit can be issued for project-related work in State ROW. See the website link below for more information regarding the California Historical Resources Information System (CHRIS) – Northwest Information Center. (Click on IC Roster). http://ohp.parks.ca.gov

Encroachment Permit
Please be advised that any work or traffic control within the State right-of-way (ROW) will require an encroachment permit from the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

See the website link below for more information.
http://www.dot.ca.gov/hq/traffops/developserv/permits/

Mr. Michael Condie, District Office Chief
Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

The Office of Right-of-Way Engineering, Surveys, and Mapping has a new e-mail address for consultants, lead agencies, and property owners to request right-of-way maps. To request a copy of the Department's right-of-way maps call (510) 286-5257 and leave a message or send an e-mail to d4rwerec@dot.ca.gov.

We look forward to reviewing the Draft Environmental Impact Report (DEIR) for this project. Please send two copies to:

José L. Olveda
Office of Transit and Community Planning
Department of Transportation, District 4
P.O. Box 23660
Oakland, CA 94623-0660

Should you require further information or have any questions regarding this letter, please call José L. Olveda of my staff at (510) 286-5535.

Sincerely,

Timothy C. Sable

TIMOTHY C. SABLE
District Branch Chief
IGR/CEQA

c. Scott Morgan (State Clearinghouse)

Questions regarding this letter and further coordination on this Project should be directed to Ms. Tami Schane, Environmental Scientist, at (415) 831-4640; or Mr. Greg Martinelli, Water Conservation Supervisor, at (707) 944-5570.

Sincerely,

Charles Armor
Regional Manager
Bay Delta Region

cc: Paul Amato
San Francisco Bay Region
California Regional Water Quality Control Board
1515 Clay Street, Suite 1400
Oakland, CA 94612

STATE OF CALIFORNIA
Arnold Schwarzenegger, *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

October 23, 2007

Susan Fizzell
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614

RE: Lower Berryessa Creek Flood Protection Plan, SCH# 2007092084

Dear Ms. Fizzell:

As the state agency responsible for rail safety within California, we recommend that any project planned adjacent to or near the rail corridor in the County be planned with the safety of the rail corridor in mind. This includes considering pedestrian circulation patterns/destinations with respect to railroad right-of-way (ROW).

Safety factors to consider include, but not limited to, the planning for grade separations for new pedestrian-rail crossings and appropriate fencing to limit the access of trespassers onto the railroad right-of-way. If the project includes a new proposed rail crossing, the Commission will be a responsible party under CEQA and the impacts of the crossing must be discussed within the environmental documents.

The document furnished to us by the State Clearinghouse did not indicate the route/location of the City of Milpitas' proposed trail system, but the map denoting project limits reveals that certain segments of the project are in close proximity to the Union Pacific Railroad (UP) corridor near the confluence of Calera and Berryessa Creeks. If a trail is planned along Calera Creek, the rail crossing should be planned as a grade-separated crossing running under or over the UP tracks. If a trail is planned along Berryessa Creek, it too should have a grade-separated crossing of the UP tracks, and in addition have continuous vandal-resistant fencing between the path and the UP ROW.

The above-mentioned safety improvements should be considered when approval is sought for the new development. Working with Commission staff early in the conceptual design phase will help improve the safety to motorists and pedestrians in the County.

If you have any questions in this matter, please call me at (415) 703-2795.

Very truly yours,

Kevin Boles
Environmental Specialist
Rail Crossings Engineering Section
Consumer Protection and Safety Division

cc: Terrel Anderson, Union Pacific Railroad

California Regional Water Quality Control Board
San Francisco Bay Region

Linda S. Adams
Secretary for
Environmental Protection

1515 Clay Street, Suite 1400, Oakland, California 94612
(510) 622-2300 • Fax (510) 622-2460
http://www.waterboards.ca.gov/sanfranciscobay

Arnold Schwarzenegger
Governor

Date: OCT 23 2007
File No. 2188.07 (PFA)

Ms. Susan Fizzell
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, Ca 94511

SUBJECT: Comments on the Notice of Preparation to Prepare a Draft Environmental Impact Report for the Santa Clara Valley Water District Lower Berryessa Creek Flood Protection Project in the City of Milpitas, Santa Clara County

Dear Ms. Fizzell:

San Francisco Bay Regional Water Quality Control Board (Water Board) staff has received and reviewed the Santa Clara Valley Water District (District) Notice of Preparation (NOP) to prepare a Draft Environmental Impact Report (DEIR) for the Lower Berryessa Creek Flood Protection Project (Project). The following comments are provided to assist District staff in preparing the DEIR and to highlight issues of concern to Water Board staff.

1. **Pages 3 and 4, Need for Proposed Project:** The NOP states that the need for the project comes after a 1997 levee improvement project and a 2001 engineering and planning study on lower Berryessa Creek. The NOP goes on to state that approximately 8,700 linear feet of channel do not have adequate capacity to convey the 100-year flood with freeboard. The DEIR should clarify changes in conditions that occurred between implementation of the 1997 levee improvement project and the 2001 study resulting in the proposed Project and associated impacts.

2. **Page 4, Need for Proposed Project:** The DEIR should explain why the Project is being evaluated separately from the Upper Berryessa Flood Protection Project that is currently under evaluation by the District and the U.S. Army Corps of Engineers (Corps). The DEIR should also describe potential cumulative impacts for both proposed flood protection projects.

3. **Page 5, Study Area Location and Setting:** According to the NOP, lower Berryessa Creek currently has maintenance roads on both sides of the channel and the District routinely uses them for sediment and vegetation removal activities. The NOP should

describe how the proposed alternatives will affect maintenance activities. Water Board staff support the removal of excess maintenance roads in order to construct bankfull channel geometry that efficiently transports flows and sediments through the system while increasing opportunities for habitat improvements. The District should evaluate whether any maintenance roads can be removed as occurred in Ross Creek or depressed on a bankfull bench as occurred in the Lower Silver Creek Flood Protection Project.

4. **Page 5, Study Area Location and Setting:** As described in the NOP, small patches of riparian woodland occur in the Project reaches but current maintenance activities prevent expansion of these habitats. The District should consider project alternatives that would increase riparian woodland habitats and the water quality and beneficial use improvements typically associated with this habitat.

5. **Page 6, Project Objectives:** "Preserve wetland habitat values" is a stated objective in the NOP. The District should consider alternatives that enhance and expand wetland habitats in the Project reaches, including riparian woodland habitat.

6. **Page 7, Project Alternatives:** Six alternatives are listed for lower Berryessa Creek and six for Calera and Tularcitos Creeks. For lower Berryessa Creek, Water Board staff is particularly interested in further analysis of Alternative 6 geomorphic design with a wider floodplain with low levees and low-flow channel. Alternatives with setback levees should also be considered in the DEIR. The DEIR should evaluate negative and positive project impacts for these alternatives. For all three creeks, the DEIR should clearly describe potential direct and indirect impacts from channel confinement that would occur as a result of levee and floodwall construction.

7. **Page 9, Possible Environmental Issues:** Hazardous materials are listed as a potential impact only from use of such materials for construction. While Water Board staff agrees that introduction of construction related hazardous materials are a concern, the DEIR should also describe potential impacts from hazardous materials that may be exposed in soils or groundwater during construction.

8. **Page 9, Possible Environmental Issues:** The NOP suggests that reduced risk of flooding could result in reduced localized erosion and improve water quality as a result. Water Board staff concur that this is a possible result of the geomorphic design alternative and the setback levee alternatives if they increase channel capacity and construct an appropriate vegetated bankfull channel cross-section . However, containing higher flood flows between top of bank levees and floodwalls will result in increased water in the channel and increased shear stress on the bed and banks, especially where riparian vegetation is limited by maintenance.

9. **Alternatives:** Water Board staff suggests that the District only consider Project alternatives that will provide long-term positive impacts to water quality and beneficial uses of the Project reaches. For a list of beneficial uses, please refer to Chapter 2 of the San Francisco Bay Basin Plan at: http://www.waterboards.ca.gov/sanfranciscobay/basinplan/BP_CH2+tables.pdf. Though not listed for Tularcitos, Calera or Berryessa Creeks, the District should start with existing and potential beneficial uses of Coyote Creek under the Basin Plan Tributary Rule.

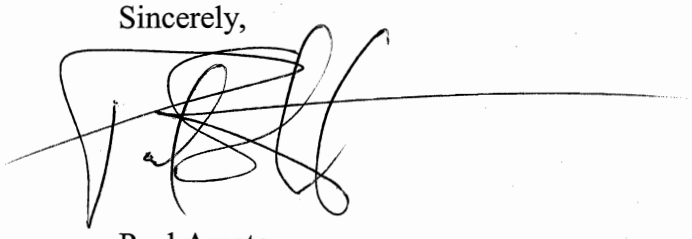
10. **Impacts:** For the purposes of Water Board review, the DEIR should clearly describe direct and indirect positive and negative impacts of the proposed Project alternatives on the following resources at a minimum:
    - Aesthetics: as it relates to Contact and Noncontact Water Recreation beneficial uses;
    - Biological Resources: as they relate to Cold and Warm Freshwater Habitats, Preservation of Rare and Endangered Species, and Wildlife Habitat beneficial uses;
    - Hazards and Hazardous Materials: as they relate to Cold and Warm Freshwater Habitats, Preservation of Rare and Endangered Species, Wildlife Habitat beneficial uses; and water quality objectives described at: http://www.waterboards.ca.gov/sanfranciscobay/basinplan/BP_CH3+tables.pdf
    - Hydrology and Water Quality: as they relate to as they relate to Contact Water Recreation, Cold and Warm Freshwater Habitats, Preservation of Rare and Endangered Species, Wildlife Habitat beneficial uses; and water quality objectives.
    - Cumulative Impacts: associated with related projects in the Coyote Creek Watershed. Because Upper Penitencia Creek and Coyote Creek support a steelhead fishery, cumulative impacts of the proposed alternatives should consider impacts downstream of the Project footprint.

11. **Impact Avoidance, Minimization and Mitigation:** The DEIR should clearly describe direct and indirect negative impacts from the project, including both temporary and permanent loss of wetland and riparian habitats. Avoidance measures should be described as should best management practices and compensatory mitigation to address any unavoidable impacts to water quality and beneficial uses.

12. **Monitoring:** The DEIR should describe baseline monitoring that will be used to determine project impacts and monitoring to assess post-construction and compensatory mitigation performance.

Thank you for the opportunity to provide comments on the NOP. Water Board staff look forward to working with the District during the development of the Project. If you have any questions, please call (510) 622-2429, or send an e-mail to pamato@waterboards.ca.gov.

Sincerely,



Paul Amato
Environmental Specialist

Cc:

Ms. Tami Schane, CDFG – Yountville
Ms. Paula Gill, Corps Regulatory – San Francisco

APPENDIX B

Best Management Practices Handbook, Santa Clara Valley Water District Comprehensive List

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BEST MANAGEMENT PRACTICES HANDBOOK

SANTA CLARA VALLEY WATER DISTRICT COMPREHENSIVE LIST

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A This BMP is not required to minimize or avoid CEQA impacts.
B Required for Compliance with HM-2.

Purpose

The Best Management Practices Handbook (Handbook) provides a list of Santa Clara Valley Water District (District) Best Management Practices (BMPs), intended to be incorporated into projects or activities. It aids in accomplishment of the stewardship component of the District Ends Policies by incorporating the basic principle of avoiding or minimizing the potential to impact the environment negatively in projects and activities.

Process

The Handbook is a controlled ISO document. It is a technical guidance document (W751M01) under ISO 14001 Environmental Management System Environmental Planning Q520D01 designed to ensure that the District meets its responsibilities under the California Environmental Quality Act (CEQA).[1] Work Instruction *W520M03 Section 3 – Mitigation, Monitoring and Reporting Programs* describes the standard policies for environmental review process used to apply these BMPs to projects and activities, consistent with CEQA Guidelines §15097(e).

The handbook is an electronic repository of information that allows staff to access and incorporate standardized BMPs, as/if appropriate, into CEQA documents efficiently, while maintaining the flexibility to create language that is consistent with the details of a particular project or activity. BMPs are incorporated into project design or activity implementation during an analytical process to identify and avoid or minimize project impacts for a particular project. They can be included as a component of the project description for projects at all levels of review, including categorical and/or statutory exemptions. The BMPs are selected by an Environmental Planner, with assistance from other project team members, (including Biologists, as well as design-, construction-, and maintenance engineers), to identify the appropriate BMPs for the proposed work activities. Thus, they only become official for the project after the CEQA document for that project has been certified or approved.

For projects or activities where implementation of BMP's would not suffice to avoid or minimize the impacts to a level below that of significance, a higher level of environmental evaluation would be required, leading to a higher level of documentation (e.g., (MND or EIR). In instances where a project requires additional avoidance or minimization measures not included in this handbook, such practices and/or measures would be evaluated appropriately during the environmental review process and incorporated as project-specific mitigation measures and, potentially, be incorporated in a future revision of the Handbook.

Organization

For ease in application, the BMP's have been organized into the standard environmental factors found in the Initial Study Checklist, which is consistent with the CEQA Guidelines.[2] This supports the 'activities and impacts matrix' (AIM) approach contained in *W520M03 Section 3 – Mitigation, Monitoring and Reporting Program.* Generally, these practices are either structural treatments (e.g., devices) or non-structural behaviors, methods, actions, procedures, or other management practices that have been shown to avoid or minimize potential adverse environmental effects.

[1] Public Resources Code Section 21000 *et seq.*
[2] Title 14 Code of Regulations Section 15000 *et seq.* Appendix G
A This BMP is not required to minimize or avoid CEQA impacts.
B Required for Compliance with HM-2.

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The Handbook also includes sets of BMPs grouped together to address more commonly conducted activities such as bank protection; storm water management; discharge activities; grading and excavation; pesticide use; sediment removal and storage; vegetation management; and, well and exploratory boring construction-, modification-, and destruction operations. These '*BMP Suites*' make it easier for environmental planners to include the applicable BMPs consistently in a project's environmental document. When using a set of activity-based BMPs, individual practices should be reviewed to ensure its applicability.

Limitations

Under no circumstances should the entire contents of the Handbook be included as supporting information in an Initial Determination Memorandum (IDM), or in a project's design (i.e., plans and specifications) to circumvent an analysis of impacts from project activities. The consideration of the suitability of *individual* BMP's, to avoid or minimize the significance of impacts, is central to the environmental review process.

Furthermore, since BMPs are District standard operating procedures, and are not project-specific, they are not mitigations and are not to be used as a substitute for mitigation (i.e., they are not measures to reduce, rectify, or compensate for project-specific impacts).

The BMPs reflect how the District currently conducts business. They are updated as new methods or industry standards are identified that provide an opportunity to further improve upon our practice of environmental stewardship, while maintaining a high level of service to the public. Thus, these BMPs are a guideline and not a substitute for analytical decision-making on how to avoid and minimize impacts.

Change History

DATE	REVISION	COMMENTS
11/2006	A	Converted Watershed QEMS WW75109 into W751M01
1/2009	B	BMP updated
03/22/10	C	The Process Owner was changed from Debra Caldon to Jennifer Castillo
08/31/10	D	Stakeholder working group (WG) made some final changes including: Bill Smith, David Dunlap, Jamie McLeod and Janell Hillman and Jennifer Castillo. Prior to the WG, the document was sent for review by biologists, environmental planners and vegetation specialists.

Table 1 - Comprehensive BMP List – August 2010

BMP No.	BMP Name	
Air Quality		
AQ-1	Use Basic Dust Control Measures for All Construction Sites,	
AQ-2	Use Enhanced Dust Control Measures For Sites Greater Than Four Acres in Size,	
AQ-3	Incorporate Additional Dust Control Measures, As Appropriate	
AQ-4	Avoid Stockpiling Potentially Odorous Materials	
Biological Resources		
BI-1	Avoid Relocating Mitten Crabs [A]	
BI-2	Avoid and Minimize Impacts on Native Aquatic Vertebrates	
BI-3	Minimize Impacts to Steelhead [A]	
BI-4	Minimize Waterway Access Impacts [A]	
BI-5	Remove Temporary Fills as Appropriate [A]	
BI-6	Minimize Adverse Effects of Pesticides on Non-target Species [B]	
BI-7	Avoid Secondary Poisoning from Rodenticide Use [B]	
BI-8	Avoid Impacts to Nesting Migratory Birds	
BI-9	Use Exclusion Devices to Prevent Migratory Bird Nesting	
BI-10	Minimize Impacts to Vegetation Whenever Clearing (or Trimming) is Necessary	
BI-11	Minimize Root Impacts to Woody Vegetation [A]	
BI-12	Avoid Special Status Plant Species and Special Status Natural Communities [A]	
BI-13	Plant Local Ecotypes Of Native Plants and Choose Appropriate Erosion-Control Seed Mixes [A]	
BI-14	Maintain Low-Flow Fish Passage [A]	
BI-15	Restore Riffle/Pool Configuration of Channel Bottom [A]	
BI-16	Avoid Animal Entry and Entrapment [A]	
BI-17	Minimize Predator-Attraction Effects on Wildlife [A]	
BI-18	Disallow Feral Cat Feeding Stations on District Property [A]	
Cultural Resources		
CU-1	Review of Projects with Native Soil [A]	
CU-2	Stop Work and Report Archaeological Finds	
CU-3	Stop Work and Report Burial Finds	
Hazards & Hazardous Materials		
HM-1	Comply with All Pesticide Application Restrictions	
HM-2	Use Appropriate Type(s) of Pest Control	
HM-3	Consult the Pest Control Advisor for Alternatives Evaluation & Approval of Pest Control	
HM-4	Follow All Posting & Notification Requirements for Pesticide Use	
HM-5	Comply with All Pesticide Usage Requirements	
HM-6	Coordinate Pesticide Use Reporting with the Vegetation Management Unit Manager	
HM-7	Comply with Restrictions on Herbicide Use in Upland Areas	
HM-8	Comply with Restrictions on Herbicide Use in Aquatic Areas	
HM-9	Clean Vehicles and Equipment	
HM-10	Assure Proper Vehicle and Equipment Fueling	
HM-11	Assure Proper Vehicle and Equipment Maintenance	
HM-12	Assure Proper Hazardous Materials Management	

A This BMP is not required to minimize or avoid CEQA impacts.
B Required for Compliance with HM-2.

Table 1 - Comprehensive BMP List – August 2010

BMP No.	BMP Name	
Hazards & Hazardous Materials (*continued*)		
HM-13	Prevent Spills	
HM-14	Know the Spill Kit Location	
HM-15	Avoid Exposing Soils with High Mercury Levels	
Hydrology/Water Quality		
WQ-1	Conduct Work from Top of Bank	
WQ-2	Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms	
WQ-3	Assess Pump/Generator Set Operations and Maintenance	
WQ-4	Handle Sediments so as to Minimize Water Quality Impacts	
WQ-5	Avoid Runoff from Soil Stockpiles	
WQ-6	Stabilized Construction Entrance and Exits	
WQ-7	Prevent Erosion Downstream of Bank Protection Sites	
WQ-8	Minimize Sediment Transport Downstream from In-channel Herbicide Sites	
WQ-9	Minimize Local Erosion Increase from In-channel Vegetation Removal	
WQ-10	Evaluate and Select the Most Appropriate Use of Concrete Use Near Waterways	
WQ-11	Use Coffer Dams for Tidal Work Areas	
WQ-12	Diversion/ Bypass Water at Non-tidal Sites	
WQ-13	Minimize Hardscape in Bank Protection Design	
WQ-14	Use Temporary Seeding for Erosion Control As Appropriate	
WQ-15	Manage Groundwater At Work Sites	
WQ-16	Avoid Erosion When Restoring Flows	
WQ-17	Prevent Scour Downstream of Sediment Removal	
WQ-18	Maintain Clean Conditions at Work Sites	
WQ-19	Control Emergency Discharges	
WQ-20	Control Unplanned Discharges	
WQ-21	Control Sediment/ Turbidity Control for Discharges Less than 50 NTU	
WQ-22	Control Sediment/ Turbidity Control for Discharge Greater than 50 NTU	
WQ-23	Evaluate Use of Flow Path – Vegetation Filtration	
WQ-24	Evaluate Use of Flow Path – Check Filters	
WQ-25	Evaluate Use of On-Line Filter Systems	
WQ-26	Evaluate Use of Silt Fence Culvert Entrance Protection	
WQ-27	Evaluate Use of Surface Protection - Armoring	
WQ-28	Evaluate Use of Surface Protection – Flow Diversion	
WQ-29	Evaluate Use of Storm Drain Curb & Drop Inlet Protection	
WQ-30	Evaluate Use of Discharging to Sanitary Sewer System	
WQ-31	Control Small Volume Chlorinated Discharge (less than or equal 50,000 gallons)	
WQ-32	Control Medium Volume Chlorinated Discharge (50,000 to 100,000 gallons)	
WQ-33	Control Large Volume Chlorinated Discharge (greater than 100,000 gallons)	
WQ-34	Control Superchlorinated Discharge (Chlorine Concentration greater than 1.5 mg/l [ppm])	
WQ-35	Control Chemical Additives in Discharges of Less Than 1,000 Gallons	
WQ-36	Control Chemical Additives in Discharges of More Than 1,000 Gallons	

A This BMP is not required to minimize or avoid CEQA impacts.
B Required for Compliance with HM-2.

Table 1 - Comprehensive BMP List – August 2010

BMP No.	BMP Name	
Hydrology/Water Quality (*continued*)		
WQ-37	Manage Well or Exploratory Boring Materials [A]	
WQ-38	Protect Well or Exploratory Borings from Contaminants [A]	
WQ-39	Backfill or Otherwise Destroy Exploratory Borings [A]	
WQ-40	Prevent Water Pollution Control	
WQ-41	Prevent Stormwater Pollution Prevention	
Noise		
NO-1	Minimize Noise Pollution	
NO-2	Minimize Disturbances to Residential Neighborhoods Due to Noise	
Transportation/Traffic		
TR-1	Use Suitable Public Safety Measures	
Utilities/Service Systems		
UT-1	Manage Sanitary/Septic Waste [A]	

Table 2
Santa Clara Valley Water District
BMP Suite List

BMP Suite
Bank Protection BMP Suite
Stormwater Management BMP Suite
Discharge Activities BMP Suite
Grading and Excavation BMP Suite
Sediment Removal and Storage BMP Suite
Vegetation Management and Removal BMP Suite
Well and Exploratory Boring Construction, Modification, or Destruction BMP Suite

A This BMP is not required to minimize or avoid CEQA impacts.
B Required for Compliance with HM-2.

Air Quality

AQ-1	**Use Basic Dust Control Measures For All Construction Sites,**	Implement Bay Area Air Quality Management District (BAAQMD) Basic Control Measures for construction emissions of PM_{10} at all construction sites. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999): 1. Active areas shall be watered at least twice per day unless soils are already sufficiently moist to avoid dust. The amount of water must be controlled so that runoff from the site does not occur, yet dust control is achieved. 2. Trucks hauling soil, sand, and other loose materials shall be covered or shall maintain at least two feet of freeboard. 3. Unpaved access roads, parking areas and staging areas at construction sites shall be paved, watered three times daily, or non-toxic soil stabilizers shall be applied to control dust generation. 4. Paved site access roads, parking areas, and staging areas shall be swept daily (with vacuum-powered street sweepers). 5. Paved public streets shall be swept (with vacuum-powered street sweepers) if visible soil material is carried onto adjacent paved surfaces.
AQ-2	**Use Enhanced Dust Control Measures For Sites Greater Than Four Acres in Size,**	For sites greater than four acres in size, implement Bay Area Air Quality Management District Enhanced Dust Control Measures. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999): 1. All BAAQMD “Basic” control measures. 2. Inactive areas (previously graded areas inactive for ten days or more) shall be sprayed with soil stabilizer or seeded. 3. Exposed stockpiles (dirt, sand, etc.) shall be watered twice daily, enclosed, covered, or sprayed with soil stabilizers. 4. Traffic speeds on unpaved roads shall be limited to 15 mph. 5. Sandbags or other bank protections shall be installed to prevent silt runoff to roadways. 6. Vegetation in disturbed areas shall be replanted as soon as horticulturally appropriate. For example, plant material may not be ready as soon as the job is done (e.g. willow cuttings have to be collected during winter dormancy).

Air Quality		
AQ-3	Incorporate Additional Dust Control Measure, As Appropriate	Implement appropriate Bay Area Air Quality Management District (BAAQMD) Optional Control Measures for construction emissions of PM_{10} at all construction sites. BAAQMD Optional Control Measures are strongly encouraged at construction sites that are large in area, located near sensitive receptors, or which for any other reason may warrant additional emissions reductions. Current measures stipulated by the BAAQMD CEQA Guidelines include the following (BAAQMD 1999): 1. Install wheel washers for all exiting trucks, or wash off the tires or tracks of all trucks and equipment leaving the site. 2. Install wind breaks or plant trees/vegetation wind breaks at windward side(s) of construction areas. 3. Suspend excavation and grading activity when winds (instantaneous gusts) exceed 25 mph. 4. Limit the area subject to excavation, grading, and other construction activity at any one time. Additional District control measures that may be used if applicable include: 5. Tailgates of trucks shall be sealed. 6. Trucks shall be brushed down before leaving the site.
AQ-4	**Avoid Stockpiling Potentially Odorous Materials**	Some sites will have materials that are rich in organic matter decaying in an anaerobic condition, which generates assorted malodorous gases, such as reduced sulfur compounds. These materials will be handled in a manner that avoids impacting sensitive receptors. 1. Avoid stockpiling potentially odorous materials within 1,000 feet of residential areas or other odor sensitive land uses. 2. Where appropriate, odorous stockpiles will be disposed of at an appropriate landfill.

Biological Resources

BI-2	**Avoid and Minimize Impact on Native Aquatic Vertebrates**	Native aquatic vertebrates (fish, amphibians and reptiles) are important components of stream ecosystems. Native aquatic vertebrates may or may not be able to rapidly re-colonize a stream reach if the population is eliminated from that stream reach. If native aquatic vertebrates are present when cofferdams, water bypass structures, and silt barriers are to be installed, an evaluation of the stream and the native aquatic vertebrates will be conducted by a qualified biologist. The qualified biologist will consider: 1. Which native aquatic species are present; 2. The ability of the species to naturally re-colonize the stream reach; 3. The life stages of the native aquatic vertebrates present; 4. The flow, depth, topography, substrate, chemistry and temperature of the stream reach; 5. The feasibility of relocating the aquatic species present; and 6. The likelihood the stream reach will naturally dry up during the work season. Based on consideration of these factors the qualified biologist may make a decision to relocate native aquatic vertebrates. The qualified biologist will document in writing the reasons to relocate native aquatic species, or not to relocate native aquatic species, prior to installation of cofferdams, water bypass structures or silt barriers. If the decision is made to relocate the native aquatic species, then the operation will be based on the District's Fish Relocation Guidelines.
BI-8	**Avoid Impacts to Nesting Migratory Birds**	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

BI-9	**Use Exclusion Devices to Prevent Migratory Bird Nesting**	Vegetation can be cleared and maintained to prevent migratory bird nesting. All necessary vegetation clearing will be performed prior to the nesting season, if at all possible. No vegetation will be trimmed back unnecessarily, including trees and/or shrubs growing near the right of way, which overhang onto the work site.
BI-10	**Minimize Impact to Vegetation Whenever Clearing (or Trimming) is Necessary**	Vegetation to be trimmed or cleared will be evaluated by a qualified vegetation specialist or qualified biologist prior to impacts and the qualified vegetation specialist or qualified biologist recommendations will be followed. Survey cross-sections will be moved, within acceptable tolerances, to avoid cutting dense riparian vegetation and minimize cutting of woody vegetation, taking advantage of natural breaks in foliage. If the cross-section cannot be moved within the established acceptable tolerances to avoid impacts to dense riparian or woody vegetation, the cross-section will be abandoned. Cutting vegetation will be limited to the minimum length, width, and height necessary for safely accessing survey locations, and completing the cross-section surveys. Tree pruning will conform to International Society of Arboriculture (ISA) pruning standards. No trees with a 6-inch or greater diameter at breast height will be removed; and, no branches greater than 4” diameter will be removed. Woody vegetation (i.e. native trees and shrubs) which require pruning for equipment access, construction operations, etc, shall be pruned correctly such that health status is maintained and no post-construction impacts accrue. Woody vegetation will be pruned consistent with all three of the following complementary guidance or their updates: 1. ‘BEST MANAGEMENT PRACTICES, TREE PRUNING’ 2008, INTERNATIONAL SOCIETY OF ARBORICULTURE; and 2. ANSI A300 (Part 1) – 2008 PRUNING; and 3. ANSI Z133.1, 2008, SAFTEY REQUIREMENTS. Woody material (including live leaning trees, dead trees, tree trunks, large limbs, and stumps) will be retained on site, unless it is threatening a structure or impedes access, in which case it must moved to a less threatening position.

Cultural Resources

CU-2	**Stop Work and Report Archaeological Finds**	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.
CU-3	**Stop Work and Report Burial Finds**	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.

Hazards & Hazardous Materials

<table>
<tr><td>HM-1</td><td>Comply with All Pesticide Application Restrictions</td><td colspan="2">All herbicide 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.</td></tr>
<tr><td rowspan="4">HM-2</td><td rowspan="4">Use Appropriate Type(s) Pest Control</td><td colspan="2">Pesticide 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:</td></tr>
<tr><td>Pesticide</td><td>Use</td></tr>
<tr><td>Herbicides

Refer to BI-6:

Minimize Adverse Effects of Pesticides on Non-target Species</td><td>• To control algae, weeds and undesirable vegetation
• To minimize fire hazards
• To maintain flood conveyance of waterways
• To maintain compliance with State and Federal requirements</td></tr>
<tr><td>Insecticides

Refer to BI-6:

Minimize Adverse Effects of Pesticides on Non-target Species</td><td>• 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
• 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.</td></tr>
<tr><td>Rodenticides

Refer to BI-7:

Avoid Secondary Poisoning from Rodenticide Use</td><td>• To control burrowing rodents, including ground squirrels, moles and gophers, in District flood control levees
• Alternatives such as trapping and smoke bombs are used wherever practical prior to rodenticide use</td></tr>
</table>

Hazards & Hazardous Materials		
HM-3	**Consult the Pest Control Advisor for Alternatives Evaluation & Approval of Pest Control**	In all cases, where some form of pest control is deemed necessary by the PCA, a process of evaluating pest control methods will be used to include consideration of alternatives to pesticides. Refer to Q751D02: *Control and Oversight of Pesticide Use*.
HM-4	**Follow All Posting & Notification Requirements for Pesticide Use**	Posting of areas where pesticides are to be used shall be performed in compliance with Q751D02: *Control and Oversight of Pesticide Use*, including, but not necessarily limited to the following: • Posting shall be performed in compliance with the label requirements of the product being applied. In addition, the District shall provide posting for **any** products applied in areas used by the public for recreational purposes, and areas readily accessible to the public, regardless of whether the label requires such notification, including: • Sign postings shall notify staff and the general public of the date and time of application; the product's active ingredients, and common name; and, the time of allowable re-entry into the treated area. • A District staff contact phone number shall be posted on the sign. • Signs shall not be removed until after the end of the specified re-entry interval. • Right-to-know literature on the product shall be made available upon request to anyone in the Area. 1. The District shall maintain records of neighbors with specific needs relative to notification prior to treatment of an adjacent area to ensure such needs are met; and, District facilities pesticide use should be listed on a log maintained by the Facilities unit. *Source: District Policy Ad-8.2 Pesticide Use*

Hazards & Hazardous Materials

HM-5	**Comply with All Pesticide Usage Requirements**	All projects that propose ongoing use of pesticides will comply with all provisions of Q751D02: *Control and Oversight of Pesticide Use*, including, but not necessarily limited to the following: 1. All pest control methods will be performed only after a written Pest Control Recommendation for use has been prepared by the District's PCA in accordance with requirements of the California Food and Agricultural Code. a. F751D01 – *Pest Control Recommendation & Spray Operators Report* will be completed for each pesticide application.
HM-6	**Coordinate Pesticide Use Reporting with the Vegetation Management Unit Manager**	Consistent with provisions of Q751D02: *Control and Oversight of Pesticide Use, a* report will be run monthly from Maximo, by the Vegetation Management Unit Manager, listing the total amount of products used for pest control including the common name. 1. This listing will be submitted to the Agricultural commissioner no later than the 10th of each month.
HM-7	**Comply with Restrictions on Herbicide Use in Upland Areas**	Consistent with provisions of Q751D02: *Control and Oversight of Pesticide Use,* application of pre emergence (residual) herbicides to upland areas will not be made within 72 hours of predicted significant rainfall. Predicted significant rainfall for the purposes of this BMP will be described as local rainfall greater than 0.5 inch in a 24-hour period with greater than a 50% probability of precipitation.
HM-8	**Comply with Restrictions on Herbicide Use in Aquatic Areas**	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 1st through October 15th, except on Guadalupe River, where applications within 20 feet of the low flow channel are limited to July 1st to August 15th. If rain is forecast then application of aquatic herbicide will be rescheduled.
HM-9	**Clean Vehicles and Equipment**	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

HM-10	**Assure Proper Vehicle and Equipment Fueling**	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.
HM-11	**Assure Proper Vehicle and Equipment Maintenance**	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. 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.
HM-12	**Assure Proper Hazardous Materials Management**	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.

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Hazards & Hazardous Materials

HM-13	**Prevent Spills**	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.
HM-14	**Know the Spill Kit Location**	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.
HM-15	**Avoid Exposing Soils with High Mercury Levels**	To ensure worker safety is protected in areas with elevated mercury concentrations in exposed surfaces, personal protective equipment will be required during project construction to maintain exposure below levels established by the California Division of Occupational Safety and Health (Cal/OSHA).

Hydrology/Water Quality

WQ-1	**Conduct Work from Top of Bank**	For minor work activities that will occur in the channel, work will be conducted from the top of the bank if access is available and there are flows in the channel.
WQ-2	**Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms**	Field personnel will use the appropriate equipment for the job that minimizes disturbance to the stream bottom. Appropriately-tired vehicles, either tracked or wheeled, will be used depending on the situation. Tracked vehicles (bulldozers, loaders) may cause scarification. Wheeled vehicles may cause compaction. Heavy equipment will not operate in the live stream.
WQ-3	**Assess Pump/Generator Set Operations and Maintenance**	Pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species. 1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dry-back or washout conditions. 2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. 3. Pump intakes will be screened to prevent uptake of fish and other vertebrates. 4. Sufficient back-up pumps and generators will be onsite to replace defective or damaged pumps and generators.
WQ-4	**Handle Sediments so as to Minimize Water Quality Impacts**	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.

Hydrology/Water Quality		
WQ-5	**Avoid Runoff from Soil Stockpiles**	If soil is to be stockpiled, no run-off will be allowed to flow to a creek.
WQ-6	**Stabilized Construction Entrances and Exits**	Measures will be implemented to minimize soil from being tracked onto streets near work sites: 1. Methods used to prevent mud from being tracked out of work sites onto roadways include installing a layer of geotextile mat, followed by a 4-inch thick layer of 1 to 3-inch diameter gravel on unsurfaced access roads. 2. Access will be provided as close to the work area as possible, using existing ramps where available and planning work site access so as to minimize disturbance to the water body bed and banks, and the surrounding land uses.
WQ-7	**Prevent Erosion Downstream of Bank Protection Sites**	Increased water velocity at work sites may increase erosion downstream. Project design will assess hydraulic effects immediately upstream and downstream of the work area. If the hardscape revetment would cause significant increase in erosion potential, downstream energy dissipation features such as pools or grade control structures will be considered in the design. If the evaluation identifies possible downstream impacts, proactive protection of these areas will be provided. Such measures include, but are not limited to, appropriately keyed-in coir logs, riparian enhancement planting, strategic placement of rock, and flow deflectors.
WQ-8	**Minimize Sediment Transport Downstream from In-channel Herbicide Sites**	Where sediment has accumulated due to vegetation in-channel, herbicide application may result in release of sediment downstream. Prior to herbicide application within active channels, the potential for significant sediment release will be assessed. If the site has the potential for significant sediment release, then one of two techniques will be considered: 1. Where an area has not been routinely treated with herbicides, new herbicide applications will be phased over several seasons, or 2. Remove the excess sediment through mechanical means after the vegetation is killed.

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Hydrology/Water Quality

WQ-9	**Minimize Local Erosion Increase from In-channel Vegetation Removal**	In-channel vegetation removal may result in increased local erosion due to increased flow velocity. To minimize the effect, the toe of the bank will be protected by leaving vegetation to the maximum extent practicable consistent with the SMP maintenance guidelines.
WQ-10	**Evaluate and Select the Most Appropriate Use of Concrete Use Near Waterways**	Concrete that has not been cured is alkaline and can increase the pH of the water; fresh concrete will be isolated until it no longer poses a threat to water quality using the following appropriate measures: 1. Wet sacked concrete will be excluded from the wetted channel for a period of two weeks after installation. During that time, the wet sacked concrete will be kept moist (such as covering with wet carpet) and runoff from the wet sacked concrete will not be allowed to enter a live stream. 2. Poured concrete will be excluded from the wetted channel for a period of two weeks after it is poured. During that time, the poured concrete will be kept moist, and runoff from the wet concrete will not be allowed to enter a live stream. Commercial sealants (e.g., Deep Seal, Elasto-Deck Reservoir Grade) may be applied to the poured concrete surface where difficulty in excluding water flow for a long period may occur. If a sealant is used, water will be excluded from the site until the sealant is dry. 3. Dry sacked concrete will not be used in any channel. 4. An area outside of the channel and floodplain will be designated to clean out concrete transit vehicles.
WQ-11	**Use Coffer Dams for Tidal Work Areas**	For tidal areas, a downstream cofferdam will be constructed to prevent the work area from being inundated by tidal flows. By isolating the work area from tidal flows, water quality impacts are minimized. Downstream flows continue through the work area and through pipes within the cofferdam. 1. Installation of coffer dams will begin at low tide. 2. Waters discharged through tidal coffer dam bypass pipes will not exceed 50 NTU over the background levels of the tidal waters into which they are discharged. 3. Coffer dams in tidal areas may be made from earthen material. If earth is used, the downstream and upstream faces will be covered by a protected covering (e.g., plastic or fabric) if needed to minimize erosion.

Hydrology/Water Quality

WQ-12	**Diversion/ Bypass Water at Non-tidal Sites**	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. Coffer dam construction will be adequate to prevent seepage into or from the work area. Coffer dams 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. Coffer dams may also be constructed of sheet piles, inflatable dams, or sand bags. Coffer dams 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 areas. 4. In conjunction with diversion structures, pumps or gravity-fed pipe systems will be used to dewater sites. 5. Depending on the channel configurations, 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.

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Hydrology/Water Quality		
WQ-13	**Minimize Hardscape in Bank Protection Design**	Bank repair techniques appropriate to a given site based on hydraulic and other site conditions will be selected. Refer to SMP Appendix E, Programmatic Impact Assessment and Mitigation for Routine Bank Protection Activities. 1. Biotechnical repair methods include live construction, willow wattling, erosion control blankets, brush matting, and installation of root wads and boulders in banks. 2. The repair will be designed and installed so that it will be self-sustaining and use vegetation that adds structural integrity to the stream bank.
WQ-14	**Use Temporary Seeding for Erosion Control As Appropriate**	For banks that are scraped, an erosion control seed mix will be used. Temporary earthen access roads will be seeded when site and horticultural conditions are suitable.
WQ-15	**Manage Groundwater at Work Sites**	If high levels of groundwater in a work area are encountered, the water will be pumped out of the work site. If necessary to protect water quality, the water will be directed into specifically constructed infiltration basins, into holding ponds, or onto areas with vegetation to remove sediment prior to the water re-entering a receiving water body. Water pumped into vegetated areas will be pumped in a manner that will not create erosion around vegetation.
WQ-16	**Avoid Erosion When Restoring Flows**	All temporary diversion structures and the supportive material will be removed no longer than 48 hours after work is completed. 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. Flows will be restored in a manner that minimizes erosion. 1. When diversion structures are removed, to the extent practicable, the ponded flows will be directed into the low-flow channel within the work site to minimize downstream water quality impacts. 2. Flows will gradually be restored to the channel to avoid a surge of water that would cause erosion or scouring. 3. Bypassed flows may be slowly reintroduced into the dewatered area by leaving a silt barrier in place to allow water to slow and drop sediment to the extent possible.

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WQ-17	**Prevent Scour Downstream of Sediment Removal**	Sites in the transport zone on alluvial fans may cause increased scour downstream if they experience rapid sediment accumulation after sediment removal. Channel reaches up to 500 feet downstream from such sediment removal sites will be monitored to determine whether accelerated erosion is occurring. If downstream monitoring indicates that erosion is occurring, then remedial action such as rock vortex weirs or similar protection will be carried out.
WQ-18	**Maintain Clean Conditions at Work Sites**	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.
WQ-19	**Control Emergency Discharges**	To control emergency discharges of treated water, recycled water, raw water, and groundwater should they occur (emergency discharges are discharges that are performed in an emergency due to public health concerns related to water quality or the result of an area-wide natural disaster): 1. Follow the procedures outlined in the Emergency Discharge Checklist. 2. Inspect the flow path of the discharged water. 3. Identify areas with erosion potential that may require repair or protection during subsequent repairs or corrective actions. 4. Identify and remove pollutants that could be discharged into a storm drain or receiving water. 5. Implement the appropriate control measures. 6. Inspection and Maintenance: a. Monitor the discharge to ensure the control measure is effective. b. Monitor the discharge to make sure it is not causing flooding. c. When the discharge is complete, remove sediment deposited in the flow path and dispose of appropriately. d. Remove control measures when discharge is complete. e. If the discharge was to a receiving water, inspect the receiving water for impacts.

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		f. Complete the Emergency Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.
WQ-20	**Control Unplanned Discharges**	To control unplanned discharges of treated water, recycled water, raw water, and groundwater systems operation and maintenance activities: 1. Follow the procedures outlined in the Emergency Discharge Checklist. 2. Inspect the flow path of the discharged water. 3. Identify areas with erosion potential that may require repair or protection during subsequent repairs or corrective actions. 4. Identify and remove pollutants that could be discharged into a storm drain or receiving water. 5. If repairs or corrective actions will cause additional discharges of water, select appropriate control measures. 6. Inspection and Maintenance: a. Monitor the discharge to ensure the control measure is effective. b. Sweep up sediment deposited in the flow path and dispose of appropriately. c. Make repairs to eroded areas as necessary to prevent further erosion. d. Complete the Unplanned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.
WQ-21	**Control Sediment/ Turbidity Control for Discharges Less than 50 NTU**	To control sediment and turbidity in discharges from project activities where the source is treated water, recycled water, raw water, or groundwater with a turbidity of less than 50 NTU: 1. Characterize the discharge appropriately (follow the Planned Discharge Activities Checklist to ensure the correct BMPs are used): a. Identify the source of water. b. Determine the volume of the water to be discharged. c. Determine if operations may cause the turbidity to be greater than 50 NTU, refer to the BMP Sediment/ Turbidity Control for Discharges Greater than 50 NTU. 2. Choose the option for discharging the water (in order of preference):

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		a. Reuse water, either for dust suppression, irrigation, or construction compaction. b. Discharge to sanitary sewer system (requires approval from local sanitary district). c. Discharge to storm drain system or water body. 3. Use appropriate control measures when discharging water: a. Use sanitary sewer BMPs if discharging to the sanitary sewer. b. Visually monitor the turbidity if it is suspected to be above 50 NTU. c. Terminate the discharge or implement appropriate control measures if the turbidity exceeds 50 NTU (refer to Sediment/ Turbidity Control for Discharges Greater than 50 NTU). d. There are no additional control measures required if the source water is hydrant flushing, fire flow testing, a main line break or blow off, and the discharge volume is not greater than 50,000 gallons. 4. Inspection and Maintenance: a. Before discharging any water, inspect the discharge flow path for debris and erosion, and cleanup the flow path as needed. b. Monitor the discharge to make sure it is not interfering with the normal operation of the sanitary sewer, or flooding the storm drain system. c. When the discharge is complete, inspect the flow path and receiving water (if discharging directly to a water body, if practicable) for evidence of erosion or deposited sediment. d. Sweep up sediment deposited in the flow path and dispose of appropriately. e. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.

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WQ-22	**Control Sediment/ Turbidity Control for Discharge Greater than 50 NTU**	To control sediment and turbidity in discharges from project activities where the source is treated water, recycled water, raw water, or groundwater with a turbidity of greater than 50 NTU: 1. Characterize the discharge appropriately (follow the Planned Discharge Activities Checklist to ensure the correct BMPs are used): a. Identify the source of water. b. Determine the volume of water to be discharged. c. Determine the turbidity of the discharge. 2. Choose the option for discharging the water (in order of preference): a. Reuse water, either for dust suppression, irrigation, or construction compaction. b. Discharge to sanitary sewer system (requires approval from local sanitary district). c. Discharge to storm drain system or water body (requires use of sediment/ turbidity control measures). 3. Select control measures appropriately. Consider the following criteria when selecting the appropriate control measure: a. Suitability of area for discharge (vegetated surface, chlorine neutralization requirements). b. Proximity to storm drains or receiving waters. c. Length of time BMP is to be in place. d. Ease of installation, operation and removal. Choose from the following control measures and refer to the individual fact sheets for guidance on implementation: a. Discharges to Sanitary Sewer Systems (CM-A). b. Flow Path – Vegetation Filtration (CM-B). c. Flow Path – Check Filters (CM-C). d. On-Line Filter System (CM-D). e. Storm Drain Inlet Protection (CM-E). f. Silt Fence Culvert Entrance Protection (CM-F). g. Surface Protection – Armoring (CM-G).

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		h. Surface Protection – Flow Diversion (CM-H). 4. Inspection and Maintenance: a. Before discharging any water, inspect the discharge flow path for debris and erosion, and cleanup the flow path as needed. b. Monitor the discharge to make sure it is not interfering with the normal operation of the sanitary sewer, or flooding the storm drain system. c. Monitor the discharge turbidity to evaluate the effectiveness of the control measure. d. When the discharge is complete, inspect the flow path and receiving water (if discharging directly to a water body, if practicable) for evidence of erosion or deposited sediment. e. Sweep up sediment deposited in the flow path and dispose of appropriately. f. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.
WQ-23	**Evaluate Use of Discharge Flow Path – Vegetation Filtration**	To remove sediments and prevent sediments from entering local creeks and the bay: 1. Confirm applicability: a. Use this control measure where an existing vegetated area can be used to filter the sediments from the discharged water. b. Make sure the vegetated area is of sufficient density to filter the sediments and of such strength that it will not be uprooted by the discharged water. 2. Design Considerations: a. Ensure that the area to receive the discharge has tight, dense, well-established vegetation similar to a grassy area. b. Control the energy of the discharge or dissipate to prevent erosion of the soil within the vegetated area, and to prevent the destruction and uprooting of the vegetation. c. Adjust the discharge to avoid flooding and excessive runoff.

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		d. Remove debris from the flow path. 3. Construction specifications: a. Ensure that at least 50 feet of grassy ground is available between the point of discharge and the location where the water drains into the receiving storm drain system or the creek. 4. Inspection and Maintenance: a. Ensure that there is no breakthrough of sediments. b. Ensure that there is no erosion of grassy areas.
WQ-24	**Evaluate Use of Discharge Flow Path – Check Filters**	To remove sediment from discharges with a turbidity more than 50 NTU, place check filters at single or multiple location along the flow path accordingly: 1. Design Check Filters Properly: a. Consider the slope, erosion potential, and flow rate of the discharge when choosing filter materials and locating filters. b. Avoid creating large pools and/or obstructive flow paths. 2. Construct Check Filters Correctly: a. Place sandbags, socks filled with sand or gravel, and/or dikes made of filter fabric and gravel perpendicular to the flow path. b. Line the sandbags, socks, and dikes tight to divert the flow at least 2 feet outside its normal path. c. Construct an overflow (low spot) in the check filter. If the flow rate of the discharge is high and considerable amounts of sediment appear to be passing by the filter, construct a series of two or more filters until effective removal of sediment is achieved. 3. Inspection and Maintenance: a. Monitor the discharge for breakthrough of sediments and potential traffic hazards caused by ponded water. b. Add more check dams and implement traffic control as necessary. c. After the discharge is finished, sweep up sediment deposited behind check filters and dispose of properly.

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		d. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.
WQ-25	**Discharge On-Line Filter Systems**	To remove sediments and impurities from discharges with a turbidity that exceeds approximately 50 NTU: 1. Select and Use On-Line Filter Systems Appropriately: a. Use when the discharge is planned and filter assembly can be fitted to the discharge point either permanently or prior to each discharge. b. Choose an on-line filter system capable of removing fine and medium size particulate matter and sediments at the desired discharge flow rate and duration. c. Follow the instructions for use provided by the designer or manufacturer. 2. Inspection and Maintenance: a. Inspect the filter during the discharge for clogging and deterioration, and breakthrough of sediment. Replace the filter as necessary. b. After the discharge is finished, sweep up sediment deposited in the flow path and dispose of the sediment properly. c. Dispose of the filter and sediment captured by the filter properly. d. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.
WQ-26	**Evaluate Use of Silt Fence Culvert Entrance Protection**	To reduce flow velocity of runoff, allowing sediment to settle out before discharge enters a culvert and its drainage system: 1. Install silt fence culvert protection in appropriate locations: a. Where sheet and rill erosion would occur. b. Where protection of adjacent property or areas is needed. c. Where the maximum slope length behind the silt fence is 100 feet (30 meters) and the maximum slope gradient is 50% (2:1). d. Where the flow volume does not exceed 1 cfs.

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		e. Where ponded water will not damage adjacent areas or structures, or create a traffic hazard or other nuisance. 2. Select the correct construction materials: a. Select a woven or non-woven filter fabric made of at least 85% by weight, ethylene, propylene, amide, ester, or vinylidene yarn. b. The Equivalent Opening size of the filter fabric (U.S. Standard Sieve) will be 70-100, and the tensile strength will be at least 120 lbs (54 kg) if a wire support fence is used and 200 lbs (90 kg) if a wire support fence is not used. c. Posts should be either 4-inch diameter wood or 1.33 pounds per linear foot steel. Posts should be at least 5 feet long. Steel posts should have projections for fastening wire. d. Wire fence reinforcement will be a minimum of 42 in (1.1 m) tall and a minimum width of 14-gauge. The maximum mesh spacing should be 6 in (15 cm). 3. Construct the silt fence properly: a. The height of the silt fence should be between 16 in (40 cm) and 36 in (90 cm). The most effective height range is 24 to 36 in (60 to 90 cm). Shorter fences may be breached during small discharges and require more maintenance. b. If possible, cut the filter fabric from a continuous roll to avoid the use of joints. If joints are necessary, splice the filter fabric only at a support post. Overlap the fabric pieces a minimum of 6 in (15 cm) and secure both ends to the post. c. If a wire mesh support fence is used, install posts at least 3 feet (1 meter) apart. Install posts closer together if a support fence is not used. Drive posts into the ground to a depth of at least 1 foot (30 cm). d. Excavate a 4-in (10 cm) deep trench that is at least 4 in (10 cm) wide upslope of the silt fence along the line of posts.

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WQ-27	**Evaluate Use of Discharge Surface Protection - Armoring**	To protect exposed soil and vegetated surfaces from erosion during discharges by placing protective armor (e.g. plastic sheeting, cloth fabric, gravel bedding) over the erodible surface: 1. Select and install armoring materials properly: a. Choose a material whose strength is proportionate to the velocities and materials in the discharged water (e.g. sediment). b. Clear the area to be protected of rocks and debris which may puncture the armor. c. Anchor the armor using sandbags, gravel, or stakes along the perimeter. d. Anchor the armor so it can withstand movement of the discharge. e. Account for potential changes in the flow direction of the discharge when laying the armor. f. If there is to be a direct stream of high velocity flow, an energy dissipating device may be necessary to prevent failure of the armor. 2. Inspection and Maintenance: a. During the discharge, monitor the armor for failure (tearing) and erosion at the edges of the armor. b. If erosion does occur, implement sediment/turbidity control measures. c. Remove armor when the discharge is complete. d. Sweep up any sediment deposited in the flow path and dispose of appropriately. e. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.
WQ-28	**Evaluate Use of Discharge Surface Protection – Flow Diversion**	To protect bare soil and vegetated surfaces from erosion by diverting, channeling, or temporarily piping flows over erodible areas to protected areas not subject to erosion: 1. When considering the use of flow diversion, take into account the following: a. There must be a storm drain or paved surface nearby to which the discharge can be diverted. b. The flow channel must be aligned to avoid disruption of traffic, or traffic control measures must be used.

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c. The flow channel must have sufficient slope to allow the discharge to flow to the storm drain or paved surface.

d. The flow channel must be designed to handle the anticipated flow rate.

e. Protective armor or temporary piping can be used for high velocity discharges or large flow volume discharges over bare soils or vegetated surfaces. The armor material selected must be able to withstand the flow velocity and movement of the discharge.

2. Divert flows correctly:

   a. Divert water to a channel using fixed or flexible piping, or another system to capture this flow (e.g. sand bags).

   b. If armor is used to create a flow channel over the erodible surface clear the area to be protected of rocks and debris which may puncture the armor.

   c. Anchor the armor using sandbags, gravel, or stakes along the perimeter.

   d. If there is to be a direct stream of high velocity flow, an energy dissipating device may be necessary to prevent failure of the armor.

3. Inspection and Maintenance:

   a. Inspect the area for flooding resulting from failure of the channel diversion structure or the flow rate exceeding the diversion channel capacity.

   b. Inspect the channel for erosion along the edges due to overtopping of the channel.

   c. Monitor the armor for failure (tearing) and erosion at the edges of the armor.

   d. If erosion does occur along the edges of the channel or armor, implement sediment/turbidity control measures.

   e. Remove armor when the discharge is complete.

   f. Sweep up any sediment deposited in the flow path and dispose of appropriately.

   g. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.

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WQ-29	**Evaluate Use of Discharge Storm Drain Curb & Drop Inlet Protection**	To install temporary devices around drain inlets using gravel, wire mesh, and /or concrete blocks that may prevent sediment-laden runoff from entering the storm drain system or watercourses (These devices reduce the velocity of runoff, allowing sediments to settle. The gravel can also filter out coarse sediment from runoff.): 1. Use drain inlet protection in appropriate locations: a. Use in drainage areas less than one acre. b. Place anywhere sediment-laden runoff could discharge into a storm drain inlet. c. If the inlet protection device could pond water, install only where ponded water will not contact materials, flood structures, or cause a nuisance. d. Completely cover inlet where work activities could result in vegetation, raw materials or sediment being deposited into the inlet, or when a small spill occurs near the inlet. Cover inlets with rubber or polyurethane mats, or plastic sheeting anchored with gravel bags. 2. Install inlet protection properly: a. To prevent seepage of sediment-laden runoff into the drain inlet, install drain inlet protection so there are no gaps around the drain inlet. b. Do not place filter fabric over the inlet grate as it can become clogged with sediment and contribute to flooding. 3. Gravel and Wire Mesh Drop Inlet Protection: a. Place wire mesh over the inlet so the wire extends a minimum of 12 inches beyond each side of the inlet structure. Use hardware cloth or comparable wire mesh with ½-inch openings. If more than one mesh strip is required, overlap the strips. b. Pile ¾ to 3-inch washed gravel on top of the mesh surrounding the inlet to a minimum depth of 12 inches. Extend the gravel at least 18 inches beyond the inlet on all sides. 4. Gravel and Wire Mesh Curb Inlet Protection: a. Place wire mesh over the inlet so the wire extends a minimum of 12 inches beyond each side of the inlet structure. Use hardware cloth or comparable wire mesh with ½-inch openings.

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b. Pile ¾ to 3-inch washed gravel against the mesh to anchor it against the gutter and inlet cover and to surround the inlet completely.

5. Block and Gravel Curb Inlet Protection:
   a. Place two concrete blocks on their sides abutting the curb at either side of the inlet opening. These are the space blocks.
   b. Place a 2-inch by 4-inch stud through the outer holes of each spacer block to align the front blocks.
   c. Place more concrete blocks on their sides across the front of the inlet and abutting the spacer blocks. Do not use mortar.
   d. Place wire mesh with ½-inch openings over the outside vertical face of the blocks to keep gravel out of the inlet.
   e. Place ¾ to 3-inch washed gravel against the wire mesh to the top of the blocks, on slopes of 2:1 or flatter.
6. Block and Gravel Drop Inlet Protection:
   a. Place wire mesh over the inlet so the wire extends a minimum of 12 inches beyond each side of the inlet structure. Use hardware cloth or comparable wire mesh with ½-inch openings. If more than one mesh strip is required, overlap the strips.
   b. Place concrete blocks lengthwise on their sides in a single row around the perimeter of the inlet, so the open end face outward not upward. Abut the ends of the adjacent blocks.
   c. Stack blocks to at least 12 inches but not more than 24 inches above the inlet, depending on design requirements.
   d. Place wire mesh with ½-inch openings over the outside vertical face of the blocks to keep gravel out of the inlet.
   e. Place ¾ to 3-inch washed gravel against the wire mesh to the top of the blocks, on slopes of 2:1 or flatter.
7. Gravel Bag Barriers:
   a. Use bags made of geotextile fabric, not burlap. Fill bags with washed ¾-inch rock or ¼-inch pea gravel.
   b. Place gravel bags around the perimeter of the drop inlet, packing bags together tightly. For a cub inlet, abut the curb at either side of the inlet opening.

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c. If additional flow retention is required, construct a barrier upgradient of the inlet by placing gravel bags perpendicular to the direction of flow. Overlap the bags and pack them tightly together. Construct each barrier using several layers of bags. Leave a one bag gap on the top row to act as a spillway to prevent flooding. If more than one barrier is used, place barriers at 20-foot intervals.

8. Wooden Weir (and Fabric) Curb Inlet Protection:

   a. Construct a wooden weir using 2-inch by 4-inch construction grade lumber, with a total length equal to the throat length plus 2 feet.

   b. Attach a continuous piece of wire mesh of at least 30 inches in width and a length equal to the inlet's throat length plus 4 feet.

   c. Place a piece of approved "extra strength" filter cloth, equal to the dimensions of the wire mesh, over the mesh and secure it to the weir.

   d. Nail the weir to the 9-inch long vertical spacers, which will be located between the weir and the inlet face at no more than 6-foot intervals.

   e. Place the assembly against the inlet throat and nail 2-inch by 4-inch boards, in minimum lengths of 2 feet, to the top of the weir at the spacers. Extend these anchors across the inlet tops and hold them in place by sandbags or alternate weight.

   f. Place the assembly such that the end spacers are at least 1 foot beyond both ends of the throat opening.

   g. Form the mesh and cloth to the concrete gutter and against the face of the curb on both sides of the inlet. Place coarse aggregate over the mesh and cloth so that water is prevented from entering the inlet either under or around the filter fabric.

9. Inspection and Maintenance:

   a. Let ponded water evaporate provided it does not cause a nuisance.

   b. Inspect before anticipated storms and after storms for gaps, clogging of gravel, ruptured gravel bags, and sediment accumulated behind inlet protection. During extended rainfall events, inspect at least once every 24 hours.

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		c. Carefully remove accumulated sediment when the depth reaches half the height of the inlet protection device. Dispose of sediment properly. d. Clean or replace gravel that is clogged with sediment. Do not clean gravel near the inlet.
WQ-30	**Evaluate Use of Discharging to Sanitary Sewer System**	To prevent sediments from entering local creeks and the bay by removing pollutants in the wastewater treatment processes: 1. Obtain necessary approval from wastewater treatment plant or sanitary sewer agency: a. Obtain approval or permit for a one-time discharge, or b. Obtain approval or permit for annual or ongoing discharge. 2. Design Considerations: a. Determine the feasibility of implementing this control measure by identifying access to a sanitary manhole near the discharge location. b. Construct discharge system with an air gap between the outlet pipe of the discharge line and the sewerage. If an adequate air gap cannot be maintained at all times to prevent cross contamination, select another control measure. c. Develop adequate traffic control plan and implement it prior to the discharge operation. Typically, sanitary sewer manholes are located in traffic lanes. Discharging to these manholes will cause a disruption of the vehicular traffic flow. d. Obtain a confined-space entry permit if it is necessary to enter a manhole. 3. Construction Specifications: a. Maintain flow within the limits that are acceptable to the local sanitary sewer agencies. b. Direct the discharge water to the sanitary sewer system by fixed piping, flexible piping, or a system to capture surface flow discharging (e.g. sand bags). c. Install the piping outlet above the manhole at height of at least twice the diameter of the outlet pipe. d. Anchor the piping such that the energy from the discharge water will not cause the piping to thrust out of position.

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		4. Inspection and Maintenance: a. Check for leaks from the piping system. b. Observe the system in operation and make repairs as required to keep the discharge flowing into the sanitary sewer system. c. Ensure that the air gap is maintained at all times. d. Observe the water quality and record on a discharge activity checklist. e. Monitor the flow of the discharge and record on a discharge activity checklist. f. If the wastewater treatment plant or sanitary sewer agency has dictated water quality requirements, monitor accordingly. g. After the discharge has ended, remove pipe from sanitary manhole. h. Complete a discharge activity checklist and send to your unit supervisor. Include any water quality monitoring results and control measure evaluations on the checklist. i. Unit supervisors will prepare a monthly inventory of discharges and send it (along with discharge activity checklists) to the Countywide Watershed Programs Unit. j. Notify wastewater treatment plant or sanitary sewer agency that the discharge has ceased.
WQ-35	**Control Chemical Additives in Discharges of Less Than 1,000 Gallons**	To control chemical additives that may be present in discharges from water utility operations less than 1,000 gallons: 1. Characterize the discharge appropriately (follow the Planned Discharge Activities Checklist to ensure the correct BMPs are used): a. Identify source of water. b. Determine the volume of water to be discharged. c. Determine the chlorine concentration of the water. d. Determine if chemicals used for water treatment or other chemicals could be present. 2. Choose the option for discharging the water (in preferred order): a. Discharge to sanitary sewer system (requires approval from the local sanitary district).

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b. Discharge to storm drain system or water body.

3. Use appropriate control measures when discharging the water:
   a. Use sanitary sewer discharge BMPs if discharging to sanitary sewer.
   b. If discharging to a storm drain or water body, the chlorine concentration must not exceed detectable levels (0.2 mg/l [ppm]).
      i. Measure the chlorine concentration and neutralize the water using the correct amounts of chemicals. Measure the chlorine concentration after neutralization to make sure no residual chlorine remains.
      ii. Store the chlorinated water until chlorine levels are non-detectable (less than 0.2 mg/l). Periodically measure chlorine levels during discharge to ensure that no residual chlorine remains.
   c. If discharging to a storm drain or water body, also implement sediment/turbidity control measures.
   d. Monitor the flow rate and discharge duration to ensure the discharge volume does not exceed 1,000 gallons (limiting volume for this BMP).
4. Inspection and Maintenance:
   a. Before discharging any water, inspect the discharge flow path for debris and erosion, and cleanup the flow path as needed.
   b. Monitor the discharge to make sure it is not interfering with the normal operation of the sanitary sewer, or flooding the storm drain system.
   c. When the discharge is complete, inspect the flow path and receiving water (if discharging directly to a water body) for evidence of erosion or deposited sediment.
   d. Sweep up sediment deposited in the flow path and dispose of appropriately.
   e. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.

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WQ-36	**Control Chemical Additives in Discharges of More Than 1,000 Gallons**	To control chemical additives that may be present in discharges from water utility operations greater than 1,000 gallons: 1. Characterize the discharge appropriately (follow the Planned Discharge Activities Checklist to ensure the correct BMPs are used): a. Identify source of water. b. Determine the volume of water to be discharged. c. Determine the chlorine concentration of the water. d. Determine if chemicals used for water treatment or other chemicals could be present. 2. Use appropriate control measures when discharging or disposing of the water: a. Discharge to the sanitary sewer system (requires approval from the local sanitary district). Use sanitary sewer discharge BMPs if discharging to the sanitary sewer. b. Contain the water and dispose at a facility authorized to accept the water. Chemical analysis of the water may be required for disposal. 3. Inspection and Maintenance: a. Initially and as needed, verify that the discharge into the sanitary sewer is not interfering with the normal operation of the sanitary sewer. b. Maintain records of the sanitary sewer discharge or disposal at an authorized facility. c. Complete the Planned Discharge Activities Checklist and submit it to District staff responsible for Water Utility Discharge Pollution Prevention Plan reporting.
WQ-40	**Prevent Water Pollution**	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 percent;

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		2. where natural turbidity is greater than 50 NTU, increases will not exceed 10 percent; 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.
WQ-41	**Prevent Stormwater Pollution**	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.

Noise		
NO-1	**Minimize Noise Pollution**	Noise produced by construction activities will not exceed the applicable local noise ordinance standards.
NO-2	**Minimize Disturbances to Residential Neighborhoods Due to Noise**	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.

Transportation/Traffic

TR-1	**Use Suitable Safety Measures**	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.

Bank Protection BMP Suite

AQ-1 Use Basic Dust Control Measures for All Construction Sites
AQ-2 Use Enhanced Dust Control Measures For Sites Greater Than Four Acres in Size
AQ-3 Incorporate Additional Dust Control Measures, As Appropriate
BI-1 Avoid Relocating Mitten Crabs
BI-2 Avoid and Minimize Impacts on Native Aquatic Vertebrates
BI-3 Minimize Impacts to Steelhead
BI-4 Minimize Waterway Access Impacts
BI-5 Remove Temporary Fills as Appropriate
BI-8 Avoid Impacts to Nesting Migratory Birds
BI-9 Use Exclusion Devices to Prevent Migratory Bird Nesting
CU-1 Review Projects with Native Soil
CU-2 Stop Work and Report Archaeological Finds
CU-3 Stop Work and Report Burial Finds
HM-9 Clean Vehicles and Equipment
HM-10 Assure Proper Vehicle and Equipment Fueling
HM-11 Assure Proper Vehicle and Equipment Maintenance
HM-12 Assure Proper Hazardous Materials Management
HM-13 Prevent Spills
HM-14 Know the Spill Kit Location
HM-15 Avoid Exposing Soils with High Mercury Levels
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-3 Assess Pump/Generator Set Operations and Maintenance
WQ-4 Handle Sediments so as to Minimize Water Quality Impacts
WQ-5 Avoid Runoff from Soil Stockpiles
WQ-6 Stabilize Construction Entrances and Exits
WQ-7 Prevent Erosion Downstream of Bank Protection Sites
WQ-9 Minimize Local Erosion Increase from In-channel Vegetation Removal
WQ-10 Evaluate and Select the Most Appropriate Use of Concrete Near Waterways
WQ-11 Use Coffer Dams for Tidal Work Areas
WQ-12 Divert/ Bypass Water at Non-tidal Sites
WQ-13 Minimize Hardscape in Bank Protection Design
WQ-14 Use Temporary Seeding for Erosion Control As Appropriate
WQ-15 Manage Groundwater At Work Sites
WQ-16 Avoid Erosion When Restoring Flows
WQ-17 Prevent Scour Downstream of Sediment Removal
WQ-18 Maintain Clean Conditions at Work Sites
WQ-40 Prevent Water Pollution
WQ-41 Prevent Stormwater Pollution
NO-1 Minimize Noise Pollution
NO-2 Minimize Disturbances to Residential Neighborhoods Due to Noise
TR-1 Use Suitable Public Safety Measures
UT-1 Manage Sanitary/Septic Waste

Stormwater Management BMP Suite

AQ-1 Use Basic Dust Control Measures for All Construction Sites
AQ-2 Use Enhanced Dust Control Measures For Sites Greater Than Four Acres in Size
AQ-3 Incorporate Additional Dust Control Measures, As Appropriate
BI-4 Minimize Waterway Access Impacts
BI-5 Remove Temporary Fills as Appropriate
HM-9 Clean Vehicles and Equipment
HM-10 Assure Proper Vehicle and Equipment Fueling
HM-11 Assure Proper Vehicle and Equipment Maintenance
HM-12 Assure Proper Hazardous Materials Management
HM-13 Prevent Spills
HM-14 Know the Spill Kit Location
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-3 Assess Pump/Generator Set Operations and Maintenance
WQ-4 Handle Sediments so as to Minimize Water Quality Impacts
WQ-5 Avoid Runoff from Soil Stockpiles
WQ-6 Stabilize Construction Entrances and Exits
WQ-7 Prevent Erosion Downstream of Bank Protection Sites
WQ-8 Minimize Sediment Transport Downstream from In-channel Herbicide Sites
WQ-10 Evaluate and Select the Most Appropriate Use of Concrete Near Waterways
WQ-11 Use Coffer Dams for Tidal Work Areas
WQ-12 Divert/ Bypass Water at Non-tidal Sites
WQ-14 Use Temporary Seeding for Erosion Control As Appropriate
WQ-15 Manage Groundwater At Work Sites
WQ-16 Avoid Erosion When Restoring Flows
WQ-18 Maintain Clean Conditions at Work Sites
WQ-19 Control Emergency Discharges
WQ-20 Control Unplanned Discharges
WQ-21 Control Sediment/ Turbidity for Discharges Less than 50 NTU
WQ-22 Control Sediment/ Turbidity for Discharge Greater than 50 NTU
WQ-23 Evaluate Use of Flow Path – Vegetation Filtration
WQ-24 Evaluate Use of Flow Path – Check Filters
WQ-25 Evaluate Use of On-Line Filter Systems
WQ-26 Evaluate Use of Silt Fence Culvert Entrance Protection
WQ-27 Evaluate Use of Surface Protection - Armoring
WQ-28 Evaluate Use of Surface Protection – Flow Diversion
WQ-29 Evaluate Use of Storm Drain Curb & Drop Inlet Protection
WQ-30 Evaluate Use of Discharging to Sanitary Sewer System
WQ-31 Control Small-Volume Chlorinated Discharges (less than or equal 50,000 gallons)
WQ-32 Control Medium-Volume Chlorinated Discharges (50,000 to 100,000 gallons)
WQ-33 Control Large-Volume Chlorinated Discharges (greater than 100,000 gallons)
WQ-34 Control Super-chlorinated Discharge (Chlorine Concentration greater than 1.5 mg/l [ppm])
WQ-35 Control Chemical Additives in Discharges of Less Than 1,000 Gallons
WQ-36 Control Chemical Additives in Discharges of More Than 1,000 Gallons
WQ-40 Prevent Water Pollution
WQ-41 Prevent Stormwater Pollution
UT-1 Manage Sanitary/Septic Waste

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Discharge Activities BMP Suite

BI-3 Minimize Impacts to Steelhead
BI-4 Minimize Waterway Access Impacts
BI-8 Avoid Impacts to Nesting Migratory Birds
HM-10 Assure Proper Vehicle and Equipment Fueling
HM-11 Assure Proper Vehicle and Equipment Maintenance
HM-13 Prevent Spills
HM-14 Know the Spill Kit Location
WQ-3 Assess Pump/Generator Set Operations and Maintenance
WQ-4 Handle Sediments so as to Minimize Water Quality Impacts
WQ-6 Stabilize Construction Entrances and Exits
WQ-7 Prevent Erosion Downstream of Bank Protection Sites
WQ-8 Minimize Sediment Transport Downstream from In-channel Herbicide Sites
WQ-11 Use Coffer Dams for Tidal Work Areas
WQ-12 Divert/ Bypass Water at Non-tidal Sites
WQ-15 Manage Groundwater At Work Sites
WQ-18 Maintain Clean Conditions at Work Sites
WQ-19 Control Emergency Discharges
WQ-20 Control Unplanned Discharges
WQ-21 Control Sediment/ Turbidity for Discharges Less than 50 NTU
WQ-22 Control Sediment/ Turbidity for Discharge Greater than 50 NTU
WQ-23 Evaluate Use of Flow Path – Vegetation Filtration
WQ-24 Evaluate Use of Flow Path – Check Filters
WQ-25 Evaluate Use of On-Line Filter Systems
WQ-26 Evaluate Use of Silt Fence Culvert Entrance Protection
WQ-27 Evaluate Use of Surface Protection - Armoring
WQ-28 Evaluate Use of Surface Protection – Flow Diversion
WQ-29 Evaluate Use of Storm Drain Curb & Drop Inlet Protection
WQ-30 Evaluate Use of Discharging to Sanitary Sewer System
WQ-31 Control Small-Volume Chlorinated Discharges (less than or equal 50,000 gallons)
WQ-32 Control Medium-Volume Chlorinated Discharges (50,000 to 100,000 gallons)
WQ-33 Control Large-Volume Chlorinated Discharges (greater than 100,000 gallons)
WQ-34 Control Super-chlorinated Discharge (Chlorine Concentration greater than 1.5 mg/l [ppm])
WQ-35 Control Chemical Additives in Discharges of Less Than 1,000 Gallons
WQ-36 Control Chemical Additives in Discharges of More Than 1,000 Gallons
WQ-40 Prevent Water Pollution
WQ-41 Prevent Stormwater Pollution
NO-1 Minimize Noise Pollution
NO-2 Minimize Disturbances to Residential Neighborhoods Due to Noise
TR-1 Use Suitable Public Safety Measures

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Grading and Excavation BMP Suite

AQ-1 Use Basic Dust Control Measures for All Construction Sites
AQ-2 Use Enhanced Dust Control Measures For Sites Greater Than Four Acres in Size
AQ-3 Incorporate Additional Dust Control Measures, As Appropriate
AQ-4 Avoid Stockpiling Potentially Odorous Materials
BI-2 Avoid and Minimize Impacts on Native Aquatic Vertebrates
BI-3 Minimize Impacts to Steelhead
BI-4 Minimize Waterway Access Impacts
BI-5 Remove Temporary Fills as Appropriate
BI-8 Avoid Impacts to Nesting Migratory Birds
BI-9 Use Exclusion Devices to Prevent Migratory Bird Nesting
CU-1 Review Projects with Native Soil
CU-2 Stop Work and Report Archaeological Finds
CU-3 Stop Work and Report Burial Finds
HM-9 Clean Vehicles and Equipment
HM-10 Assure Proper Vehicle and Equipment Fueling
HM-11 Assure Proper Vehicle and Equipment Maintenance
HM-12 Assure Proper Hazardous Materials Management
HM-13 Prevent Spills
HM-14 Know the Spill Kit Location
HM-15 Avoid Exposing Soils with High Mercury Levels
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-4 Handle Sediments so as to Minimize Water Quality Impacts
WQ-5 Avoid Runoff from Soil Stockpiles
WQ-6 Stabilize Construction Entrances and Exits
WQ-11 Use Coffer Dams for Tidal Work Areas
WQ-12 Divert/ Bypass Water at Non-tidal Sites
WQ-14 Use Temporary Seeding for Erosion Control As Appropriate
WQ-15 Manage Groundwater At Work Sites
WQ-18 Maintain Clean Conditions at Work Sites
WQ-26 Evaluate Use of Silt Fence Culvert Entrance Protection
WQ-29 Evaluate Use of Storm Drain Curb & Drop Inlet Protection
WQ-40 Prevent Water Pollution
WQ-41 Prevent Stormwater Pollution
NO-1 Minimize Noise Pollution
NO-2 Minimize Disturbances to Residential Neighborhoods Due to Noise
TR-1 Use Suitable Public Safety Measures
UT-1 Manage Sanitary/Septic Waste

Sediment Removal and Storage BMP Suite

AQ-1 Use Basic Dust Control Measures for All Construction Sites
AQ-2 Use Enhanced Dust Control Measures For Sites Greater Than Four Acres in Size
AQ-3 Incorporate Additional Dust Control Measures, As Appropriate
AQ-4 Avoid Stockpiling Potentially Odorous Materials
BI-1 Avoid Relocating Mitten Crabs
BI-2 Avoid and Minimize Impacts on Native Aquatic Vertebrates
BI-3 Minimize Impacts to Steelhead
BI-4 Minimize Waterway Access Impacts
BI-5 Remove Temporary Fills as Appropriate
BI-8 Avoid Impacts to Nesting Migratory Birds
BI-9 Use Exclusion Devices to Prevent Migratory Bird Nesting
HM-9 Clean Vehicles and Equipment
HM-10 Assure Proper Vehicle and Equipment Fueling
HM-11 Assure Proper Vehicle and Equipment Maintenance
HM-12 Assure Proper Hazardous Materials Management
HM-13 Prevent Spills
HM-14 Know the Spill Kit Location
HM-15 Avoid Exposing Soils with High Mercury Levels
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-3 Assess Pump/Generator Set Operations and Maintenance
WQ-4 Handle Sediments so as to Minimize Water Quality Impacts
WQ-5 Avoid Runoff from Soil Stockpiles
WQ-6 Stabilize Construction Entrances and Exits
WQ-11 Use Coffer Dams for Tidal Work Areas
WQ-12 Divert/ Bypass Water at Non-tidal Sites
WQ-14 Use Temporary Seeding for Erosion Control As Appropriate
WQ-15 Manage Groundwater At Work Sites
WQ-16 Avoid Erosion When Restoring Flows
WQ-17 Prevent Scour Downstream of Sediment Removal
WQ-18 Maintain Clean Conditions at Work Sites
WQ-26 Evaluate Use of Silt Fence Culvert Entrance Protection
WQ-29 Evaluate Use of Storm Drain Curb & Drop Inlet Protection
WQ-40 Prevent Water Pollution
WQ-41 Prevent Stormwater Pollution
NO-1 Minimize Noise Pollution
NO-2 Minimize Disturbances to Residential Neighborhoods Due to Noise
TR-1 Use Suitable Public Safety Measures
UT-1 Manage Sanitary/Septic Waste

Vegetation Management and Removal BMP Suite

BI-3 Minimize Impacts to Steelhead
BI-4 Minimize Waterway Access Impacts
BI-6 Minimize Adverse Effects of Pesticides on Non-target Species
BI-7 Avoid Secondary Poisoning from Rodenticide Use
BI-8 Avoid Impacts to Nesting Migratory Birds
BI-9 Use Exclusion Devices to Prevent Migratory Bird Nesting
BI-10 Minimize Impacts to Vegetation Whenever Clearing (or Trimming) is Necessary
HM-9 Clean Vehicles and Equipment
HM-10 Assure Proper Vehicle and Equipment Fueling
HM-11 Assure Proper Vehicle and Equipment Maintenance
HM-12 Assure Proper Hazardous Materials Management
HM-13 Prevent Spills
HM-14 Know the Spill Kit Location
WQ-1 Conduct Work from Top of Bank
WQ-2 Evaluate Use of Wheel and Track Mounted Vehicles in Stream Bottoms
WQ-6 Stabilize Construction Entrances and Exits
WQ-7 Prevent Erosion Downstream of Bank Protection Sites
WQ-9 Minimize Local Erosion Increase from In-channel Vegetation Removal
WQ-13 Minimize Hardscape in Bank Protection Design
WQ-14 Use Temporary Seeding for Erosion Control As Appropriate
WQ-18 Maintain Clean Conditions at Work Sites
NO-1 Minimize Noise Pollution
NO-2 Minimize Disturbances to Residential Neighborhoods Due to Noise
TR-1 Use Suitable Public Safety Measures
UT-1 Manage Sanitary/Septic Waste

Well and Exploratory Boring Construction, Modification, or Destruction BMP Suite

AQ-1 Use Basic Dust Control Measures for All Construction Sites
AQ-2 Use Enhanced Dust Control Measures For Sites Greater Than Four Acres in Size
AQ-3 Incorporate Additional Dust Control Measures, As Appropriate
BI-8 Avoid Impacts to Nesting Migratory Birds
HM-9 Clean Vehicles and Equipment
HM-10 Assure Proper Vehicle and Equipment Fueling
HM-11 Assure Proper Vehicle and Equipment Maintenance
HM-12 Assure Proper Hazardous Materials Management
HM-13 Prevent Spills
HM-14 Know the Spill Kit Location
WQ-5 Avoid Runoff from Soil Stockpiles
WQ-15 Manage Groundwater At Work Sites
WQ-18 Maintain Clean Conditions at Work Sites
WQ-37 Manage Well or Exploratory Boring Materials
WQ-38 Protect Well or Exploratory Borings from Contaminants
WQ-39 Backfill or Otherwise Destroy Exploratory Borings
WQ-40 Prevent Water Pollution
WQ-41 Prevent Stormwater Pollution
NO-1 Minimize Noise Pollution
NO-2 Minimize Disturbances to Residential Neighborhoods Due to Noise
TR-1 Use Suitable Public Safety Measures
UT-1 Manage Sanitary/Septic Waste

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APPENDIX C

Air Quality Calculations (RoadMod, URBEMIS 2007 version 9.2.4, Greenhouse Gas Calculations

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Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Lower Berryessa Creek Project Element Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	18.3	66.4	167.0	26.5	6.5	20.0	10.1	5.9	4.2	19,167.3
Grading/Excavation	42.0	224.0	347.8	34.8	14.8	20.0	17.7	13.5	4.2	39,517.6
Drainage/Utilities/Sub-Grade	1.7	7.3	15.9	20.6	0.6	20.0	4.7	0.5	4.2	1,844.6
Paving	2.4	13.1	15.6	1.1	1.1	-	1.0	1.0	-	2,068.7
Maximum (pounds/day)	42.0	224.0	347.8	34.8	14.8	20.0	17.7	13.5	4.2	39,517.6
Total (tons/construction project)	3.7	18.5	31.4	4.8	1.3	3.5	1.9	1.2	0.7	3,586.7

Notes:

Project Start Year ->	2011
Project Length (months) ->	16
Total Project Area (acres) ->	40
Maximum Area Disturbed/Day (acres) ->	2
Total Soil Imported/Exported (yd^3/day)->	1616

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Lower Berryessa Creek Project Element Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	8.3	30.2	75.9	12.0	2.9	9.1	4.6	2.7	1.9	8,712.4
Grading/Excavation	19.1	101.8	158.1	15.8	6.7	9.1	8.0	6.1	1.9	17,962.6
Drainage/Utilities/Sub-Grade	0.8	3.3	7.2	9.4	0.3	9.1	2.1	0.2	1.9	838.4
Paving	1.1	6.0	7.1	0.5	0.5	-	0.5	0.5	-	940.3
Maximum (kilograms/day)	19.1	101.8	158.1	15.8	6.7	9.1	8.0	6.1	1.9	17,962.6
Total (megagrams/construction project)	3.4	16.7	28.4	4.4	1.2	3.2	1.8	1.1	0.7	3,253.3

Notes:

Project Start Year ->	2011
Project Length (months) ->	16
Total Project Area (hectares) ->	16
Maximum Area Disturbed/Day (hectares) ->	1
Total Soil Imported/Exported ($meters^3$/day)->	1235

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Road Construction Emissions Model, Version 6.3.2

Emission Estimates for -> Lower Calera Creek Project Element Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	CO2 (lbs/day)
Grubbing/Land Clearing	13.5	46.7	123.9	24.7	4.7	20.0	8.5	4.4	4.2	14,368.7
Grading/Excavation	19.2	69.7	170.5	27.1	7.1	20.0	10.7	6.5	4.2	19,297.0
Drainage/Utilities/Sub-Grade	13.3	46.1	119.5	24.8	4.8	20.0	8.6	4.4	4.2	14,312.3
Paving	13.6	44.4	121.0	5.0	5.0	-	4.6	4.6	-	14,073.1
Maximum (pounds/day)	19.2	69.7	170.5	27.1	7.1	20.0	10.7	6.5	4.2	19,297.0
Total (tons/construction project)	1.3	4.5	11.7	2.0	0.5	1.5	0.8	0.4	0.3	1,363.7

Notes:

Project Start Year ->	2011
Project Length (months) ->	8
Total Project Area (acres) ->	14
Maximum Area Disturbed/Day (acres) ->	2
Total Soil Imported/Exported (yd^3/day)->	104

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sum of exhaust and fugitive dust emissions shown in columns K and L.

Emission Estimates for -> Lower Calera Creek Project Element Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	Total PM10 (kgs/day)	Exhaust PM10 (kgs/day)	Fugitive Dust PM10 (kgs/day)	Total PM2.5 (kgs/day)	Exhaust PM2.5 (kgs/day)	Fugitive Dust PM2.5 (kgs/day)	CO2 (kgs/day)
Grubbing/Land Clearing	6.1	21.2	56.3	11.2	2.2	9.1	3.9	2.0	1.9	6,531.2
Grading/Excavation	8.7	31.7	77.5	12.3	3.2	9.1	4.9	3.0	1.9	8,771.4
Drainage/Utilities/Sub-Grade	6.1	21.0	54.3	11.3	2.2	9.1	3.9	2.0	1.9	6,505.6
Paving	6.2	20.2	55.0	2.3	2.3	-	2.1	2.1	-	6,396.8
Maximum (kilograms/day)	8.7	31.7	77.5	12.3	3.2	9.1	4.9	3.0	1.9	8,771.4
Total (megagrams/construction project)	1.2	4.1	10.7	1.8	0.4	1.4	0.7	0.4	0.3	1,236.9

Notes:

Project Start Year ->	2011
Project Length (months) ->	8
Total Project Area (hectares) ->	6
Maximum Area Disturbed/Day (hectares) ->	1
Total Soil Imported/Exported ($meters^3$/day)->	80

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I. Total PM2.5 emissions shown in Column J are the sume of exhaust and fugitive dust emissions shown in columns K and L.

Lower Berryessa
CONSTRUCTION EMISSIONS

EMISSIONS in Metric tons

CO2	**CH4**	**N2O**
3253.3	(from Roadmod for 16 months)	
2439.975	Metric Tons/Year	

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2	10.15	kg CO2/gal
	0.00058	kg CH4/gal
	0.00026	kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in metric tons =

	CO2	**CH4**	**N2O**	**Total GHG**
	2439.98	0.14	0.06	2440.18

Total Construction emissions as eCO2 in metric tons =

Annual (2011) =	**2439.98**	**2.93**	**19.38**	**2462.28**
2012 (4 months)	813.33	0.98	6.46	820.76
Total (16 months)=	**3253.30**	**3.90**	**25.83**	**3283.04**
Amortized over 30 years = MT of eCO2/yr	108.44	0.13	0.86	109.43

Lower Calera
CONSTRUCTION EMISSIONS

EMISSIONS in Metric tons

CO2	**CH4**	**N2O**
1236.9	(from Roadmod for 8 months)	
1236.9	Metric Tons/Year	

From CCAR GPR 3.1 (2009) Table C-6

Diesel emission of CO2	10.15	kg CO2/gal
	0.00058	kg CH4/gal
	0.00026	kg N2O/gal

So for Mobile sources… CH4 emission = 5.71E-05 percent of CO2 Emissions
N2O emissions = 2.56E-05 percent of CO2 Emissions

Total Construction emissions in metric tons =

	CO2	**CH4**	**N2O**	**Total GHG**
	1236.90	0.07	0.03	1237.00

Total Construction emissions as eCO2 in metric tons =

Annual (2011) =	**1236.90**	**1.48**	**9.82**	**1248.21**
Amortized over 30 years = MT of eCO2/yr	0.00	0.00	0.00	0.00

Total Project-Levels GHG construction Emissions

	2011 emissions	Total Emissions
Berryessa	2462.28 MT CO2e	3283.04 MT CO2e
Calera	1248.21 MT CO2e	1248.21 MT CO2e

Total Project-level GHG Emissions = 4531.24 MT CO2e

40 year project lfertime amortization = 113.28 MT CO2e

6/21/2010 1:28:03 PM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Berryessa Creek Pump.urb924

Project Name: berryessa generator

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2011	2.64	32.77	9.42	0.00	0.00	0.93	0.93	0.00	0.85	0.85	3,005.04
Building 01/01/2011-12/31/2011	2.64	32.77	9.42	0.00	0.00	0.93	0.93	0.00	0.85	0.85	3,005.04
Building Off Road Diesel	2.64	32.77	9.42	0.00	0.00	0.93	0.93	0.00	0.85	0.85	3,005.04
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 1/1/2011 - 12/31/2011 - Default

Off-Road Equipment:

1 Generator Sets (1000 hp) operating at a 0.74 load factor for 24 hours per day

6/21/2010 1:28:46 PM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Berryessa Creek Pump.urb924

Project Name: berryessa generator

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	2.64	32.77	9.42	0.00	0.00	0.93	0.93	0.00	0.85	0.85	3,005.04

7/22/2010 10:36:56 AM

Urbemis 2007 Version 9.2.4

Detail Report for Annual Construction Unmitigated Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Berryessa Creek Pump.urb924

Project Name: berryessa generator

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES (Annual Tons Per Year, Unmitigated)

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10 Total	PM2.5 Dust	PM2.5 Exhaust	PM2.5 Total	CO2
2011	1.85	22.98	6.61	0.00	0.00	0.65	0.65	0.00	0.60	0.60	2,107.64
Building 01/01/2011-04/10/2011	1.85	22.98	6.61	0.00	0.00	0.65	0.65	0.00	0.60	0.60	2,107.64
Building Off Road Diesel	1.85	22.98	6.61	0.00	0.00	0.65	0.65	0.00	0.60	0.60	2,107.64
Building Vendor Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Building Worker Trips	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Phase Assumptions

Phase: Building Construction 1/1/2011 - 4/10/2011 - Default

Off-Road Equipment:

2 Generator Sets (1280 hp) operating at a 0.74 load factor for 24 hours per day

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Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

File Name: C:\Documents and Settings\dsa\Application Data\Urbemis\Version9a\Projects\Berryessa Creek Pump.urb924

Project Name: berryessa generator

Project Location: Bay Area Air District

On-Road Vehicle Emissions Based on: Version : Emfac2007 V2.3 Nov 1 2006

Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10 Dust	PM10 Exhaust	PM10	PM2.5 Dust	PM2.5 Exhaust	PM2.5	CO2
2011 TOTALS (tons/year unmitigated)	1.85	22.98	6.61	0.00	0.00	0.65	0.65	0.00	0.60	0.60	2,107.64

Greenhouse Gas (GHG) Emissions Calculations

Project Name: Berryessa Creek

Greenhouse Gas (GHG) Emissions from Area Sources and Vehicles

	Annual Emissions		
	pounds (lbs.)	Tons	Metric Tons
URBEMIS2007 Area Emissions	0	0	0
URBEMIS2007 Vehicle Emissions	0	0	0
Total Emissions (area sources + vehicles)	**0**	**0**	**0**

Indirect Greenhouse Gas (GHG) Emissions from Project use of Electricity (Power Plant Emissions)

Estimated Project Annual Electrical Use: 4,577,280 kWh (kilowatt hours)/year
4,577 mWh (megawatt hours)/year

		Annual		CO2	Annual
Indirect GHG gases	Emission Factor lb/mWh	Project Electricity mWh	GHGs metric tons	Equivalent Factor	CO2 Equivalent Emissions (metric tons)
Carbon Dioxide (CO2)	524	4,577	1,088	1	1088
Nitrous Oxide (N2O)	0.0037	4,577	0.0	296	2
Methane (CH4)	0.0067	4,577	0.0	23	0
		Total Indirect GHG Emissions from Project Electricity Use=			**1091**

Total Annual Greenhouse Gas (GHG) Emission from Project Operations -- All Sources (CO2 equivalent Metric Tons)

Area Sources	**0**	0.0%
Vehicles	**0**	0.0%
Electrical Use	**1091**	100.0%
Total=	**1,091**	100.0%

Notes and References:

Total Emissions from Indirect Electricity Use
Formula and Emission Factor from The California Climate Action Regiustry Report Protocol
Reporting Entity-wide Greenhouse Gas Emissions 2008
Pg. 33 (CCARRP) gives Equations

Pg. 36 (CCARRP - April 2008 update) gives CO2 output emission rate (lbs/mWh)
878.71 (lbs/mWh)

Pg. 36 (CCARRP) gives CO2 equivalency factors

Pg. 36 (CCARRP) gives Methane and Nitrous Oxide electricity emission factors (lbs/mWh)
Methane - 0.0067 (lbs/mWh)
Nitrous Oxide - 0.0037 (lbs/mWh)

PG&E Carbon Footprint Calculator gives CO2 output emission rate (lbs/kWh)
0.524 lbs/kWh
PG&E 2009 data 0.636 lbs/kWh
lbs/metric ton = 2204.62

Percentage of 25,000 4.4%
Percentage of 427 Million 0.0003%

	Tons from URBEMIS	Metric Tons
lower berryessa creek	3586.7	3254
lower calera creek	1363.7	1237

APPENDIX D
HRA Calculations

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As required by BAAQMD CEQA guidelines, the potential health effects associated with the exposure to TAC have been assessed for the Project through the use of dispersion modeling and a health risk assessment (HRA). The HRA uses information on the amounts of TAC emitted, the levels that people may be exposed to, and the toxicity of those substances to estimate the potential for adverse health effects. Both chronic (long-term) and acute (short-term) health effects, as well as the probability of increases in cancer risks, were evaluated. Acute impacts are assessed over a short-term period such as 24-hours or less. Chronic impacts are assessed over an annual period and cancer risks are assessed over a 70-year lifetime. The HRA was conducted in accordance with technical guidelines developed by the USEPA, California EPA and the BAAQMD.

Impact HRA-1: The Project could expose persons to substantial levels of toxic air contaminants during short-term construction activities, which may lead to an increase in the risk of cancer. (Significant)

Project construction activities would produce DPM and PM2.5 emissions due to combustion equipment. Impact 3.C-1 describes the construction activities and their emission estimates in detail. These emissions could result in elevated concentrations of DPM and PM2.5 at nearby receptors. These elevated concentrations could lead to an increase in the risk of cancer or other health impacts.

USEPA's SCREEN3 model (Version 96043) was used as a screening dispersion modeling analysis.[1] The SCREEN3 model is a screening technique to estimate pollutant concentrations from emission sources and generally results in overestimation of concentrations (by a factor of two to five) compared to more refined dispersion models and actual measurements. The SCREEN3 model estimates 1-hour maximum concentrations from which annual average concentrations can be determined. The SCREEN3 model was executed using the regulatory default options (exhaust-tip downwash, buoyancy induced dispersion, final plume rise), default wind speed profile categories, default potential temperature gradients, and no pollutant decay. The SCREEN3 model was executed using rural dispersion coefficients, which are consistent with the land uses within three kilometers from the Project. Of note, rural coefficients generally produce higher concentrations than urban coefficients due to lower turbulence, surface roughness, and general pollutant mixing.

Worst case meteorological conditions (recommended by BAAQMD) were used in the analysis. This process reviews an array of atmospheric stabilities and wind speeds and determines the conditions which cause the highest pollutant concentration. These worst case meteorological conditions generally involve stable atmospheric conditions with light wind speeds and are very conservative in the estimation of annual average conditions.

Maximum concentrations and health impacts were developed by using the worst case wind angle (recommended by BAAQMD). That is, given the linear nature of the Project, the worst case wind direction would be directly downwind of the length (longest side) of the Project (the longest fetch of wind over the Project area). As most receptors are located downwind of the

[1] Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical air movement.

width (shortest side) of the Project, this represents a conservative estimate of a majority of the receptors within the Project area. For example, predicted concentrations downwind of the shortest side would be less than 25 percent of the predicted concentrations downwind of the longest side. Thus, this represents an overestimation of concentrations (generally by a factor of four). Nevertheless, it also represents the maximum exposed individual, as required.

SCREEN3 produces hourly concentrations; therefore, concentrations must be converted to annual averages using BAAQMD-recommended adjustment factors (a meteorological persistence factor). The recommended annual adjustment factor of 0.1 was used.

Receptors were placed at a distance of 25 meters from the Project area out to two kilometers to represent the residential receptors within the Project area. However, maximum concentration occurs at distance of beyond 130 meters from the Project area. A receptor height of 1.8 meters was used to simulate breathing height (recommended by BAAQMD). There is no significant difference between the elevation of the emissions sources and that of the receptors, thus, flat terrain was assumed. An area emission source was modeled to simulate construction activities. The area source represents the area in which activities would occur and was analyzed as the length and width of the project elements[2]. An emission height of 3.05 meters (recommended by BAAQMD) was used. The Lower Berryessa and Lower Calera Creek elements were analyzed separately as they generally affect a different set of receptors.

As noted, the HRA provides a number of conservative assumptions and methodologies which results in a conservative, high-end estimate of the concentrations and health impacts described within the following sections. Secondly, refined dispersion modeling using AERMOD and hourly meteorological data would produce lower concentrations and thus, lower cancer risks and other health impacts than produced through the use of SCREEN3.

Cancer Risk

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chances in one million of contracting cancer, for example, one cancer case among one million people exposed.

The maximum incremental cancer risk from exposure to air toxics was calculated following the guidelines established by California OEHHA (OEHHA, 2003). The equation used to determine exposure to air toxics through inhalation is as follows:

$$\text{Dose-inh} = \frac{C_{air} * \{DBR\} * A * ASF * EF * ED * 10^{-6}}{AT}$$

Where:

Dose-inh = Dose of the toxic substance through inhalation in milligrams per kilogram of body weight per day (mg/kg-day)

10^{-6} = Micrograms to milligrams conversion, Liters to cubic meters conversion

[2] SCREEN3 requires an area source with an aspect ratio of no more than 10:1 for the length to width. Thus, the length of the project element was set to equal 10 times the width of the element.

C_{air} = Concentration in air ($\mu g/m^3$)
{DBR} = Daily breathing rate (L/kg body weight – day)
A = Inhalation absorption factor
ASF = Age sensitivity factor
EF = Exposure frequency (days/year)
ED = Exposure duration (years)
AT = Averaging time period over which exposure is averaged in days (25,550 days for a 70 year cancer risk)

Based on the nearby land uses, the maximum exposed individual would be a residential receptor, although schools, workers, and other land use occur. Per BAAQMD Guidelines, the 80th percentile adult breathing rate of 302 L/kg-day was used and the exposure frequency and duration were assumed to be 350 days per year and 70 years, respectively. The modeled DPM concentrations were used to represent the concentration of DPM in the air. The inhalation absorption factor was assumed to be one. Based on BAAQMD's Health Risk Screening Analysis Guidelines (January 2010), an age sensitivity factor of 1.7 was applied. The application of an age sensitivity factor includes an additional conservative assumption not employed by OEHHA.[3] To determine incremental cancer risk, the estimated dose through inhalation was multiplied by the cancer potency slope factor for DPM of 1.1 $(mg/kg\text{-}day)^{-1}$ (per OEHHA).

As a result of unmitigated construction activities, the maximum cancer risk would be 10.1 per million for the Lower Berryessa element. The maximum cancer risk would be 5.6 per million for the Lower Calera Creek element. The cancer risk due to construction activities for the Lower Berryessa element is greater than the BAAQMD threshold of 10 per million and would be potentially significant. The cancer risk due to construction activities for the Lower Calera Creek element is below the BAAQMD threshold of 10 per million and would be less than significant.

Again, these cancer risks are for the maximum exposed individual (directly downwind of the project length) based on conservative assumptions and methodologies. Cancer risks at a majority of nearby receptors based on actual conditions would be much less.

Mitigation Measures

Applicant will implement measures which would provide a minimum 10 percent reduction in DPM emissions. Mitigation Measure 3.C-2a through b would reduce PM2.5 emissions from construction activities by 45 percent.

Level of Significance After Mitigation

Mitigation Measure 3.C-2a through b would reduce the maximum cancer risk as a result of construction activities for the Lower Berryessa element to 5.6 per million and for the Lower Calera Creek element to 3.1 per million. Both of these values are below the BAAQMD threshold of 10 per million. Therefore, with Mitigation Measure 3.C-2a through b, the impact would be less than significant.

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[3] OEHHA *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments* does not include an age sensitivity factor.

Impact HRA-2: Construction activities would result in toxic air contaminant emissions, which would increase acute and chronic health risk. (Less than significant)

Non-cancer adverse health impacts, acute (short-term) and chronic (long-term), are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the project to a published reference exposure level (REL) that could cause adverse health effects as established by OEHHA. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. If the overall HI for the highest-impacted organ system is greater than one, then the impact is considered to be significant. The target organ for DPM is the respiratory system.

The relationship for the non-cancer health effects is given by the following equation:

$$HI = C/REL$$

Where:

HI	=	Hazard index; an expression of the potential for non-cancer health effects.
C	=	Annual average concentration ($\mu g/m^3$).
REL	=	Reference exposure level (REL), the concentration at which no adverse =health effects are anticipated.

The chronic reference exposure level for DPM was established by the California OEHHA as 5 $\mu g/m^3$.

There is no acute reference exposure level for DPM. Furthermore, diesel fuel (unlike gasoline) does not emit significant amounts of organic compounds such as acrolein, which has an established acute reference exposure level. Thus, minimal acute impacts would be expected.

As a result of unmitigated construction activities, the chronic HI would be 0.13 for the Lower Berryessa element. The chronic HI would be 0.07 for the Lower Calera Creek element. The chronic HI due to construction activities would be well below the BAAQMD threshold of 1 and the impact would be less than significant. Mitigation Measure 3.C-2a through b would further reduces these chronic impacts.

Impact HRA-3: Construction activities would result in emissions of PM2.5, which would adversely affect human health. (Significant)

PM2.5 concentrations resulting for the exhaust emissions of construction activities were determined using the SCREEN3 dispersion model. Of note, fugitive dust emissions are not included in the analysis (per BAAQMD guidance), as these emissions are mitigated through the implementation of best management practices (Mitigation Measure 3.C-1).

The maximum unmitigated annual PM2.5 exposure as a result of construction activities for the Lower Berryessa element would be 0.65 µg/m^3 and for the Lower Calera Creek element would be 0.36 µg/m^3, which would exceed the BAAQMD threshold of 0.3 µg/m^3 and would therefore constitute a potentially significant impact.

Again, these PM2.5 concentrations are for the maximum exposed individual (directly downwind of the project length) based on conservative assumptions and methodologies. PM2.5 concentrations at a majority of nearby receptors based on actual conditions would be much less. Secondly, refined dispersion modeling using AERMOD and hourly meteorological data would produce lower concentrations and thus, lower cancer risks and other health impacts than produced through the use of SCREEN3.

Mitigation Measures

Applicant will implement measures which would provide a minimum 55 percent reduction in PM2.5 emissions. Mitigation Measure 3.C-2a through b would reduce PM2.5 emissions from construction activities by 45 percent. Thus, further mitigation measures are required.

> **Mitigation Measure HRA-3:** The use of alternative fuels or electric-powered equipment, in order to achieve an additional 10 percent reduction in DPM emissions. Alternative fuels that reduce DPM emissions include, but are not limited to, biodiesel, compressed natural gas, and liquefied natural gas.

Level of Significance After Mitigation

Mitigation Measure 3.C-2a through b and Mitigation Measure HRA-3 would reduce the maximum annual PM2.5 concentration as a result of construction activities for the Lower Berryessa element to 0.29 µg/m^3 and for the Lower Calera Creek element would be 0.16 µg/m^3. Both of these values are below the BAAQMD threshold of 0.3 µg/m^3. Therefore, with Mitigation Measure 3.C-2a through b and Mitigation Measure HRA-3, the impacts would be less than significant.

Impact HRA-4: The Project would contribute to cumulative health risk impacts. (Less than Significant)

The BAAQMD's CEQA Guidelines include new standards and methods for determining the significance of cumulative health risk impacts (BAAQMD, 2010a). The method for determining cumulative health risk requires the tallying of health risk from permitted sources and major roadways in the vicinity of a project, then adding the project contribution, to determine whether the cumulative health risk thresholds are exceeded. BAAQMD has published tables showing health risk for major roadways within Santa Clara County, including U.S. 680 and 880 (BAAQMD, 2010b). The receptors impacted by the Project would be beyond the distance of influence specified in the BAAQMD methodology (greater than 1,000 feet) from U.S 680 and 880[4]. Thus, the impact from this roadway is not expected to significantly overlap or contribute

[4] The eastern reach of the Lower Calera Creek Element is approximately 2,750 feet from U.S. 680. The western reach of the Lower Calera Creek Element is approximately 1,825 feet from U.S. 880. The western

to the health risk impact associated with Project construction activities at the location of receptors that would be affected by the Project.

BAAQMD has also developed a geo-referenced database of permitted emitters of toxic air contaminants throughout the Bay Area, and has developed the Stationary Source Risk and Hazard Analysis Tool (BAAQMD, 2010b) for estimating cumulative health risks from permitted sources. For the most part the health impacts from the Lower Berryessa and Lower Calera Creek elements are distinct and thus, the cumulative impacts were determined separately. Tables HRA-1 and HRA-2 shows that the BAAQMD-permitted facilities within 1,000 feet of the Lower Berryessa and Lower Calera Creek elements. The tables also shows the cancer risk, chronic hazard risk, acute health risk, and PM2.5 concentrations (in $\mu g/m^3$) associated with these facilities, as calculated by BAAQMD.

As indicated in Tables HRA-1 and HRA-2, the total cumulative cancer risk, chronic hazard, and PM2.5 concentrations associated with the nearby permitted facilities together with the Project would be less than significant. The cumulative health risk impact is therefore **less than significant**.

TABLE HRA-1
CUMULATIVE HEALTH IMPACTS – LOWER BERRYESSA ELEMENT

Site No.	Facility Type	Address	Cancer Risk	Chronic Hazard	Acute Hazard	PM2.5
17154	Emergency Generator	731 Folsom	45.6	0.0162	0	0.0812
17159	Pump Station	944 La Honda Drive	21.6	0.00769	0	0.0385
17158	Pump Station	75 Marylinn Drive	19.3	0.00685	0	0.0343
		Permitted Sources Total	**86.5**	**0.03**	**0**	**0.15**
		Project, as Mitigated	**5.6**	**0.13**	**0**	**0.29**
		Permitted Facilities and the Project Combined	**92.1**	**0.16**	**0**	**0.44**
		BAAQMD Cumulative Significance Criteria	**100**	**10**	**10**	**0.8**
		Significant Cumulative Impact?	**No**	**No**	**No**	**No**

reach of the Lower Berryessa Element is approximately 2,800 feet from U.S. 880. The eastern reach of the Lower Calera Creek Element is approximately 1,550 feet from U.S. 680.

TABLE HRA-2
CUMULATIVE HEALTH IMPACTS – LOWER CALERA CREEK ELEMENT

Site No.	Facility Type	Address	Cancer Risk	Chronic Hazard	Acute Hazard	PM2.5
8471	Fuel Dispensing	1265 N Milpitas Blvd	0.18	0.000164	0.000042	0
17214	Emergency Generator	1275 N Milpitas Blvd	8.87	0.00315	0	0.0158
8015	Auto Body	1351 Minnis Circle	0	0.000252	0.0011	0
5887	Auto Body	95 Minnis Circle	0.00369	0.000001	0.000001	0.0339
		Permitted Sources Total	**9.1**	**0.004**	**0.001**	**0.05**
		Project, as Mitigated	**3.1**	**0.07**	**0**	**0.16**
		Permitted Facilities and the Project Combined	**12.2**	**0.07**	**0.001**	**0.21**
		BAAQMD Cumulative Significance Criteria	**100**	**10**	**10**	**0.8**
		Significant Cumulative Impact?	**No**	**No**	**No**	**No**

Office of Environmental Health Hazards Assessment (OEHHA), 2003. *The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments (*http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf).

BAAQMD, 2010a. *BAAQMD CEQA Air Quality Guidelines*, June 2010.

BAAQMD, 2010b. BAAQMD CEQA Guidelines Tools and Methodology, (http://www.baaqmd.gov/Divisions/Planning-and-Research/CEQA-GUIDELINES/Tools-and-Methodology.aspx).

08/25/10

21:32:59
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 Lower Berryessa Element

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   AREA
    EMISSION RATE (G/(S-M**2)) =   1.00000
    SOURCE HEIGHT (M)   =   3.0480
    LENGTH OF LARGER SIDE (M)   =   610.0000
    LENGTH OF SMALLER SIDE (M) =   61.0000
    RECEPTOR HEIGHT (M)   =   1.8000
    URBAN/RURAL OPTION   =   RURAL
 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

 BUOY. FLUX =   .000 M**4/S**3; MOM. FLUX =   .000 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN AUTOMATED DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
25.	.4600E+08	6	1.0	1.0	10000.0	3.05	1.
100.	.5396E+08	6	1.0	1.0	10000.0	3.05	0.
200.	.6264E+08	6	1.0	1.0	10000.0	3.05	0.
300.	.6968E+08	6	1.0	1.0	10000.0	3.05	1.
400.	.6212E+08	6	1.0	1.0	10000.0	3.05	0.
500.	.5154E+08	6	1.0	1.0	10000.0	3.05	0.
600.	.4280E+08	6	1.0	1.0	10000.0	3.05	0.
700.	.3575E+08	6	1.0	1.0	10000.0	3.05	0.
800.	.3016E+08	6	1.0	1.0	10000.0	3.05	0.
900.	.2577E+08	6	1.0	1.0	10000.0	3.05	0.
1000.	.2232E+08	6	1.0	1.0	10000.0	3.05	0.
1100.	.1957E+08	6	1.0	1.0	10000.0	3.05	0.
1200.	.1732E+08	6	1.0	1.0	10000.0	3.05	0.
1300.	.1547E+08	6	1.0	1.0	10000.0	3.05	0.
1400.	.1393E+08	6	1.0	1.0	10000.0	3.05	0.
1500.	.1261E+08	6	1.0	1.0	10000.0	3.05	0.
1600.	.1149E+08	6	1.0	1.0	10000.0	3.05	0.
1700.	.1052E+08	6	1.0	1.0	10000.0	3.05	0.
1800.	.9675E+07	6	1.0	1.0	10000.0	3.05	0.
1900.	.8941E+07	6	1.0	1.0	10000.0	3.05	0.

```
  2000.   .8301E+07    6     1.0    1.0 10000.0    3.05      0.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND    25. M:
   322.   .7102E+08    6     1.0    1.0 10000.0    3.05      0.

     ************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN     .7102E+08      322.        0.


**************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
**************************************************
```

08/25/10

21:37:08
  *** SCREEN3 MODEL RUN ***
  *** VERSION DATED 96043 ***

 Lower Calera Creek

 SIMPLE TERRAIN INPUTS:
    SOURCE TYPE   =   AREA
    EMISSION RATE (G/(S-M**2)) =   1.00000
    SOURCE HEIGHT (M)   =   3.0480
    LENGTH OF LARGER SIDE (M)   =   220.0000
    LENGTH OF SMALLER SIDE (M) =   22.0000
    RECEPTOR HEIGHT (M)   =   1.8000
    URBAN/RURAL OPTION   =   RURAL
 THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
 THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

    MODEL ESTIMATES DIRECTION TO MAX CONCENTRATION

 BUOY. FLUX =   .000 M**4/S**3; MOM. FLUX =   .000 M**4/S**2.

 *** FULL METEOROLOGY ***

 ****
 *** SCREEN AUTOMATED DISTANCES ***
 ****

 *** TERRAIN HEIGHT OF   0. M ABOVE STACK BASE USED FOR FOLLOWING
DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	MAX DIR (DEG)
25.	.1999E+08	6	1.0	1.0	10000.0	3.05	0.
100.	.2971E+08	6	1.0	1.0	10000.0	3.05	2.
200.	.2668E+08	6	1.0	1.0	10000.0	3.05	0.
300.	.1817E+08	6	1.0	1.0	10000.0	3.05	0.
400.	.1251E+08	6	1.0	1.0	10000.0	3.05	0.
500.	.9048E+07	6	1.0	1.0	10000.0	3.05	0.
600.	.6850E+07	6	1.0	1.0	10000.0	3.05	0.
700.	.5393E+07	6	1.0	1.0	10000.0	3.05	0.
800.	.4392E+07	6	1.0	1.0	10000.0	3.05	0.
900.	.3671E+07	6	1.0	1.0	10000.0	3.05	0.
1000.	.3127E+07	6	1.0	1.0	10000.0	3.05	0.
1100.	.2709E+07	6	1.0	1.0	10000.0	3.05	0.
1200.	.2378E+07	6	1.0	1.0	10000.0	3.05	0.
1300.	.2108E+07	6	1.0	1.0	10000.0	3.05	0.
1400.	.1886E+07	6	1.0	1.0	10000.0	3.05	0.
1500.	.1700E+07	6	1.0	1.0	10000.0	3.05	0.
1600.	.1543E+07	6	1.0	1.0	10000.0	3.05	0.
1700.	.1408E+07	6	1.0	1.0	10000.0	3.05	0.
1800.	.1291E+07	6	1.0	1.0	10000.0	3.05	0.
1900.	.1189E+07	6	1.0	1.0	10000.0	3.05	0.

```
  2000.   .1101E+07    6     1.0    1.0 10000.0    3.05      0.

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND    25. M:
   131.   .3286E+08    6     1.0    1.0 10000.0    3.05      0.

     ************************************
     *** SUMMARY OF SCREEN MODEL RESULTS ***
     ************************************

 CALCULATION        MAX CONC    DIST TO   TERRAIN
  PROCEDURE        (UG/M**3)    MAX (M)    HT (M)
--------------    -----------   -------   -------
SIMPLE TERRAIN      .3286E+08      131.        0.


**************************************************
** REMEMBER TO INCLUDE BACKGROUND CONCENTRATIONS **
**************************************************
```

Construction Emission Assumptions and DPM Emission Calculations			
Lower Berryessa		**Lower Calera Creek**	
0.52	tons per year (unmitigated)	0.22	tons per year (unmitigated)
0.118	pounds per hour	0.050	pounds per hour
0.0149	grams per second	0.0063	grams per second
161,874	square meters	56,656	square meters
2,655	Length	917	side of area
61	Width	62	Width
9.19E-08	grams per square meter per second	1.11E-07	grams per square meter per second
0.28	tons per year (mitigated)	0.12	tons per year (mitigated)

		Chronic Impact			
Reference Exposure Level	Target Organs	Annual Concentration	Unmitigated Health Impact	Mitigated Health Impact	Element
5	Respiratory	0.6529	0.13	0.07	Lower Berryessa
5	Respiratory	0.3646	0.07	0.04	Lower Calera Creek

	Cancer Risk				
Cancer potency slope	70-Year Concentration	Dose-inhalation	Unmitigated Risk	Mitigated Risk	Element
1.1	0.0187	5.40	10.1	5.6	Lower Berryessa
1.1	0.0104	3.02	5.6	3.1	Lower Calera Creek

Construction Emission Assumptions and PM2.5 Emission and Annual Concentration Calculations			
Lower Berryessa		**Lower Calera Creek**	
0.52	tons per year (unmitigated)	0.22	tons per year (unmitigated)
9.19E-08	grams per square meter per second	1.11E-07	grams per square meter per second
0.23	tons per year (mitigated)	0.10	tons per year (mitigated)
Unimitigated			
0.65	Annual concentration	0.36	Annual concentration
Mitigated			
0.29	Annual concentration	0.16	Annual concentration
7.10E+07	Maximum Hourly Concentration at 1 grams per second per square meter (SCREEN3) for Lower Berryessa		
3.29E+07	Maximum Hourly Concentration at 1 grams per second per square meter (SCREEN3) for Lower Calera Creek		

APPENDIX E

List Special Status Species that have the Potential to Occur in the Project Area

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California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Portrait
Milpitas, Niles, Mountain View, Calveras Res, San Jose E/W

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1	*Accipiter cooperii* Cooper's hawk	ABNKC12040			G5	S3	
2	*Accipiter cooperii* Cooper's hawk	ABNKC12040			G5	S3	
3	*Actinemys marmorata* western pond turtle	ARAAD02030			G3G4	S3	SC
4	*Actinemys marmorata* western pond turtle	ARAAD02030			G3G4	S3	SC
5	*Adela oplerella* Opler's longhorn moth	IILEE0G040			G2G3	S2S3	
6	*Adela oplerella* Opler's longhorn moth	IILEE0G040			G2G3	S2S3	
7	*Agelaius tricolor* tricolored blackbird	ABPBXB0020			G2G3	S2	SC
8	*Agelaius tricolor* tricolored blackbird	ABPBXB0020			G2G3	S2	SC
9	*Ambystoma californiense* California tiger salamander	AAAAA01180	Threatened	unknown code...	G2G3	S2S3	SC
10	*Ambystoma californiense* California tiger salamander	AAAAA01180	Threatened	unknown code...	G2G3	S2S3	SC
11	*Antrozous pallidus* pallid bat	AMACC10010			G5	S3	SC
12	*Antrozous pallidus* pallid bat	AMACC10010			G5	S3	SC
13	*Aquila chrysaetos* golden eagle	ABNKC22010			G5	S3	
14	*Aquila chrysaetos* golden eagle	ABNKC22010			G5	S3	
15	*Ardea herodias* great blue heron	ABNGA04010			G5	S4	
16	*Ardea herodias* great blue heron	ABNGA04010			G5	S4	
17	*Astragalus tener var. tener* alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B.2
18	*Astragalus tener var. tener* alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B.2
19	*Athene cunicularia* burrowing owl	ABNSB10010			G4	S2	SC
20	*Athene cunicularia* burrowing owl	ABNSB10010			G4	S2	SC
21	*Atriplex depressa* brittlescale	PDCHE042L0			G2Q	S2.2	1B.2
22	*Atriplex depressa* brittlescale	PDCHE042L0			G2Q	S2.2	1B.2
23	*Atriplex joaquiniana* San Joaquin spearscale	PDCHE041F3			G2	S2	1B.2

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24	*Atriplex joaquiniana* San Joaquin spearscale	PDCHE041F3			G2	S2	1B.2
25	*Balsamorhiza macrolepis var. macrolepis* big-scale balsamroot	PDAST11061			G3G4T2	S2.2	1B.2
26	*Balsamorhiza macrolepis var. macrolepis* big-scale balsamroot	PDAST11061			G3G4T2	S2.2	1B.2
27	*California macrophylla* round-leaved filaree	PDGER01070			G3	S3.1	1B.1
28	*California macrophylla* round-leaved filaree	PDGER01070			G3	S3.1	1B.1
29	*Campanula exigua* chaparral harebell	PDCAM020A0			G2	S2.2	1B.2
30	*Campanula exigua* chaparral harebell	PDCAM020A0			G2	S2.2	1B.2
31	*Centromadia parryi ssp. congdonii* Congdon's tarplant	PDAST4R0P1			G4T3	S3.2	1B.2
32	*Centromadia parryi ssp. congdonii* Congdon's tarplant	PDAST4R0P1			G4T3	S3.2	1B.2
33	*Charadrius alexandrinus nivosus* western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
34	*Charadrius alexandrinus nivosus* western snowy plover	ABNNB03031	Threatened		G4T3	S2	SC
35	*Chorizanthe robusta var. robusta* robust spineflower	PDPGN040Q2	Endangered		G2T1	S1.1	1B.1
36	*Chorizanthe robusta var. robusta* robust spineflower	PDPGN040Q2	Endangered		G2T1	S1.1	1B.1
37	*Circus cyaneus* northern harrier	ABNKC11010			G5	S3	SC
38	*Circus cyaneus* northern harrier	ABNKC11010			G5	S3	SC
39	*Cirsium fontinale var. campylon* Mt. Hamilton fountain thistle	PDAST2E163			G2T2	S2.2	1B.2
40	*Cirsium fontinale var. campylon* Mt. Hamilton fountain thistle	PDAST2E163			G2T2	S2.2	1B.2
41	*Clarkia concinna ssp. automixa* Santa Clara red ribbons	PDONA050A1			G5?T3	S3.3	4.3
42	*Clarkia concinna ssp. automixa* Santa Clara red ribbons	PDONA050A1			G5?T3	S3.3	4.3
43	*Collinsia multicolor* San Francisco collinsia	PDSCR0H0B0			G2	S2.2	1B.2
44	*Collinsia multicolor* San Francisco collinsia	PDSCR0H0B0			G2	S2.2	1B.2
45	*Cordylanthus maritimus ssp. palustris* Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B.2
46	*Cordylanthus maritimus ssp. palustris* Point Reyes bird's-beak	PDSCR0J0C3			G4?T2	S2.2	1B.2

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
47	*Corynorhinus townsendii* Townsend's big-eared bat	AMACC08010			G4	S2S3	SC
48	*Corynorhinus townsendii* Townsend's big-eared bat	AMACC08010			G4	S2S3	SC
49	*Dipodomys heermanni berkeleyensis* Berkeley kangaroo rat	AMAFD03061			G3G4T1	S1	
50	*Dipodomys heermanni berkeleyensis* Berkeley kangaroo rat	AMAFD03061			G3G4T1	S1	
51	*Dudleya setchellii* Santa Clara Valley dudleya	PDCRA040Z0	Endangered		G1	S1.1	1B.1
52	*Dudleya setchellii* Santa Clara Valley dudleya	PDCRA040Z0	Endangered		G1	S1.1	1B.1
53	*Egretta thula* snowy egret	ABNGA06030			G5	S4	
54	*Egretta thula* snowy egret	ABNGA06030			G5	S4	
55	*Elanus leucurus* white-tailed kite	ABNKC06010			G5	S3	
56	*Elanus leucurus* white-tailed kite	ABNKC06010			G5	S3	
57	*Eryngium aristulatum var. hooveri* Hoover's button-celery	PDAPI0Z043			G5T2	S2.1	1B.1
58	*Eryngium aristulatum var. hooveri* Hoover's button-celery	PDAPI0Z043			G5T2	S2.1	1B.1
59	*Euphydryas editha bayensis* Bay checkerspot butterfly	IILEPK4055	Threatened		G5T1	S1	
60	*Euphydryas editha bayensis* Bay checkerspot butterfly	IILEPK4055	Threatened		G5T1	S1	
61	*Falco peregrinus anatum* American peregrine falcon	ABNKD06071	Delisted	unknown code...	G4T3	S2	
62	*Falco peregrinus anatum* American peregrine falcon	ABNKD06071	Delisted	unknown code...	G4T3	S2	
63	*Fritillaria liliacea* fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2
64	*Fritillaria liliacea* fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2
65	*Geothlypis trichas sinuosa* saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2	SC
66	*Geothlypis trichas sinuosa* saltmarsh common yellowthroat	ABPBX1201A			G5T2	S2	SC
67	*Lasiurus cinereus* hoary bat	AMACC05030			G5	S4?	
68	*Lasiurus cinereus* hoary bat	AMACC05030			G5	S4?	
69	*Lasthenia conjugens* Contra Costa goldfields	PDAST5L040	Endangered		G1	S1.1	1B.1

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
70	*Lasthenia conjugens* Contra Costa goldfields	PDAST5L040	Endangered		G1	S1.1	1B.1
71	*Laterallus jamaicensis coturniculus* California black rail	ABNME03041		Threatened	G4T1	S1	
72	*Laterallus jamaicensis coturniculus* California black rail	ABNME03041		Threatened	G4T1	S1	
73	*Lepidurus packardi* vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
74	*Lepidurus packardi* vernal pool tadpole shrimp	ICBRA10010	Endangered		G3	S2S3	
75	*Malacothamnus arcuatus* arcuate bush-mallow	PDMAL0Q0E0			G2Q	S2.2	1B.2
76	*Malacothamnus arcuatus* arcuate bush-mallow	PDMAL0Q0E0			G2Q	S2.2	1B.2
77	*Malacothamnus hallii* Hall's bush-mallow	PDMAL0Q0F0			G1Q	S1.2	1B.2
78	*Malacothamnus hallii* Hall's bush-mallow	PDMAL0Q0F0			G1Q	S1.2	1B.2
79	*Masticophis lateralis euryxanthus* Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
80	*Masticophis lateralis euryxanthus* Alameda whipsnake	ARADB21031	Threatened	Threatened	G4T2	S2	
81	*Melospiza melodia pusillula* Alameda song sparrow	ABPBXA301S			G5T2?	S2?	SC
82	*Melospiza melodia pusillula* Alameda song sparrow	ABPBXA301S			G5T2?	S2?	SC
83	*Microcina homi* Hom's micro-blind harvestman	ILARA47020			G1	S1	
84	*Microcina homi* Hom's micro-blind harvestman	ILARA47020			G1	S1	
85	*Monardella villosa ssp. globosa* robust monardella	PDLAM180P7			G5T2	S2.2	1B.2
86	*Monardella villosa ssp. globosa* robust monardella	PDLAM180P7			G5T2	S2.2	1B.2
87	*Myotis yumanensis* Yuma myotis	AMACC01020			G5	S4?	
88	*Myotis yumanensis* Yuma myotis	AMACC01020			G5	S4?	
89	*Navarretia prostrata* prostrate vernal pool navarretia	PDPLM0C0Q0			G2?	S2.1?	1B.1
90	*Navarretia prostrata* prostrate vernal pool navarretia	PDPLM0C0Q0			G2?	S2.1?	1B.1
91	*Neotoma fuscipes annectens* San Francisco dusky-footed woodrat	AMAFF08082			G5T2T3	S2S3	SC
92	*Neotoma fuscipes annectens* San Francisco dusky-footed woodrat	AMAFF08082			G5T2T3	S2S3	SC

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
93	*Northern Coastal Salt Marsh*	CTT52110CA			G3	S3.2	
94	*Northern Coastal Salt Marsh*	CTT52110CA			G3	S3.2	
95	*Oncorhynchus mykiss irideus* steelhead - central California coast ESU	AFCHA0209G	Threatened		G5T2Q	S2	
96	*Oncorhynchus mykiss irideus* steelhead - central California coast ESU	AFCHA0209G	Threatened		G5T2Q	S2	
97	*Plagiobothrys glaber* hairless popcorn-flower	PDBOR0V0B0			GH	SH	1A
98	*Plagiobothrys glaber* hairless popcorn-flower	PDBOR0V0B0			GH	SH	1A
99	*Polemonium carneum* Oregon polemonium	PDPLM0E050			G4	S1	2.2
100	*Polemonium carneum* Oregon polemonium	PDPLM0E050			G4	S1	2.2
101	*Potamogeton filiformis* slender-leaved pondweed	PMPOT03090			G5	S1S2	2.2
102	*Potamogeton filiformis* slender-leaved pondweed	PMPOT03090			G5	S1S2	2.2
103	*Rallus longirostris obsoletus* California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	
104	*Rallus longirostris obsoletus* California clapper rail	ABNME05016	Endangered	Endangered	G5T1	S1	
105	*Rana boylii* foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
106	*Rana boylii* foothill yellow-legged frog	AAABH01050			G3	S2S3	SC
107	*Rana draytonii* California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
108	*Rana draytonii* California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3	SC
109	*Reithrodontomys raviventris* salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
110	*Reithrodontomys raviventris* salt-marsh harvest mouse	AMAFF02040	Endangered	Endangered	G1G2	S1S2	
111	*Sidalcea malachroides* maple-leaved checkerbloom	PDMAL110E0			G3G4	S3S4.2	4.2
112	*Sidalcea malachroides* maple-leaved checkerbloom	PDMAL110E0			G3G4	S3S4.2	4.2
113	*Sorex vagrans halicoetes* salt-marsh wandering shrew	AMABA01071			G5T1	S1	SC
114	*Sorex vagrans halicoetes* salt-marsh wandering shrew	AMABA01071			G5T1	S1	SC
115	*Sternula antillarum browni* California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	
116	*Sternula antillarum browni* California least tern	ABNNM08103	Endangered	Endangered	G4T2T3Q	S2S3	

	Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
117	*Streptanthus albidus ssp. albidus* Metcalf Canyon jewel-flower	PDBRA2G011	Endangered		G2T1	S1.1	1B.1
118	*Streptanthus albidus ssp. albidus* Metcalf Canyon jewel-flower	PDBRA2G011	Endangered		G2T1	S1.1	1B.1
119	*Streptanthus albidus ssp. peramoenus* most beautiful jewel-flower	PDBRA2G012			G2T2	S2.2	1B.2
120	*Streptanthus albidus ssp. peramoenus* most beautiful jewel-flower	PDBRA2G012			G2T2	S2.2	1B.2
121	*Suaeda californica* California seablite	PDCHE0P020	Endangered		G1	S1.1	1B.1
122	*Suaeda californica* California seablite	PDCHE0P020	Endangered		G1	S1.1	1B.1
123	*Tropidocarpum capparideum* caper-fruited tropidocarpum	PDBRA2R010			G1	S1.1	1B.1
124	*Tropidocarpum capparideum* caper-fruited tropidocarpum	PDBRA2R010			G1	S1.1	1B.1
125	*Tryonia imitator* mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3	
126	*Tryonia imitator* mimic tryonia (=California brackishwater snail)	IMGASJ7040			G2G3	S2S3	
127	*Vulpes macrotis mutica* San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	
128	*Vulpes macrotis mutica* San Joaquin kit fox	AMAJA03041	Endangered	Threatened	G4T2T3	S2S3	

CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 35 items - Wed, Apr. 28, 2010 11:03 c

- During each visit, we provide you with an empty "Plant Press" for collecting items of interest.
- Several report formats are available. Use the CSV and XML options to download raw data.

Reformat list as: Standard List - with Plant Press controls

DELETE unchecked items | check all | check none

open	save	scientific	common	family	CNPS
	☑	Arctostaphylos andersonii	Anderson's manzanita	Ericaceae	List 1B.2
	☑	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
	☑	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
	☑	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
	☑	Balsamorhiza macrolepis var. macrolepis	big-scale balsamroot	Asteraceae	List 1B.2
	☑	California macrophylla	round-leaved filaree	Geraniaceae	List 1B.1
	☑	Campanula exigua	chaparral harebell	Campanulaceae	List 1B.2
	☑	Centromadia parryi ssp. congdonii	Congdon's tarplant	Asteraceae	List 1B.2
	☑	Chorizanthe robusta var. robusta	robust spineflower	Polygonaceae	List 1B.1
	☑	Cirsium fontinale var. campylon	Mt. Hamilton fountain thistle	Asteraceae	List 1B.2
	☑	Collinsia multicolor	San Francisco collinsia	Scrophulariaceae	List 1B.2

	☑	Cordylanthus maritimus ssp. palustris	Point Reyes bird's-beak	Scrophulariaceae	List 1B.2
	☑	Dirca occidentalis	western leatherwood	Thymelaeaceae	List 1B.2
	☑	Dudleya setchellii	Santa Clara Valley dudleya	Crassulaceae	List 1B.1
	☑	Eriogonum nudum var. decurrens	Ben Lomond buckwheat	Polygonaceae	List 1B.1
	☑	Eryngium aristulatum var. hooveri	Hoover's button-celery	Apiaceae	List 1B.1
	☑	Fritillaria liliacea	fragrant fritillary	Liliaceae	List 1B.2
	☑	Helianthella castanea	Diablo helianthella	Asteraceae	List 1B.2
	☑	Hoita strobilina	Loma Prieta hoita	Fabaceae	List 1B.1
	☑	Lasthenia conjugens	Contra Costa goldfields	Asteraceae	List 1B.1
	☑	Lessingia hololeuca	woolly-headed lessingia	Asteraceae	List 3
	☑	Malacothamnus arcuatus	arcuate bush-mallow	Malvaceae	List 1B.2
	☑	Malacothamnus hallii	Hall's bush-mallow	Malvaceae	List 1B.2
	☑	Micropus amphibolus	Mt. Diablo cottonweed	Asteraceae	List 3.2
	☑	Monardella antonina ssp. antonina	San Antonio Hills monardella	Lamiaceae	List 3
	☑	Monardella villosa ssp. globosa	robust monardella	Lamiaceae	List 1B.2
	☑	Monolopia gracilens	woodland woolythreads	Asteraceae	List 1B.2
	☑	Navarretia prostrata	prostrate vernal pool navarretia	Polemoniaceae	List 1B.1
	☑	Plagiobothrys glaber	hairless popcorn-flower	Boraginaceae	List 1A

	☑	Potamogeton filiformis	slender-leaved pondweed	Potamogetonaceae	List 2.2
	☑	Senecio aphanactis	chaparral ragwort	Asteraceae	List 2.2
	☑	Streptanthus albidus ssp. albidus	Metcalf Canyon jewel-flower	Brassicaceae	List 1B.1
	☑	Streptanthus albidus ssp. peramoenus	most beautiful jewel-flower	Brassicaceae	List 1B.2
	☑	Suaeda californica	California seablite	Chenopodiaceae	List 1B.1
	☑	Tropidocarpum capparideum	caper-fruited tropidocarpum	Brassicaceae	List 1B.1

DELETE unchecked items | check all | check none

U.S. Fish & Wildlife Service
Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 100729014241

Database Last Updated: April 29, 2010

Quad Lists

Listed Species

Invertebrates

Branchinecta conservatio
- Conservancy fairy shrimp (E)

Euphydryas editha bayensis
- bay checkerspot butterfly (T)
- Critical habitat, bay checkerspot butterfly (X)

Lepidurus packardi
- Critical habitat, vernal pool tadpole shrimp (X)
- vernal pool tadpole shrimp (E)

Fish

Acipenser medirostris
- green sturgeon (T) (NMFS)

Hypomesus transpacificus
- delta smelt (T)

Oncorhynchus kisutch
- coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
- Central California Coastal steelhead (T) (NMFS)
- Central Valley steelhead (T) (NMFS)
- Critical habitat, Central California coastal steelhead (X) (NMFS)

Oncorhynchus tshawytscha
- Central Valley spring-run chinook salmon (T) (NMFS)
- winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
- California tiger salamander, central population (T)
- Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
- California red-legged frog (T)
- Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
- Alameda whipsnake [=striped racer] (T)
- Critical habitat, Alameda whipsnake (X)

Birds

Charadrius alexandrinus nivosus
- western snowy plover (T)

Pelecanus occidentalis californicus
- California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Dudleya setchellii
Santa Clara Valley dudleya (E)

Lasthenia conjugens
Contra Costa goldfields (E)
Critical habitat, Contra Costa goldfields (X)

Streptanthus albidus ssp. albidus
Metcalf Canyon jewelflower (E)

Suaeda californica
California sea blite (E)

Proposed Species

Amphibians

Rana draytonii
Critical habitat, California red-legged frog (PX)

Quads Containing Listed, Proposed or Candidate Species:

CALAVERAS RESERVOIR (427A)
MILPITAS (427B)
SAN JOSE WEST (427C)
SAN JOSE EAST (427D)
MOUNTAIN VIEW (428A)

County Lists

Santa Clara County

Listed Species

Invertebrates

Branchinecta lynchi
vernal pool fairy shrimp (T)

Euphydryas editha bayensis
bay checkerspot butterfly (T)
Critical habitat, bay checkerspot butterfly (X)

Fish

Eucyclogobius newberryi
tidewater goby (E)

Oncorhynchus kisutch
coho salmon - central CA coast (E) (NMFS)

Oncorhynchus mykiss
Central California Coastal steelhead (T) (NMFS)

Critical habitat, Central California coastal steelhead (X) (NMFS)
South Central California steelhead (T) (NMFS)

Oncorhynchus tshawytscha
Central Valley spring-run chinook salmon (T) (NMFS)
winter-run chinook salmon, Sacramento River (E) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana draytonii
California red-legged frog (T)
Critical habitat, California red-legged frog (X)

Reptiles

Masticophis lateralis euryxanthus
Alameda whipsnake [=striped racer] (T)
Critical habitat, Alameda whipsnake (X)

Thamnophis sirtalis tetrataenia
San Francisco garter snake (E)

Birds

Brachyramphus marmoratus
marbled murrelet (T)

Charadrius alexandrinus nivosus
western snowy plover (T)

Pelecanus occidentalis californicus
California brown pelican (E)

Rallus longirostris obsoletus
California clapper rail (E)

Sternula antillarum (=Sterna, =albifrons) browni
California least tern (E)

Vireo bellii pusillus
Least Bell's vireo (E)

Mammals

Reithrodontomys raviventris
salt marsh harvest mouse (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Castilleja affinis ssp. neglecta
Tiburon paintbrush (E)

Ceanothus ferrisae
Coyote ceanothus (E)

Dudleya setchellii
Santa Clara Valley dudleya (E)

Streptanthus albidus ssp. albidus
Metcalf Canyon jewelflower (E)

Proposed Species

Fish

Oncorhynchus mykiss
Critical habitat, South Central California steelhead (PX) (NMFS)

Amphibians

Rana draytonii
Critical habitat, California red-legged frog (PX)

Key:

(E) *Endangered* - Listed as being in danger of extinction.
(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.
(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.
(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.
Critical Habitat - Area essential to the conservation of a species.
(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.
(C) *Candidate* - Candidate to become a proposed species.
(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.
(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the

list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist and/or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list. See our Protocol and Recovery Permits pages.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

Although critical habitat may be designated on private or State lands, activities on these lands are not restricted unless there is Federal involvement in the activities or direct harm to listed wildlife.

If any species has proposed or designated critical habitat within a quad, there will be a separate line for this on the species list. Boundary descriptions of the critical habitat may be found in the Federal Register. The information is also reprinted in the Code of Federal Regulations (50 CFR 17.95). See our Map Room page.

Candidate Species

We recommend that you address impacts to candidate species. We put plants and animals on our candidate list when we have enough scientific information to eventually propose them for listing as threatened or endangered. By considering these species early in your planning process you may be able to avoid the problems that could develop if one of these candidates was listed before the end of your project.

Species of Concern

The Sacramento Fish & Wildlife Office no longer maintains a list of species of concern. However, various other agencies and organizations maintain lists of at-risk species. These lists provide essential information for land management planning and conservation efforts. More info

Wetlands

If your project will impact wetlands, riparian habitat, or other jurisdictional waters as defined by section 404 of the Clean Water Act and/or section 10 of the Rivers and Harbors Act, you will need to obtain a permit from the U.S. Army Corps of Engineers. Impacts to wetland habitats require site specific mitigation and monitoring. For questions regarding wetlands, please contact Mark Littlefield of this office at (916) 414-6580.

Updates

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be October 27, 2010.

APPENDIX F
Public and Agency Draft EIR Comment Letters

Public disclosure and dialogue are priorities under CEQA. Once a Draft EIR is complete, the lead agency is required to notify agencies and the public that it is available for review. During the review period, the lead agency receives and collates public and agency comments on the proposed action and the document. Before the lead agency can approve a proposed action, it must prepare a Final EIR that addresses all comments received on the draft document. The Final EIR is required to include a list of all individuals, organizations, and agencies that provided comments, and must contain copies of all comments received during the public review period, along with the lead agency's responses.

The Santa Clara Valley Water District (District) circulated the Draft EIR for a 48-day public review period, which ended August 12, 2011. A total of eight comment letters were received.

Copies of all comment letters received from members of the community, local jurisdictions, and public agencies are provided on the subsequent pages. Each comment letter was assigned a number (Table G-1), and specific comments within each letter were identified by number. Table G-2 provides the comment text and the response to the comment. The table also identifies whether a change was needed for the Final Environmental Impact Report (EIR) in the "Response to Comments" column and includes the page number of the change.

The Final EIR has been revised based on comments received during the public review period, and changes are identified in Table G-2. In addition, typographic errors and minor clarifications have also been corrected in the Final EIR. Text to be deleted is shown in strikeout (~~strikeout~~), and text that has been inserted is shown in underline (<u>underline</u>).

Recirculation of the Draft EIR was not necessary; no significant new information resulted from public and agency comments. The comments and subsequent changes to the Final EIR clarified and augmented the Draft EIR, which resulted in insignificant modifications to the Draft EIR. As the District proceeds through the design process, additional environmental documentation may be prepared as necessary (CEQA Guidelines Sections 15162, 15163, 15164).

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DEPARTMENT OF TRANSPORTATION
111 GRAND AVENUE
P. O. BOX 23660
OAKLAND, CA 94623-0660
PHONE (510) 286-5541
FAX (510) 286-5559
TTY 711

Flex your power!
Be energy efficient!

August 12, 2011

SCL-VAR
SCLVAR001
SCH# 2007092084

Mr. David Dunlap, Senior Environmental Planner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118-3614

Dear Mr. Dunlap:

Lower Berryessa Creek Flood Protection Project – Draft Environmental Impact Report (DEIR)

Thank you for including the California Department of Transportation (Department) in the environmental review process for the above-referenced project. We have reviewed the proposed project's DEIR and offer the following comments.

Hydraulics

1. Please describe in detail the existing conditions of the Lower Berryessa, Calera, Tularcitos, and Lower Penitencia Creek crossings (creek crossings) at Interstate (I-) 680 and I-880 (see section 3.I.1 Environmental Setting, Existing Hydrologic Conditions, p. 3.I-1).

2. Please provide detailed information regarding the bridges and culverts, including but not limited to dimensions and types (e.g., corrugated metal pipe, reinforced concrete, etc.) at the creek crossings at I-680 and I-880.

3. Please discuss in detail any major impact(s) to the existing I-680 and I-880 creek crossings, including but not limited to, adequate passage of channel flow after the project is completed. If there is inadequate channel capacity within the creeks, as indicated in the discussion concerning Lower Penitencia Creek (see p. 3.I-4), what is the impact to the downstream channel crossing (e.g., the downstream I-880 crossing)?

4. Are there any post-construction mitigation measures, monitoring, or reporting required for the project? If so, please discuss in detail information such as, but not

limited to, responsibility for the measures, monitoring, and reporting and the frequency of the monitoring and reporting.

Cultural Resources

Should construction activities within the State right-of-way (ROW) take place as part of this project, these mitigation measures shall be implemented for an archaeological discovery. If there should be an inadvertent archaeological or burial discovery within State ROW, the Department's Office of Cultural Resource Studies shall be immediately contacted at (510) 286-5618. A staff archaeologist will evaluate the finds within one business day after contact. The Department requires review of any potential data recovery plans within State ROW.

Traffic Systems

Please be advised that the project limits of this project overlaps with the project limits of the Department's Transportation Management System Project (EA 523010) on I-680. Specifically, both projects (i.e., the Lower Berryessa Creek Flood Protection Project and the Department's Transportation Management System Project) propose work at the southbound I-680 on-ramp at Jacklin Road. The Department proposes to add a High Occupancy Vehicle lane, California Highway Patrol Enforcement Area, ramp metering equipment, and Traffic Operating Systems equipment.

Multi-Modal Connections

The Department respectfully requests the Santa Clara Valley Water District work in coordination with the Department, to ensure an Americans with Disabilities Act (ADA) compliant connection is provided from the multi-use path to California Circle. An ADA compliant connection will provide better public access to the Coyote Creek Trail and surrounding land use. Please contact Beth Thomas, District 4 Pedestrian Coordinator, at (510) 286-7227 to discuss the process for reviewing an ADA compliant connection.

Encroachment Permit

Work that encroaches onto the State ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.

Office of Permits
California DOT, District 4
P.O. Box 23660
Oakland, CA 94623-0660

See the website link below for more information.
http://www.dot.ca.gov/hq/traffops/developserv/permits/

Please feel free to contact Brian Brandert at (510) 286-5505, if you have any questions regarding this letter.

Sincerely,

GARY ARNOLD
District Branch Chief
Local Development-Intergovernmental Review

c: Scott Morgan (State Clearinghouse)

State of California – The Natural Resources Agency
DEPARTMENT OF FISH AND GAME
Bay Delta Region
7329 Silverado Trail
Napa, CA 94558
(707) 944-5500
www.dfg.ca.gov

EDMUND G. BROWN, Jr. *Governor*
JOHN McCAMMAN, *Director*

August 10, 2011

Mr. David Dunlap, Senior Environmental Planner
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Dear Mr. Dunlap:

Subject: Lower Berryessa Creek Project, Program Environmental Impact Report, SCH #2007092084, Santa Clara County

The Department of Fish and Game (DFG) has reviewed the Santa Clara Valley Water District's (District) document provided for the subject project, and we have the following comments.

Page 3.D-43 – Adverse Affects to Wetlands and Waters: The document states that construction of the Lower Berryessa Creek Element and Lower Calera Creek Element would result in approximately 8.64 acres of impacts to waters of the United States, including wetlands. The District references the *Instream Wetland Revegetation Regrowth Study* (District 2002) which found that re-growth of non-tidal wetlands approached or surpassed pre-excavation amounts within one to two years. As part of the District's proposed mitigation for impacts to wetland habitat, Mitigation Measure 3.d-4b: Compensate for Loss is proposed to compensate for the unavoidable loss of wetlands and other waters and riparian habitats at a ratio of 1:1. The District acknowledges that the amount of time between impact and recolonization of wetlands and waters is considered permanent. DFG requests that the District provide a contingency plan describing what actions the District plans to take if recolonization of the impacted wetland riparian habitat does not occur at the expected rate of one to two years.

Page 3.D-43 – Riparian Habitat: The document does not appear to distinguish impacts to wetlands and waters of the United States from those within DFG's 1602 jurisdiction, which includes impacts within the bed, bank, and channel, as well as the associated riparian habitat. Please describe the expected impacts to DFG's 1602 jurisdiction, including impacts specific to riparian habitat. The Department does not expect impacted riparian habitat to recolonize within the same time frame as that expected for wetland habitat (one to two years); therefore, DFG expects the District to implement a mitigation ratio of at least 2:1 to compensate for the permanent loss of riparian habitat as a result of the project.

Page 3.D-47 – Tree and Shrub Replacement: The document states that the District shall prepare a tree replacement plan, with an expected minimum, anticipated 1:1 aerial coverage ratio at maturity, and that the plantings would be monitored for a minimum of three years after completion of project construction. DFG requests that the District provide additional information, including a description of the approximate number and species of trees and shrubs that are anticipated to be impacted by the project, what types of trees and shrubs are anticipated to be replanted (both approximate quantity and species), what the expected success criteria are for the replanted trees and shrubs, an indication of whether parameters such as health and vigor will be incorporated into a planting plan, anticipated needs for irrigation, and what actions the District proposes to take if the replanted trees and shrubs do not appear to meet established success criteria within the proposed three years of monitoring.

DFG appreciates the opportunity to comment on the District's Program Environmental Impact Report for the Lower Berryessa Creek Project. Questions regarding this letter and further coordination on this project should be directed to Ms. Tami Schane, Environmental Scientist, at (415) 831-4640; or Mr. Liam Davis, Senior Environmental Scientist, at (707) 944-5529.

Sincerely,

Scott Wilcox FOR

Carl Wilcox
Regional Manager
Bay Delta Region

cc: State Clearinghouse

City of Milpitas

Engineering Division

455 E. Calaveras Boulevard, Milpitas CA 95035

August 12, 2011

Santa Clara Valley Water District
Attn: Mr. David Dunlap
5750 Almaden Expressway
San Jose, CA 95118-3614

Subject: SCH 2007092084 DEIR Lower Berryessa Creek Flood Protection Project

Dear Mr. Dunlap:

The City of Milpitas supports the Santa Clara Valley Water District's (SCVWD) Lower Berryessa Creek Flood Protection Project, and we appreciate the opportunity to review and provide comment on the Draft Environmental Impact Report (DEIR). The project will provide necessary improvements to protect Milpitas residents from potential flood waters.

We have the following comments on the Project:

1. Please update the Summary on page S-4 and Section 2.G.2 on page 2-38 to include:
    a. The proposed Tularcitos Storm Pump Station will be located in a residential neighborhood and is described as a diesel-powered storm pump station. Electric-powered pumps are environmentally superior to diesel-powered pumps and the project description should be modified accordingly and electric motors should be installed.
    b. A written agreement with the City of Milpitas will be required if the SCVWD intends to transfer pump station operations and maintenance to the City.
2. The public currently enjoys the levee trail system and pedestrian bridges. According to the DEIR, trail access is impacted during the construction period and will be restored upon completion of the Project. A written agreement with the City will be required for the pedestrian bridge relocation.
3. Please update Section 3.N.1 starting on page 3.N-1 to include:
    a. The City's 2001 Storm Drain Master Plan identifies some localized collection system deficiencies resulting from the 10-year and 100 year storms.
    b. The City recently increased its sanitary sewer treatment capacity from 13.5 million gallons per day to 14.25 million gallons per day.
4. The Project requires transportation of large quantity of soil and construction materials during the construction phase. Work within the public right-of-way will require a City encroachment permit, shall comply with hauling routes, and shall require restoration of pavement damaged by the project.
5. Removal of trees shall be in accordance with Milpitas Municipal Code Title X Chapter 2.
6. Visual impacts discussed in the letter sent by Village II Owners Association of Hidden Lake Villages should be adequately addressed.

If you have questions, please contact me at (408) 586- 3328 or fbravo@ci.milpitas.ca.gov.

Sincerely,

for

Land Development Principal Civil Engineer
Fernando G. Bravo, P.E.

Copy: Public Works Director

STATE OF CALIFORNIA Edmund G. Brown Jr., *Governor*

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

August 3, 2011

David Dunlap
Senior Environmental Planner
Santa Clara Water District
5750 Almaden Expressway
San Jose, CA 95118-3614

Re: Notice of Completion-Draft Environmental Impact Report (DEIR) Lower Berryessa Creek Project
SCH#2007092084

Dear Mr. Dunlap,

As the state agency responsible for rail safety within California, the California Public Utilities Commission (CPUC or Commission) recommends that development projects proposed near rail corridors be planned with the safety of these corridors in mind. New developments and improvements to existing facilities may increase vehicular traffic volumes, not only on streets and at intersections, but also at at-grade highway-rail crossings. In addition, projects may increase pedestrian traffic at crossings, and elsewhere along rail corridor rights-of-way. Working with CPUC staff early in project planning will help project proponents, agency staff, and other reviewers to identify potential project impacts and appropriate mitigation measures, and thereby improve the safety of motorists, pedestrians, railroad personnel, and railroad passengers.

The Berryessa Creek pedestrian/bicycle trail consists of an unauthorized at-grade crossing just south of the Abel St overpass (http://maps.google.com/?ll=37.442316,121.908969&spn=0.001215,0.001717&t=h&z=20).

All new rail crossings require authorization from the California Public Utilities Commission (CPUC). This unauthorized crossing has not been reviewed by CPUC staff for safety issues.

The CPUC's policy is not to allow any new at-grade rail crossings. The Union Pacific track at this location is active with approximately 10 trains per day. The trail crossing *must* be immediately closed and the trail must be terminated on both sides of the crossing well away from the tracks to discourage trespassing.

In addition, the BART extension to San Jose is planned for the eastern track. The BART alignment is planned to be at-grade as stated in Chapter 2 of the Silicon Valley Rapid Transit Corridor Final Environmental Impact Statement released in March 2010.

Approaching Abel Street, the alignment would continue at grade, cross over an existing underground culvert containing Calera Creek (STA 231+00), where no culvert improvements are planned but new drainage outfalls would be installed by others. BART would then pass under the existing Abel Street overcrossing (STA 244+00). BART would continue over Berryessa Creek on a new multi-cell box culvert constructed by others to accommodate the widening and realigning of the creek by the Santa Clara Valley Water District (STA 246+00).

The BART system will not allow for an at-grade pedestrian trail crossing. Therefore, the unauthorized pedestrian crossing absolutely needs to be closed. If closure is not an option, the water district may apply for a grade separated pedestrian crossing in which the trail travels over or beneath the tracks.

A formal application will be required to be filed with the CPUC. The Final EIR, which is required to be submitted with the CPUC, will need to specifically address any railroad crossings.

The Lower Berryessa Creek element of the project consists of raising a "railroad-car bridge super structure." The exact structure is not identified. Any and all modification of existing crossings, either at-grade or grade separated, requires authorization from the CPUC. A General Order 88-B will be required to be filed for modification of an existing crossing. Any grade separation structure will need to comply with the clearance requirements stated in CPUC General Order 26-D.

The water district needs to respond immediately to the CPUC regarding these items.

Thank you for your consideration of these comments and look forward in working with the Water District to resolve these safety related issues. Please contact Felix Ko, Utilities Engineer at (415) 703-3722 or fko@cpuc.ca.gov.

Sincerely,

Moses Stites

Moses Stites
Rail Corridor Safety Specialist
Consumer Protection and Safety Division
Rail Transit and Crossings Branch
180 Promenade Circle, Suite 115
Sacramento, CA 95834-2939

Attachment


Abel St
Abel St
Abel St

eFM

eFM Cases

New Request

Quick Tally

Advanced Search

Location Search

« Back to Case List

Case Details

View Print Version | Clone Case

Case Number:	19805	Status:	Pending change
Tags: suggest related cases	Manage case Tags	Request Type:	Request service
Customer:	Latham, Terry external customer 76 SUDBURY DR MILPITAS CA 95035 (map) 4086669921 terry.latham@comcast.net Facility: None Watershed: Coyote Maximo Assignee: None View customer's 1 open cases	Location of Request:	edit Facility: N/A edit
Preferred Contact Method:	Email		
Submitted By:	Latham, Terry customer	Primary Owner:	Dunlap, David
Topic:	Public review documents>Lower Berryessa Creek Program DEIR (Environmental Services (243))	Secondary Owner:	Ndah, Tony
		Date/Time Created:	08/08/2011 13:28
		Date/Time Closed:	
Custom Fields:	Charge Number (please fill in full 23 digit account coding if requesting work): (empty)		

Original Request

Reviewing the documents sent through the mail, there is a picture showing Calera Creek (C) stating "will include flood walls and riparian vegetation on one side". The picture shows vegetation on the south side and what looks like a road on the north side where there houses. Can the vegetation be on the north side?
Also, there is currently no public access to this section of creek, I would like to be assured there are NO plans to open up this short section to the public (between Arizona Ave and N. Milpitas Blvd).
Thank you.

Customer Communications *

Send an Email | Log Communication | Mail Merge

Date	From	Text
08/23/2011 08:21	Magill, Mala	Details » Comments received from project neighbor.
08/08/2011 13:28	auto notification	Details » Dear Terry Latham: Thank you for commenting on the Lower Berryessa Creek Program (Draft) Environmental Impact Report. District staff will provide a written response to your comments after the close of the public review period, which ends on August 12, 2011. If you have additional questions or concerns you may contact district staff by clicking on the following link https://clients.comcate.com/myfeedbackView.php?view=387203&id=80.

* *Customer Communications are visible on the customer's case status page.*

Internal Activity

Add/Email Notes | New Task | Prepare WO | Survey-LP/WV | Survey-G | Survey-C/UL

Linda S. Adams
Secretary for
Environmental Protection

Arnold Schwarzenegger
Governor

August 1, 2011
CIWQS Place No. 768945 (MB)

Sent via electronic mail: No hardcopy to follow

Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Attention: David Dunlap
Email: DDunlap@valleywater.org

Subject: Comments on the Draft Environmental Impact Report for Lower Berryessa Creek Program, City of Milpitas, Santa Clara County, SCH No. 2007092084

Dear Mr. Dunlap:

The San Francisco Bay Regional Water Quality Control Board (Water Board) appreciates the opportunity to review the *Draft Environmental Impact Report for the Lower Berryessa Creek Program in Santa Clara County* (DEIR). The DEIR assesses anticipated environmental impacts resulting from various flood protection activities along Lower Berryessa Creek, Calera Creek (Lower and Upper), Tularcitos Creek, and Lower Penitencia Creek for a combined total of 25,000 linear feet in the City of Milpitas (Project). The DEIR provides an analysis of potential environmental impacts on a programmatic level and a project level, which includes a preliminary conceptual assessment of impacts at the Program level for the Upper Calera Creek, Tularcitos Creek, and Lower Penitencia; and a more detail project level environmental assessment of impacts for the Lower Berryessa Creek element and Lower Calera Creek element. The District will develop supplemental CEQA documents for the Program level elements as the design is more defined. The Santa Clara Valley Water District (District) proposes a Project with six components: 1) raise existing levees along all the creek elements, 2) construct floodwalls along all the creek elements, 3) construct an underground concrete box culvert on Upper Calera Creek, 4) construct a pump station on Tularcitos Creek, 5) construct maintenance roads and turnouts along all the creek elements, and 6) restore the design capacity by removing sediment and vegetation in Lower Penitencia Creek.

Summary of Comments

In its present form the DEIR lacks a sufficiently adequate discussion of impacts and proposed mitigation measures to support the issuance of Section 401 Water Quality Certification or Waste Discharge Requirements (WDRs). Since several impacts are not addressed in the DEIR and mitigation measures are either conceptual, or in the case of Lower Calera Creek (channel widening/re-configuration), Upper Calera Creek (culvert), and Tularcitos Creek (stormwater pump station), not present in any form, the DEIR should be revised and re-circulated. Re-circulation is necessary to allow for review and comment on the impacts and proposed mitigation.

We have the following comments, as described in more detail below, on the Project as presented in the DEIR, which may impact waters of the State. Full responses to these comments should be useful in developing a revised EIR that would facilitate future permitting of the Project by the Water Board.

- Full evaluation of potential impacts to Corps jurisdictional waters and non-jurisdictional waters (waters of the State including riparian habitat).
- A more detailed mitigation and monitoring proposal for all temporal and permanent, direct and indirect impacts to wetlands and other waters. This should include, but not be limited to,
    - Water Board Basin Plan Policy requires that impacts be avoided and minimized to the maximum extent practicable.
    - Monitoring and treatment of groundwater and surface water that will accumulate in the Project area.
    - Full description of all appropriate BMPs.
- Re-evaluation of alternative analysis after all potential impacts are fully evaluated.
- Re-evaluation of cumulative impacts and proposal of appropriate mitigation related to biological resources (i.e. creek and riparian) and water quality.
- Evaluation of potential locations to restore/enhance/create wetland and/or riparian habitat and opportunities to modify the design to implement environmentally-friendly methods for flood control and habitat improvement.
- Evaluation of design alternatives to address sediment depositional hot spot to reduce maintenance needs.
- Re-evaluation of necessary maintenance roads to reduce impacts and pervious surfaces.

Comment 1: Jurisdictional Waters of the State (Chapters 3.D.1, 3.D.2, 3.D.3, 3.I.1, 3.I.2, and 3.I.3) The DEIR only includes impacts to waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (Corps). The DEIR should be revised to also include jurisdictional waters of the State. Please note that the Water Board has regulatory authority over wetlands and waterways under both the Clean Water Act (CWA) and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7). Under the CWA, the Water Board has regulatory authority over actions in waters of the United States, through the issuance of water quality certifications under Section 401 of the CWA, which are issued in combination with permits issued by the Corps, under Section 404 of the CWA. Activities in areas that are outside of the jurisdiction of the Corps (e.g., isolated wetlands, vernal pools, or stream banks above the ordinary high water mark including riparian) may be regulated by the Water Board, under the authority of the Porter-Cologne Water Quality Control Act. Activities that are outside of Corps jurisdiction may require the issuance of either individual or general WDRs from the Water Board. The DEIR should be revised to clearly distinguish between impacts to waters within Corps jurisdiction and Water Boards jurisdiction.

Comment 2: Avoidance and Minimization of Adverse Impacts to Waters of the State (Chapter 2, 3, and 4)

Wetlands and Non-Jurisdictional Waters (Chapters 2.E, 3.D, 3.I, and 4.B): The DEIR summarizes impacts to all the creek elements in which wetland habitat will be directly and indirectly adversely impacted as a result of Project activities. The DEIR states that, although the District expects the wetlands (within the Corps jurisdication) to re-colonize naturally over a period of roughly one to two years, the District intends to treat the direct loss of wetlands (i.e., wetlands physically removed) as though the impact is permanent. However, the DEIR does not discuss how adverse impacts to waters of the State will be avoided and minimized (i.e. surface area above ordinary high water mark (OHWM) and riparian habitat not regulated by the Corps). Impacts occurring above the OHWM is considered waters of the State regulated under the California Water Code. For example, the levees along all the creek elements will be constructed/re-constructed, which will entail work within the bed and bank of the channel. In addition, impacts to existing riparian habitat will occur along Upper Calera and Tularcitos Creeks above OHWM. The entire area between top-of-bank on each side of the water course should be described as potential waters of the State. The DEIR should evaluate alternatives to avoid and minimize impacts in these areas.

Comment 3: Mitigation Measures (Chapters 3.D and 3.I)

A) Mitigation for adverse impacts to waters of the State: The DEIR describes mitigation measures to compensate for the loss of waters of the State, which include 1) compensatory mitigation (on-site, off-site, and mitigation bank) (Mitigation Measure 3.D-4b), and 2) complying with the terms and conditions of the permit. The proposed compensatory mitigation is still at a conceptual phase. The DEIR describes that the adverse impacts to the wetlands are considered permanent; however, does not propose adequate compensatory mitigation for the temporal and permanent impacts to these waters of the State after measures to avoid and minimize any direct and indirect impacts have been implemented. The Proposed mitigation measures should be presented in sufficient detail to evaluate the likelihood that the proposed remedy will actually reduce impacts to a less than significant level. Mitigation measures to be identified at some future time are not acceptable.

B) Mitigation and Monitoring Plan (MMP): The District should be aware that water quality certification for impacts to waters of the State will not be issued until the Water Board has approved a mitigation and monitoring plan (MMP). Since, at this time, Water Board staff has only been provided with a conceptual mitigation description, we are not able to assess whether or not the proposed mitigation will be sufficient to reduce Project impacts to a less than significant level. Mitigation measures should also include factors to account for temporal losses of habitat, the uncertainty of success associated with any mitigation project, and potential distances between the areas of impact and the mitigation sites.

Comment 4: Hydrology and Water Quality (Chapter 3.I)

A) Groundwater (Impact 3.I-2): The DEIR describes the potential for groundwater to accumulate in the Project area due to construction activities. The proposed measures to avoid and minimize impacts on groundwater include implementing a series of BMPs, which primarily focus on managing erosion control, turbidity, and chlorinated water. However, the DEIR should provide details related to monitoring and treating groundwater for contaminants other than sediment and chlorine. For example, the DEIR should identify areas of known groundwater pollution such as known plumes of volatile and semi-volatile organic compounds and a protocol for monitoring and treating polluted groundwater recharging into the channel during construction activities.

B) Alter the Existing Drainage Pattern (Impacts 3.I-3 and 3.I-4):

a. The DEIR states that the levees, floodwalls, and headwalls to be constructed for flood protection will increase flow depth, but will not substantially impact the existing drainage pattern because the "sediment transport regime is net depositional" and therefore, "unlikely that the overall sediment transport regime would change notably as a result of the Program." The DEIR should include a scientific basis (i.e. sediment transport, hydraulic, and/or hydrology studies) supporting this statement.

b. The channel for the Lower Calera Creek will be widened and re-configured. The DEIR should include sufficient details related to impacts to water quality and drainage patterns and adequate mitigation to avoid and minimize the impacts to the maximum extent practicable.

c. The DEIR should provide more details about the proposed culvert to be constructed on Upper Calera Creek, which may cause a significant alteration of the existing drainage pattern. I.e., the DEIR should describe potential changes to the Creek's drainage pattern which could result from diverting some of the flow through the proposed culvert, thereby altering the existing energy and sediment transport balance within the Creek. The DEIR should identify measures to avoid and minimize such potential adverse impacts to the Creek.

Comment 5: Levee Vegetation Maintenance (Chapter 2.E): The DEIR states that "the benches and ROW would include removal of woody vegetation within 15 feet of the levee slope that could reduce channel capacity." The District should ensure all vegetation removal and/or disturbance is avoided and minimized to the maximum extent practicable. In addition, vegetation should be planted where necessary to improve stability of the levee/embankment.

It is not clear if this maintenance activity is related to the Corps Levee Vegetation Management guidelines. It should be noted that the Corps Levee Vegetation Management guidelines are in conflict with Water Board and State Policies. The Water Board sent a letter to the Corps' headquarters in Washington, D.C., dated March 10, 2010, stating the guidelines are in conflict with State regulations, environmental review process, public safety, and lack scientific basis. Therefore, Water Board staff recommends avoiding and minimizing any removal or disturbance of vegetation associated with levee vegetation maintenance to meet the Corps levee vegetation guidelines.

Comment 6: Environmentally Superior Alternative (Chapter 4)
The conclusion that the proposed project will have fewer impacts (while meeting project objectives) as compared to Alternative 2, 3, and 4 is not based on a complete assessment of the potential impacts to waters of the State as mentioned in Comments 1 - 4 above. As stated above, a complete assessment of potential impacts should be evaluated, and impacts avoided and minimized to the maximum extent practicable.

Comment 7: Cumulative Impacts (Chapter 5)

A) Biological Resources: The DEIR does not adequately address cumulative impacts to the riparian corridor and associated habitats as the result of several projects listed on Table 5-1, namely the

Upper Berryessa Project and BART Berryessa extension project. The proposed mitigation measures (5.C-2a, 5.C-2b, 5.C-3a, and 5.C-3b) are not adequate to avoid and minimize cumulative impacts for the following reasons:

a. General comment: The mitigation measures reference mitigation measures in Chapter 3; however, the number of the measure does not match the title in all instances. This should be corrected.

b. Mitigation Measure 5.C-2a: The description of this measure references Mitigation Measure 3.D-4a, which includes conducting a "jurisdictional determination for potential waters of the U.S. to determine the location and extent of wetlands within Lower Penitencia Creek Element" and developing final design plans for the Program-level elements. These are not mitigation measures that would avoid and minimize cumulative impacts to jurisdictional waters, but rather components of the planning and design phases.

c. Mitigation Measure 5.C-2b: The description of this measure references Mitigation Measure 3.D-4b, which includes providing compensatory mitigation for the loss of wetlands and riparian habitat. As stated in Comment 3 above, the proposed compensatory mitigation for permanent impacts to wetlands and riparian habitat is still at a conceptual phase. The Proposed mitigation measures should be presented in sufficient detail to evaluate the likelihood that the proposed measure will actually reduce impacts to a less than significant level. Mitigation measures to be identified at some future time are not appropriate.

d. Mitigation Measures 5.C-3a/3b: The description is conceptual and does not provide sufficient details to demonstrate that the proposed mitigation will be sufficient to offset the cumulative temporal and permanent impacts to the riparian corridor.

B) Hydrology and Water Quality: The DEIR should include sufficient detail of the anticipated cumulative impacts (temporal and permanent) to water quality and alterations to the existing drainage patterns that could result from the various projects that may occur simultaneously, namely the Upper Berryessa Project and BART Berryessa extension project, and identify suitable mitigation measures.

Comment 8: Project Objectives

The DEIR should describe how the Project will "identify opportunities for riparian and stream habitat enhancement and/or restoration"? The Project as proposed includes very little vegetation plantings and does not include any enhancement/restoration/creation of riparian/wetland habitat other than conceptually for compensatory mitigation for permanent and temporal impacts to wetlands and riparian. Water Board recommends that the District assess where vegetation can be planted (not just allow to re-vegetate naturally) to promote establishment of the desired species within the stream corridor. Furthermore, the Project's planning and design phase should include identifying opportunities to incorporate more environmentally friendly methods into the Project design that would improve flood control and provide habitat and discussed appropriately in the DEIR.

Comment 9: Channel Maintenance (Chapter 2.D.2)

A) Stream Maintenance Program (SMP): The District is currently in the process of renewing the RWQCB permit for the SMP. The DEIR should reference maintenance activities corresponding to the forthcoming revised SMP (2012 - 2017) and not the current SMP maintenance activities

period (2002 – 2012). The DEIR should explain the types of maintenance activities for this Program that will be covered under the forthcoming SMP. In addition, the DEIR should clearly identify and describe any maintenance activities that will not be covered under the revised SMP.

B) The DEIR should include an assessment of sediment depositional hot spots, including an evaluation of project design alternatives, with the intent to improve sediment transport, reduce maintenance needs, and limit dual maintenance roads and turnouts wherever possible.

Comment 10: Maintenance Road (Chapters 2, 3, and 4)

A) The DEIR should explain why it is necessary to have two maintenance roads along the stream corridor versus one maintenance road for each creek element describing associated impacts for both scenarios, and evaluate if one maintenance road would be sufficient in meeting the project objectives.

B) The DEIR describes that the maintenance roads will be constructed using soil cement, which appears to be impervious. The DEIR should explain the environmental impacts associated with soil cement material and discuss alternatives that would result in fewer impacts to waters of the State. Water Board staff encourages the use of permeable material such as gravel for maintenance roads where possible, especially for maintenance roads that are lower in the channel.

C) The DEIR should provide more detail as to why, and under what conditions, a maintenance road turnout is necessary every 500 feet and the corresponding impacts to the stream corridor.

Comment 11: Stormwater Pump Station Construction (Chapters 2 and 3)

The DEIR describes excavating the creek bed in Tularcitos Creek to construct the wet well and inlet channel, but does not describe associated impacts to the stream corridor, which appears to be a permanent impact. The DEIR should explain to what extent the stream corridor will be impacted for this activity and propose appropriate mitigation to compensate for the loss of stream surface.

Comment 12: BMPs (Appendix B)

A) The BMPs as proposed would only be implemented with the purpose to “minimize” impacts from construction activities. The BMPs should be implemented to “avoid and minimize” impacts.

B) Several BMPs would be implemented in the event an impact is considered “significant” or “high level”. The BMP Manual should define what is considered to be “significant” and “high level.” In addition, explain under what circumstance these BMPs would not be appropriate to implement if the impact would be considered less than “significant” or “high level” and why these types of impacts would be acceptable and consistent with permit requirements.

C) BMP WQ-13: The use of boulders as a bank repair method is not considered a biotechnical repair method, unless the boulders are buried or keyed into the bank and the channel banks vegetated.

D) BMPs WQ-15/WQ-19: These BMPs do not include monitoring for contaminants or specify treatment methods where determined necessary.

An EIR should provide both the proposed impacts and mitigation measures together for public review. Accordingly, the DEIR should be revised to include impact analyses for all wetlands and waters (within both Corps and Water Board jurisdictions), and more detailed mitigation descriptions for public review.

Please contact Margarete Beth at (510) 622-2338 or via e-mail at mabeth@waterboards.ca.gov for questions.

Sincerely,

William B. Hurley
Senior Engineer

Cc
Tony Ndah, SCVWD, tndah@valleywater.org
Dennis Cheong, SCVWD, dcheong@valleywater.org
Holly Costa, USACE, Holly.N.Costa@usace.army.mil
Paula Gill, USACE, Paula.C.Gill@usace.army.mil
Luisa Valiela, U.S. EPA, valiela.luisa@epamail.epa.gov
Tami Schane, CDFG, TSchane@dfg.ca.gov

Village II Owners Association of Hidden Lake Villages

c/o Archway, TMC
P.O. Box 320819
Los Gatos, CA 95032

Mr. David Dunlap
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

Mr. Dunlap:

On behalf of the 124 owners within Village II of Hidden Lake Villages, the Board of Directors of the Village II Owners Association of Hidden Lake Villages submit the following Objections and Additions/Changes to Draft E.I.R. for the proposed levee reconstruction project along Berryessa Creek, which runs adjacent to Village II. We request that each Objection be specifically addressed in the Final E.I.R. and the Additions/Changes to the Mitigation Measures be incorporated prior to Certification of the document.

1) Objection: The Visual Impact Analysis beginning on page 3.B-21 of the DEIR failed to analyze the visual impact of removal of landscaping from the outboard levee of the Water District ROW and improperly dismissed as less-than-significant the visual impact of raising the levee by nearly 40% relative to the Village II side of the levee. The visual analysis focused on the visual impacts of removal of the landscaping and raising the levee on Berryessa Creek itself and on the incorporated walking trail on top of the levee. However, the visual analysis failed to analyze the impact of these two aspects of the levee project on the adjacent residential development when viewed from the Village II side. The visual impact photo, photo number 3 on Page 3.B-6 of the DEIR, shows the view adjacent to the Village II development only from the lower maintenance road only from the inboard side of the levee, thus the analysis does not show any relevant information about the visual impact of the Water District project on the outboard side facing the Village II residences. The loss of the existing mature tree and shrubbery landscaping on the outboard levee and replacement with a higher earthen bank potentially covered with native grasses (that will turn brown during the Summer) will dramatically alter the scenic value of the view from the Village II properties. The significant increase in height of the levee will not be minimal from the Village II perspective as suggested in the draft EIR, especially considering that some residences in Village II are within fifty (50) feet of the toe of the levee slope.

Change Mitigation Measure M-3.D-6a by specifically allowing some of the replacement landscaping provided for in this Mitigation Measure to be planted on private property that is immediately and proximally impacted by the removal of existing outboard levee landscaping and by the increase in levee height. There is a common area landscaping strip on Village II Association property adjacent to the Water District land

where the landscaping will be removed. This landscaped area is "public" in that it belongs to the Association, not to any individual residential owner.

2) Objection: Discussion of potential harm to existing and remaining landscaping that could be caused by reconstruction and enhancement of the levees failed to note that the construction activities could harm existing landscaping on adjacent private properties. Village II has landscaping, including major trees and mature shrubbery, within 50 feet of the site of construction which could be harmed by compaction of earth and the vibration of construction work on the levee.

Change Mitigation Measure M-3.D-6b to specifically extend the landscaping protection measures of that mitigation measure to landscaping on private property adjacent to the construction site.

Change Mitigation Measure M-3.D-6b to add a requirement that landscaping that dies as a result of the adjacent construction activity will be replaced at the Water District's expense. If the landscaping dies or shows serious stress within six (6) months of completion of the construction activity, the damage to the landscaping should presumed to be caused by the levee construction activities.

3) Objection: The discussion of the impact of particulate matter (dust) raised by the extensive reconstruction of the Lower Berryessa Creek levees fails to adequately analyze the impact of such dust on the adjacent residential developments, including failure to discuss contamination of the interiors of residences, impact on the adjacent private streets and open areas, and loss of quiet enjoyment of outside areas at Village II due to such dust. In the case of the Village II properties, the dust, especially if it continues over the projected two-year lifetime of the construction project, will also significantly impact scheduled and required exterior maintenance of the Village II property.

Add a new Mitigation Measure that requires the major dust producing construction activities adjacent to any one geographic area to be completed within one (1) construction season rather than allowing those activities to be spread over two seasons. The Mitigation Measure should also require that the contractor coordinate the timing of the phase with adjacent developments to the extent possible or, at least, require that the contractor inform adjacent major developments about the timing of major work adjacent to the development site as early as possible, but not less than three months prior to the beginning of that section's construction activities. It is noted that the major dust producing activities occur in the first 8 month phase of construction as shown in Table 2.2 on Page 2-33, so this portion of the Water District project should be able to be accommodated within one construction season.

Change Mitigation Measure M-3.C-1 to include sweeping the private streets of developments adjacent to the construction site as needed to control dust, but no less than once each week during the construction activities adjacent to the development.

Change the requirement in Mitigation Measure M-3.C-1 that the contact person identified as responsible for air quality and dust control respond to complaints and correct any failures in dust control within 24 hours rather than the 48-hour time period currently called for in the DEIR.

Add a new Mitigation Measure or Change Mitigation Measures M-3.C-1 and C-2 to provide for assistance to identified individuals with health problems that make them particularly sensitive to dust and air pollution as "sensitive receptors." Such assistance should include payment for replacement of air filters and payment to offset the additional costs of running household air-conditioning equipment in order to filter out dust from the air coming into the residences of such sensitive receptors.

4) Objection: The discussion of noise impacts on pages 3.K – 12 through 15 identifies that noise from the heavy equipment that will be used to reconstruct the levees (reference Table 3.K-3, Page 3.K-14) produce noise two to four times (that is, 10 to 20 decibels greater than) the maximum acceptable noise levels for residential land uses, as established by the Milpitas General Plan, as noted in Figure 3.K-2 at Page 3.K-9. (As noted on Page 3.K-14 of the DEIR, each increase of 6 - 7 decibels is a doubling of the perceived noise.) Mitigation Measures M-3.K-1a through 1c indicate a noise reduction of only 5 - 10 decibels. Therefore, the finding that the noise impact would be reduced to less-than-significant by these Mitigation Measures is incorrect since the noise levels after mitigation will remain as much as 2 times the maximum acceptable noise levels for residential use in Milpitas.

Change the noise mitigation measures to require all active construction activity (that is, activity other than set up of equipment at the beginning of the work day and servicing of equipment at the end of the day) near residential areas be limited to the hours of 8 a.m. to 6 p.m. rather than the hours of 7 a.m. to 7 p.m. as stated on Page 3.K-14 of the DEIR.

Change the noise mitigation measures by prohibiting air-compressor operated equipment unless such equipment is rated to produce no more than 70 dB(A) of noise (the so-called "super quiet" air operated equipment).

5) Objection: Public Safety and Security issues were not addressed at all in the DEIR. The proposed construction activity has the potential to create several public safety concerns for the residents of Village II, including: the loss of security fencing between the Water District's property and the Village II properties, the enhanced potential for vandalism of Village II properties resulting from the attractive nuisance created by construction equipment left overnight at the construction site, and the risk of construction accidents on this elevated levee impacting the residential development below on the Village II site.

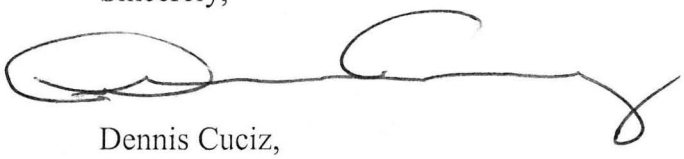
Add analysis and mitigation measures to address these concerns, specifically Adding new Mitigation Measures requiring: 1) construction or prompt replacement of security fencing between the construction site and Village II; 2) prohibition of storage of any construction equipment on the top of the levee area; and 3) use of best management safety practices to lessen the chance of construction accidents.

6) Objection: The DEIR, Page 2-29, includes a comment in the project description stating that the levee reconstruction will be designed and built to accommodate the Milpitas Trail Plan along the top of the reconstructed levee. However, there is no analysis in the DEIR of the various environmental impacts of such a trail, including visual impacts, public safety, noise generated by users of the trail, etc. Since

this Water District project includes provisions for such a trail, the DEIR should include some analysis of these impacts and mitigation measures to off-set any impacts found to be potentially significant.

Add discussion of impacts and Add mitigation measures addressing these impacts, including a requirement that prior to completion of the trial facilities or use of the trail, adequate screening will be installed between the trail and adjacent residential areas.

Sincerely,



Dennis Cuciz,
President
Village II Owners Association

CC: Mayor Jose Esteves
James Lindsay, Planning and Neighborhood Services Director

MJP

Village II Owners Association of Hidden Lake Villages

c/o Archway, TMC
P.O. Box 320819
Los Gatos, CA 95032

Mr. David Dunlap
Santa Clara Valley Water District
5750 Almaden Expressway
San Jose, CA 95118

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Sincerely,

Original Signed by:

Dennis Cuciz,
President
Village II Owners Association

CC: Mayor Jose Esteves
James Lindsay, Planning and Neighborhood Services Director

MJP

APPENDIX G
Draft EIR Response to Comments

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Table G-1. Key to comments received for the Lower Berryessa Creek Program Draft EIR

Letter	Commenter	Letter	Commenter
1	California Department of Transportation (CalTrans)	5	Latham, Terry
2	California Department of Fish and Game (CDFG)	6	San Francisco Regional Water Quality Control Board (SFBRWQCB)
3	City of Milpitas	7	Village II Owners Association (Submitted by Dennis Cucis)
4	California Public Utilities Commission (CPUC)	8	Village II Owners Association (Submitted by Michael Percy)

Letter	Comment	Commenter	Revise EIR	Comment Text	Response to Comment
1	1-1	CalTrans		Please describe in detail the existing conditions of the Lower Berryessa, Calera, Tularcitos, and Lower Penitencia Creek crossings (creek crossings) at Interstate (I-) 680 and I-880 (see section 3.I.1 Environmental Setting, Existing Hydrologic Conditions, p. 3.I-1).	The Lower Berryessa and Lower Calera creek elements do not cross I-680 or I-880. As shown on EIR Figures 2-2D and 2-2E, the Program does not include creek channel modifications at the I-680 crossing of Upper Calera and Tularcitos creeks. Modification of Lower Penintencia Creek could include the segment crossing I-880, but Program activities within this area would only consist of sediment and vegetation removal. The existing Upper Calea, Tularcitos, and Lower Penintencia Creek crossings of I-880 and I-680 are within box culverts.
1	1-2	CalTrans		Please provide detailed information regarding the bridges and culverts, including but not limited to dimensions and types (e.g., corrugated metal pipe, reinforced concrete, etc.) at the creek crossings at I-680 and I-880.	The I-680 bridge at Tularcitos Creek is a 375 foot long, 2 cell culvert, with 10 foot by 6 foot openings. The I-880 bridge is 235 feet long with 3 piers and is 15 feet high.
1	1-3	CalTrans		Please discuss in detail any major impact(s) to the existing I-680 and I-880 creek crossings, including but not limited to, adequate passage of channel flow after the project is completed. If there is inadequate channel capacity within the creeks, as indicated in the discussion concerning Lower Penitencia Creek (see p. 3.I-4), what is the impact to the downstream channel crossing (e.g., the downstream I-880 crossing)?	The backwater effects on Tularcitos Creek end just downstream of the I-680 crossing. The backwater effects on Upper Calera end just downstream Milpitas High School. Because there is currently adequate passage of channel flow, the Program does not include changes to the I-680 culverts. Lower Penitencia Creek is a program level element and additional information will be developed, including information regarding the I-880 crossing. However, it is noted that the only activity anticipated in this area is sediment removal operations on Lower Penitencia Creek which would improve the creeks capacity and would not affect the bridge crossing.
1	1-4	CalTrans		Are there any post-construction mitigation measures, monitoring, or reporting required for the project? If so, please discuss in detail information such as, but not limited to, responsibility for the measures, monitoring, and reporting and the frequency of the monitoring and reporting.	As described in the EIR, post-construction mitigation measures, monitoring and/or reporting are required for tree and scrub replacement (Mitigation Measure 3.D-6a) as well as compensation for the unavoidable loss of wetlands and other waters and riparian habitats at a minimum of a 1:1 ratio (Mitigation Measure 3.D-4b). Additionally, several of the District's BMPs require post-construction monitoring (see Appendix B of the EIR). The District would be responsible for ensuring completion of implementation, monitoring, and reporting of all mitigation measures and BMPs and would coordinate with regulatory agencies, such as CalTrans, as necessary.

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1	1-5	CalTrans		Should construction activities within the State right-of-way (ROW) take place as part of this project, these mitigation measures shall be implemented for an archaeological discovery. If there should be an inadvertent archaeological or burial discovery within State ROW, the Department's Office of Cultural Resource Studies shall be immediately contacted at (510) 286- 5618. A staff archaeologist will evaluate the finds within one business day after contact. The Department requires review of any potential data recovery plans within State ROW.	As described in response to Comment 1-1, the Program does not include construction within the CalTrans ROW, with the exception of sediment and vegetation removal along Lower Penitencia Creek. It is unlikely that archaeological resources would be discovered during this type of activity. However, as described in Section 3.E, Cultural Resources, the District would implement District BMPs CUL-2 and CUL-3 which require that construction stop in the event of an archaeological or burial find and proceed as specified in those BMP's. Within the CalTrans ROW at Lower Penitencia Creek, the District would contact CalTrans as indicated in Comment 1-5.
1	1-6	CalTrans		Please be advised that the project limits of this project overlaps with the project limits of the Department's Transportation Management System Project (EA 523010) on I-680. Specifically, both projects (i.e., the Lower Berryessa Creek Flood Protection Project and the Department's Transportation Management System Project) propose work at the southbound I- 680 on-ramp at Jacklin Road. The Department proposes to add a High Occupancy Vehicle lane, California Highway Patrol Enforcement Area, ramp metering equipment, and Traffic Operating Systems equipment.	The Department's Transportation Management System Project (EA 523010) on I-680 is currently under construction and is scheduled to conclude in 2011. It is adjacent geographically to the Upper Calera Creek Element 2 and the Tularcitos Creek Element. However, these elements currently have no proposed construction schedule.
1	1-7	CalTrans		The Department respectfully requests the Santa Clara Valley Water District work in coordination with the Department, to ensure an Americans with Disabilities Act (ADA) compliant connection is provided from the multi-use path to California Circle. An ADA compliant connection will provide better public access to the Coyote Creek Trail and surrounding land use. Please contact Beth Thomas; District 4 Pedestrian Coordinator, at (510) 286-7227 to discuss the process for reviewing an ADA compliant connection.	The Program includes maintenance road improvements that would be consistent with City of Milpitas trail standards, such that elements could accommodate inclusion within the Milpitas Trail Plan. However, the Program does not include maintenance road improvements along the Lower Penitencia Creek Element (which crosses California Circle). Any improvements requested by the commenter to the multi-use path to California Circle would need to be forwarded to the City of Milpitas since this path is under the jurisdiction and management of the City of Milpitas.
1	1-8	CalTrans	2-38	Work that encroaches onto the State ROW requires an encroachment permit that is issued by the Department. To apply, a completed encroachment permit application, environmental documentation, and five (5) sets of plans clearly indicating State ROW must be submitted to the address below. Traffic-related mitigation measures should be incorporated into the construction plans during the encroachment permit process.	The District has an easement with CalTrans for channel maintenance at the Lower Penintencia CalTrans crossing; thus, an encroachment permit is not required for sediment and vegetation removal proposed under the Program. However, it is noted that traffic-related mitigation measures will be incorporated into construction plans and contract specifications and the Mitigation Monitoring and Reporting Program prepared for the proposed project would include requirements to incorporate mitigation measures into construction plans and contract specifications, where applicable.

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2	2-1	CDFG		Page 3.D-43 - Adverse Effects to Wetlands and Waters: The document states that construction of the Lower Berryessa Creek Element and Lower Calera Creek Element would result in approximately 8.64 acres of impacts to waters of the United States, including wetlands. The District references the *Instream Wetland Revegetation Regrowth Study* (District 2002) which found that re-growth of non-tidal wetlands approached or surpassed pre-excavation amounts within one to two years. As part of the District's proposed mitigation for impacts to wetland habitat, Mitigation Measure 3.d-4b: Compensate for Loss is proposed to compensate for the unavoidable loss of wetlands and other waters and riparian habitats at a ratio of 1:1. The District acknowledges that the amount of time between impact and recolonization of wetlands and waters is considered permanent. DFG requests that the District provide a contingency plan describing what actions the District plans to take if recolonization of the impacted wetland riparian habitat does not occur at the expected rate of one to two years.	The discussion regarding adverse construction-related effects to wetlands and waters is described on Final EIR pages 3.D-39 to 3.D-41. In the event that recolonization of impacted wetland habitat does not occur within two years, the District would conduct active seeding and/or planting within the channel at locations where the habitat can be sustained, for example, on a designed low bench. As a result of this comment, the first paragraph of Mitigation Measure 3.D-4b on Final EIR page 3.D-45 has been revised to include active seeding and/or planting should recolonization not occur within the first two years following construction (see the attached copy of the revised Section 3.D, Biological Resources).
2	2-2	CDFG		Page 3.D-43 - Riparian Habitat: The document does not appear to distinguish impacts to wetlands and waters of the United States from those within DFG's 1602 jurisdiction, which includes impacts within the bed, bank, and channel, as well as the associated riparian habitat. Please describe the expected impacts to DFG's 1602 jurisdiction, including impacts specific to riparian habitat. The Department does not expect impacted riparian habitat to recolonize within the same time frame as that expected for wetland habitat (one to two years); therefore, DFG expects the District to implement a mitigation ratio of at least 2:1 to compensate for the permanent loss of riparian habitat as a result of the project.	In response to this comment, text revisions have been made to clarify the discussion of jurisdictional waters in Section 3.D, Biological Resources by indicating throughout where DFG's 1602 jurisdiction apply to the Program and clarifying where riparian habitat occurs and could be affected by Program activities. Text revisions were made to Final EIR page 3.D-11 through 3.D-13 and Final EIR pages 3.D-39 through 3.D-46 (see the attached copy of the revised Section 3.D, Biological Resources). It is noted that Mitigation Measure 3.D-4b requires that compensation for the unavoidable loss of jurisdictional waters be a *minimum* of a 1:1 ratio; thus allowing for higher mitigation ratios, if necessary. Riparian habitat only occurs in Upper Calera Creek Elements 1 and 2; which are evaluated at the program-level at this time.

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2	2-3	CDFG		Page 3.D-47 - Tree and Shrub Replacement: The document states that the District shall prepare a tree replacement plan, with an expected minimum, anticipated 1:1 aerial coverage ratio at maturity, and that the plantings would be monitored for a minimum of three years after completion of project construction. DFG requests that the District provide additional information, including a description of the approximate number and species of trees and shrubs that are anticipated to be impacted by the project, what types of trees and shrubs are anticipated to be replanted (both approximate quantity and species), what the expected success criteria are for the replanted trees and shrubs, an indication of whether parameters such as health and *vigor* will be incorporated into a planting plan, anticipated needs for irrigation, and what actions the District proposes to take if the replanted trees and shrubs do not appear to meet established success criteria within the proposed three years of monitoring.	Mitigation Measure 3.D-6a establishes performance standards for tree replacement and requires identification of trees by species and areal coverage of the tree canopy, replacement of trees with species similar to those removed, or of native species, and monitoring of trees for a minimum of three years to ensure the success of replacement plantings; thereby establishing the performance standards for tree replacement. In addition, Mitigation Measure 3.D-6a requires that replanting occur if mitigation plantings do not meet the established success criteria within three years of monitoring (see the attached copy of the revised Section 3.D, Biological Resources). Tree surveys were not conducted as part of the EIR evaluation and were instead required as part of the mitigation measure described above. However, it is noted that the information collected regarding species type and numbers anticipated to be impacted by the project, and detail regarding the monitoring program, will be included in a mitigation monitoring plan and included the CDFG Streambed Alteration Agreement application, as requested in Comment 2-3.
3	3-1	City of Milpitas	2-38	Please update the Summary on page S-4 and Section 2.0.2 on page 2-38 to include: a. The proposed Tularcitos Storm Pump Station will be located in a residential neighborhood and is described as a diesel-powered storm pump station. Electric-powered pumps are environmentally superior to diesel-powered pumps and the project description should be modified accordingly and electric motors should be installed. b. A written agreement with the City of Milpitas will be required if the SCVWD intends to transfer pump station operations and maintenance to the City.	a. A final pump design that would ensure reliability and meet the necessary pumping requirements for the Tularcitos Creek Element has not been determined at this time, and the use of electric pumps would be considered during the project design phase. For the purpose of this EIR, diesel-powered pumps have been selected as the most conservative approach for evaluation of the impact analysis b. As stated on Final EIR page 2-38, following construction, the District intends to transfer operation and maintenance responsibility for the pump station to the City of Milpitas. Final EIR page 2-39, paragraph 5 acknowledges the need for an agreement and states: The District and the City of Milpitas would develop an agreement for the ROW and the pump station along Tulcaritos Creek.

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3	3-2	City of Milpitas		The public currently enjoys the levee trail system and pedestrian bridges. According to the DEIR, trail access is impacted during the construction period and will be restored upon completion of the Project. A written agreement with the City will be required for the pedestrian bridge relocation.	Draft EIR page 2-38, paragraph 5 acknowledges the need for permanent easements, which would include any relocation of pedestrian bridges (such as the Tularcitos creek element bridge replacement described on Final EIR page 2-25), states: Permanent easements from the City of Milpitas and property owners as well as encroachment permits from the City of Milpitas and VTA would be required to implement the Program.
3	3-3	City of Milpitas	3.N-2	Please update Section 3.N.I starting on page 3.N-I to include: a. The City's 2001 Storm Drain Master Plan identifies some localized collection system deficiencies resulting from the 10-year and 100 year storms. b. The City recently increased its sanitary sewer treatment capacity from 13.5 million gallons per day to 14.25 million gallons per day.	a. In response to this comment, Final EIR page 3.N-2, paragraph 2 has been revised to update information regarding the City's 2001 Storm Drain Master Plan. The City owns and operates the majority of the stormwater drainage system that serves the Program area. These facilities are maintained by the City's Engineering Department (City of Milpitas, 2010a). The City prepared a Storm Drain Master Plan in 2001 ~~that concluded that the storm drain system was adequate and set a low priority for storm drain improvements~~, which identifies some localized collection system deficiencies resulting from the 10-year and 100 year storm systems. b. In response to this comment, Final EIR page 3.N-2, paragraph 4 has been revised to update information regarding the City's sanitary sewer treatment capacity. The Milpitas Sanitary Sewer System is owned and operated by the City. Currently, all wastewater collected within the City is pumped via the Main Pump Station to the San José / Santa Clara WPCP. The WPCP treats wastewater originating from San José, Santa Clara, Milpitas, Campbell, Cupertino, Los Gatos, Saratoga, and Monte Sereno. The plant treats water through an advanced, tertiary system. Secondary treated water is discharged to the San Francisco Bay, while tertiary treated water is distributed to users throughout the southern part of the San Francisco Bay (City of San José, 2010). The plant has a wastewater treatment capacity of 167 mgd. The City of Milpitas ~~is contracted to use up to 13.5 mgd of the plant's capacity~~ recently increased its sanitary sewer treatment capacity from 13.5 million gallons per day to 14.25 million gallons per day ~~(City of Milpitas, 2010b)~~.

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3	3-4	City of Milpitas		The Project requires transportation of large quantity of soil and construction materials during the construction phase. Work within the public right-of-way will require a City encroachment permit, shall comply with hauling routes, and shall require restoration of pavement damaged by the project.	Final EIR page 2-39, paragraph 2 acknowledges the need for permanent easements, which would include any relocation of pedestrian bridges, and states: The Program would require temporary construction easements from the City of Milpitas, the Milpitas Unified School District, the Thomas Russell Middle School, property owners adjacent to the east bank of Upper Calera Creek Element 2, Reach B, and property owners along Lower Penitencia Creek. In addition, Mitigation Measures 3.M-1 (Traffic Control Plan) and 3.M-2 (Road Repair) commit the District to restore any damage to roads that occurs during hauling of soil and construction materials.
3	3-5	City of Milpitas		Removal of trees shall be in accordance with Milpitas Municipal Code Title X Chapter 2.	Final EIR pages 3.D-29 and 3.D-47 through 3.D-49 discuss compliance with Milpitas Municipal Code Title X Chapter 2 with respect to tree maintenance and protection. Tree replacement, as specified in Mitigation Measure 3.D-6a, would be in accordance with the Milpitas Municipal Code Title X Chapter 2. (see the attached copy of the revised Section 3.D, Biological Resources).
3	3-6	City of Milpitas		Visual impacts discussed in the letter sent by Village II Owners Association of Hidden Lake Villages should be adequately addressed.	Please refer to Response to Comment 7-1, below.
4	4-1	CPUC		The Berryessa Creek pedestrian/bicycle trail consists of an unauthorized at-grade crossing just south of the Abel Street overpass (see attached google map) All new rail crossing require authorization from the California Public Utilities Commission (CPUC). This unauthorized crossing has not been reviewed by CPUC staff for safety issues. The CPUC's policy is not to allow any new at-grade rail crossings. The Union Pacific track at this location is active with approximately 10 trains per day. The trail crossing *must* be immediately closed and the trail must be terminated on both sides of the crossing well away from the tracks to discourage trespassing.	Since submittal of this comment, the CPUC has clarified that the unauthorized at-grade crossing just south of the Abel Street overpass is closed to the public.

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4	4-2	CPUC		In addition, the BART extension to San Jose is planned for the eastern track. The BART alignment is planned to be at-grade as stated in Chapter 2 of the Silicon Valley Rapid Transit Corridor Final Environmental Impact Statement released in March 2010. "*Approaching Abel Street, the alignment would continue at grade, cross over an existing underground culvert containing Calera Creek (STA 231+00), where no culvert improvements are planned but new drainage outfalls would be installed by other. Bart would then pass under the existing Abel Street overcrossing (STA 244+00). BART would continue over Berryessa Creek on a new multi-cell box culvert construction by other to accommodate the widening and realigning of the creek by the Santa Clara Valley Water District (STA 246+00).*" The BART system will not allow for an at-grade pedestrian trail crossing. Therefore, the unauthorized pedestrian crossing absolutely needs to be closed. If closure is not an option, the water district may apply for a grade separated pedestrian crossing in which the trail travels over or beneath the tracks. A formal application will be required to be filed with the CPUC. The Final EIR, which is required to be submitted with the CPUC, will need to specifically address any railroad crossings.	Please see Response to Comment 4-1.
4	4-3	CPUC	2-38	The Lower Berryessa Creek Element of the project consists of raising a "railroad-car bridge super structure". The exact structure is not identified. Any and all modifications of existing crossings, either at-grade or grade separated, require authorization from CPUC. A General Order 88-B will be required to be file for modification of existing crossing. Any grade separation will need to comply with the clearance requirements stated in CPUC General Order 26-D.	In response to this comment, Final EIR page 2-39, paragraph 2 has been revised to include the CPUC as a permitting agency applicable to the Program. Agencies expected to use this EIR in their decision making for permits required for implementation of the Program include the U.S. Army Corps of Engineers (Clean Water Act Section 404 permit), California Department of Fish and Game (CDFG) (Streambed Alteration Agreement), <u>California Public Utilities Commission (Application for General Order 88-B Approval and compliance with CPUC General Order 26-D),</u> and the San Francisco Bay Region Water Quality Control Board (SFBRWQCB) (Clean Water Act Section 401 certification of Section 404 permit). The Program would require temporary construction easements from the City of Milpitas, the Milpitas Unified School District, the Thomas Russell Middle School, property owners adjacent to the east bank of Upper Calera Creek Element 2, Reach B, and property owners along Lower

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					Penitencia Creek. Permanent easements from the City of Milpitas and property owners as well as encroachment permits from the City of Milpitas and VTA would be required to implement the Program. The District and the City of Milpitas would develop an agreement for the ROW and the pump station along Tulcaritos Creek.
5	5-1	Latham, Terry		Reviewing the documents sent through the mail, there is a picture showing Calera Creek (C) stating "will include flood walls and riparian vegetation on one side". The picture shows vegetation on the south side and what looks like a road on the north side where there are houses. Can the vegetation be on the north side?	The Program does not currently include planting of woody vegetation, and does not allow woody vegetation to grow within the vicinity of the levee slopes that could reduce channel capacity. However, grasses and other vegetation would naturally recruit within the channel and levees, including the north side of the channel. The Program would include tree and shrub replacement for vegetation removed as part of the Program, as required under Mitigation Measure 3.D-6a.
5	5-2	Latham, Terry		Also, there is currently no public access to this section of creek, I would like to be assured there are NO plans to open up this short section to the public (between Arizona Ave and N. Milpitas Blvd).	As part of the Program, the District proposes to allow a portion of the levee system along the Lower Berryessa Creek Element to accommodate the Milpitas trail system as part of the Milpitas Trail Master Plan. There are no plans to integrate any portion of the levees along Calera Creek into the Milpitas trail system as part of this Program.
6	6-1	SFBRWQCB		**Summary of Comments** In its present form the DEIR lacks a sufficiently adequate discussion of impacts and proposed mitigation measures to support the issuance of Section 401 Water Quality Certification or Waste Discharge Requirements (WDRs). Since several impacts are not addressed in the DEIR and mitigation measures are either conceptual, or in the case of Lower Calera Creek (channel widening/re-configuration), Upper Calera Creek (culvert), and Tularcitos Creek (stormwater pump station), not present in any form, the DEIR should be revised and re-circulated. Re-circulation is necessary to allow for review and comment on the impacts and proposed mitigation. We have the following comments, as described in more detail below, on the Project as presented in the DEIR, which may impact waters of the State. Full responses to these comments should be useful in developing a revised EIR that would facilitate future permitting of the Project by the Water Board. • Full evaluation of potential impacts to Corps jurisdictional waters and non-jurisdictional waters (waters of the State including riparian habitat).	Please see the response to detailed comments below. In response to these, and other comments, text-revisions and clarifications have been incorporated into the EIR, as discussed below. In addition, the District continues to coordinate with SFBRWQCB in development of permit applications for project-level elements. Please see the response to comment 6-2 regarding evaluation of potential impacts to waters of the State, including riparian habitat. Refer to response to comment 6-4 for discussion regarding mitigation and monitoring for all temporal and permanent impacts to wetlands and other waters. Please see response to comment 6-5 for discussion regarding groundwater impacts. Response to comment 6-8 addresses the Draft EIR's alternatives analysis and responses to comments 6-9 and 6-10 address the Draft EIR's cumulative impact analysis related to biological resources and water quality. Please also refer to response to comment 6-7 for discussion about levee vegetation maintenance. Please see response to comment 6-13 for discussion regarding the evaluation of design alternatives related to sediment depositional hot spot; see response to comment 6-14 for discussion about maintenance roads.

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				• A more detailed mitigation and monitoring proposal for all temporal and permanent, direct and indirect impacts to wetlands and other waters. This should include, but not be limited to, - Water Board Basin Plan Policy requires that impacts be avoided and minimized to the maximum extent practicable. - Monitoring and treatment of groundwater and surface water that will accumulate in the Project area. - Full description of all appropriate BMPs. • Re-evaluation of alternative analysis after all potential impacts are fully evaluated. • Re-evaluation of cumulative impacts and proposal of appropriate mitigation related to biological resources (i.e. creek and riparian) and water quality. • Evaluation of potential locations to restore/enhance/create wetland and/or riparian habitat and opportunities to modify the design to implement environmentally-friendly methods for flood control and habitat improvement. • Evaluation of design alternatives to address sediment depositional hot spot to reduce maintenance needs. • Re-evaluation of necessary maintenance roads to reduce impacts and pervious surfaces.	The text revisions added to the Final EIR merely clarify, amplify, or make insignificant modifications in an adequate EIR and are not "significant" within the meaning of CEQA Guidelines Section 15088.5. Incorporating the new information and corrections does not deprive the public of a meaningful opportunity to comment on the Program or its effects, and no information has been added to the Final EIR that would warrant recirculation pursuant to Public Resources Code Section 21092.1.
6	6-2	SFBRWQCB		**Jurisdictional Waters of the State (Chapters 3.D.1, 3.D.2, 3.D.3, 3.I.1, 3.I.2, and 3.I.3)** The DEIR only includes impacts to waters of the U.S. under the jurisdiction of the U.S. Army Corps of Engineers (Corps). The DEIR should be revised to also include jurisdictional waters of the State. Please note that the Water Board has regulatory authority over wetlands and waterways under both the Clean Water Act (CWA) and the State of California's Porter-Cologne Water Quality Control Act (California Water Code, Division 7). Under the CWA, the Water Board has regulatory authority over actions in waters of the United States, through the issuance of water quality certifications under Section 401 of the CWA, which are issued in combination with permits issued by the Corps, under Section 404 of the CWA. Activities in areas that are outside of the jurisdiction of the	The Draft EIR addresses both impacts to waters of the U.S. and waters of the State. Based on the wetlands and riparian areas present within the program area, Waters of the U.S. are generally the same as Waters of the State for the purpose of the Program. The exception to this is the riparian habitat on Upper Calera Creek, which would be regulated as Waters of the State but is not considered jurisdictional under Section 404 of the Clean Water Act. Impact Statement 3.D-4 on p. 3.D-38 of the Draft EIR explicitly discusses *adverse effects on federal- or state-protected wetlands and waters, including riparian or other sensitive natural communities*. As discussed on pp. 3.D-9 and 3.D-38 of the Draft EIR, riparian habitat is considered present on Upper Calera Creek *only*. This element has been evaluated at a program level and impacts to riparian habitat have not been quantified yet because project-level design and facility siting details have not

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				Corps (e.g., isolated wetlands, vernal pools, or stream banks above the ordinary high water mark including riparian) may be regulated by the Water Board, under the authority of the Porter-Cologne Water Quality Control Act. Activities that are outside of Corps jurisdiction may require the issuance of either individual or general WDRs from the Water Board. The DEIR should be revised to clearly distinguish between impacts to waters within Corps jurisdiction and Water Boards jurisdiction.	yet been developed. However, the extent of riparian habitat present has been evaluated, and the potential impacts to this habitat has been described. Implementation of Mitigation Measures 4.D-4a requires minimization of effects on riparian habitats during development of the final design of program-level elements and Mitigation Measure 4.D-4b would require compensation for loss of any riparian habitat impacts that could not be avoided. The levee banks are not considered to be riparian habitat because they do not support anything other than non-native grasses, ruderal vegetation, and an occasional planted tree. They are an artificially constructed landform and vegetation occurring there is managed on a regular basis. Vegetation on the levee banks is not river dependent and does not generally provide river-dependent habitat values. These grasslands and ruderal habitat are not appreciably different from other similar habitat in the area occurring in different landscape settings. Thus areas occurring within the levee banks and mapped as non-native grassland/ruderal on Figures 3.D-1a and 3.D-1b in the Draft EIR were not considered to be Waters of the State. However, it is recognized that these areas are regulated by the Regional Board and CDFG and consideration must be made of this fact in the Draft EIR. Therefore text revisions were made to clarify jurisdiction of the various agencies (see attached copy of revised Section 3.D, Biological Resources). See Response to Comment 2-1 and 2-2 for clarifications.
6	6-3	SFBRWQCB		**Avoidance and Minimization of Adverse Impacts to Waters of the State (Chapter 2, 3, and 4)** Wetlands and Non-Jurisdictional Waters (Chapters 2.E, 3.D, 3.I, and 4.B): The DEIR summarizes impacts to all the creek elements in which wetland habitat will be directly and indirectly adversely impacted as a result of Project activities. The DEIR states that, although the District expects the wetlands (within the Corps jurisdiction) to re-colonize naturally over a period of roughly one to two years, the District intends to treat the direct loss of wetlands (i.e., wetlands physically removed) as though the impact is permanent. However, the DEIR does not discuss how adverse impacts to waters of the State will be avoided and minimized (i.e. surface area above ordinary high water mark (OHWM) and riparian habitat not regulated by the Corps). Impacts occurring above the OHWM is considered	See Response to Comment 2-1, 2-2, and 6-2 regarding Waters of the State and riparian habitat (including text revisions). Applicable District BMPs that would be implemented to avoid and minimize adverse impacts to jurisdictional waters are listed on Final EIR pages 3.D-42 through 3.D-45. In response to this comment, Final EIR page 3.D-39, paragraph 4 and page 3.D-40, paragraph 4 have been revised to clarify how waters of the State would be avoided and minimized, and to clarify that areas above the ordinary high water mark are regulated under the California Water Code (see attached copy of revised Section 3.D, Biological Resources).

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				waters of the State regulated under the California Water Code. For example, the levees along all the creek elements will be constructed/re-constructed, which will entail work within the bed and bank of the channel. In addition, impacts to existing riparian habitat will occur along Upper Calera and Tularcitos Creeks above OHWM. The entire area between top-of-bank on each side of the water course should be described as potential waters of the State. The DEIR should evaluate alternatives to avoid and minimize impacts in these areas.	
6	6-4	SFBRWQCB		**Mitigation Measures (Chapters 3.D and 3.I)** Mitigation for adverse impacts to waters of the State: The DEIR describes mitigation measures to compensate for the loss of waters of the State, which include 1) compensatory mitigation (on-site, off-site, and mitigation bank) (Mitigation Measure 3.D-4b), and 2) complying with the terms and conditions of the permit. The proposed compensatory mitigation is still at a conceptual phase. The DEIR describes that the adverse impacts to the wetlands are considered permanent; however, does not propose adequate compensatory mitigation for the temporal and permanent impacts to these waters of the State after measures to avoid and minimize any direct and indirect impacts have been implemented. The Proposed mitigation measures should be presented in sufficient detail to evaluate the likelihood that the proposed remedy will actually reduce impacts to a less than significant level. Mitigation measures to be identified at some future time are not acceptable. Mitigation and Monitoring Plan (MMP): The District should be aware that water quality certification for impacts to waters of the State will not be issued until the Water Board has approved a mitigation and monitoring plan (MMP). Since, at this time, Water Board staff has only been provided with a conceptual mitigation description, we are not able to assess whether or not the proposed mitigation will be sufficient to reduce Project impacts to a less than significant level. Mitigation measures should also include factors to account for temporal losses of habitat, the uncertainty of success associated with any mitigation project, and potential distances between the areas of impact and the mitigation sites.	The District has not delayed development of a mitigation measure, but instead identified in an adequate mitigation measure for addressing the impacts on federal and state-protected waters. The mitigation measure (MM 3.D-4b) requires that the District obtain permits from the applicable regulatory agencies and consistent with the terms and conditions of these permits, compensate the loss of wetlands and other waters/riparian habitats at a minimum of 1:1 ratio and includes performance standards for mitigation activities. Compensatory mitigation is described at a conceptual level in the Draft EIR because mitigation details are often based on permit conditions and requirements and are developed out in consultation with the permitting agencies, including the SFBRWQCB in this case. As described in Mitigation Measure 3.D-4b (Final EIR pages 3.D-45 through 3.D-46), a MMP would be developed to describe how temporary and permanent impacts shall be compensated (see attached copy of revised Section 3.D, Biological Resources). The MMP would be developed in conjunction with the permitting process and in consultation with SFBRWQCB, as well as with Corps and CDFG staff, and would be subject to approval of all permitting agencies. The MMP will be developed in accordance with applicable guidelines. The MMP would also include plans to compensate for wetland losses resulting from the Program. These may include, but are not limited to, the provision of onsite mitigation through revegetation or restoration of existing jurisdictional wetland features; additional onsite wetland creation; or offsite mitigation.

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6	6-5	SFBRWQCB	3.I-21	**Hydrology and Water Quality (Chapter 3.I)** Groundwater (Impact 3.I-2): The DEIR describes the potential for groundwater to accumulate in the Project area due to construction activities. The proposed measures to avoid and minimize impacts on groundwater include implementing a series of BMPs, which primarily focus on managing erosion control, turbidity, and chlorinated water. However, the DEIR should provide details related to monitoring and treating groundwater for contaminants other than sediment and chlorine. For example, the DEIR should identify areas of known groundwater pollution such as known plumes of volatile and semi-volatile organic compounds and a protocol for monitoring and treating polluted groundwater recharging into the channel during construction activities.	Final EIR Section 3.H, Hazards and Hazardous Materials, addresses the potential for groundwater contaminants to be present in the vicinity of the Program area. As described in Section 3.H.1, Environmental Setting, based on regulatory data based reviews, there is a low potential for contaminants to be present in the groundwater (or soils) in the Program area vicinity. However, as identified in Impact 3.H-1, there is still the possibility of encountering unanticipated hazardous materials during construction activities. District BMPs include hazardous materials management procedures which would reduce potential impacts associated with potential exposure to previously undiscovered hazardous materials but these BMPs do not include detailed requirements for appropriate response and protective equipment. Therefore, the impact was identified as significant and Mitigation Measure 3.H-1 identifies further specifications to be implemented prior to construction, and requires development of a health and safety plan; emergency protocols; handling and sampling procedures; and protocols for offsite disposal of contaminated soil or groundwater. However, it is noted that Impact 3.I-2 could be clarified to indicate that potential exposure to previously undiscovered groundwater contaminants is addressed in Impact 3.H-1. Therefore, the first paragraph of Impact 3.I-2, on Final EIR page 3.I-21 has been revised. **Construction Impacts** ***All Elements*** <u>Impacts associated with potential release of previously unknown hazardous materials, including any that may be present in groundwater, are discussed in Impact 3.H-1.</u> As discussed in Section 3.I.1, Environmental Setting, groundwater depths within the program area could be relatively shallow (e.g., less than or equal to 11 feet bgs). In order to provide for clear and safe work areas, groundwater dewatering may be necessary for construction activities that would involve excavation. Such activities may include: constructing floodwalls and/or headwalls for all elements; improving roads for all elements; reconstructing bridges for Lower Berryessa Creek Element, Lower Calera Creek Element, and Tularcitos Creek Element; constructing a stormwater pump station for the Tularcitos Creek Element; sediment removal to restore design conditions and construction of a floodplain for the

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					Lower Penitencia Creek Element; and/or constructing a concrete box culvert for the Upper Calera Creek Element 1.
6	6-6	SFBRWQCB	3.I-25	Alter the Existing Drainage Pattern (Impacts 3.I-3 and 3.I-4): a. The DEIR states that the levees, floodwalls, and headwalls to be constructed for flood protection will increase flow depth, but will not substantially impact the existing drainage pattern because the "sediment transport regime is net depositional" and therefore, "unlikely that the overall sediment transport regime would change notably as a result of the Program." The DEIR should include a scientific basis (i.e. sediment transport, hydraulic, and/or hydrology studies) supporting this statement. b. The channel for the Lower Calera Creek will be widened and re-configured. The DEIR should include sufficient details related to impacts to water quality and drainage patterns and adequate mitigation to avoid and minimize the impacts to the maximum extent practicable. c. The DEIR should provide more details about the proposed culvert to be constructed on Upper Calera Creek, which may cause a significant alteration of the existing drainage pattern. I.e., the DEIR should describe potential changes to the Creek's drainage pattern which could result from diverting some of the flow through the proposed culvert, thereby altering the existing energy and sediment transport balance within the Creek. The DEIR should identify measures to avoid and minimize such potential adverse impacts to the Creek.	a. The Draft EIR description of the sediment transport regime for the Program stream reaches is taken from the Lower Berryessa Creek Planning Study Report, a hydrology technical study prepared in 2010 by registered professional engineers from Winzler & Kelly, on behalf of SCVWD. The description of the Program sediment transport regime is based on review of existing documents and maintenance records, including a 2001 channel and basin history report prepared by Northwest Hydraulics Consultants. The 2001 Report concludes that the regional topography, mountainous topography, and climate contribute to high sediment production in the Berryessa Creek Basin. Since the mid 1800's, Berryessa Creek has been confined, leveed, and re-aligned such that the creek no longer exhibits a channel morphology consistent with that of an alluvial fan. Instead the alluvial fan processes are confined into a linear feature, such that sedimentation that would have occurred during floods over large areas are now restricted to the creek channel. In addition, a portion of Berryessa Creek is tidally influenced, which contributes to the daily accumulation of tidal borne sediment in the channel. Based on these characteristics, it is unlikely that Program will result in an overall change to the sediment transport regime. b. Text on Final EIR page 3.I-24, paragraph 3 and page 3.I-25, paragraph 1 have been revised to clarify potential impacts associated with Lower Calera Creek and indicate though the Lower Calera Creek Element would widen the channel, the sediment transport capacity following large flows would likely remain unchanged, as the backwater effect from Lower Berryessa Creek would still largely control the hydraulic properties of the reach. **Operations Impacts** ***All Elements*** Implementation of the Program would result in altered drainage patterns within all elements. Raising or installing floodwalls, headwalls, or levees would increase the flow depth and raise the water surface elevation (and hydraulic grade line) for a given, large flood event (e.g., during a 100-year flood event), while channel widening and

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					floodplain construction would likely decrease the flow depth and water surface elevation. Depending on the concurrent change in the water surface slope, an increase in the flow depth could translate to an increase in flow velocity and, subsequently, an increase in the capacity of the channel to erode and mobilize bed and bank sediments. Conversely, a decrease in flow depth and velocity (e.g., through channel widening, such as that proposed for the Lower Calera Creek Element) could result in more sediment deposition. If the ~~increase~~change in velocity is large enough and enough sediment is available for transport, the resultant ~~bed/bank erosion and increase in~~impact upon sediment transport processes could be substantial, negatively impacting both channel stability and water quality. According to previous studies (District, 2010a), all of the elements generally exhibit characteristics of a sediment transport regime that is net depositional (i.e., the channels tend to accumulate sediment over time). This characteristic is not surprising given their location in the watershed (i.e., in the lower elevations) and their proximity to tidally-influenced stream channels. On average, and assuming a uniform distribution of sediment, the sediment accumulation over the channel bed within the Lower Berryessa Creek Element is approximately five to six inches per year (District, 2010a). Sediment accumulation over the channel bed within the Lower Penitencia Creek Element is also substantial. Evidence of stream bank erosion is largely absent from all of the elements (District, 2010a), which is further evidence of the depositional nature of the channel reaches comprising the overall Program. Further, during large flood events, flow depth and velocity within the Tularcitos Creek Element and the Calera Creek Element are greatly controlled by the backwater effect from Lower Berryessa Creek. Thus, though the Lower Calera Creek Element would widen the channel, the sediment transport capacity following large flows would likely remain unchanged, as the backwater effect from Lower Berryessa Creek would still largely control the hydraulic properties of the reach. The backwater effects limit the capacity of the Calera Creek and Tularcitos Creek elements to convey their incoming sediment loads.

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					c. The Upper Calera Creek elements, including the proposed culvert, were assessed at a Program-level. Nonetheless, the proposed culvert (Upper Calera Creek Element 2) would not be an "in-line" feature, rather it would be installed in the right overbank area (at or above the existing top of bank elevation) to capture flows that overtop the existing top of bank elevation. Thus, the culvert is not likely to notably alter the flow depth or velocity at large flows (e.g., once overbank, the flow width is changing at a much faster rate than flow depth), but rather is likely intended to prevent overbank flows from encroaching on the middle school property.
6	6-7	SFBRWQCB	2-21	**Levee Vegetation Maintenance (Chapter 2.E)**: The DEIR states that "the benches and ROW would include removal of woody vegetation within 15 feet of the levee slope that could reduce channel capacity." The District should ensure all vegetation removal and/or disturbance is avoided and minimized to the maximum extent practicable. In addition, vegetation should be planted where necessary to improve stability of the levee/embankment. It is not clear if this maintenance activity is related to the Corps Levee Vegetation Management guidelines. It should be noted that the Corps Levee Vegetation Management guidelines are in conflict with Water Board and State Policies. The Water Board sent a letter to the Corps' headquarters in Washington, D.C., dated March 10, 2010, stating the guidelines are in conflict with State regulations, environmental review process, public safety, and lack scientific basis. Therefore, Water Board staff recommends avoiding and minimizing any removal or disturbance of vegetation associated with levee vegetation maintenance to meet the Corps levee vegetation guidelines.	In response to Comment 6-7, text changes have been made throughout the Program Description to indicate that existing vegetation would be preserved where vegetation does not affect the function of the improvements, as shown below. The first paragraph on Final EIR page 2-21 has been revised: …wetlands species. The low bench would range in width from six to 18 feet, and would be installed following construction of facility components. Maintenance of the benches and ROW would include removal of woody vegetation within ~~15 feet of~~ the levee slope <u>within the District ROW</u> that could reduce channel capacity. <u>Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements.</u> The second paragraph on Final EIR page 2-23 has been revised: This element would include a 15 to 30-foot wide low bench on the north side of the channel near the existing low flow channel that would be constructed to help maintain the low flow channel. The District would allow the low bench to revegetate naturally or could plant the bench with native herbaceous wetlands species. Levee slopes would be hydroseeded. Maintenance of the benches and ROW would include removal of woody vegetation within ~~15 feet of~~ the levee slope <u>within the District ROW</u> that could reduce channel capacity. <u>Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements.</u> To improve access for ongoing maintenance measures, a permanent 18-foot wide access road would be constructed on the south side of the

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					channel upstream of North Milpitas Boulevard. Access to this road would be provided at each street crossing via ramped sections over floodwalls. A 5-foot wide access path would also be provided on the north side of the channel upstream of North Milpitas Boulevard. Paragraph 1 on Final EIR page 2-28 has been revised: Penitencia Creek. If the calculated change (i.e., compared to the information published by FEMA [2009]) in the water surface elevation or the HGL in Lower Penitencia Creek is greater than one foot, at any point, or any new areas are predicted to experience flooding, then the District would design and implement the Lower Penitencia Creek Element to fully contain the design flow rate. The preliminary concept of this element includes returning the channel to design capacity by removing in-channel sediment and vegetation. From the confluence with Lower Berryessa Creek to California Circle, the in-channel bench would be lowered to increase channel capacity. Sediment and vegetation would also be removed within this reach. Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements. Between California Circle and I-880, the accumulated sediment within the channel would be excavated to return it to design conditions. Downstream of I-880, the channel would be excavated to provide flood capacity. Near I-880 and outside of the District ROW, a new floodplain would be constructed. It is noted that the SFBRWQCB indicates that the U.S. Army Corps of Engineers levee vegetation management guidelines are in conflict with Water Board and State Policies. The SCVWD would coordinate with the SFBRWQCB and the U.S. Army Corps of Engineers regarding permit conditions and vegetation management requirements.
6	6-8	SFBRWQCB		**Environmentally Superior Alternative (Chapter 4)** The conclusion that the proposed project will have fewer impacts (while meeting project objectives) as compared to Alternative 2, 3, and 4 is not based on a complete assessment of the potential impacts to waters of the State as mentioned in Comments 1 - 4 above. As stated above, a complete assessment of potential impacts should be evaluated, and impacts avoided and minimized to the maximum extent practicable.	Please see the response to Comments 6-2 through 6-4. As indicated in those responses, impacts to waters of the State were addressed in the EIR. As described, changes have been made to Draft EIR text to make it clearer how impacts to waters of the State were addressed, and that impacts have been avoided and minimized to the maximum extent practicable. Thus, the environmentally superior alternative conclusions are based on complete assessment of impacts to waters of the State.

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6	6-9	SFBRWQCB	5-15	**Cumulative Impacts (Chapter 5)** Biological Resources: The DEIR does not adequately address cumulative impacts to the riparian corridor and associated habitats as the result of several projects listed on Table 5-1, namely the Lower Berryessa Creek Program - 5 - DEIR – RWQCB Comments Upper Berryessa Project and BART Berryessa extension project. The proposed mitigation measures (5.C-2a, 5.C-2b, 5.C-3a, and 5.C-3b) are not adequate to avoid and minimize cumulative impacts for the following reasons: a. General comment: The mitigation measures reference mitigation measures in Chapter 3; however, the number of the measure does not match the title in all instances. This should be corrected. b. Mitigation Measure 5.C-2a: The description of this measure references Mitigation Measure 3.D-4a, which includes conducting a "jurisdictional determination for potential waters of the U.S. to determine the location and extent of wetlands within Lower Penitencia Creek Element" and developing final design plans for the Program-level elements. These are not mitigation measures that would avoid and minimize cumulative impacts to jurisdictional waters, but rather components of the planning and design phases. c. Mitigation Measure 5.C-2b: The description of this measure references Mitigation Measure 3.D-4b, which includes providing compensatory mitigation for the loss of wetlands and riparian habitat. As stated in Comment 3 above, the proposed compensatory mitigation for permanent impacts to wetlands and riparian habitat is still at a conceptual phase. The Proposed mitigation measures should be presented in sufficient detail to evaluate the likelihood that the proposed measure will actually reduce impacts to a less than significant level. Mitigation measures to be identified at some future time are not appropriate. d. Mitigation Measures 5.C-3a/3b: The description is conceptual and does not provide sufficient details to demonstrate that the proposed mitigation will be sufficient to offset the cumulative temporal and permanent impacts to the riparian corridor.	Mitigation Measures 5.C-3a and 5.C-3b on Final EIR page 5-15 have been revised based on part a of Comment 2-9. **Mitigation Measure 5.C-3a: *Tree and Shrub Replacement ~~and Compensation~~.*** The District shall implement Mitigation Measure 3.D-6a~~5c~~ (Tree and Shrub Replacement~~Compensate for Wetland Loss~~), and related projects removing trees should implement similar mitigation measures. **Mitigation Measure 5.C-3b: *Tree Protection Measures.*** The District shall implement Mitigation Measure 3.D-6~~5~~b (Tree Protection Measures) and related projects affecting trees should implement similar mitigation measures. b. While it is true that bullet 1 of Mitigation Measure 3.D-4a would require development of jurisdictional determinations for program-level elements that have not yet been surveyed, this information would support wetlands avoidance measures. However, implementation of Mitigation Measure 3.D-4a alone would not reduce impacts to less than significant. Implementation of Mitigation Measure 3.D-4b requires compensation for unavoidable loss of wetlands or other waters and riparian habitats. c. Please see response to Comment 6-4. d. Please see response to Comment 6-4.

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6	6-10	SFBRWQCB		Hydrology and Water Quality: The DEIR should include sufficient detail of the anticipated cumulative impacts (temporal and permanent) to water quality and alterations to the existing drainage patterns that could result from the various projects that may occur simultaneously, namely the Upper Berryessa Project and BART Berryessa extension project, and identify suitable mitigation measures.	Cumulative impacts to water quality and alterations to the existing drainage patterns from the Program, the USACE/ SCVWD Upper Berryessa Project and BART Berryessa Extension Project are described on Final EIR pages 5-24 through 5-26. As described, the Program and the cumulative projects would be subject to authorization under the NPDES Construction General Permit. Further, the USACE/SCVWD Upper Berryessa Creek Project would be subject to District BMPs. Thus, cumulative water quality impacts would be less than significant. Should the USACE/SCVWD Upper Berryessa Creek Project require groundwater dewatering, implementation of District BMPs for dewatering activities would be required. It is noted that the BART Berryessa Extension Project and the USACE/SCVWD Upper Berryessa Creek Project could result in alteration of drainage patterns, and could result in subsequent erosion or siltation. However, the USACE/SCVWD Upper Berryessa Creek Project would consist of similar flood control improvements as the Program and similar to the Program, would also result in minimal effects on downstream drainage patterns and erosion or siltation.
6	6-11	SFBRWQCB		**Project Objectives** The DEIR should describe how the Project will "identify opportunities for riparian and stream habitat enhancement and/or restoration"? The Project as proposed includes very little vegetation plantings and does not include any enhancement/restoration/creation of riparian/wetland habitat other than conceptually for compensatory mitigation for permanent and temporal impacts to wetlands and riparian. Water Board recommends that the District assess where vegetation can be planted (not just allow to re-vegetate naturally) to promote establishment of the desired species within the stream corridor. Furthermore, the Project's planning and design phase should include identifying opportunities to incorporate more environmentally friendly methods into the Project design that would improve flood control and provide habitat and discussed appropriately in the DEIR.	The Program includes natural recruitment of riparian and stream habitat. Further, Mitigation Measure 3.D-4b describes how compensation for the unavoidable loss of jurisdictional waters shall occur, including on-site creation or restoration; off-site creation or restoration; or payment to an approved wetland mitigation bank. In addition, active seeding or planting would occur in the event that natural recruitment does not occur as anticipated.

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6	6-12	SFBRWQCB	2-26	**Channel Maintenance (Chapter 2.D.2)** Stream Maintenance Program (SMP): The District is currently in the process of renewing the RWQCB permit for the SMP. The DEIR should reference maintenance activities corresponding to the forthcoming revised SMP (2012 - 2017) and not the current SMP maintenance activities period (2002 – 2012). The DEIR should explain the types of maintenance activities for this Program that will be covered under the forthcoming SMP. In addition, the DEIR should clearly identify and describe any maintenance activities that will not be covered under the revised SMP.	The program description has been revised to acknowledge the SMP permit renewal process and to clarify the burrow levee protection improvements that were approved as an addendum to the SMP. However, the draft future permit conditions have not been finalized or approved. Therefore, the description of the SMP included in the Draft EIR is based on the existing, approved SMP. The second paragraph on Final EIR page 2-16 has been revised to include staff-initiated changes to clarify levee protection improvements and text changes in response to this comment: Three addenda to the SMP project were prepared to address the project's compensatory mitigation for tidal wetlands, acquisition of property and easement necessary for stream maintenance, and the addition of burrow levee protection improvements at various creeks. These addenda were approved in February 2006, June 2009, and November 2010, respectively. <u>The burrow levee protection improvements are intended to address rodent damage on levees, which is required by the USACE for levees under its jurisdiction. The District is currently in the process of renewing the RWQCB permit for the SMP for the years 2012 through 2017.</u>
6	6-13	SFBRWQCB		The DEIR should include an assessment of sediment depositional hot spots, including an evaluation of project design alternatives, with the intent to improve sediment transport, reduce maintenance needs, and limit dual maintenance roads and turnouts wherever possible.	The program areas do not include locations where sediment depositional is routinely greater than other locations (i.e., "hot spots" as described by the commenter). Therefore, the DEIR does not include an assessment of sediment depositional hot spots, or project design alternatives that address or improve sediment transport within Program reaches.
6	6-14	SFBRWQCB		**Maintenance Road (Chapters 2, 3, and 4)** a. The DEIR should explain why it is necessary to have two maintenance roads along the stream corridor versus one maintenance road for each creek element describing associated impacts for both scenarios, and evaluate if one maintenance road would be sufficient in meeting the project objectives. b. The DEIR describes that the maintenance roads will be constructed using soil cement, which appears to be impervious. The DEIR should explain the environmental impacts associated with soil cement material and discuss alternatives that would result in fewer impacts to waters of the State. Water Board staff encourages the	a. The District spent considerable time evaluating regulatory concerns regarding the number of maintenance roads necessary to maintain Lower Berryessa Creek. Traditional District standards require 4 maintenance roads for a creek as wide as Berryessa, 2 lower roads and 2 upper roads. Understanding the various concerns related to this many maintenance roads, District staff looked at a variety of channel configurations to both maximize flood flow capabilities and how to minimize access needs to maintain Lower Berryessa, which has a high rate of sedimentation. To help reduce the number of maintenance roads, District staff came up with the concept of one lower road on one side of the channel to address regular instream maintenance work (sediment, vegetation, graffiti removal,

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				use of permeable material such as gravel for maintenance roads where possible, especially for maintenance roads that are lower in the channel. c. The DEIR should provide more detail as to why, and under what conditions, a maintenance road turnout is necessary every 500 feet and the corresponding impacts to the stream corridor.	debris and trash removal), and one upper road on the other side of the channel for less regular work (flood patrols/inspections, access during high flow events). The current design configuration provides the minimal needs to access the channel for maintenance. b. Lower maintenance roads are regularly subjected to stream flows which; contribute to the degradation of the roads (washes out fine particles; round the defined edges of the roadway, thereby reducing the overall width of the road; and, allows water to pond in areas where vehicle traffic can create potholes or other impressions, etc.). In this proposed configuration, only the lower maintenance road is being proposed as a soil cement material. Also, a soil cement roadway would allow for vehicle and equipment access along the lower roadway quickly after a major flood event if there is a need to quickly address a concern within the channel; whereas, a traditional rock or dirt road could be inaccessible immediately after a storm event depending on how wet the soil is. Soil cement is a highly compacted mixture typically comprised of soil, cement, water, and other possible additives, such as lime and fly ash. The chemical properties of soil cement are dependent upon the type of cement and additives used and vary by manufacturer. For example, Soil-Sement® is a clear-drying polymer emulsion product that is applied topically to road surfaces for soil stabilization and erosion control purposes. Upon application, this product significantly reduces particulate matter, increases load-bearing strength of all types of soils and surfaces, and prevents water from seeping into and destabilizing the road surface. All testing conducted by the manufacturer has shown that Soil-Sement®, when applied properly, does not negatively impact soil or water quality in terms of toxicity. Tests conducted included a Risk Based Concentrations analysis, which compared chemical levels in the Soil-Sement® treated soil to the EPA Region III Risk Based Concentration levels in residential soil, as well as a toxicological evaluation of Soil-Sement® utilizing EPA methods for both acute and chronic toxicity determination for aquatic organisms. Further, the Material Safety Data Sheet for Soil-Sement® lists it as non-hazardous, and a non-restricted article. Information for Soil-Sement® is from the Soil-Sement® Material Safety Data Sheet and the Soil-Sement® “Environmental Perspective” document, available online at www.midwestind.com.

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					c. Maintenance road turnouts are important in Lower Berryessa Creek due the high amount of sediment removal that occurs in this area. A critical need associated with sediment removal operations is dump trucks and allowing for them to move easily through the project site. Since dump trucks are the highest cost of a sediment removal operations, being able to have trucks on site and available for out-hauling sediment is critical. Turnouts allow for trucks to stage within the facility, as opposed to staging on local streets; heavy equipment to operate on the road (rather than actually in the creek or completely blocking the roadway); and truck traffic to drive past the heavy equipment (excavator) after being loaded, reducing the amount of time an excavator has to wait until the next truck is in position (no turnout means trucks have to back up to the nearest street access point after the most recent loaded truck drives out of the facility). The impacts to the stream corridor are expected to be minimal based on the hydraulic calculations performed for the project.
6	6-15	SFBRWQCB		**Stormwater Pump Station Construction (Chapters 2 and 3)** The DEIR describes excavating the creek bed in Tularcitos Creek to construct the wet well and inlet channel, but does not describe associated impacts to the stream corridor, which appears to be a permanent impact. The DEIR should explain to what extent the stream corridor will be impacted for this activity and propose appropriate mitigation to compensate for the loss of stream surface.	Activities proposed along Tularcitos Creek are analyzed at a program-level. The program-level analysis conducted was inclusive of this activity. However, the extent of stream corridor impacted for activities along Tularcitos Creek will be identified at such time as a project-level description is developed. It is noted that the Draft EIR acknowledges there could be short term and long term impacts for all program-level elements, including Tularcitos Creek, and proposes mitigation for these impacts on p. 3.D-44 of the Draft EIR.
6	6-16	SFBRWQCB		**BMPs (Appendix B)** a. The BMPs as proposed would only be implemented with the purpose to “minimize” impacts from construction activities. The BMPs should be implemented to “avoid and minimize” impacts. b. Several BMPs would be implemented in the event an impact is considered “significant” or “high level”. The BMP Manual should define what is considered to be “significant” and “high level.” In addition, explain under what circumstance these BMPs would not be appropriate to implement if the impact would be considered less than “significant” or “high level” and why these types of impacts would be acceptable and	The SCVWD acknowledges the comments made on the Best management Practices Handbook, such as comment regarding definition of “significant” or “high-level” and requested clarifications regarding bank repair methods and monitoring of contaminants. The SCVWD updates the handbook periodically and would further review these comments during the next update. However, regarding part a of comment 6-16, as described under “Purpose”, on page 3 of the handbook (italicized for emphasis): The Best Management Practices Handbook (Handbook) provides a list of Santa Clara Valley Water District (District) Best Management Practices (BMPs), intended to be

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				consistent with permit requirements. c. BMP WQ-13: The use of boulders as a bank repair method is not considered a biotechnical repair method, unless the boulders are buried or keyed into the bank and the channel banks vegetated. d. BMPs WQ-15/WQ-19: These BMPs do not include monitoring for contaminants or specify treatment methods where determined necessary.	incorporated into projects or activities. It aids in accomplishment of the stewardship component of the District Ends Policies by incorporating the basic principle of *avoiding or minimizing* the potential to impact the environment negatively in projects and activities. Many of the BMPs required under the proposed Program include activities that would result in avoidance of impacts, in addition to those would minimize potential impacts. Regarding the comment that use of boulders for bank repair should be burried or keyed into the bank, and that channel banks be vegetated, for this Program, Final EIR page 2-17, paragraph 3 has been revised: The Lower Berryessa Creek Element would provide improvements along Lower Berryessa Creek (see Figures 2-3A through Figure 2-3C). Improvements would include reconstructing levees and replacing existing levees with floodwalls. Levees along the northeast side of the channel would be raised for the entire length of this element, with the exception of Reach C where levees on both sides would be replaced with floodwalls. Reconstructed levees would be up to 12 feet higher than the adjacent outside elevation. Floodwalls would be constructed along the southwest side of the channel along the entire length of this element. The height of the floodwalls would vary from approximately five to eight feet above the adjacent elevation along the outside face of the walls. A short segment of levee slope near Abel Street would include boulders that are buried or keyed into the bank, to provide additional bank stability. The element would also include hydroseeding[1] of levee slopes. Regarding comments on BMPs WQ-15 and WQ-19, for this Program, monitoring of contaminants and treatment methods are addressed under Mitigation Measure 3.H-1, Soil and Groundwater Management Plan.
6	6-17	SFBRWQCB		An EIR should provide both the proposed impacts and mitigation measures together for public review. Accordingly, the DEIR should be revised to include impact analyses for all wetlands and waters (within both Corps and Water Board jurisdictions), and more detailed mitigation descriptions for public review.	Please see the response to the comments above. The comments provided in the SFBRWQCB letter are useful and EIR clarifications have been made. However, such revisions do not require any changes to impact determinations nor would they result in new impacts.

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7	7-1	Village II HOA (Cuciz)		Objection: The Visual Impact Analysis beginning on page 3.B-21 of the DEIR failed to analyze the visual impact of removal of landscaping from the outboard levee of the Water District ROW and improperly dismissed as less-than-significant the visual impact of raising the levee by nearly 40% relative to the Village II side of the levee. The visual analysis focused on the visual impacts of removal of the landscaping and raising the levee on Berryessa Creek itself and on the incorporated walking trail on top of the levee. However, the visual analysis failed to analyze the impact of these two aspects of the levee project on the adjacent residential development when viewed from the Village II side. The visual impact photo, photo number 3 on Page 3.B-6 of the DEIR, shows the view adjacent to the Village II development only from the lower maintenance road only from the inboard side of the levee, thus the analysis does not show any relevant information about the visual impact of the Water District project on the outboard side facing the Village II residences. The loss of the existing mature tree and shrubbery landscaping on the outboard levee and replacement with a higher earthen bank potentially covered with native grasses (that will turn brown during the summer) will dramatically alter the scenic value of the view from the Village II properties. The significant increase in height of the levee will not be minimal from the Village II perspective as suggested in the draft EIR, especially considering that some residences in Village II are within fifty (50) feet of the toe of the levee slope. Change Mitigation Measure M-3.0-6a by specifically allowing some of the replacement landscaping provided for in this Mitigation Measure to be planted on private property that is immediately and proximally impacted by the removal of existing outboard levee landscaping and by the increase in levee height. There is a common area landscaping strip on Village II Association property adjacent to the Water District land where the landscaping will be removed. This landscaped area is "public" in that it belongs to the Association, not to any individual residential owner.	As described on EIR page 3.B-18, evaluating effects of the Program on the visual character or quality of an area is based on the visual sensitivity of an area and the degree of ***overall visual change*** introduced by the Program. The key factors in determining the overall visual change are visual contrast, dominance, and view blockage. Specifically, an adverse visual impact may occur when: (1) an action perceptibly and substantially changes the existing physical features of the landscape that are characteristic of the region or locale; (2) an action introduces new features to the physical landscape that are perceptibly uncharacteristic of the region or locale, or become visually dominant from common viewpoints; or (3) an action blocks or totally obscures aesthetic features of the landscape. The degree of visual impact depends on how noticeable the adverse change is and the related visual sensitivity (established in the setting). As described in Impact 3.B-1, along Lower Berryessa Creek, no woody vegetation within the District ROW would be included that could reduce channel capacity. Existing vegetation along this reach would be preserved where vegetation does not affect the function of the improvements. Mitigation Measure 3.D-6a would be required to address the impact and would reduce impacts to less than significant. This mitigation measure indicates that replacement plants be installed that reflect the structure and density of trees and shrubs as identified in a preconstruction survey, such that the overall character, and quality, of views from the creek roads/trails are restored on-site, to the extent feasible. Where planting trees and shrubs within the same site, or within the District's ROW, is not feasible (e.g. on levee slopes within the District ROW that could reduce channel capacity; where soils within the ROW would not support plantings; or where plantings would compromise the objectives of the Program), the District shall coordinate with the City of Milpitas to find suitable, alternative location(s) for the replacement plantings. It is noted that trees within the District ROW adjacent to the Village II development were planted by Village II under a permit with the District, with the understanding that the Lower Berressa Creek project element would require removal of the vegetation. It is noted that levees would be raised by approximately 3 feet in the vicinity of Village II; it is unclear where the levees would be raised by 40% as indicated by commenter. As described in Impact 3.B-2, while the Program would change the existing

Letter	Comment	Commenter	Revise EIR	Comment Text	Response to Comment
					topography of the creek corridor substantially, the visual change would be moderate because the character, color, and landforms of the setting would not be in contrast to existing conditions. Earthen berms would be hydroseeded to restore the vegetation and access roads would be built to comply with City of Milpitas trail standards. In addition, because Lower Berryessa Creek is already a prominent feature in the urban landscape, levee heightening would not have a substantial effect on the dominance of the creek as observed from common viewpoints. Changes in mass and height would be most noticeable from the most proximal locations. Because levees would be heightened, partial view blockage from adjacent streets could occur as the result of the Program. However, adjacent residences would not be substantially affected by the Program because they would be located far enough away from the levee tops that the increase in height would be minimally noticeable. In addition, views of the creek from most residences are already blocked or partially obscured by backyard walls, fences, and vegetation.
7	7-2	Village II HOA (Cuciz)		Objection: Discussion of potential harm to existing and remaining landscaping that could be caused by reconstruction and enhancement of the levees failed to note that the construction activities could harm existing landscaping on adjacent private properties. Village II has landscaping, including major trees and mature shrubbery, within 50 feet of the site of construction which could be harmed by compaction of earth and the vibration of construction work on the levee. Change Mitigation Measure M-3.D-6b to specifically extend the landscaping protection measures of that mitigation measure to landscaping on private property adjacent to the construction site. Change Mitigation Measure M-3.D-6b to add a requirement that landscaping that dies as a result of the adjacent construction activity will be replaced at the Water District's expense. The landscaping dies or shows serious stress within six (6) months of completion of the construction activity, the damage to the landscaping should presumed to be caused by the levee construction activities.	Mitigation Measure 3.D-6b specifically addresses potential impacts to trees located within or adjacent to the active construction areas that are to remain in place. This is inclusive of trees immediately beyond the District right-of-way. In response to this comment, Final EIR page 3.D-49, paragraph 2 has been revised: **Mitigation Measure 3.D-6b: *Tree Protection Measures*.** Prior to the start of construction, the District shall prepare a tree protection plan for trees that would remain within the program area but would be within or adjacent to the active construction areas. The plan shall include measures that the District and/or its contractor(s) shall implement to protect the remaining trees. Measures could include, but are not limited to, establishing and demarcating a Tree Protection Zone that shall be avoided; pruning low limbs to provide for equipment access and work; placing mulch to prevent compaction from machinery; wrapping tree trunks in protective material to avoid contact with machinery; and cleanly cutting, trimming and covering roots as soon as possible if they are damaged. The District shall monitor tree protection zones during construction activities within the vicinity of protected trees, and if necessary, shall replant or replace trees if they are damaged.

Letter	Comment	Commenter	Revise EIR	Comment Text	Response to Comment
7	7-3	Village II HOA (Cuciz)		Objection: The discussion of the impact of particulate matter (dust) raised by the extensive reconstruction of the Lower Berryessa Creek levees fails to adequately analyze the impact of such dust on the adjacent residential developments, including failure to discuss contamination of the interiors of residences, impact on the adjacent private streets and open areas, and loss of quiet enjoyment of outside areas at Village II due to such dust. In the case of the Village II properties, the dust, especially if it continues over the projected two-year lifetime of the construction project, will also significantly impact scheduled and required exterior maintenance of the Village II property. Add a new Mitigation Measure that requires the major dust producing construction activities adjacent to anyone geographic area to be completed within one (1) construction season rather than allowing those activities to be spread over two seasons. The Mitigation Measure should also require that the contractor coordinate the timing of the phase with adjacent developments to the extent possible or, at least, require that the contractor inform adjacent major developments about the timing of major work adjacent to the development site as early as possible, but not less than three months prior to the beginning of that section's construction activities. It is noted that the major dust producing activities occur in the first 8 month phase of construction as shown in Table 2.2 on Page 2-33, so this portion of the Water District project should be able to be accommodated within one construction season. Change Mitigation Measure M-3.C-I to include sweeping the private streets of developments adjacent to the construction site as needed to control dust, but no less than once each week during the construction activities adjacent to the development. Change the requirement in Mitigation Measure M-3.C-I that the contact person identified as responsible for air quality and dust control respond to complaints and correct any failures in dust control within 24 hours rather than the 48 - hour time period currently called for in the DEIR. Add a new Mitigation Measure or Change Mitigation Measures M-3.C-I and C-2 to provide for assistance to identified individuals with health problems that make them particularly sensitive to dust and air pollution as "sensitive	As described in Section 3.C, Air Quality, CEQA requires air quality analyses to evaluate the potential for a project to violate ambient air quality standards which are designed to protect human health. The air quality analysis in the Draft EIR relies on methodologies provided in the updated 2010 Bay Area Air Quality Management District (BAAQMD) CEQA Guidelines. Although BAAQMD thresholds are designed to protect human health, these standards also protect property to a lesser extent. Furthermore, Mitigation Measure 3.C-1 (Dust Control Measures) would require implementation of several dust control measures such as watering all exposed surfaces, and covering soil, sand or other loose material that is being transported off-site, among others. Implementation of these measures would ensure that the proposed Program does not result in a violation of an air quality standard or contribute substantially to an existing or projected air quality violation. As determined under Impact 3.C-1, implementation of these dust control measures would reduce outdoor dust levels to a less-than-significant level. Regarding the commenter's request for an additional mitigation measure requiring that the contractor coordinate the timing of construction with adjacent developments, refer to Chapter 5, Cumulative Impacts. As described under Impact 5.B-1, other developments in the vicinity of the Program would be required to implement similar dust control measures. In addition, implementation of Mitigation Measure 5.L-1 (Traffic Control Plan) would require advanced coordination with the City of Milpitas, local traffic agencies, and other land use authorities to reduce cumulative traffic and associated air quality impacts. For these reasons, the EIR concludes that Mitigation Measure 3.C-1 would sufficiently reduce potential impacts associated with indoor dust, and thus no new mitigation measures or revisions to Measure 3.C-1 would be required. It is noted that while the construction period for the Lower Berryessa Creek Element is approximately 16 months, construction activities would progress along the 7 reaches that make up this Element, and activities within each individual reach would occur over a smaller portion of the overall 16 month construction schedule.

Letter	Comment	Commenter	Revise EIR	Comment Text	Response to Comment
				receptors." Such assistance should include payment for replacement of air filters and payment to offset the additional costs of running household air-conditioning equipment in order to filter out dust from the air coming into the residences of such sensitive receptors.	
7	7-4	Village II HOA (Cuciz)		Objection: The discussion of noise impacts on pages 3.K-12 through 15 identifies that noise from the heavy equipment that will be used to reconstruct the levees (reference Table 3.K-3, Page 3.K-14) produce noise two to four times (that is, 10 to 20 decibels greater than) the maximum acceptable noise levels for residential land uses, as established by the Milpitas General Plan, as noted in Figure 3.K-2 at page 3.K-9. (As noted on page 3.K-14 of the DEIR, each increase of 6-7 decibels is a doubling of the perceived noise.) Mitigation Measures M-3.K-1a through 1c indicate a noise reduction of only 5 - 10 decibels. Therefore, the finding that the noise impact would be reduced to less-than-significant by these Mitigation Measures is incorrect since the noise levels after mitigation will remain as much as 2 times the maximum acceptable noise levels for residential use in Milpitas. Change the noise mitigation measures to require all active construction activity (that is, activity other than set up of equipment at the beginning of the work day and servicing of equipment at the end of the day) near residential areas be limited to the hours of 8 a.m. to 6 p.m. rather than the hours of 7 a.m. to 7 p.m. as stated on Page 3.K-14 of the DEIR. Change the noise mitigation measures by prohibiting air-compressor operated equipment unless such equipment is rated to produce no more than 70 dB(A) of noise (the so-called "super quiet" air operated equipment).	It is not appropriate to compare the typical construction equipment decibels (dBA) noise levels (as shown in Table 3.K-3) to the City's Land Use Compatibility standards, which are expressed as Ldn or CNEL 24-hour noise descriptors in Figure 3.K-2. In addition, the Land Use Compatibility Standards are designed for the assessment of land use development projects; from a CEQA perspective, the standards are typically only used to assess long-term operational noise impacts. The commenter appears to have misinterpreted the meaning of the first sentence of the last paragraph on Draft EIR page 3.K-14. Each increase of 6.0 to 7.5 dBA is not typically perceived as a doubling of noise; however, noise from construction activity generally attenuates (decreases) at a rate of 6.0 to 7.5 dBA per doubling of distance from the source. As noted on Draft EIR page 3.K-11, construction noise would be considered significant if construction activities would violate the City of Milpitas Noise Abatement Ordinance, which requires that all construction activities are restricted to between the hours of 7 a.m. and 7 p.m. and prohibited on holidays. For the purposes of the Draft EIR noise analysis, construction noise level increases would be considered substantial if noise increases were to occur outside of the City's restricted time periods. Additionally, although the City's Noise Abatement Ordinance does not have quantitative standards for construction noise, construction noise levels could be disruptive to nearby receptors if noise levels substantially exceed the existing ambient levels. As stated in the program description in Section 2.F.4, all construction activities would occur within the City's restricted timeframes, consistent with the City of Milpitas Noise Abatement Ordinance (i.e., between 7 a.m. and 7 p.m., Monday through Friday, with the exception of state and federal holidays as recognized by the City of Milpitas). In addition, implementation of Mitigation Measures 3.K-1a though 3.K-1c would reduce the Program's disruptive construction-related noise impacts to less-than-significant levels by assuring that the District require its contractor to use noise control techniques on equipment,

Letter	Comment	Commenter	Revise EIR	Comment Text	Response to Comment
					vehicles, and stationary sources. For the reasons described above, no text revisions to Mitigation Measures 3.K-1a through 3.K-1c are deemed necessary.
7	7-5	Village II HOA (Cuciz)		Objection: Public Safety and Security issues were not addressed at all in the DEIR. The proposed construction activity has the potential to create several public safety concerns for the residents of Village II, including: the loss of security fencing between the Water District 's property and the Village II properties, the enhanced potential for vandalism of Village II properties resulting from the attractive nuisance created by construction equipment left overnight at the construction site, and the risk of construction accidents on this elevated levee impacting the residential development below on the Village II site. Add analysis and mitigation measures to address these concerns, specifically adding new Mitigation Measures requiring: 1) construction or prompt replacement of security fencing between the construction site and Village II; 2) prohibition of storage of any construction equipment on the top of the levee area; and 3) list of best management safety practices to lessen the chance of construction accidents.	Program Description Section 2.F.5, Staging Areas and Access, describes the locations of the four proposed construction staging areas for the Lower Berryessa Creek and Lower Calera Creek elements. Equipment storage would be restricted to these staging areas, which have been primarily sited in vacant lots adjacent to the construction sites. As shown in Figure 2-8, none of the staging areas would be sited on top of a levee. The analysis of any project's potential to increase intrusion or vandalism of private property lying outside of program areas is not required by CEQA. CEQA does not require analysis of socioeconomic impacts. However, even if the impact at issue here is not considered a socioeconomic issue, it is speculative that program activities would result in increased vandalism of neighboring properties or other public safety concerns. Additionally, there is no substantial evidence suggesting that program activities would cause vandalism and other security concerns. However, as described in Section 2.G, Maintenance, the District would implement a range of maintenance activities including graffiti abatement and installation and repair of fences at project sites. The Draft EIR includes numerous BMPs designed to avoid or minimize the likelihood of construction accidents, some of which include: HM-9: Vehicle and Equipment Cleaning HM-10: Vehicle and Equipment Fueling HM-11: Vehicle and Equipment Maintenance HM-12: Hazardous Materials Management HM-13: Spill Prevention HM-14: Spill Kit Location TR-1: Use Suitable Safety Measures For additional information about these measures, refer to Appendix B (SCVWD Best Management Practices Handbook) of the Draft EIR. These measures are sufficient to reduce risk of safety to neighboring properties to less than significant levels.

Letter	Comment	Commenter	Revise EIR	Comment Text	Response to Comment
7	7-6	Village II HOA (Cuciz)		Objection: The DEIR, Page 2-29, includes a comment in the project description stating that the levee reconstruction will be designed and built to accommodate the Milpitas Trail Plan along the top of the reconstructed levee. However, there is no analysis in the DEIR of the various environmental impacts of such a trail, including visual impacts, public safety, noise generated by users of the trail, etc. Since this Water District project includes provisions for such a trail, the DEIR should include some analysis of these impacts and mitigation measures to off-set any impacts found to be potentially significant. Add discussion of impacts and add mitigation measures addressing these impacts, including a requirement that prior to completion of the trial facilities or use of the trail, adequate screening will be installed between the trail and adjacent residential areas.	To provide clarification, the proposed program does not propose to construct any new trails as part of the Milpitas Trail Master Plan. As described on pages 2-29 to 2-30 in the Draft EIR, maintenance road improvements along Lower Berryessa Creek would include construction of 30-foot-wide by 70-foot long turnouts, which would be constructed approximately every 500 feet. While the road would be designed to accommodate some of the City of Milpitas' trail design guidelines (e.g., surface material and width/grade of the maintenance road), the program as proposed does not include construction or implementation of a new trail. Rather, the proposed maintenance road improvements would enable the City to fulfill the objectives outlined in the Trail Master Plan in the future.
8	8-1	Village II HOA 2 (Percy)		See Comment 7-1	See Response to Comment 7-1
8	8-2	Village II HOA 2 (Percy)		See Comment 7-2	See Response to Comment 7-2
8	8-3	Village II HOA 2 (Percy)		See Comment 7-3	See Response to Comment 7-3
8	8-4	Village II HOA 2 (Percy)		See Comment 7-4	See Response to Comment 7-4
8	8-5	Village II HOA 2 (Percy)		See Comment 7-5	See Response to Comment 7-5
8	8-6	Village II HOA 2 (Percy)		See Comment 7-6	See Response to Comment 7-6

APPENDIX H
Mitigation Monitoring and Reporting Program

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Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Aesthetics				
Mitigation Measure 3.D-6a: *Tree and Shrub Replacement*. (see Biological Resources, below)	Lower Berryessa Creek Element and Penintencia Creek Elements	See Mitigation Measure 3.D-6a	See Mitigation Measure 3.D-6a	See Mitigation Measure 3.D-6a
Mitigation Measure 3.B-2: *Aesthetically Compatible Design*. The District shall implement architectural features into the pump station design that complement the building styles of the community and minimize visual mass. Building materials and exterior finishes shall avoid reflective surfaces and colors shall be chosen to increase compatibility with the visual setting. Structures shall combine multiple complementary colors such as browns, tans, greys, greens, or other colors that reflect the building styles of the surrounding community. If security or access fencing is proposed, applicant shall design fencing to be minimally intrusive to the community yet complementary to the architectural character of the facility and the community. Fencing shall be coordinated with landscaping and facility design to help further enhance the local aesthetics and to blend the facility with the surrounding community and/or natural setting. Vegetative screening using native plants, trees, or shrubs shall be used if it is not out of character with the site setting, and walled perimeters shall be avoided to minimize the dominance of structures in the scene. If location of the facility is flexible, it shall be placed to minimize its prominence in the landscape and proximity to roads, publicly accessible viewpoints, and residences.	Tularcitos Creek Element	The District will prepare and incorporate specifications into the final construction designs (100% design).	During design; Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.B-3: *Placement and Design of Nighttime Security Lighting.* Outdoor light intensity shall be limited to that necessary for adequate security and safety and all outside lighting shall be directed or shielded to prevent spillage onto adjacent properties.	Tularcitos Creek Element	The District will prepare and incorporate specifications into the final construction designs (100% design).Lighting will be installed by the construction contractor under the oversight of the District.	Prior to and during construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Air Quality				
Mitigation Measure 3.C-1: *Dust Control Measures.* The District and/or its contractor(s) shall implement the following dust control measures during construction of all elements. For elements to be developed under the Program for which construction emissions exceed one or more of the applicable BAAQMD thresholds, additional measures shall be required as indicated in the list following the Basic Controls. ***Basic Dust Controls that Apply to All Construction Sites*** • 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 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 BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations. ***Additional Dust Measures*** • All exposed surfaces shall be watered at a frequency adequate to maintain minimum soil moisture of 12 percent. Moisture content can be verified by lab samples or moisture probe.	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, Lower Penitencia Creek Elements	The District will incorporate the measures into the construction contract specifications.	During construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Air Quality (cont.)				
• All excavation, grading, and/or demolition activities shall be suspended when average wind speeds exceed 20 mph. • Wind breaks (e.g., trees, fences) shall be installed on the windward side(s) of actively disturbed areas of construction. Wind breaks should have at maximum 50 percent air porosity. • Vegetative ground cover (e.g., fast-germinating native grass seed) shall be planted in disturbed areas as soon as possible and watered appropriately until vegetation is established. • The simultaneous occurrence of excavation, grading, and ground-disturbing construction activities on the same area at any one time shall be limited. Activities shall be phased to reduce the amount of disturbed surfaces at any one time. • All trucks and equipment, including their tires, shall be washed off prior to leaving the site. • Site accesses to a distance of 100 feet from the paved road shall be treated with a 6- to 12-inch compacted layer of wood chips, mulch, or gravel. • Sandbags or other erosion control measures shall be installed to prevent silt runoff to public roadways from sites with a slope greater than one percent.				
Mitigation Measure 3.C-2a: *Exhaust Emissions Reduction Measures.* The District and/or its contractor(s) shall implement the following measures during construction of all project- and program-level elements to reduce construction-related exhaust emissions: • Idling time of diesel powered construction equipment shall be minimized by shutting equipment off when not in use and reducing idling time to two 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 and determined to be running in proper condition prior to operations.	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, Lower Penitencia Creek Elements	The District will incorporate the measures into the contract specifications.	During construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Air Quality (cont.)				
• All construction equipment, diesel trucks, and generators shall be equipped with Best Available Control Technology for emission reductions of NOx and PM. • Construction equipment that meets CARB's most recent certification standard for off road, heavy duty diesel engines shall be used.				
Mitigation Measure 3.C-2b: *Emissions Reduction Plan.* The District and/or its contractor(s) shall develop an emissions reduction plan that demonstrates that off-road equipment of more than 50 horsepower to be used during construction of all project- and program-level elements shall achieve a program-wide fleet-average 20 percent NOx reduction, and 45 percent PM reduction compared to the most recent CARB fleet average. Acceptable options for reducing emissions shall include using late model engines, low-emissions 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.	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, Lower Penitencia Creek Elements	The District and/or its contractor will prepare the plan and incorporate measures into the construction contract specifications.	During construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.C-2c: *Air Pollutant Emissions Plan.* Prior to implementation of the Tularcitos Creek Element, the District shall conduct a detailed analysis of the air pollutant emissions from the designed pump station. Emissions shall be quantified and health risk to receptors in the vicinity shall be assessed based on the proposed operations assumptions. Should the review indicate air pollutant emissions would exceed significance thresholds, feasible measures shall be implemented to reduce the pump station emissions to a level that does not exceed BAAQMD significance thresholds. Such measures may include, but not limited to: requiring the diesel-powered pumps to comply with CARB Tier 2 or Tier 3 standards1, or operating the pump using electricity rather than diesel-powered pumps.	Tularcitos Creek Element	The District will conduct the analysis and incorporate specifications into the final construction designs (100% design).	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

[1] 'Tier 2' or 'Tier 3' refer to emissions standards for off-road compression-ignition engines and equipment as specified in title 13, California Code of Regulations, § 2423. Standards are set for emissions of nitrogen oxides and particulate matter and vary depending on model year and maximum engine power.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Biological Resources				
Mitigation Measure 3.D-3: *Protection of San Francisco Dusky-footed Woodrat*. Prior to construction within the Calera Creek Elements 1 and 2 work areas, the District shall ensure that a qualified biologist conducts a survey for woodrat middens (i.e., nests, houses) within all limits of construction no more than two to four weeks before the initiation of clearing or grading. The survey shall be conducted early enough before site clearing in order to identify any middens requiring removal prior to construction. If no middens or evidence of woodrat nesting is found, no further action is required. If middens are found, the District shall ensure that measures are implemented during construction to avoid or minimize impacts on woodrat and its habitat. Avoidance and minimization measures may include, but are not limited to: establishment of buffer around active nests, construction of exclusion fencing and establishment of buffer areas, disassembling middens and relocation of woodrat middens outside of the work area, and biological monitoring during construction. In addition, in the event woodrat middens are found within the Upper Calera Element 1 and 2 work areas, the District shall coordinate with CDFG to ensure that any avoidance measures implemented are appropriate and adequate to protect this species.	Upper Calera Creek Element 1, Upper Calera Creek Element 2 Elements	The district will obtain a qualified biologist to conduct surveys. The District will coordinate with CDFG to ensure appropriate and adequate avoidance measures are selected for implementation.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.D-4a: *Wetland and Riparian Habitat Avoidance and Minimization.* The District shall: • Conduct a jurisdictional determination for potential waters of the U.S. to determine the location and extent of wetlands and other jurisdictional areas within the Lower Penitencia Creek Element. • Develop the final design of program-level elements to minimize effects on wetlands, riparian habitat, and other waters to the extent feasible while maintaining program objectives. Areas that can be avoided shall be subject to protective measures included in the District's BMPs included as part of the Program.	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, and Lower Penitencia Creek Elements	The District will obtain a qualified biologist to complete the wetland delineation. The District will incorporate avoidance measures into the final construction designs (100% design).	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Biological Resources (cont.)				
Mitigation Measure 3.D-4b: *Compensate for Loss*. Prior to construction of the Program, the District shall obtain permits and authorizations from the Corps, SFBRWQCB, and CDFG. Consistent with the terms and conditions of these permits and authorizations, the District shall compensate for the unavoidable loss of jurisdictional waters at a minimum of a 1:1 ratio. Compensation may be provided by one or more of the following methods: 1) on-site creation or restoration; 2) off-site creation or restoration; or, 3) payment to an approved wetland mitigation bank. A mitigation and monitoring plan (MMP) shall be developed that describes how temporary and permanent impacts shall be compensated for, including active seeding or planting in the event that natural recruitment does not occur as anticipated within the first two years following construction, and shall present monitoring protocols to ensure the Program does not result in a net loss of jurisdictional waters. CEQA Section 15126.4 states that "if a mitigation measure would cause one or more significant effects in addition to those that would be caused by the project as proposed, the effects of the mitigation measure shall be discussed but in less detail than the significant effects of the project as proposed." The above mitigation measures would be implemented within the program area to the extent that revegetation would not compromise the levee system; the impacts would be similar to those of the Program, and implementation of these measures would not result in significant impacts beyond those disclosed for the Program itself. However, implementation of Mitigation Measure 3.D-4b could require earth disturbing activities and secondary impacts may occur in association with implementation of this mitigation measure if off-site compensation becomes necessary. Secondary impacts to aesthetics, transportation and traffic, air quality, noise, utilities and service systems, geology	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, and Lower Penitencia Creek Elements	The District will obtain permits from the Corps, SFBRWQCB, and CDFG and implement the provisions of the mitigation and monitoring plan.	Prior to and after construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Biological Resources (cont.)				
and soils, biological resources, hydrology and water quality, and hazardous and hazardous materials could occur. Additionally, secondary impacts associated with creation or restoration of wetlands under Mitigation Measure 3.D-4b would be similar to those described for the Program and implementation of Mitigation Measure 3.D-4b; and, if carried out in the program area, would not result in any additional significant impacts beyond those disclosed for the Program.				
Mitigation Measure 3.D-6a: *Tree and Shrub Replacement*. Prior to the start of construction, the District shall have a qualified biologist conduct a survey to identify the trees and shrubs that would be removed during construction. Trees shall be identified by species and a determination shall be made of areal coverage of the tree canopy. The District shall prepare a tree replacement plan that requires planting of: 1) trees of species similar to those removed, or of a native species; and, 2) complimentary shrubs. Replacement shall be at a minimum, anticipated 1:1 areal coverage ratio at maturity. Following initial excavation and earthwork, tree and shrub replacement shall include tree, shrub, and other plantings in suitable areas located off of levee slopes. The plantings shall reflect the structure and density of trees and shrubs as identified in the preconstruction survey, such that the overall character, and quality, of views from the creek roads/trails are restored on-site, to the extent feasible. Where planting trees and shrubs within the same site, or within the District's ROW, is not feasible (e.g., on the levee slopes within the District ROW that could reduce channel capacity, as described in Section 2.E, Program Description, or where soils within the ROW would not support plantings; or where plantings would compromise the objectives of the Program), the District shall coordinate with the City of Milpitas to find suitable, alternative location(s) for the replacement	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, and Lower Penitencia Creek Elements	The district will obtain an ISA-certified arborist to conduct surveys. The District will coordinate with the City of Milpitas to ensure implementation of replacement measures.	Prior to and after construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Biological Resources (cont.)				
plantings. The District shall monitor tree replacement plantings annually for a minimum of three years after completion of construction to ensure establishment of the plantings and, if necessary, shall replant to ensure the success of the replacement plantings. Note that Mitigation Measure 3.D-6a also addresses aesthetics and recreation resources impacts.				
Mitigation Measure 3.D-6b: *Tree Protection Measures*. Prior to the start of construction, the District shall prepare a tree protection plan for trees that would remain within the program area but would be within or adjacent to the active construction areas. The plan shall include measures that the District and/or its contractor(s) shall implement to protect the remaining trees. Measures could include, but are not limited to, establishing and demarcating a Tree Protection Zone that shall be avoided; pruning low limbs to provide for equipment access and work; placing mulch to prevent compaction from machinery; wrapping tree trunks in protective material to avoid contact with machinery; and cleanly cutting, trimming and covering roots as soon as possible if they are damaged. The District shall monitor tree protection zones during construction activities within the vicinity of protected trees, and if necessary, shall replant or replace trees if they are damaged.	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, and Lower Penitencia Creek Elements	The District will prepare the plan and implement the required measures.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Cultural and Paleontological Resources				
Mitigation Measure 3.E-1: *Cultural Resources Survey and Impact Assessment for Program-level Elements.* In conjunction with future project-specific environmental review, the District shall conduct pre-construction cultural resources surveys for the Lower Penitencia Creek Element and for any other program-level element whose APE boundaries expand beyond those used in this EIR. The survey shall be conducted by a qualified professional who meets the Secretary of the Interior's Professional Qualification Standards (36 CFR 61). If cultural resources are discovered during a pre-construction survey, Mitigation Measure 3.E-2 shall be applied as appropriate.	Upper Calera Creek Element 1, Upper Calera Creek Element 2, Tularcitos Creek Element, and Lower Penitencia Creek Elements	A qualified professional who meets the Secretary of the Interior's Professional Qualification Standards (36 CFR 61) retained by the District will be responsible for conducting the survey described in this measure. The District will implement Mitigation Measure 3.E-2 as appropriate.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cultural and Paleontological Resources (cont.)				
Mitigation Measure 3.E-2: *Extended Archaeological Survey and Avoidance or Data Recovery*. In order to determine the presence of cultural resources in the APE adjacent to CA-SCL-37 and P-43-000432 the District shall hire a qualified archaeologist and a Native American monitor to conduct an Extended Archaeological Survey (EAS) in the APE adjacent to the sites prior to construction activities. A series of hand-auger borings shall be dug at 10-foot increments up to five feet deep in the APE adjacent to the sites. Sediments shall be passed through 1/4-inch screen to determine the presence or absence of subsurface archaeological resources. The depth and number of borings shall be determined in the field based on the archaeologist's observation and results of the boring samples. The depth and general nature of the deposits exposed in soil samples shall be recorded, with additional attention given to samples that contain archaeological remains. All boring holes shall be refilled to restore pre-existing surface contours. If archaeological resources are uncovered in the APE, the District shall avoid them if feasible. If disturbance of these resources cannot be avoided through redesign, they shall be evaluated for their eligibility to the National Register. This shall be accomplished by constructing a detailed Archaeological Research Design and Treatment Plan (ARDTP). The ARDTP shall be prepared by an archaeologist who meets the Secretary of the Interior's Professional Qualification Standards for archaeology. The ARDTP shall contain, at a minimum: • Prehistoric and historic-period archaeological research contexts using existing documents; • An archaeological Sensitivity Study and Testing Plan that identifies expected property types, historical development, relevant research issues and themes, impacts, and an archaeological testing plan that shall identify potentially significant archaeological features and deposits; and,	Upper Calera Creek Element 2	A qualified archaeologist and Native American monitor retained by the District will be responsible for conducting the survey and data recovery described in this measure, as required. If required, a qualified archeologist who meets the Secretary of the Interior's Professional Qualification Standards (36 CFR 61) will prepare an ARDTP. Then the District will implement the provisions of the Archeological Data Recovery Program required by the ARDTP.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. If required, the District will prepare a written report documenting the outcome of the ARDP.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cultural and Paleontological Resources (cont.)				
• An outline of criteria implemented to evaluate archaeological features and deposits that address relevant research issues. If a significant archaeological resource (i.e., CEQA-defined historic resource or unique archaeological resource) is present and that the resource could be adversely affected by the Program, prior to construction the District shall: • Implement the Archaeological Data Recovery Program (ADRP) outlined in the ARDTP. The ADRP shall identify how the proposed data recovery program would preserve the significant information the archaeological resource is expected to contain. The ADRP shall identify the scientific/historic research questions applicable to the expected resource, the data classes the resource is expected to possess, and how the expected data classes would address the applicable research questions. Data recovery, in general, shall be limited to the portions of the historic property that could be adversely affected by the Program. Destructive data recovery methods shall not be applied to portions of the archaeological resources if nondestructive methods are practical. The results of the ARDP shall be presented in a report that contains methods, analysis, report production, laboratory analysis, and appropriate curation of materials.				
Mitigation Measure 3.E-3: *Vibration Monitoring and Damage Avoidance*. To avoid potential construction damage to the historic 'Casino' outbuilding, the District shall ensure that construction vibration levels do not exceed the potential building damage threshold of 0.02 inches per PPV when constructing the sheetpile wall. A vibration monitoring device shall be attached to the 'Casino' outbuilding to ensure that the peak construction vibration levels would not be exceeded. If such threshold is exceeded, the pile-driving activities shall be stopped immediately	Upper Calera Creek Element 2	The District will incorporate monitoring requirements into construction contract specifications. As appropriate, the District will retain a qualified architectural historian and a structural engineer during monitoring.	During construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cultural and Paleontological Resources (cont.)				
and alternative construction methods such as pre-drilling, hydraulic 'speed' shoring, or other feasible construction methods shall be implemented by the District if feasible to reduce vibration impacts to the 'Casino' outbuilding below the established threshold. If it is determined that construction vibration levels cannot feasibly be reduced to a level below the vibration threshold, the District shall temporarily relocate the 'Casino' outbuilding to an area on site yet outside of the construction zone, and shall place it back in its original location after completion of the sheetpile wall. Relocation of such a fragile, wood-framed building shall be supervised by a qualified architectural historian and a structural engineer. Structural reinforcements may be required to ensure that the building is not damaged during relocation efforts. The building shall be fenced during the construction period to protect it from potential vandalism and from accidental damage by construction workers. If the building is relocated, 'before' and 'after' photographs shall be taken of the building to document the structure. Such photo-documentation shall also be supervised by a qualified architectural historian.				
Geology, Soils, and Mineral Resources				
Mitigation Measure 3.F-1: *Geotechnical Investigations*. The District shall ensure that a design-level geotechnical investigation is conducted by a California licensed geotechnical engineer for all elements and facilities prior to or during the final design phase. Recommendations from the geotechnical investigation shall be applicable to foundation design, earthwork, backfill, and site preparation. The recommendations shall become part of the construction specifications and be consistent with standard engineering practice within California and CBC and be consistent with any local policies. The investigations shall include an evaluation of liquefiable soils and provide remedies to reduce the risk of liquefaction.	Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Tularcitos Creek Elements	A California licensed geotechnical engineer retained by the District will be responsible for conducting the investigation described in this measure.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. The construction manager will certify that all design criteria have been met.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Geology, Soils, and Mineral Resources (cont.)				
Remedies to reduce liquefaction risk include removal/replacement, in-situ soil conditioning, or other standard engineering practices commonly employed in the San Francisco Bay Area. The construction manager shall conduct inspections and certify that all design criteria have been met in accordance with recommendations of the geotechnical engineer.				
Mitigation Measure 3.F-4: *Geotechnical Explorations.* As part of the design-level geotechnical investigation to support the siting of new facilities outlined in Measure 3.F-1, a California licensed geotechnical engineer shall conduct an evaluation of expansive soils. If expansive soils are identified during the geotechnical investigation, the geotechnical engineer shall provide recommendations to correct the condition to ensure that facilities are not damaged. Expansive soils shall be removed or reconditioned as per the recommendations of the geotechnical engineer. All excavated materials proposed for use as backfill for the reconstructed levees or other program components shall be evaluated for expansive properties in accordance with standard engineering practice prior to final placement. The placement and compaction specifications for fill materials shall be developed by the geotechnical engineer and placement of that fill shall be conducted under the engineer's supervision.	Lower Berryessa Creek Element, Lower Calera Creek Element, Upper Calera Creek Element 1, Upper Calera Creek Element 2, and Tularcitos Creek Elements	A California licensed geotechnical engineer retained by the District will be responsible for conducting the investigation described in this measure. The District will incorporate the geotechnical recommendations into the final construction designs (100%).	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. Placement of fill will occur under the supervision of a California licensed geotechnical engineer.
Hazards and Hazardous Materials				
Mitigation Measure 3.H-1: *Soil and Groundwater Management Plan.* Prior to ground breaking activities, the District shall include in construction specifications the implementation of a Soil and Groundwater Management Plan (SGMP) prepared by state registered hazardous waste investigation and remediation professionals. The plan shall be submitted to the Santa Clara County Hazardous Materials Compliance Division. The SGMP shall be present on site at all times and readily available to site workers. The SGMP shall include a health and safety plan; emergency notification protocols; and handling and sampling procedures for site workers in	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	District will retain a state registered hazardous waste investigation and remediation professional to prepare a SGMP. The District will incorporate the requirements of the SGMP into the construction contract specifications.	Prior to and during construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Hazards and Hazardous Materials (cont.)				
accordance with OSHA and Santa Clara County Hazardous Materials Compliance Division requirements. The SGMP shall also describe protocols for offsite disposal of contaminated soils or groundwater. In addition, the SGMP shall include coordination and notification protocols and requirements for any inadvertent releases of hazardous materials within the vicinity of any schools.				
Mitigation Measure 3.M-1: *Traffic Control Plan*. (see Transportation and Traffic, below)	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will prepare the plan and implement the required measures in coordination with the City of Milpitas.	Prior to and during construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Noise				
Mitigation Measure 3.K-1a: *Noise Control Techniques*. The District shall require its contractors to ensure equipment and trucks used for construction utilize the best available noise control techniques which would include, but not limited to, improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will incorporate measures into the construction contract specifications.	During Construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.K-1b: *Minimize Noise from Impact Equipment*. The District shall require its contractors to ensure that impact tools (e.g., jack hammers, pavement breakers, and rock drills) used for construction be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. However, where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used; this muffler can lower noise levels from the exhaust by up to about 10 dBA. External jackets on the tools themselves shall be used where feasible, and this could achieve a reduction of 5 dBA. Quieter procedures shall be used, such as drills rather than impact equipment, whenever feasible.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will incorporate measures into the construction contract specifications.	During construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Noise (cont.)				
Mitigation Measure 3.K-1c: *Minimize Noise from Stationary Sources*. The District shall require its contractors to ensure that construction stationary noise sources be located as far from adjacent receptors as possible, and that they be muffled and enclosed within temporary sheds. Insulation barriers and other measures shall be incorporated to the extent feasible.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will incorporate measures into the construction contract specifications.	During Construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.K-1d: *Tularcitos Creek Noise Study and Mitigation Plan*. As part of the Tularcitos Creek Element, the District shall conduct a detailed noise and vibration assessment to evaluate the operations impacts of the pump station on nearby sensitive receptors. Consistent with the City of Milpitas General Plan Noise Element, additional design measures, if necessary, shall be incorporated to avoid residential DNL exposure above levels specified in the Milpitas Noise Element for compatible land uses, or levels that would result in increases of more than 3 dBA at nearby residential property lines, whichever is more restrictive. Potential design measures could include, but are not limited to, utilizing noise control techniques such as improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures, and acoustically-attenuating shields or shrouds.	Tularcitos Creek Element	The District will prepare the assessment and incorporate the required measures.	Prior to and during construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Recreation				
Mitigation Measure 3.D-6a: *Tree and Shrub Replacement*. (see Biological Resources, above)	Lower Berryessa Creek Element and Penintencia Creek Elements	See Mitigation Measure 3.D-6a	See Mitigation Measure 3.D-6a	See Mitigation Measure 3.D-6a
Transportation and Traffic				
Mitigation Measure 3.M-1: *Traffic Control Plan*. The District shall prepare or cause to be prepared a Traffic Control Plan in accordance with professional traffic engineering standards to show methods for maintaining traffic flows on roadways directly affected by construction. The District and construction contractor(s) shall coordinate development and implementation of this plan with the City of Milpitas. Elements of the	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will prepare the plan and implement the required measures in coordination with the City of Milpitas.	Prior to and during construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Transportation and Traffic (cont.)				
Traffic Control Plan are expected to include, but not be limited to, the following: • Truck trips shall be scheduled outside of peak morning and evening commute hours to the extent possible. • Circulation plans shall be developed to minimize impacts on local street circulation. Flaggers and/or signage shall be used to guide vehicles through and/or around the construction zone. • The District shall notify all emergency service providers in advance of construction to inform them of the construction activities. • Truck routes shall be identified in the Traffic Control Plan. Haul routes shall utilize City of Milpitas and Caltrans designated haul routes and minimize truck traffic on local roadways and residential streets to the extent possible. • Sufficient staging areas shall be provided for trucks accessing construction zones to minimize disruption of access to adjacent land uses. • Access to driveways and private roads shall be maintained. If access must be restricted for brief periods, property owners shall be notified in advance. • Lane closures shall be limited during peak hours to the extent possible. Outside of allowed working hours or when work is not in progress, roads shall be restored to normal operations. • Pedestrian and bicycle access and circulation shall be maintained during construction where safe to do so. If construction activities encroach on a bicycle lane, warning signs shall be posted. • All equipment and materials shall be stored in designated contractor staging areas on or adjacent to the worksite, in such a manner as to minimize obstruction of traffic.				

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Transportation and Traffic (cont.)				
• Roadside safety protocols shall be implemented. Advance “Road Work Ahead” and “Trucks Entering Roadway” warning signs and speed control (including signs informing drivers of state-legislated double fines for speed infractions in a construction zone) shall be provided to achieve required speed reductions for safe traffic flow through the work zone. • Construction shall be coordinated with facility owners or administrators of sensitive land uses such as police and fire stations (including all fire protection agencies), transit stations, hospitals, and schools (including Milpitas High School and Thomas Russell Middle School). Facility owners or operators shall be notified in advance of the timing, location, and duration of construction activities. • The District shall coordinate with UPRR for work within the ROW and avoid disruption to the rail corridor. • Construction shall be coordinated with local traffic agencies, VTA, and AC Transit, to minimize disruption to service on local bus routes. • Roadway ROWs and trails if applicable shall be repaired or restored to their original conditions or better upon completion of construction. • The District shall coordinate with the school district to identify peak circulation periods at schools (i.e., the arrival and departure of students) and require contractor(s) to avoid construction and truck traffic during those periods, or shall provide flaggers and crossing guards (the latter as needed to supplement the school-provided crossing guards) to ensure pedestrian and traffic safety when trucks are present on roads adjacent to schools. If some construction must occur during the school year, the District shall coordinate with the school district prior to construction to identify alternatives to their Safe Route to School program as part of the Traffic Control Plan. School-related vehicle and pedestrian access shall be maintained during construction.				

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Transportation and Traffic (cont.)				
• The District shall coordinate construction near schools when schools are not in session (i.e., summer or holiday breaks) to the extent feasible. Note that Mitigation Measure 3.M-1 also addresses hazards and hazardous materials impacts.				
Mitigation Measure 3.M-2: *Road Repair.* The District and the City of Milpitas shall enter into an agreement prior to construction that will detail pre-construction conditions and the post-construction requirements of a roadway rehabilitation program. Roads damaged by construction shall be repaired to a structural condition equal to that which existed prior to construction activity.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District and City of Milpitas will prepare and implement the agreement.	Prior to and after construction	The District's project manager in conjunction with the City of Milpitas will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Utilities and Service Systems				
Mitigation Measure 3.N-1: *Appropriate Landfill Use*. In order to ensure that construction waste generated by the Program does not significantly reduce the capacity of local landfills, the District shall require contractors not to exclusively dispose of construction waste at the Zanker Material Processing Facility or the Zanker Road Resource Recovery Operations Landfill.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will incorporate restrictions into the construction contract specifications.	During construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.N-2a: *Preconstruction Utility Identification and Coordination*. Prior to construction activities, the District shall locate overhead and underground utility lines, such as natural gas, electricity, sewer, telephone, fuel, and water lines that may be encountered during excavation work. Pursuant to state law, the District shall notify USA North and have them locate underground utilities prior to conducting any ground-disturbing activities. Information regarding the exact location of existing utilities shall be marked and confirmed before construction activities begin. Utilities may be located by customary techniques such as geophysical methods and hand excavation. The District shall notify all affected utility service providers of the construction plans and schedule, in	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will implement requirements as outlined in the measure. The outreach for notifications will be coordinated by the District's project manager.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Utilities and Service Systems (cont.)				
advance. The District shall make arrangements with these entities regarding the protection, relocation, or temporary disconnection of services prior to the start of construction, and promptly reconnect services, as required.				
Mitigation Measure 3.N-2b: *Protection of Other Utilities During Construction*. The District shall prepare detailed specifications as part of the design plans to include procedures for the excavation, support, and fill of areas around subsurface utilities, cables, and pipes. If it is not feasible to avoid an overhead utility line during pipeline construction, the District shall coordinate with the affected utility owner to either temporarily or permanently support the line, or to de-energize the line while temporarily supporting the overhead line.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will prepare and incorporate specifications into the final construction designs (100% design).	During construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.N-2c: *Advance Notification*. Two to four days prior to construction, the District shall provide advance notification to residents and businesses that could be affected by a potential utility service disruption. The notification shall provide information about the timing and duration of the potential service disruption.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	Outreach will be coordinated by the District's project manager.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.N-2d: *Emergency Response Plan and Notification*. The District shall develop an emergency response plan prior to commencing construction activities that identifies response measures in the event of a leak or explosion resulting from a utility rupture. In addition, the District) shall notify local fire departments any time damage to a gas utility results in a leak or suspected leak and whenever damage to any utility results in a threat to public safety.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will prepare and implement the plan.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance.
Mitigation Measure 3.N-3: *Waste Management Plan*. The District shall require construction contractor(s) to prepare a waste management plan and submit the plan to the District for review and approval. A copy of the plan shall be given to the City of Milpitas. The plan shall include:	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	The District will incorporate plan preparation and review into the construction contract specifications.	Prior to construction	The District's project manager will be responsible for ensuring proper implementation, for enforcement, and for documenting compliance. A copy of the plan will be provided to the City of Milpitas.

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Utilities and Service Systems (cont.)				
• Identification of the types of debris that will be generated by the Program and how all waste streams will be handled; • Actions to reuse or recycle construction debris and clean excavated soil to the extent feasible; and • Actions to divert asphalt and concrete construction debris from disposal in a landfill. Upon completion of construction of each element, the contractor(s) shall be required to submit a debris diversion and disposal report to the District, documenting the actual tonnage or volume of material recycled and disposed of and stating that the waste reuse, recycling, and disposal requirements set forth above have been achieved.				
Cumulative Impacts				
Aesthetics				
Mitigation Measure 5.C-3a: Tree and Shrub Replacement. (see Biological Resources, below)	Lower Berryessa Creek and Tularcitos Creek Elements	See Mitigation Measure 5.C-3a	See Mitigation Measure 5.C-3a	See Mitigation Measure 5.C-3a
Mitigation Measure 5.A-1: Aesthetically Compatible Design. The District shall implement Mitigation Measure 3.B-2 (Aesthetically Compatible Design), and the related projects should implement similar mitigation measures.	Tularcitos Creek Element	See Mitigation Measure 3.B-2	See Mitigation Measure 3.B-2	See Mitigation Measure 3.B-2
Mitigation Measure 5.A-2: Placement and Design of Nighttime Security Lighting. The District shall implement Mitigation Measure 3.B-3 (Placement and Design of Nighttime Security Lighting), and the related projects should implement similar mitigation measures.	Tularcitos Creek Element	See Mitigation Measure 3.B-3	See Mitigation Measure 3.B-3	See Mitigation Measure 3.B-3
Air Quality				
Mitigation Measure 5.B-1: Dust Control Measures. The District shall implement Mitigation Measure 3.C-1 (Dust Control Measures), and the related projects that would overlap in schedule with the Program should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.C-1	See Mitigation Measure 3.C-1	See Mitigation Measure 3.C-1

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cumulative Impacts (cont.)				
Mitigation Measure 5.B-2a: Exhaust Emissions Reduction Measures. The District shall implement Mitigation measure 3.DC-2a (Exhaust Emissions Reduction Measures), and related projects that would generate exhaust emissions should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.C-2a	See Mitigation Measure 3.C-2a	See Mitigation Measure 3.C-2a
Mitigation Measure 5.B-2b: Emissions Reduction Plan. The District shall implement Mitigation Measure 3.C-2b (Emissions Reduction Plan), and related projects that would generate exhaust emissions should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.C-2b	See Mitigation Measure 3.C-2b	See Mitigation Measure 3.C-2b
Mitigation Measure 5.B-2c: Air Pollutant Emissions Analysis. The District shall implement Mitigation Measure 3.C-2c (Air Pollutant Emissions Analysis), and related projects that would generate operations-related emissions should implement similar mitigation measures.	Tularcitos Creek Element	See Mitigation Measure 3.C-2c	See Mitigation Measure 3.C-2c	See Mitigation Measure 3.C-2c
Biological Resources				
Mitigation Measure 5.C-1: Protection of San Francisco Dusky-footed Woodrat. The District shall implement Mitigation Measure 3.D-3 (Protection of San Francisco Dusky-footed Woodrat), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.	Upper Calera Creek 1 and Upper Calera Creek 2 Elements	See Mitigation Measure 3.D-3	See Mitigation Measure 3.D-3	See Mitigation Measure 3.D-3
Mitigation Measure 5.C-2a: Wetland and Riparian Habitat Avoidance and Minimization. The District shall implement Mitigation Measure 3.D-4a (Wetland Avoidance and Minimization), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.	Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, and Lower Penitencia Creek Elements	See Mitigation Measure 3.D-4a	See Mitigation Measure 3.D-4a	See Mitigation Measure 3.D-4a
Mitigation Measure 5.C-2b: Compensate for Wetland and Riparian Habitat Loss. The District shall implement Mitigation Measure 3.D-4b (Obtain Regulatory Permits), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.D-4b	See Mitigation Measure 3.D-4b	See Mitigation Measure 3.D-4b

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cumulative Impacts (cont.)				
Mitigation Measure 5.C-3a: Tree and Shrub Replacement. The District shall implement Mitigation Measure 3.D-6a (Tree and Shrub Replacement), and related projects removing trees should implement similar mitigation measures. Note that Mitigation Measure 5.C-3a also addresses cumulative aesthetics and recreation resources impacts.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.D-6a	See Mitigation Measure 3.D-6a	See Mitigation Measure 3.D-6a
Mitigation Measure 5.C-3b: Tree Protection Measures. The District shall implement Mitigation Measure 3.D-6b (Tree Protection Measures) and related projects affecting trees should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.D-6b	See Mitigation Measure 3.D-6b	See Mitigation Measure 3.D-6b
Cultural Resources				
Mitigation Measure 5.D-1: Cultural Resources Survey and Impact Assessment. The District shall implement Mitigation Measure 3.E-1 (Cultural Resources Survey and Impact Assessment for Program-Level Elements), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.	Upper Calera Creek 1, Upper Calera Creek 2, Tularcitos Creek, and Lower Penitencia Creek Elements	See Mitigation Measure 3.E-1	See Mitigation Measure 3.E-1	See Mitigation Measure 3.E-1
Mitigation Measure 5.D-2: Extended Archaeological Survey. The District shall implement Mitigation Measure 3.D-2 (Extended Archaeological Survey), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.	Upper Calera Creek 2 Element	See Mitigation Measure 3.D-2	See Mitigation Measure 3.D-2	See Mitigation Measure 3.D-2
Mitigation Measure 5.D-3: Vibration Monitoring. The District shall implement Mitigation Measure 3.E-3 (Vibration Monitoring), and related projects that would occur in the immediate vicinity of the Program should implement similar mitigation measures.	Upper Calera Creek 2 Element	See Mitigation Measure 3.E-3	See Mitigation Measure 3.E-3	See Mitigation Measure 3.E-3

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cumulative Impacts (cont.)				
Geology and Soils				
Mitigation Measure 5.E-1: Geotechnical Investigations. The District shall implement Mitigation Measure 3.F-1 (Geotechnical Investigations), and the related projects should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.F-1	See Mitigation Measure 3.F-1	See Mitigation Measure 3.F-1
Mitigation Measure 5.E-2: Geotechnical Explorations. The District shall implement Mitigation Measure 3.F-3 (Geotechnical Explorations), and the related projects with underlying expansive soils should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Upper Calera Creek 1, Upper Calera Creek 2 and Tularcitos Creek Elements	See Mitigation Measure 3.F-3	See Mitigation Measure 3.F-3	See Mitigation Measure 3.F-3
Hazards and Hazardous Materials				
Mitigation Measure 5.G-1: Soil and Groundwater Management Plan. The District shall implement Mitigation Measure 3.H-1 (Soil and Groundwater Management Plan), and the related projects should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.H-1	See Mitigation Measure 3.H-1	See Mitigation Measure 3.H-1
Mitigation Measure 5.L-1: Traffic Control Plan. (see Transportation and Traffic, below)	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 5.L-1	See Mitigation Measure 5.L-1	See Mitigation Measure 5.L-1
Noise				
Mitigation Measure 5.J-1a: Noise Control Techniques. The District shall implement Mitigation Measure 3.K-1a (Noise Control Techniques), and the related construction noise-generating projects should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.K-1a	See Mitigation Measure 3.K-1a	See Mitigation Measure 3.K-1a
Mitigation Measure 5.J-1b: Minimize Noise from Impact Equipment. The District shall implement Mitigation Measure 3.K-1b (Minimize Noise from Impact Equipment), and the related construction noise-generating projects should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.K-1b	See Mitigation Measure 3.K-1b	See Mitigation Measure 3.K-1b

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cumulative Impacts (cont.)				
Mitigation Measure 5.J-1c: Minimize Noise from Stationary Sources. The District shall implement Mitigation Measure 3.K-1c (Minimize Noise from Stationary Sources), and the related construction noise-generating projects should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.K-1c	See Mitigation Measure 3.K-1c	See Mitigation Measure 3.K-1c
Mitigation Measure 5.J-1d: Tularcitos Creek Noise Study. The District shall implement Mitigation Measure 3.K-1d (Tularcitos Creek Noise Study), and the related construction noise-generating projects should implement similar mitigation measures.	Tularcitos Creek Element	See Mitigation Measure 3.K-1d	See Mitigation Measure 3.K-1d	See Mitigation Measure 3.K-1d
Recreation				
Mitigation Measure 5.C-3a: Tree and Shrub Replacement. (see Biological Resources, above)	Lower Berryessa Creek and Tularcitos Creek Elements	See Mitigation Measure 5.C-3a	See Mitigation Measure 5.C-3a	See Mitigation Measure 5.C-3a
Transportation and Traffic				
Mitigation Measure 5.L-1: Traffic Control Plan. The District shall implement Mitigation Measure 3.M-1 (Traffic Control Plan), and the related projects that would overlap in construction with the Program should implement similar measures. Note that Mitigation Measure 5.L-1 also addresses cumulative hazards and hazardous materials impacts.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.M-1	See Mitigation Measure 3.M-1	See Mitigation Measure 3.M-1
Mitigation Measure 5.L-2: Road Repair. The District shall implement Mitigation Measure 3.M-2 (Road Repair), and the related projects that would overlap in construction with the Program should implement similar measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.M-2	See Mitigation Measure 3.M-2	See Mitigation Measure 3.M-2
Utilities and Service Systems				
Mitigation Measure 5.M-1: Appropriate Landfill Use. The District shall implement Mitigation Measure 3.N-1 (Appropriate Landfill Use), and the related projects that include excavation and disposal of construction debris and local landfills should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.N-1	See Mitigation Measure 3.N-1	See Mitigation Measure 3.N-1

Mitigation Measure	Required for the Following Elements	Implementation Responsibility	Implementation Timing	Monitoring, Enforcement, and Reporting Responsibility
Cumulative Impacts (cont.)				
Mitigation Measure 5.M-2a: Preconstruction Utility Identification and Coordination. The District shall implement Mitigation Measure 3.N-2a (Preconstruction Utility Identification and Coordination), and the related projects that could interfere with existing utilities should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.N-2a	See Mitigation Measure 3.N-2a	See Mitigation Measure 3.N-2a
Mitigation Measure 5.M-2b: Protection of Other Utilities During Construction. The District shall implement Mitigation Measure 3.N-2b (Protection of Other Utilities During Construction), and the related projects that could interfere with existing utilities should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.N-2b	See Mitigation Measure 3.N-2b	See Mitigation Measure 3.N-2b
Mitigation Measure 5.M-2c: Advance Notification. The District shall implement Mitigation Measure 3.N-2c (Advance Notification), and the related projects that could interfere with existing utilities should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.N-2c	See Mitigation Measure 3.N-2c	See Mitigation Measure 3.N-2c
Mitigation Measure 5.M-2d: Emergency Response Plan and Notifications. The District shall implement Mitigation Measure 3.N-2d (Emergency Response Plan and Notifications), and the related projects that could interfere with existing utilities should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.N-2d	See Mitigation Measure 3.N-2d	See Mitigation Measure 3.N-2d
Mitigation Measure 5.M-3: Waste Management Plan. The District shall implement Mitigation Measure 3.N-3 (Waste Management Plan), and the related projects that generate waste and require offsite generation should implement similar mitigation measures.	Lower Berryessa Creek, Lower Calera Creek, Lower Penitencia Creek, Upper Calera Creek 1, Upper Calera Creek 2, and Tularcitos Creek Elements	See Mitigation Measure 3.N-3	See Mitigation Measure 3.N-3	See Mitigation Measure 3.N-3