



### NOTICE OF INTENT TO ADOPT A NEGATIVE DECLARATION

<b>Date of Publication of Negative Declaration:</b>	December 16, 2011
<b>Lead Agency:</b>	Napa County Flood Control and Water Conservation District 804 First Street Napa, CA 94559
<b>Agency Contact Person:</b>	Richard Thomasser, P.G. 707-259-8657 Richard.Thomasser@countyofnapa.org
<b>Project Title:</b>	Napa County Stream Maintenance Program
<b>Project Location and APN:</b>	County-wide; varied
<b>Property Owner:</b>	Varied
<b>County:</b>	Napa County
<b>Brief Description of Project:</b> The Napa County Flood Control and Water Conservation District (District) has developed the Stream Maintenance Manual to improve the management of streams and drainage channels in the District’s jurisdiction through establishing consistent guidance for stream maintenance activities. The Manual provides the organizational framework to oversee routine stream maintenance activities, including vegetation management, erosion protection and bank stabilization, sediment removal, and habitat enhancement. These maintenance activities occur mainly in engineered channels and “collectors”, modified channels, and also in natural streams throughout Napa County on an as-needed basis. The District regards itself as a resource agency with a duty to integrate environmental benefits (such as habitat protection and enhancement) into stream maintenance activities.	
<b>Location of Known Hazardous Sites:</b> Maintenance activities occur on streams anywhere throughout the county. No known hazardous waste sites are within District channels or easements. However, it is possible that unknown occurrences of hazardous materials could be encountered during maintenance activities. This topic is discussed in the CEQA document.	
<b>PRELIMINARY DETERMINATION:</b> The Napa County Flood Control and Water Conservation District has tentatively determined that the Napa County Stream Maintenance Program would not have a significant effect on the environment and the District intends to adopt a negative declaration. This finding is based upon the criteria of the Guidelines of the State Secretary for Resources Sections 15064 (Determining Significant Effects), 15065 (Mandatory Findings of Significance), and 15070 (Decision to Prepare a Negative Declaration), and the following reasons as documented in the Initial Study/Negative Declaration for the Program, which is attached. Program documents, including the Initial Study/Negative Declaration are available for review at the offices of the Napa County Flood Control and Water Conservation District, 804 First Street, Napa, CA 94559 between the hours of 8:00 AM and 4:45 PM, Monday through Friday (excepting holidays). The document is also posted on the District’s website: <a href="http://www.countyofnapa.org/flooddistrict">www.countyofnapa.org/flooddistrict</a> .	
<b>WRITTEN COMMENT PERIOD: December 16, 2011 – January 17, 2012</b> Written comments may be submitted up until 4:00 pm on January 17, 2012. Please send written comments to the attention of Richard Thomasser at 804 First Street, Napa, California, 94559, or via e-mail to richard.thomasser@countyofnapa.org.	

DATE: December 16, 2011

BY: Richard Thomasser, P.G.

# Napa County Flood Control and Water Conservation District Napa County Stream Maintenance Program Initial Study/Negative Declaration

December 2011



# **Napa County Stream Maintenance Program**

## **Initial Study/Negative Declaration**

*Prepared for:*

Napa County Flood Control and Water Conservation District  
804 First Street  
Napa, CA 94559

*Prepared by:*

Horizon Water and Environment  
1330 Broadway, Suite 424  
Oakland, CA 94612

December 2011

Horizon Water and Environment. *Napa County Stream Maintenance Program-Initial Study/Negative Declaration*. December 2011 (HWE 10.004) Oakland, CA.

# Negative Declaration

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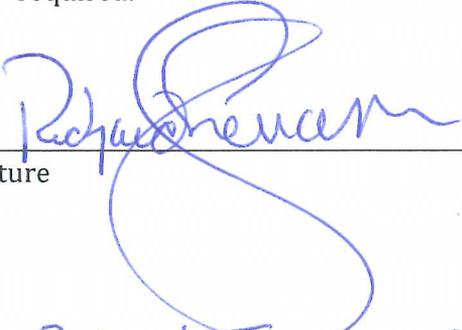
- 1. Project Title:** Napa County Stream Maintenance Program
- 2. Lead Agency Name and Address:** Napa County Flood Control and Water Conservation District  
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Napa, CA 94559
- 3. Contact Person, Phone Number and Email:** Richard Thomasser, P.G.  
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(707) 259-8657  
Richard.Thomasser@countyofnapa.org
- 4. Project Location and APN:** Countywide
- 5. Property Owner:** Varied
- 6. General Plan Designation:** Multiple
- 7. Zoning:** Multiple
- 8. Description of Project:** See Project Description (attached)
- 9. Surrounding Land Uses and Setting:** Varied
- 10. Other Public Agencies whose Approval or Input May Be Needed:**
  - United States Fish and Wildlife Service
  - National Marine Fisheries Service
  - Regional Water Quality Control Boards (San Francisco Bay Region)
  - United States Forest Service
  - United States Army Corps of Engineers
  - California State Historic Preservation Office
  - California State Air Resources Board

## ENVIRONMENTAL IMPACTS AND BASIS OF CONCLUSIONS:

The conclusions and recommendations contained herein are professional opinions derived in accordance with current standards of professional practice. They are based on a review of the Napa County Environmental Resource Maps, the other sources of information listed in the file, and the comments received, conversations with knowledgeable individuals; the preparer's personal knowledge of the area; and, where necessary, a visit to the site. For further information, see the environmental background information contained in the permanent file on this project.

### On the basis of this initial evaluation:

- I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

  
\_\_\_\_\_  
Signature

December 14, 2011  
Date

Name: Richard Thomasser

Napa County Flood Control and Water  
District

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- Appendix C. USFWS List of Federal Endangered and Threatened Species
- Appendix D. CNDDDB List of Plant and Animal Species Known to Occur in the Project Area
- Appendix E. Cultural Sensitivity Maps for the Project Area

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## LIST OF ACRONYMS

asl	above sea level
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
CARB	California Air Resources Board
CBC	California Building Code
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CHRIS	California Historical Resources Information System
CIP	capital improvement program
CNDDB	California Natural Diversity Database
CO	carbon monoxide
County	Napa County
CRLF	California red-legged frog
CWA	Clean Water Act
dB	decibel
dba	A-weighted decibel
District	Napa County Flood Control and Water Conservation District
DPS	distinct population segment
ESA	Endangered Species Act
ft	feet
FYLF	Foothill yellow-legged frog
GHG	greenhouse gas
HCP	habitat conservation plan
IS/MND	Initial Study Mitigated Negative Declaration
lb	pounds
L <sub>dn</sub>	day-night (sound) level
L <sub>eq</sub>	equivalent sound level
L <sub>max</sub>	maximum sound level
L <sub>min</sub>	minimum sound level
LOS	level of service
L <sub>xx</sub>	percentile-exceeded sound level
MAD	Napa County Mosquito Abatement District
Manual	Stream Maintenance Manual
mi	miles
mph	miles per hour
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
Napa County BDR	Napa County Baseline Data Report
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NO <sub>x</sub>	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NWIC	Northwest Information Center

PM	particulate matter
PM <sub>10</sub>	particulate matter less than 10 microns in diameter
PM <sub>2.5</sub>	particulate matter less than 2.5 microns in diameter
ppm	parts per million
Proposed Project	Stream Maintenance Program
RCRA	Resource Conservation and Recovery Act
RMA	routine maintenance agreement
ROG	reactive organic gases
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendment and Reauthorization Act
SCVWD	Santa Clara Valley Water District
SFBAAB	San Francisco Bay Area Air Basin
SHPO	State Historic Preservation Officer
SMP	Stream Maintenance Program
SVP	Society of Vertebrate Paleontology
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Load
tpy	tons per year
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDRs	waste discharge requirements
WPT	Western pond turtle
µg/m <sup>3</sup>	micrograms per cubic meter

# Chapter 1 INTRODUCTION

The Napa County Flood Control and Water Conservation District (District) has prepared this Initial Study/Negative Declaration (IS/ND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the proposed Stream Maintenance Program (SMP, Project, or Proposed Project). This document was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) and the State CEQA Guidelines (14 California Code of Regulations 15000 et seq.).

## 1.1 District's Stream Maintenance Program

The District is a special district of the County of Napa. Within its authority, the District provides maintenance for the flood control channels that it owns, as well as other channels for which the District has a maintenance agreement or easement. The Stream Maintenance Program has been developed by the District to provide clear and consistent guidance for the management of streams and channels under the District's authority. The Stream Maintenance Manual (Manual) provides the organizational framework to oversee routine stream and channel maintenance activities. More details regarding the Manual are provided in Chapter 2, *Project Description*. The Manual and IS/ND are intended to be complimentary documents. As such, this document references or summarizes information presented in the Manual as appropriate to avoid repeating information, and the Manual is hereby incorporated by reference pursuant to the CEQA Guidelines Section 15150 and included as Appendix A.

## 1.2 Intent and Scope of this Document

This IS/ND has been prepared in accordance with CEQA, under which the Stream Maintenance Program constitutes a "project." The District's Board of Supervisors, as the lead agency under CEQA, will consider the potential environmental impacts of the activities proposed for the SMP when it considers whether to approve the project. This IS/ND is an informational document to be used in the local planning and decision-making process. The IS/ND does not recommend approval or denial of the Proposed Project.

The IS/ND describes the Proposed Project, environmental setting, including existing conditions and regulatory setting as necessary; and potential environmental impacts of the Proposed Project on:

- *Aesthetics*
- *Agricultural Resources*
- *Air Quality*
- *Biological Resources*
- *Cultural Resources*
- *Geology, Soils, and Seismicity*
- *Greenhouse Gas Emissions*

- *Hazards and Hazardous Materials*
- *Hydrology and Water Quality*
- *Land Use and Planning*
- *Mineral Resources*
- *Noise*
- *Population and Housing*
- *Public Services*
- *Recreation*
- *Transportation and Traffic, and*
- *Utilities and Service Systems.*

The Proposed Project incorporates Best Management Practices (BMPs) to ensure there would be no significant adverse impacts on the environment. Over the long term, the project would benefit overall watershed functions, riparian and aquatic resources, and species located in the Project Area.

### 1.3 Public Involvement Process

Public disclosure and dialogue are priorities under CEQA. Accordingly, CEQA requires a period during the IS/ND process when public and agency can provide comments on the impacts of the Proposed Project. Pursuant to Sections 15073.5 and 15105[b] of the CEQA Guidelines, the District is now circulating this document for a 30-day public and agency review. All comments received prior to 5:00 p.m. on the date identified for closure of the public comment period in the Notice of Intent will be considered.

To provide input on this project, please send comments to the following contact:

Richard Thomasser, P.G.  
Watershed and Flood Control Operations Manager  
Napa County Flood Control and Water Conservation District  
804 First Street  
Napa, CA 94559  
Email: Richard.Thomasser@countyofnapa.org

### 1.4 Organization of this Document

This IS/ND contains the following components:

Chapter 1, *Introduction*. This chapter provides a brief overview of the Project and describes the purpose, scope, organization, and terminology of the IS/ND.

Chapter 2, *Project Description*. This chapter summarizes the SMP, including: a description of the Project purpose and goals; a brief description of the Project Area and facilities where the SMP is implemented; the SMP approach and activities; Project implementation and oversight; programmatic avoidance and minimization measures; and related permits and approvals.

Chapter 3, *Environmental Checklist*. This chapter presents the environmental checklist used to assess the Project's potential environmental effects, which is based on the model provided in Appendix G of the state's CEQA Guidelines and the County's CEQA Guidelines.

This chapter includes a brief environmental setting description for each resource topic and identifies the Proposed Project's anticipated environmental impacts.

Chapter 4, *References*, provides a bibliography of printed references, web sites, and personal communications used in preparing this IS/ND.

Appendix A. Stream Maintenance Manual

Appendix B. Air Quality and Greenhouse Gas Emissions Estimates

Appendix C. U.S. Fish and Wildlife Service List of Federal Endangered and Threatened Species

Appendix D. California Natural Diversity Database (CNDDB) List of Plant and Animal Species Known to Occur in the Project Area

Appendix E. Cultural Sensitivity Maps for the Project Area

## 1.5 Impact Terminology

This IS/ND uses the following terminology to describe environmental effects of the Proposed Project:

- A finding of *no impact* is made when the analysis concludes that the Project would not affect the particular environmental resource or issue.
- An impact is considered *less than significant* if the analysis concludes that there would be no substantial adverse change in the environment and that no mitigation is needed.

## **2.1 Project Overview**

### **2.1.1 Project Objectives**

The SMP has been designed to achieve the following objectives:

- Manage channel debris, erosion, and vegetation for flood damage reduction and resource protection throughout the District, but particularly within the Napa River and its tributaries,
- Provide informed and consistent guidance to administer maintenance of the District's approximate 13 miles of flood control channels and easements,
- Provide guidance to avoid and minimize environmental impacts while conducting maintenance,
- Provide a framework for oversight of routine maintenance activities to ensure that maintenance activities are compliant with the terms and conditions of regulatory permits,
- Obtain and maintain long-term programmatic permits to authorize the District's maintenance activities, and
- Provide Napa County stakeholders with a reference manual to help guide other similar maintenance needs within the County, such as to ensure preservation of riparian resources while protecting life and property from flood damage.

### **2.1.2 Project Area**

The SMP Project Area is located in Napa County, California as shown in Figure 2-1 (Napa County SMP Area and Maintenance Reaches). More detailed maps of the Project Area are provided in Figures 2-2 through 2-5. Figure 2-2 shows the northern portion of the Napa River watershed including survey and maintenance reaches on the Napa River, Sulpher Creek, Conn Creek, Beard Ditch, and Hopper Creek. Figure 2-3 depicts the Yountville region including survey and maintenance reaches on Beard Ditch, Hopper Creek, Yountville Outfall and Collector, Dry Creek, and the Salvador Collector (Solano Ditch). Figure 2-4 shows the survey and maintenance reaches in the City of Napa region, which is the most active stream maintenance area in the County and involves several creeks and waterways. Figure 2-5 depicts the area near the Napa County airport including survey and maintenance reaches on Sheehy and Fagan creeks. Cities within the Project Area which contain District-owned or easement maintained channels include: Calistoga, Napa, St. Helena, and Yountville.

### 2.1.3 Channel Types

The District's operation and maintenance activities occur in five types of channels which are categorized based on the different channel ownership-maintenance arrangements of the SMP. These channel types are described below and are shown in Figures 2-1 through 2-5.

**District Owned Channels / Easements Maintained (Red Channels):** The District is responsible for maintenance of the 7.3 miles of flood control channels that it owns and for which it has maintenance easements. Many of these District-owned channels are engineered channels, typically built by other agencies and deeded to the District. Although a few were designed and built to convey a specific design discharge (i.e. the 100-year flood event), most have no available specific discharge design. Most of these engineered channels were constructed with a trapezoidal cross-section with earthen banks and streambeds. However, some channels have sections with hardened banks and beds formed in rock or concrete. Bed and bank hardening typically occurs at or near road and culvert crossings to protect these structures. Typical maintenance activities in District-owned channels include vegetation thinning and pruning, grass mowing (maintenance roads), erosion protection and bank stabilization, sediment and debris removal, trash removal, exotic and invasive vegetation removal, and native tree and shrub planting. Structures and facilities such as access roads, drop inlet culverts, outfalls, flap gates, and road crossing culverts constructed in association with the District's flood control channels may also require routine maintenance. Often, intersecting drainage structures, bridges and adjacent roadways or other infrastructure is owned by an entity other than the District.

**County Owned Channels / Easements Maintained (Green Channels):** These channels (4.2 mi) are owned by Napa County (not the District), but the District performs channel maintenance on them on behalf of the County. Although the District conducts maintenance, it is not obligated to do so, or to maintain any specific level of hydraulic capacity. These channels are generally engineered channels or ditches, but also include some modified streams. County owned/District maintained channels include a portion of lower Salvador Creek, Maher-Trent Ditch, Sandra-Kathleen Ditch, and West Pueblo Ditch (Figure 2-4) and Fagan Creek near the Napa County Airport (Figure 2-5). In general, the level of maintenance and the activities performed on these County owned creeks is very similar to those described above for District owned channels. The District surveys these County owned channels annually and determines their maintenance needs and priorities in coordination with the County.

**Other Public Owned Channels / Easements Maintained (Purple Channels):** These channels (1.5 mi) are similar to the above, but owned by other public entities such as towns or cities, school districts and the District provides consultations and offers maintenance support upon request by the public entity owner. Example green channels include a section of lower Salvador Creek, portions of the Salvador Creek Tributary, and a small reach of Camille Creek that are owned by the City of Napa (Figure 2-4). Maintenance activities, and the survey and maintenance prioritization process described above for District and County owned channels, generally also apply to public owned channels.

**Privately Owned Streams Annually Surveyed for Possible Maintenance (Orange Channels):** Most of Napa County's natural streams are owned by private landowners. The

District has identified several flood prone reaches of streams (26 mi), generally within urban areas which it surveys regularly to monitor for potential problems. If problems are identified, the property owner is contacted and permission is requested prior to the District conducting any maintenance. Example orange channels include portions of the Napa River and Sulpher Creek in northern Napa County (Figure 2-2), Hopper and Dry creeks in the Yountville region (Figure 2-3), and Browns Valley, Redwood creeks, and some portions of Tulocay creek in the City of Napa region (Figure 2-4). Maintenance activities are generally limited to vegetation and downed tree management, invasive species eradication support, trash removal and consultations on erosion and bank stabilization. District staff typically would not conduct sediment removal or bank stabilization activities in these privately owned streams; however District support is available for such activities if the owner obtains all required regulatory permits.

**Other Streams - Maintenance upon Request:** The remaining creeks in Napa County, shown as a thin blue line in the maps of Figures 2-1 through 2-5, are privately owned creeks where District maintenance activities may only take place following a specific owner request and District staff evaluation of the appropriateness of the request. Maintenance work in these channels may typically involve clearing debris or vegetation management to address a flow obstruction or erosion concern. Similar to surveyed reaches of privately owned streams described above, District staff typically would not conduct sediment removal or bank stabilization activities in these streams; however District support is available for such activities if the owner obtains all required regulatory permits.

### 2.1.4 Overview of Maintenance Approach

Since its inception, the District's approach and perspective toward stream management has evolved from basic flood control and channel maintenance to include resource protection and environmental sustainability. The District regards itself as a resource agency with a duty to integrate environmental benefits (such as habitat protection and enhancement) into stream maintenance activities.

To achieve these resource protection goals, the District's maintenance approach requires a clear understanding of the maintenance needs at a site and identifying the specific location, extent, and suite of maintenance activities to be implemented. The District's approach is also built on having a comprehensive understanding of the stream system's function, its site-specific process, and the natural and aquatic resources at the maintenance reach.

This informed approach not only requires a site-specific understanding of needs, but also an understanding of the site in a larger sub-basin and watershed context. The Manual describes the SMP's geomorphic and biological setting using reach characterizations ("reach sheets") that detail the District's channels geomorphic, hydrologic, habitat, and species conditions. Each reach is considered within its sub-basin and watershed context, and key maintenance considerations and environmental enhancement opportunities are summarized. Defining this baseline of what physical processes operate and what biological resources are found at a given reach is fundamental to the District's adaptive management approach. Understanding these resources, their locations and how they interact guides the District on how to avoid, minimize, and mitigate environmental impacts. Understanding these resources also influences how, where, and when maintenance activities should occur.

## 2.2 Maintenance Activities

The SMP has four primary activities: vegetation management, downed tree management, erosion protection and bank stabilization, and sediment and debris removal. These core maintenance activities occur mainly in District, County, or City owned engineered flood control channels (shown as red, green and purple channels in Figures 2-1 through 2-5). In addition to these core activities, the SMP also involves other minor maintenance activities and habitat enhancement projects. These maintenance activities are summarized below and described in more detail in Chapters 4-9 of the Manual.

### 2.2.1 Vegetation Management

Vegetation management refers to the trimming, pruning, mowing, and removal of flow-constricting vegetation within the flood control channels and other constructed facilities. Vegetation management activities are conducted to maintain flow conveyance capacity, establish a canopy of riparian trees, and control invasive vegetation. Vegetation management and removal activities are relatively consistent from year to year, though locations change depending on recent growth and blockages. Vegetation management is conducted primarily using non-mechanical methods, such as hand pruning and herbicides. Heavy equipment is also used occasionally. On average, approximately 1,000 linear feet of vegetation management is conducted per year. Herbicide application for controlling annual herbaceous weeds is conducted during species-specific treatment windows as described in Chapter 4 of the Manual. Maximum monthly average herbicide use is approximately 8 gallons (5 gallons glyphosate and 3 gallons imazapyr) applied over five to eight acres annually. Herbicides may be applied on the banks of channels and on unpaved access roads. In-channel stream bank use of herbicides includes targeted spraying (such as to treat *Arundo donax*) and direct application (using a paintbrush on stumps of trees that have been cut during maintenance). The District does not have permit coverage for use of herbicides to control aquatic weeds, thus no herbicides are applied directly to submerged vegetation in water; herbicides are only applied above the high water mark within channel banks. Vegetation management also includes the planting of new trees and shrubs along District channels. Vegetation management is performed year-round in a manner to prevent loss of habitat and erosion, and does not include clear cutting or wholesale removal of vegetation.

### 2.2.2 Downed Tree Management

The District manages trees and large branches that naturally fall into stream channels to maintain channel capacity and minimize flow obstructions in channels. This is one of the most frequently conducted stream maintenance activities by the District. In alignment with the Sediment Total Maximum Daily Load (TMDL) for the Napa River watershed, the District seeks to promote recruitment of woody debris in channels to benefit instream habitat. The District's preference is to leave downed trees in place and encourage formation of channel features such as scour pools and slack water areas which are used by juvenile salmonids and increase stream channel complexity. However, if the tree threatens flood conveyance capacity or channel stability (i.e., stream banks destabilization), the District may modify the downed tree by trimming off branches or cutting it into smaller pieces. If further action is needed to ensure flood protection, the district may reposition the tree in the channel, such as

moved from perpendicular to parallel to stream flow, or remove the tree entirely. Downed tree management is generally conducted during the dry season, but can occur year-round to prevent flooding or erosion.

### **2.2.3 Erosion Protection/Bank Stabilization**

The repair and stabilization of stream banks is undertaken when a bank is weakened, unstable, or failing. If left untreated, eroding or failing streambanks can: cause damage to adjacent properties; increase the flood hazard and threaten public safety; threaten and impair roads, transportation, and access; generate erosion and increase downstream fine sediment yields; and impact riparian habitat and other natural resources. The District repairs and stabilizes eroding or failing streambanks to address these issues and prevent further degradation of stream conditions. On average, the District expects to conduct up to 5 bank stabilization projects per year. Bank stabilization activities are generally conducted between June 15<sup>th</sup> and October 31<sup>st</sup> when streams are at their driest.

When possible, bank stabilization is conducted in a preventative manner by planting exposed banks with appropriate native species. If a more engineered approach is needed, biotechnical approaches are preferred. Biotechnical erosion controls incorporate live vegetation with other natural elements (e.g., wood, biodegradable erosion control products, rock) to provide structural stability to streambanks. Bank stabilization approaches, including erosion control fabric with coir logs, brush mattresses, willow walls, encapsulated soil lifts, and crib walls. These approaches are illustrated and described in more detail in Chapter 6 of the Manual. Hardscape rock elements are used only at the toe of streambanks in combination with these measures if no effective alternative is feasible due to the magnitude of the hydraulic forces involved, the need to protect infrastructure, or an adjacent land use constraint.

Individual bank stabilization projects covered under the SMP will not affect more than 100 consecutive linear feet of bank and are limited to prescriptive biotechnical designs, which are described in the Manual. More involved projects are subject to individual project permits and separate CEQA review.

### **2.2.4 Sediment and Debris Removal**

Deposited and accumulated excess sediment in District maintained channels can reduce flow capacity and thereby increase the potential for flooding. Sediment removal activities are focused to target channels whose conveyance capacity is significantly limited due to accumulated sediment and debris. Besides improving flow conveyance for flood management, sediment removal activities may provide other beneficial outcomes including improved fish passage, improved circulation and water quality, enhanced geomorphic functions, and improved aquatic habitat. Sediment and debris removal activities are generally conducted from June 15<sup>th</sup> to October 31<sup>st</sup> when streams are typically at their driest. The number of sediment removal projects undertaken annually and the quantity of sediment removed in a given year depend on recent weather and hydrologic conditions, as well as the frequency and extent of past maintenance activities. However, on average the District expects to conduct two to five sediment removal projects annually.

The District typically implements small-scale, localized sediment removal activities in channel segments roughly 100-200 ft long. Most commonly, the District needs to alleviate a specific flow concern at an individual crossing, culvert, or other in-channel facility that experiences moderate sediment accumulation. In general, the District does not undertake large reach-scale sediment removal projects. Because reach-scale projects are infrequent, they are not considered routine maintenance and are not included as part of the SMP. Any sediment removal projects greater than 500 linear feet are subject to individual project permits and separate CEQA review.

### ***Sediment and Debris Disposal***

Annually, a maximum total of 200 cubic yards of sediment and debris is generated by maintenance activities. Removed sediment and debris is taken to appropriate disposal sites based on the quality and conditions of the collected sediment and debris. Sediment and debris removed from District channels is taken to disposal sites maintained in association with the U.S. Army Corps of Engineers for their dredging activities along the Napa River. These sites are the Edgerly Island Disposal Site and the Napa Sanitation District Imola Site. Sediment and debris may also be taken to the nearest landfill for disposal, as needed.

## **2.2.5 Other Minor Maintenance Activities**

In addition to the primary maintenance activities described above, the District conducts several other maintenance activities as part of their overall maintenance program. Though routine and expected, these other activities occur on a less frequent basis and include replacing culverts, maintaining access roads and drainage ditches, and managing beaver activities.

The frequency and location of minor maintenance projects in a given year varies, depending on past maintenance activities, recent hydrologic conditions, the age of engineered structures, and other factors. However, in general minor maintenance activities can be conducted anywhere in the District's maintenance jurisdiction. On average, the District anticipates that the SMP will involve between 2 and 3 minor maintenance projects per year.

## **2.2.6 Habitat Protection and Enhancement**

The District sees stream maintenance as an integrated stream management approach that involves protecting and enhancing existing instream resources while providing for necessary flood conveyance capacity in the channel. To this end, the District will implement the following activities as part of the SMP.

**Riparian Planting Program.** The goal of riparian planting is to enhance habitat for fish, birds, amphibians, and other wildlife using terrestrial riparian areas while providing shading, sources of organic matter and coarse woody debris, and water quality benefits to aquatic species. Opportunities for riparian planting and restoration will be evaluated on a case-by-case basis at all maintenance locations. The planting palette for the Riparian Planting Program is shown in Table 9-1 in Chapter 9 of the Manual. This list of species may evolve as the program adapts to improve riparian restoration efforts. Riparian planting may also include site preparation, including minor grading and topsoil preparation, and

incorporation of soil amendments. Specific revegetation plan details are highly dependent on site-specific conditions at each planting site, particularly with regard to hydrology and soils. Annually, the District plants approximately 650 trees as part of this effort.

**Instream Habitat Complexity Features.** In coordination with other maintenance activities, District stream managers will evaluate District channels and maintenance sites for opportunities to enhance or develop instream complexity features. The goal of these projects is to enhance existing instream complexity features and/or create new features within fish bearing streams in the Project Area. New instream features may be developed to achieve several habitat objectives. The new instream complexity features will be monitored and reported upon in annual monitoring reports. If site appropriate, new instream complexity features can be integrated with gravel augmentation projects. On average, the District implements two instream habitat projects per year.

**Instream Gravel Augmentation.** The general goal of gravel augmentation projects is to improve fish spawning and rearing habitat by enhancing sedimentary materials within the channel bed. The District can reuse watershed specific gravels collected through sediment removal activities as a source for the gravel augmentation projects. When designing a gravel augmentation project, several factors will be considered, including: the existing channel conditions; the grain size distribution of the sediment to be added; the volume of gravel to deposit; the frequency of gravel addition that will be required in light of sediment transport; how the added gravel will interact with to the existing flow regime and/or channel geometry; and the extent of augmentation effects within the channel reach. Opportunities to augment gravel in non-tidal salmonid streams will be assessed annually. The District will assess stream reaches that are particularly diminished of gravel and assess the feasibility for gravel augmentation. While the number of instream gravel augmentation projects undertaken by the District will vary depending on need and recent hydrologic conditions, the District expects to implement up to three projects annually under the SMP.

## 2.2.7 Activities Not Covered

Activities not covered under the District's routine Stream Maintenance Program include:

- Capital improvement projects (CIPs),
- Projects that would alter the designed flood conveyance capacity of a channel,
- Large sediment removal or dredging projects (greater than 500 ft. in length),
- Maintenance of restoration projects outside of flood control channels for which maintenance and monitoring is performed under project-specific permits,
- Maintenance of the U.S. Army Corps of Engineers Napa River/Napa Creek Flood Protection Project, and
- Emergency activities and procedures.

A situation is considered an "emergency" if it is a sudden, unexpected occurrence involving a clear and imminent danger that demands immediate action to prevent or mitigate loss of or damage to life, health, property, or essential public services (Public Resource Code Section 21060.3). Although emergency situations will not be covered by the permits

authorizing the routine maintenance activities of the SMP, the District will make every effort to follow the guidance provided in the Manual when implementing activities under emergency conditions.

## **2.3 Implementation and Oversight**

### **2.3.1 Annual Work Cycle**

Implementation and oversight of the SMP occurs as an annual cycle of activities as shown in Figure 10-1 in Chapter 10 of the Manual, which begins each year with a program-wide stream reconnaissance and assessment in early spring. The field assessment then informs the development of that year's workplan which occurs during the spring months. At this stage, descriptions of the year's projects are developed, and project planning occurs. The relevant regulatory agencies are then notified of the year's projects in late spring/early summer and provided information on project locations, activities, surveys, and any other key issues. Projects are then implemented during the summer season with follow up annual reporting activities occurring in the fall/winter. District databases are updated or revised at the end of the work cycle with data gathered during the implementation of that year's projects. More detail regarding the District's databases and management is provided below.

### **2.3.2 Timing of Work**

All non-ground disturbing maintenance activities occurring on any creek (excluding Dry Creek, Walsh Creek, and the Napa River) will take place between April 15 and October 15. In-channel, ground-disturbing activities in any creek (i.e. tree removal, mechanized vegetation management, bank stabilization and sediment removal) will only be conducted during the between June 15 and October 31. Similarly, all maintenance activities on Dry Creek Walsh Creek and the Napa River will only occur during this June 15 –October 31 work window. Removal of debris necessary to prevent an imminent flooding threat may occur year round.

Hand removal activities (i.e. pruning and vegetation removal) may be conducted year round in streams that do not support salmonids. In salmonid supporting streams, no vegetation removal would occur beyond December 31 or the first significant rainfall, whichever occurs first.

Modification and removal of large wood, such as downed trees is generally conducted during the dry season. Tree removal will not occur between February 1 and August 15 unless a survey is completed to ensure that no nesting birds are present.

Herbicide application will only occur during dry climate conditions, between June 15 and November 15. Extensions may be requested through December 31 or until the first significant rainfall or salmonid migration and spawning begins (whichever occurs first).

### 2.3.3 Maintenance Methods

The District's preferred approach for maintenance activities is to use the least environmentally impacting approach favoring hand maintenance over mechanized equipment.

Vegetation maintenance techniques include hand removal using hand-held tools and equipment, mechanical removal using heavier equipment, and occasional spot chemical control. The District conducts the majority of vegetation maintenance using hand removal methods. However, on occasion larger equipment used for vegetation removal may include a flail mower attachment on an excavator or Bobcat® to cut cattails or blackberries, or a backhoe or rubber-tracked excavator that is used for removing material from the channel. Herbicides are generally applied to targeted plants or tree stumps using a backpack sprayer and paintbrushes. Removed vegetation is generally chipped and either used on site by landowners or taken to the Napa Recycling and Waste Service Center for use and resale by their composting program. Depending on the specific activity, vegetation maintenance projects typically require between half a day and three days to complete.

The District conducts the majority of downed tree maintenance using hand tools and equipment. However, on occasion heavy equipment including backhoes or rubber-tracked excavators is used to relocate or remove trees within a dewatered portion of the channel. Removed trees are chipped for mulch.

Bank stabilization repairs would be confined to an area not to exceed 20 feet beyond (landward of) the failed or failing bank or structure, and care will be taken to disturb the least amount of vegetation possible, including mature trees. Bank stabilization activities primarily involve the use of biotechnical methods to stabilize eroding streambanks. Equipment used for bank stabilization activities may include extending arm excavators, small bulldozers (Bobcat style), front-end loaders, and 10 cubic-yard dump trucks. Staging for repair activities will occur on adjacent access roads. Soil and rip-rap will be staged in areas that have been previously disturbed (i.e., service road, turn-outs, etc.). Overgrown vegetation at bank failure sites will only be removed to the extent necessary to repair the bank. Bank stabilization projects typically require three to five days to complete.

Equipment used for sediment removal activities range from hand tools for digging out small accumulations of sediment or in sensitive locations to mechanized equipment for larger sediment removal needs. When using mechanized equipment, the District prefers using an excavator located outside the channel on access roads. For project areas where using an excavator from the top-of-bank is not possible, sediment removal may be conducted by lowering smaller equipment directly into the channel from a stream crossing. If temporary access ramps are required to lower equipment into the channel, they will be regraded and replanted following the sediment removal activities. In-channel equipment may include a small Bobcat®, skid-steer, or walk-behind power-shovel. A vacuum truck may also be used to remove sediment from smaller culverts and pipes. Sediment removed from the channel is placed in 10- or 20- cubic yard dump trucks (typically parked on the access road adjacent to the channel or on the stream crossing) and prepared for off-site hauling and disposal.

### **2.3.4 Data Management**

Data collection and monitoring efforts are critical to measuring the success of program implementation. The District currently maintains an extensive GIS database which includes location and observation data on stream channels managed under their authority. The District also maintains a database for tracking stream maintenance activities that is linked to the District's existing GIS database so that data, such as new species occurrences, are mapped and compared against maintenance activities. To properly track the progress of management activities towards achieving the SMP's goals and compliance with permit conditions, these databases may be updated or revised as the SMP adapts to best meet the stream maintenance goals.

Data or documentation of the maintenance projects are entered into the database during each cycle of the work plan. The database can be queried to chronicle past maintenance activities or prioritize future actions. The regulatory agencies will receive necessary information on maintenance activities (based on the permit requirements and the description of activities in this manual). Information saved in the database will also provide insight into future Manual updates.

### **2.3.5 Year End Reporting**

At the conclusion of each year's maintenance season a summary report will be developed and submitted to the appropriate regulatory agencies. This report will include a summary of the year's maintenance projects describing the workplan status and confirming which projects from the workplan were completed. The report may include additional information on project area conditions, activities employed, the effectiveness of certain activities, possible recommendations for future maintenance, or suggestions to improve the implementation and management of the SMP.

### **2.3.6 Five Year Program Review**

Every 5 years, the District and the relevant regulatory agencies will review the SMP for its overall effectiveness. The District will compile a summary report containing an assessment of maintenance activities conducted to date, BMPs employed, data management, adequacy of adaptive updates and revisions to the manual, and overall SMP coordination and communication between the District and the regulatory agencies.

This report will be provided to the regulatory agencies, and the findings will be discussed as part of the permit renewal process. As a result of these discussions, potential changes or updates shall be integrated into the Manual through an addendum or revision process. The updated Manual will be redistributed to regulatory agencies and program partners. SMP changes or updates made at the 5-year reviews may require an updating of permit terms and/or additional CEQA review.

## 2.4 Programmatic Avoidance and Minimization Measures

Chapter 3 of the Manual describes the programmatic planning steps taken prior to maintenance work to ensure that activities are conducted effectively and that environmental impacts are avoided and minimized to the greatest extent possible.

As described in the Manual, impact avoidance and minimization is a 3-part process where measures are enacted at varying scales and stages of activity implementation. At the broadest scale are the environmental principles for maintenance. From this basis, more targeted impact avoidance and minimization measures are then applied during the maintenance planning phase (second-stage) when the annual maintenance workplan is developed. Additionally, the District developed specific channel maintenance best management practices (BMPs) to guide operational activities during maintenance implementation (third-stage) to reduce remaining potential environmental impacts. Taken together, these measures provide a comprehensive and integrated approach to avoiding and minimizing SMP impacts.

### 2.4.1 Environmental Principles

The following Maintenance Principles were developed to guide District maintenance activities and ensure that environmental impacts are avoided or reduced as much as possible:

- Apply the minimum maintenance necessary
- Avoid mechanized maintenance, favor hand maintenance
- Non-routine large scale maintenance is outside of SMP
- Understand and monitor the river system
- Protect and enhance riparian ecology
- Manage stream resources for long-term sustainability

As planning principals, these approaches are used in the development of each year's workplan, prior to any work occurring. When applied, these principles identify the minimum required action and techniques, determine what actions are covered by the SMP, consider river processes, seek restoration and enhancement opportunities, and consider solutions to minimize the on-going need for repeat maintenance activities at a particular site or reach.

### 2.4.2 Impact Avoidance and Minimization Measures

The stream maintenance BMPs in Table 2-1 were developed to protect the natural resources of Napa County and the creeks, channels, other facilities maintained by the District. These measures are standard operating procedures designed to be implemented program-wide to avoid or minimize impacts associated with stream maintenance activities. Table 2-1 includes general BMPs applicable to all maintenance activities and project-specific BMPs for vegetation maintenance activities, bank stabilization projects, sediment

removal activities, post-project restoration, and minor activities. A summary of key avoidance and minimization measures included in the BMP table is provided below.

**Work Windows.** Maintenance activities occurring during the rainy season can result in potential environment impacts, particularly to aquatic habitats. Potential impacts could include erosion from stockpiled sediments or pollutants from work equipment entering the creek. To prevent such wet season impacts, all maintenance activities occur during the dry season when rain and flows are minimal. Additionally, regulatory permitting conditions restrict the period and location of certain activities to protect biological resources. Work windows for the maintenance program have been established to protect environmental resources and minimize potential impacts (see Section 2.3.2 *Timing of Work* above). Note these work windows may change as new permits are issued or amended.

**Channel Roughness and Capacity Objectives to Guide Maintenance.** The District is developing a channel roughness and capacity assessment protocol to be used to guide the annual evaluation of streams, identify which streams require maintenance, and prioritize the District's efforts. The assessment protocol will involve a field-based checklist of conditions. For vegetation management activities, such as tree pruning, this will involve assessing current roughness conditions compared to an allowable roughness criterion for the individual reach. Similarly, the District will develop capacity criteria for individual reaches to guide if/when sediment removal activities are potentially warranted.

**Biological Surveys.** Maintenance activities may be conducted in creek channels that provide habitat for a variety of species, including some special-status species which are protected under federal and state regulations. Based on possible occurrence of species as shown in in Chapter 2 of the Manual, species-specific impact avoidance and minimization measures will be applied when prior to conducting maintenance activities in those reaches.

**Aquatic Species Impact Avoidance Approaches.** Special-status species including salmonids, California freshwater shrimp, California red-legged frog, and Northwestern pond turtles may be present in stream reaches maintained under the SMP. If maintenance activities would disturb habitat of these species, such as maintenance of in-channel vegetation or bank stabilization or sediment removal activities that require channel dewatering, the District would be required to notify and consult with state and federal agencies to obtain their approval of the maintenance activities. The District may establish avoidance, minimization, and mitigation measures with regulatory agencies on a case-by-case basis.

**Herbicide Application Restrictions.** All herbicide applications conducted by the District occur in accordance with federal, state, and local regulations. The following measures to avoid and minimize effects of herbicide application are included:

- Application will occur when the climate is dry (between June 15 and November 15), wind is not above 5-10 mph, and no rain is forecast for the next 24 hours.
- Targeted spot spraying and hand painting of cut stumps are the primary methods of herbicide application. Foliar spraying may be conducted to control growth on larger plants such as exotic trees or large stands of pampas grass.

- Herbicides will not be applied to control aquatic weeds.

**Cultural Resource Survey.** Ground-disturbing activities conducted under the SMP (i.e. bank stabilization, tree removal) must comply with federal, state, and local laws and policies protecting cultural resources and human remains, including but not limited to the National Historic Preservation Act (NHPA), Native American Graves Protection and Repatriation Act, and the California Public Resources Code. For maintenance activities that require excavation or repair into soils beyond the channel design (e.g., bank stabilization, culvert replacement), specific impact avoidance and minimization measures will be applied based on the cultural sensitivity of the project site as indicated in the maps of Appendix E.

**Pollution Safety Planning.** If presence of potential contaminants is observed at the site, the area will be treated as if a hazardous spill occurred. In addition, any observed contamination as evidenced by chemical-like odors, oily sheens, or irregularly colored sediment will be immediately reported to the local fire department’s hazardous materials team. Soil testing may be conducted prior to sediment removal and bank stabilization projects. Should soils be encountered during maintenance that contain concentrations of listed substances that exceed hazardous waste levels, the contaminated area will be treated as if a hazardous spill occurred (i.e., a Spill Prevention and Response Plan will be implemented) and all measures to ensure compliance with federal, state, and local regulations will be taken.

**Public Outreach.** To reduce potential inconvenience to the public and protect their safety during maintenance activities, measures such as keeping the work site clean, reducing loud noises, and maintaining vehicle and pedestrian access. Work will be limited to normal business hours (8:00 a.m.–5:00 p.m.) and routine activities in residential areas will not occur on Saturdays, Sundays, or County holidays. Sound control devices will be actively used on all power equipment, and prior notification of work will be issued to all adjacent properties within 180 ft. of a project location where heavy equipment will be used. The District may conduct an annual presentation of general maintenance activities to the public for informational purposes.

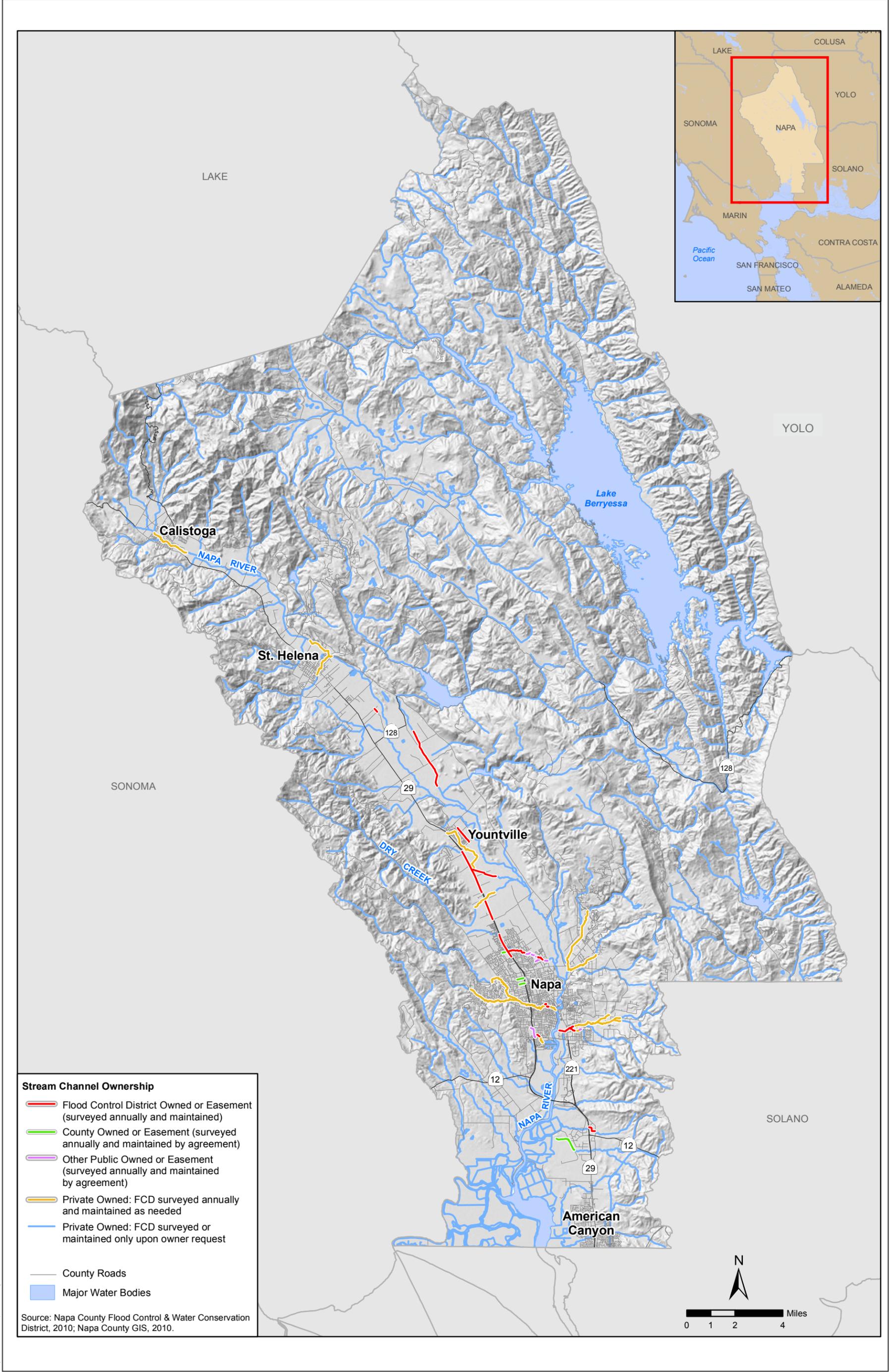
## 2.5 Permits and Approvals

The permits and regulatory compliance requirements for the Stream Maintenance Program are described below by permitting agency including the California Department of Fish and Game (CDFG), Regional Water Quality Control Board (RWQCB), U.S. Army Corps of Engineers (USACE), and others. In addition to the requirements summarized below, the project must conform to the policies and standards established in the current Napa County General Plan, which is relevant to all resource topics analyzed under CEQA.

**Table 2-2.** Permit and Regulatory Requirements Applicable to the SMP

Regulatory Agency	Law/Regulation	Purpose	Permit/Authorization Type
U.S. Army Corps of Engineers -	Clean Water Act (CWA) Section 404	Regulates placement of dredged and fill materials into waters of the United	Individual/General Permit Nationwide Permits

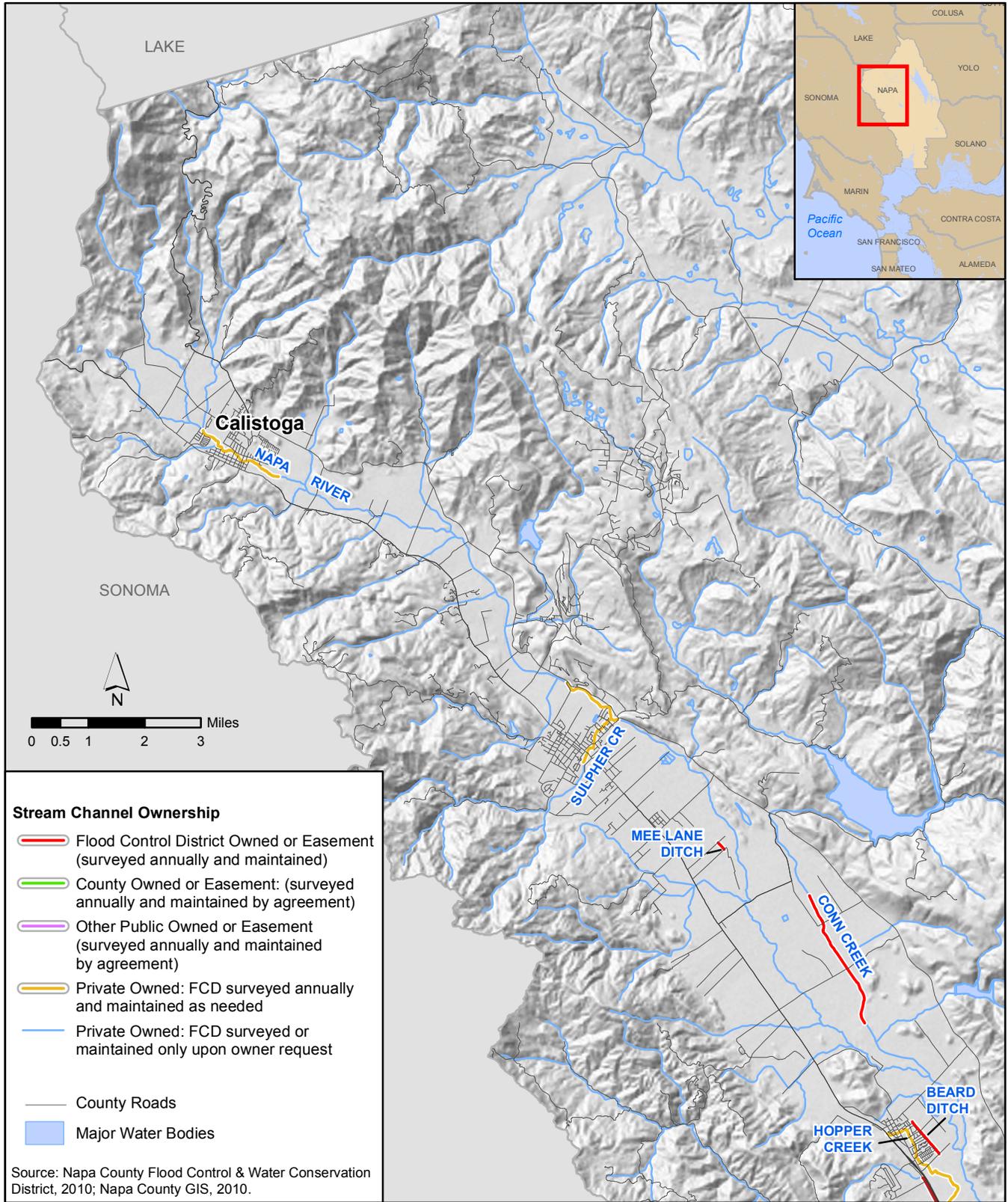
<b>Regulatory Agency</b>	<b>Law/Regulation</b>	<b>Purpose</b>	<b>Permit/Authorization Type</b>
San Francisco District		States.	
	Rivers and Harbors Act Section 10	Regulates work in navigable waters of the U.S.	Section 10 Compliance
San Francisco Bay Regional Water Quality Control Board	CWA Section 401	Water quality certification for placement of materials into waters of the United States.	401 Water Quality Certification is required for federal permits, including Nationwide Permits
	CWA Section 402	National Pollutant Discharge Elimination System (NPDES) program regulates discharges of pollutants.	NPDES Aquatic Pesticides General Permit
	CWA Section 303	Recognition and remediation of impaired water bodies through establishment of Total Maximum Daily Loads (TMDLs) to track and reduce pollutants and restore beneficial uses.	Napa TMDLs - Sediment (adopted by Regional Board in 2009 and by the State Board in 2010; Awaiting Federal approvals) - Pathogens (approved by USEPA in 2006) - Nutrients (currently under development)
	Porter-Cologne Water Quality Control Act	Regulates discharges of materials to land and protection of beneficial uses of waters of the State.	Waste Discharge Requirements (WDRs)
California Department of Fish and Game - Bay Delta Region	Fish and Game Code (F&G Code) Section 1600	Applies to activities that will substantially modify a river, stream or lake. The Agreement includes reasonable conditions necessary to protect those resources.	Routine maintenance activities are covered under a Routine Maintenance Agreement (RMA)
	California Endangered Species Act (CESA) (F&G Code Section 2081[b])	CESA compliance: Consistency determination with USFWS/NMFS Biological Opinions or issuance of incidental take agreements	CESA compliance will be completed as directed by DFG
USFWS/ National Marine Fisheries Service (NMFS)	Endangered Species Act (ESA)	USACE must consult with USFWS and NMFS if threatened or endangered species may be affected by the project.	If necessary, to be conducted in conjunction with USACE Section 404 compliance
State Historic Preservation Officer	NHPA Section 106	USACE must consult with State Historic Preservation Officer if historic properties or prehistoric archaeological sites may be affected by the project.	If necessary, to be conducted in conjunction with USACE Section 404 compliance



Project: 10.004 \NapaSMP\Aug 2011



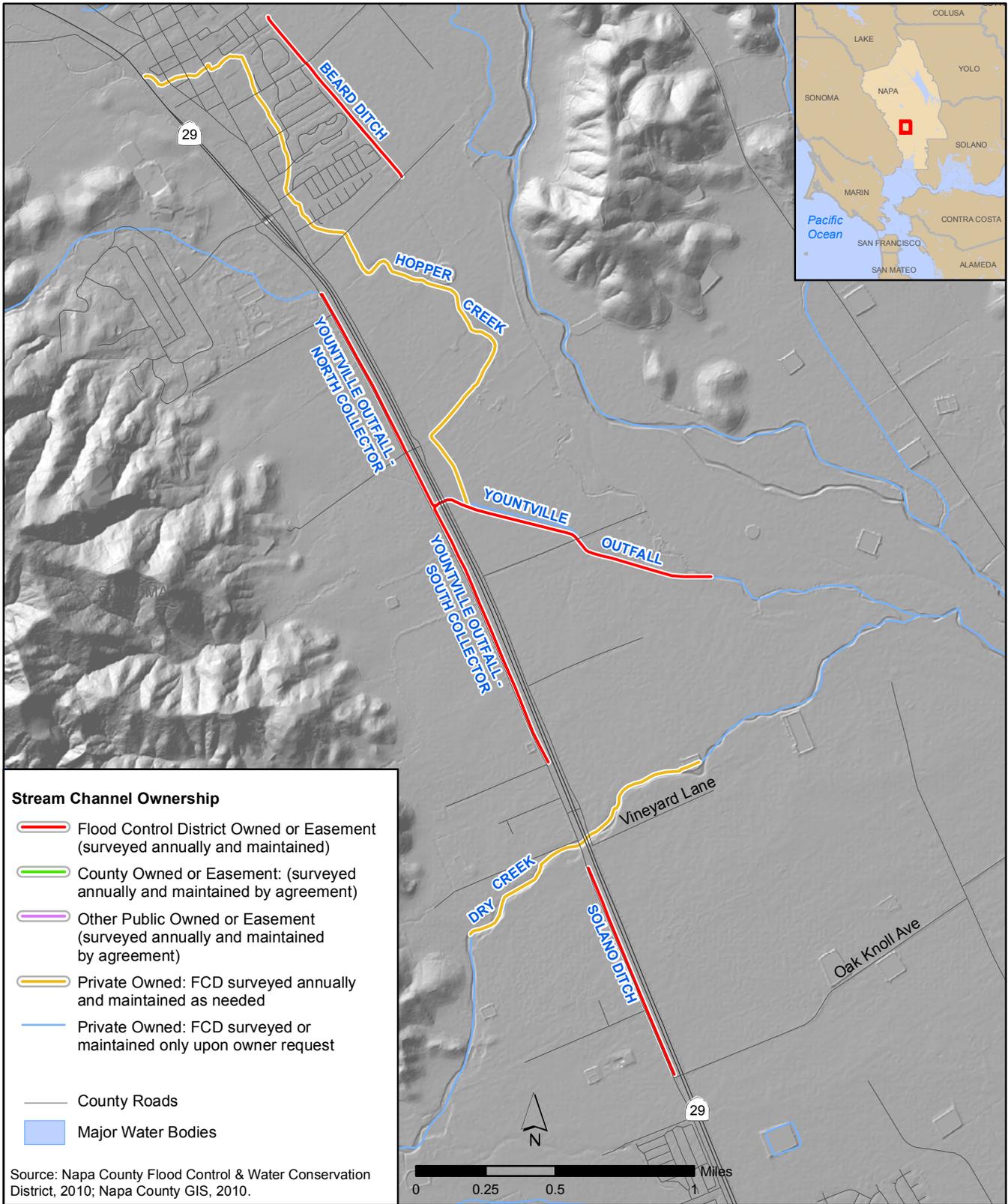
**Figure 2-1**  
**Napa County Stream Maintenance Program Area and Maintenance Reaches**



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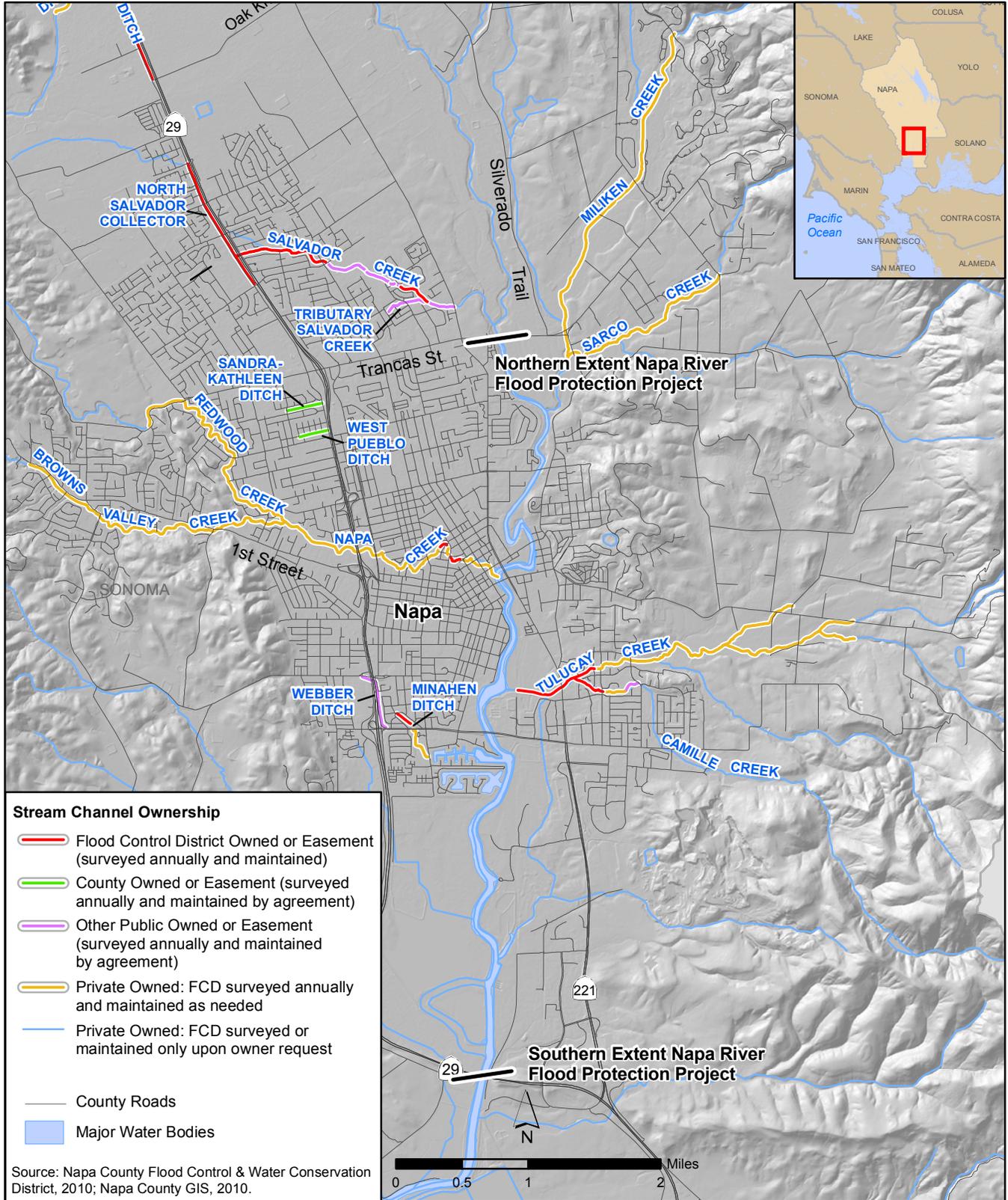
**Figure 2-2**  
**Napa County Stream Maintenance Program: Northern Region**



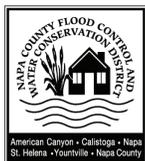
Project: V10.004\Napa5VP\Aug2011



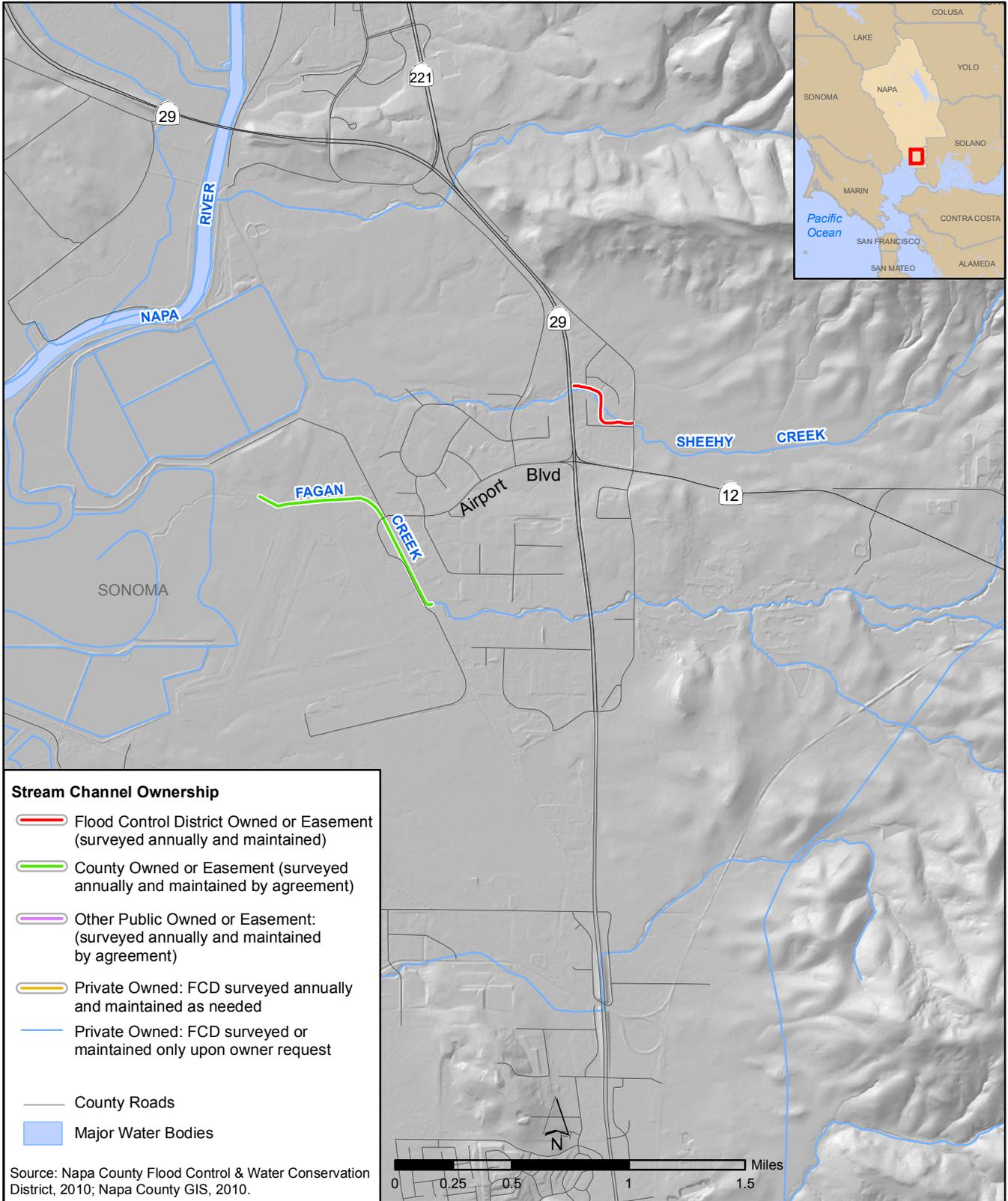
**Figure 2-3**  
**Napa County Stream Maintenance Program: Yountville Region**



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**Figure 2-4**  
**Napa County Stream Maintenance Program: City of Napa Region**



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**Figure 2-5**  
**Napa County Stream Maintenance Program: Airport Region**



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**Table 2-1: Stream Maintenance Best Management Practices**

**General BMPs**

These BMPs will be implemented by the stream maintenance crew, as appropriate and as overseen by site managers, for all activities associated with the maintenance program. These BMPs are grouped according to use of general maintenance practices, dewatering activities, public safety, and reporting procedures. The majority of these BMPs are implemented prior to and during maintenance operations, though the level of activity varies depending on the work type.

BMP Number	BMP Title	BMP Description
<b>General Maintenance Practices</b>		
GEN-1	Work Windows	<ul style="list-style-type: none"> <li>▪ Maintenance on any creek, except Dry Creek, Walsh Creek, and the Napa River (due to special-status species restrictions), will generally occur between April 15 and October 15.</li> <li>▪ All ground-disturbing maintenance activities (i.e., tree removal, mechanized vegetation management, bank stabilization, and sediment removal) occurring in the channel will take place between June 15 and October 15.</li> <li>▪ Hand pruning and hand removal of vegetation will occur year round, except when:               <ul style="list-style-type: none"> <li>○ Wheeled or tracked equipment needs to access the site by crossing a creek, ponded area, or secondary channel; or</li> <li>○ Work occurs in streams that support salmonids. In these streams, instream vegetation maintenance will cease on December 31 or when local rainfall greater than 0.5 inches is predicted within a 24-hour period of planned activities, whichever happens first.</li> </ul> </li> <li>▪ Removal of standing trees will not occur between February 15 and August 15 to avoid impacts on nesting birds, except after implementation of Measure BIO-1.</li> <li>▪ Modification and removal of large wood, such as downed trees, is generally conducted during the dry season, but can occur at any time of the year, if imminent danger of a flood threat precludes leaving the wood in place.</li> <li>▪ Herbicide applications will occur between June 15 and November 15, with an extension through December 31 or until the first occurrence of any of the following conditions; whichever happens first:               <ul style="list-style-type: none"> <li>○ Local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events; or</li> </ul> </li> </ul>



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Table 2-2: Stream Maintenance Best Management Practices

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BMP Number	BMP Title	BMP Description
		<ul style="list-style-type: none"> <li>○ When salmonids begin upmigrating and spawning, as determined by a qualified biologist (typically in November/December)</li> </ul>
GEN-2	Minimize the Area of Disturbance	To minimize impacts to natural resources, soil disturbance will be kept to the minimum footprint necessary to complete the maintenance operation.
GEN-3	Erosion and Sediment Control Measures	<ul style="list-style-type: none"> <li>▪ Upland soils exposed due to maintenance activities will be seeded and stabilized using erosion control fabric or hydroseeding. The channel bed and areas below the Ordinary High Water Mark (OHWM) are exempt from this BMP.</li> <li>▪ Erosion control fabrics will consist of natural fibers that will biodegrade over time. No plastic or other non-porous material will be used as part of a permanent erosion control approach. Plastic sheeting may be used to temporarily protect a slope from runoff, but only if there are no indications that special-status species would be impacted by the application.</li> <li>▪ Erosion control measures will be installed according to manufacturer’s specifications.</li> <li>▪ Appropriate measures include, but are not limited to, the following:               <ul style="list-style-type: none"> <li>○ Silt Fences</li> <li>○ Straw Bale Barriers</li> <li>○ Brush or Rock Filters</li> <li>○ Storm Drain Inlet Protection</li> <li>○ Sediment Traps</li> <li>○ Sediment Basins</li> <li>○ Erosion Control Blankets and Mats</li> <li>○ Soil Stabilization (i.e. Tackified straw with seed, jute or geotextile blankets, broad cast and hydro-seeding, etc.)</li> </ul> </li> <li>▪ All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of the project.</li> </ul> <p>The following Bay Area Stormwater Management Agencies Association (BASMAA) BMPs provide guidance and specifications on implementation of the erosion control measures listed above (see also <a href="http://www.basmaa.com">www.basmaa.com</a>):</p>



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Table 2-2: Stream Maintenance Best Management Practices

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BMP Number	BMP Title	BMP Description
		<ul style="list-style-type: none"> <li>○ SC-3. Sediment Basins</li> <li>○ SC-4. Straw or Sand Bag Barriers</li> <li>○ SC-5. Sediment Traps</li> <li>○ SC-6. Silt Fences</li> <li>○ SS-1. Erosion Control Blankets, Mats, and Geotextiles</li> <li>○ VR-1. Brush or Rock Filters</li> <li>○ VR-4b. Temporary Outlet Protection</li> <li>○ VR-4b. Storm Drain Inlet Protection</li> <li>○ WD-1. Earth Dike</li> <li>○ WD-1. Slope Drain</li> <li>○ WD-3. Temporary Drains and Swales</li> </ul>
GEN-4	Dust Management Controls	<p>The District will implement the Bay Area Air Quality Management District's (BAAQMD) Basic Dust Control Measures (<a href="http://www.baaqmd.gov">www.baaqmd.gov</a>) at maintenance sites less than four acres in size. Current measures stipulated by the BAAQMD Guidelines include the following:</p> <ol style="list-style-type: none"> <li>1. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.</li> <li>2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.</li> <li>3. 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.</li> <li>4. All vehicle speeds on unpaved roads shall be limited to 15 mph.</li> <li>5. 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.</li> <li>6. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points.</li> </ol>



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BMP Number	BMP Title	BMP Description
		<p>7. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified visible emissions evaluator.</p> <p>8. Post a publicly visible sign with the telephone number and person to contact at the lead agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.</p>
GEN-5	Staging and Stockpiling of Materials	<ul style="list-style-type: none"> <li>▪ To the extent feasible, staging will occur on access roads, surface streets, or other disturbed areas that are already compacted and only support ruderal vegetation. Similarly, all maintenance equipment and materials (e.g., road rock and project spoil) will be contained within the existing service roads, paved roads, or other pre-determined staging areas. Staging areas for equipment, personnel, vehicle parking, and material storage will be sited as far as possible from major roadways.</li> <li>▪ To prevent sediment-laden water from being released back into waterways during transport of spoils to disposal locations, truck beds will be lined with an impervious material (e.g., plastic), or the tailgate blocked with wattles, hay bales, or other appropriate filtration material.</li> <li>▪ Building materials and other maintenance-related materials, including chemicals and sediment, will not be stockpiled or stored where they could spill into water bodies or storm drains.</li> <li>▪ No runoff from the staging areas may be allowed to enter water ways, including the creek channel or storm drains, without being subjected to adequate filtration (e.g., vegetated buffer, hay wattles or bales, silt screens). The discharge of decant water to water ways from any on-site temporary sediment stockpile or storage areas is prohibited.</li> <li>▪ During the dry season, no stockpiled soils will remain exposed and unworked for more than 7 days. During the wet season, no stockpiled soils will remain exposed, unless surrounded by properly installed and maintained silt fencing or other means of erosion control.</li> </ul>



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BMP Number	BMP Title	BMP Description
GEN-6	Stream Access	<p>District personnel will use existing access ramps and roads to the extent feasible. If necessary to avoid large mature trees, native vegetation, or other significant habitat features, temporary access points will be constructed in a manner that minimizes impacts according to the following guidelines:</p> <ol style="list-style-type: none"> <li>1. Temporary access points will be constructed as close to the work area as possible to minimize equipment transport.</li> <li>2. In considering channel access routes, slopes of greater than 20 percent will be avoided, if possible.</li> <li>3. Disturbed areas will be revegetated or filled with compacted soil, seeded, and stabilized with erosion control fabric immediately to prevent future erosion.</li> <li>4. Personnel will use the appropriate equipment for the job that minimizes impacts. Appropriately-tired vehicles, either tracked or wheeled, will be used depending on the site and maintenance activity.</li> </ol>
GEN-7	In-Channel Minor Sediment Removal	<p>For in-channel minor sediment removal activities, work will be conducted from the top of the bank if access is available and there are flows in the channel.</p>
GEN-8	On-Site Hazardous Materials Management	<ol style="list-style-type: none"> <li>1. An inventory of all hazardous materials used (and/or expected to be used) at the worksite and the end products that are produced (and/or expected to be produced) after their use will be maintained by the worksite manager.</li> <li>2. As appropriate, containers will be properly labeled with a "Hazardous Waste" label and hazardous waste will be properly recycled or disposed of off-site.</li> <li>3. Contact of chemicals with precipitation will be minimized by storing chemicals in watertight containers or in a storage shed (completely enclosed), with appropriate secondary containment to prevent any spillage or leakage.</li> <li>4. Petroleum products, chemicals, cement, fuels, lubricants, and non-storm drainage water or water contaminated with the aforementioned materials will not contact soil and not be allowed to enter surface waters or the storm drainage system.</li> <li>5. All toxic materials, including waste disposal containers, will be covered when they are not in use, and located as far away as possible from a direct connection to the storm drainage</li> </ol>



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BMP Number	BMP Title	BMP Description
		<p>system or surface water.</p> <p>6. All trash that is brought to a project site during maintenance activities (e.g., plastic water bottles, plastic lunch bags, cigarettes) will be removed from the site daily.</p>
GEN-9	Existing Hazardous Materials	<ol style="list-style-type: none"> <li>1. For any proposed ground disturbing activities, the District will conduct a search for existing known contaminated sites on the SWRCB's GeoTracker website (<a href="http://www.geotracker.waterboards.ca.gov">http://www.geotracker.waterboards.ca.gov</a>) upon selection of project location.</li> <li>2. For any proposed ground disturbing maintenance sites located within 1,500 feet of any "open" sites where contamination has not been remediated, the District will contact the Regional Water Quality Control Board case manager identified in the database. The District will work with the case manager to ensure maintenance activities would not affect cleanup or monitoring activities or threaten the public or environment</li> <li>3. If hazardous materials, such as oil, batteries or paint cans, are encountered at the maintenance sites, the District will carefully remove and dispose of them according to the <i>Spill Prevention and Response Plan</i> (forthcoming). District staff will wear proper protective gear and store the waste in appropriate hazardous waste containers until it can be disposed at a hazardous waste facility.</li> </ol>
GEN-10	Spill Prevention and Response	<p>The District will prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels following these measures:</p> <ol style="list-style-type: none"> <li>1. New District field personnel will be appropriately trained in spill prevention, hazardous material control, and clean up of accidental spills.</li> <li>2. Equipment and materials for cleanup of spills will be available on site and spills and leaks will be cleaned up immediately and disposed of according to guidelines stated in the <i>Spill Prevention and Response Plan</i> (forthcoming).</li> <li>3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means.</li> <li>4. Spill prevention kits will always be in close proximity when using hazardous materials (e.g., at crew trucks and other logical locations). All field personnel will be advised of these locations.</li> </ol>



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BMP Number	BMP Title	BMP Description
		<p>5. District staff will routinely inspect the work site to verify that spill prevention and response measures are properly implemented and maintained.</p> <p><i>Spill Response Measures:</i>            For small spills on impervious surfaces, absorbent materials will be used to remove the spill, rather than hosing it down with water. For small spills on pervious surfaces such as soil, the spill will be excavated and properly disposed rather than burying it. Absorbent materials will be collected and disposed of properly and promptly.</p>
GEN-11	Fire Prevention	<ol style="list-style-type: none"> <li>1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors.</li> <li>2. During the high fire danger period (April 1–December 1), work crews will:               <ol style="list-style-type: none"> <li>a) Have appropriate fire suppression equipment available at the work site.</li> <li>b) Keep flammable materials, including flammable vegetation slash, at least 10 feet away from any equipment that could produce a spark, fire, or flame.</li> <li>c) Not use portable tools powered by gasoline-fueled internal combustion engines within 25 feet of any flammable materials unless a round-point shovel or fire extinguisher is within immediate reach of the work crew (no more 25 feet away from the work area).</li> </ol> </li> </ol>
GEN-12	Vehicle and Equipment Maintenance	<ol style="list-style-type: none"> <li>1. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented.</li> <li>2. All equipment used in the creek channel will be inspected for leaks each day prior to initiation of work. Action will be taken to prevent or repair leaks, prior to use.</li> <li>3. Incoming vehicles and equipment will be checked for leaking oil and fluids (including delivery trucks, and employee and subcontractor vehicles). Leaking vehicles or equipment will not be allowed onsite.</li> <li>4. No heavy equipment will operate in a live stream (see Dewatering BMPs).</li> <li>5. No equipment servicing will be done in the creek channel or immediate floodplain, unless equipment stationed in these locations cannot be readily relocated (i.e., pumps and generators).</li> </ol>



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BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>6. If necessary, all servicing of equipment done at the job site will be conducted in a designated, protected area to reduce threats to water quality from vehicle fluid spills. Designated areas will not directly connect to the ground, surface water, or the storm drain system. The service area will be clearly designated with berms, sandbags, or other barriers. Secondary containment, such as a drain pan, to catch spills or leaks will be used when removing or changing fluids. Fluids will be stored in appropriate containers with covers, and properly recycled or disposed of offsite.</li> <li>7. If emergency repairs are required in the field, only those repairs necessary to move equipment to a more secure location will be conducted in the channel or floodplain.</li> <li>8. Equipment will be cleaned of any sediment or vegetation before transferring and using in a different watershed to avoid spreading pathogens or exotic/invasive species.</li> <li>9. Vehicle and equipment washing can occur onsite only as needed to prevent the spread of sediment, pathogens or exotic/invasive species. No runoff from vehicle or equipment washing is allowed to enter water bodies, including creek channels and storm drains, without being subjected to adequate filtration (e.g., vegetated buffers, hay wattles or bales, and silt screens). The discharge of decant water from any onsite wash area to water bodies or to areas outside of the active project site is prohibited. Additional vehicle and equipment washing will occur at the approved wash area in the District's corporation yard.</li> </ol>
GEN-13	Vehicle and Equipment Fueling	<ol style="list-style-type: none"> <li>1. No fueling will be done in the channel (top-of-bank to top-of-bank) or immediate floodplain unless equipment stationed in these locations cannot be readily relocated (e.g., pumps and generators).</li> <li>2. All off-site fueling sites (i.e., on access roads above the top-of-bank) will be equipped with secondary containment and avoid a direct connection to soil, surface water, or the storm drainage system.</li> <li>3. For stationary equipment that must be fueled on-site, secondary containment, such as a drain pan or drop cloth, will be used to prevent accidental spills of fuels from reaching the soil, surface water, or the storm drain system.</li> </ol>



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BMP Number	BMP Title	BMP Description
<b>Dewatering</b>		
GEN-14	Dewatering Measures	<p>When work in flowing streams is unavoidable, streamflow will be diverted around the work area by construction of a temporary dam or bypass.</p> <ol style="list-style-type: none"> <li>1. Prior to dewatering, the best means to bypass flow through the work area will be determined to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates.</li> <li>2. The area to be dewatered will encompass the minimum area necessary to perform the maintenance activity.</li> <li>3. The period of dewatering will extend only for the minimum amount of time needed to perform the maintenance activity.</li> <li>4. Depending on the channel configurations, sediment removal activities may occur where the flows are not bypassed around the work site as long as a berm is left between the work area and stream flows to minimize water quality impacts during excavation activities.</li> <li>5. In reaches that contain deep pools, the District will maintain these pools, as is practical, by constructing temporary fencing surrounding the pool and avoid pool dewatering. Pools in construction sites may be isolated by upstream or downstream barriers, such as culverts. This approach does not apply to sediment removal activities that require removal of all sediment to restore the design capacity.</li> </ol> <p><i>Construction:</i></p> <ol style="list-style-type: none"> <li>1. Where feasible and appropriate, dewatering will occur via gravity driven systems and diversion structures shall be installed on concrete sections of the channels, such as concrete box culverts often used at road crossings.</li> <li>2. Construction of cofferdams will begin in the upstream area and continue in a downstream direction, and the flow will be diverted only when construction of the dams is completed.</li> <li>3. Cofferdams will be installed both upstream and downstream not more than 100 feet from the extent of the work areas.</li> <li>4. Instream cofferdams will only be built from materials such as sandbags, clean gravel, or rubber</li> </ol>



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BMP Number	BMP Title	BMP Description
		<p>bladders which will cause little or no siltation or turbidity. No earthen fill will be used to construct the cofferdam. Plastic sheeting will be placed over sandbags to minimize water seepage into the maintenance areas. The plastic sheets will be firmly anchored to the streambed to minimize water seepage. If necessary, the footing of the cofferdam will be keyed into the channel bed at an appropriate depth to capture the majority of subsurface flow needed to dewater the streambed.</p> <p>5. Stream flows will be allowed to gravity flow around or through the work site using temporary bypass pipes or culverts. Bypass pipe diameter will be sized to accommodate, at a minimum, twice the volume of the summer baseflow.</p> <p>6. When use of gravity-fed dewatering is not feasible and pumping is necessary to dewater a work site, a temporary siltation basin and/or use of silt bags may be required to prevent sediment from re-entering the wetted channel.</p> <p><i>Implementation:</i></p> <p>1. A qualified biologist will be present to ensure that fish and other aquatic vertebrates are not stranded during construction and implementation of channel dewatering.</p> <p>2. If necessary to remove stranded fish or other aquatic vertebrates, electrofishing will be used to collect and relocate fish from the work area. If relocation is necessary, Measure GEN-15 will be implemented.</p> <p>3. Downstream flows adequate to prevent fish or vertebrate stranding will be maintained at all times during dewatering activities.</p> <p>4. Diverted and stored water will be protected from maintenance activity-related pollutants, such as soils or equipment lubricants or fuels.</p> <p>5. If necessary, discharged water will pass over some form of energy dissipater to prevent erosion of the downstream channel. Silt bags will be equipped to the end of discharge hoses and pipes to remove sediment from discharged water.</p> <p>6. For full channel dewatering, filtration devices or settling basins will be provided as necessary to ensure that the turbidity of discharged water is not visibly more turbid than in the channel</p>



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BMP Number	BMP Title	BMP Description
		<p>upstream of the maintenance site. If increases in turbidity are observed, additional measures will be implemented such as a larger settling basin or additional filtration. If increases in turbidity persist, the District's Stream Maintenance Program Manager will be alerted since turbidity measurements may be required.</p> <p><i>Deconstruction:</i></p> <ol style="list-style-type: none"> <li>1. When maintenance is completed, the flow diversion structure will be removed as soon as possible but no more than 48 hours after work is completed. Impounded water will be released at a reduced velocity to minimize erosion, turbidity, or harm to downstream habitat. Cofferdams will be removed such that surface elevations of water impounded above the cofferdam are lowered at a rate greater than one inch per hour.</li> <li>2. 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.</li> <li>3. The area disturbed by flow bypass mechanisms will be restored at the completion of the project. This may include, but is not limited to, recontouring the area and planting of riparian vegetation.</li> </ol>
GEN-15	Relocation of Aquatic Species for Dewatering	<p>As identified above, before a work area is dewatered, fish and other aquatic vertebrates such as California freshwater shrimp will be captured and relocated to avoid injury and mortality and minimize disturbance. The following guidelines will apply.</p> <ul style="list-style-type: none"> <li>▪ Before removal and relocation begins, a qualified fisheries biologist will identify the most appropriate release location(s). Release locations should have water temperatures similar to the capture location and offer ample habitat for released fish and aquatic vertebrates, and should be selected to minimize the likelihood of reentering the work area or becoming impinged on the exclusion net or screen.</li> <li>▪ The means of capture will depend on the nature of the work site, and will be selected by a qualified fisheries biologist who has a current CDFG scientific collecting permit and is experienced with capture and handling protocols for fish and aquatic vertebrates, including California freshwater shrimp. Complex stream habitat may require the use of electrofishing equipment, whereas in outlet pools, vertebrates may be captured by</li> </ul>



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BMP Number	BMP Title	BMP Description
		<p>pumping down the pool and then seining or dipnetting. Electrofishing will be used only as a last resort; if electrofishing is necessary, it will be conducted only by properly trained personnel following the NMFS guidelines dated June 2000.</p> <ul style="list-style-type: none"> <li>▪ To the extent feasible, relocation will be performed during morning periods. Air and water temperatures will be measured periodically, and relocation activities will be suspended if temperatures exceed the limits allowed by NMFS guidelines.</li> <li>▪ To prevent aquatic vertebrates from reentering the work area, the channel will be blocked by placing fine-meshed nets or screens above and below the work area. To minimize entanglement, mesh diameter will not exceed 1/8 inch. The bottom edge of the net or screen will be secured to the channel bed to prevent fish from passing under the screen. Exclusion screening will be placed in low velocity areas to minimize impingement. Screens will be checked periodically and cleaned of debris to permit free flow of water.</li> <li>▪ Handling of aquatic vertebrates will be minimized. When handling is necessary, personnel will wet hands or nets before touching them.</li> <li>▪ Fish will be held temporarily in cool, shaded water in a container with a lid. Overcrowding in containers will be avoided; at least two containers will be used and no more than 25 fish will be kept in each bucket. Aeration will be provided with a battery-powered external bubbler. Fish will be protected from jostling and noise, and will not be removed from the container until the time of release. A thermometer will be placed in each holding container and partial water changes will be conducted as necessary to maintain a stable water temperature. Fish will not be held more than 30 minutes. If water temperature reaches or exceeds NMFS limits, fish will be released and relocation operations will cease.</li> <li>▪ If fish are abundant, capture will cease periodically to allow release and minimize the time fish spend in holding containers.</li> <li>▪ Fish will not be anesthetized or measured. However, they will be visually identified to species level, and year classes will be estimated and recorded.</li> <li>▪ Reports on fish relocation activities will be submitted to CDFG and NMFS in a timely fashion.</li> <li>▪ If mortality during relocation exceeds 5%, relocation will cease and CDFG and NMFS will be</li> </ul>



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BMP Number	BMP Title	BMP Description
		<p>contacted immediately or as soon as feasible.</p> <ul style="list-style-type: none"> <li>▪ When feasible, initial fish relocation efforts will be performed several days prior to the scheduled start of construction. The fisheries biologist will perform a survey on the same day before construction begins to verify that no fish have moved back into the project area.</li> </ul>
GEN-16	Pump/Generator Operations and Maintenance	<p>When needed to assist in channel dewatering, pumps and generators will be maintained and operated in a manner that minimizes impacts to water quality and aquatic species.</p> <ol style="list-style-type: none"> <li>1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dryback or washout conditions.</li> <li>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.</li> <li>3. Pump intakes will be screened to prevent entrainment of fish and other vertebrates. If pumping is necessary in streams that support steelhead, a minimum of 2.28mm screens will be installed to prevent entrainment.</li> </ol>

**Public Safety**

GEN-17	Planning for Pedestrians, Traffic Flow, and Safety Measures	<ol style="list-style-type: none"> <li>1. Work will be staged and conducted in a manner that maintains two-way traffic flow on public roadways in the vicinity of the work site. If temporary lane closures are necessary, they will be coordinated with the appropriate jurisdictional agency and scheduled to occur outside of peak traffic hours (7:00 – 10:00 a.m. and 3:00 – 6:00 p.m.) to the maximum extent practicable. Any lane closures will include advance warning signage, a detour route and flaggers in both directions. When work is conducted on public roads and may have the potential to affect traffic flow, work will be coordinated with local emergency service providers as necessary to ensure that emergency vehicle access and response is not impeded.</li> <li>2. Bicycle and pedestrian facility closures will be scheduled outside of peak traffic hours (7:00 – 10:00 a.m. and 3:00 – 6:00 p.m.) to the maximum extent practicable.</li> <li>3. Public transit access and routes will be maintained in the vicinity of the work site. If public transit will be affected by temporary road closures and require detours, affected transit authorities will be consulted and kept informed of project activities.</li> </ol>
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BMP Number	BMP Title	BMP Description
		<ol style="list-style-type: none"> <li>4. Adequate parking will be provided or designated public parking areas will be used for maintenance-related vehicles not in use through the maintenance period.</li> <li>5. Access to driveways and private roads will be maintained. If brief periods of maintenance would temporarily block access, property owners will be notified prior to maintenance activities.</li> </ol>
GEN-18	Public Safety Measures	<p>The District will implement public safety measures during maintenance as follows:</p> <ol style="list-style-type: none"> <li>1. If necessary, construction signs will be posted at job sites warning the public of construction work and to exercise caution.</li> <li>2. Where work is proposed adjacent to a recreational trail, warning signs will be posted several feet beyond the limits of work. Signs will also be posted if trails will be temporarily closed.</li> <li>3. If needed, a lane will be temporarily closed to allow for trucks to pull into and out of access points to the work site.</li> <li>4. Fencing, either the orange safety type or chain link will be installed above repair sites on bank stabilization projects.</li> <li>5. When necessary, District or contracted staff will provide traffic control and site security.</li> </ol>
GEN-19	Minimize Noise Disturbances to Residential Areas	<p>The District will implement maintenance practices that minimize disturbances to residential areas surrounding work sites.</p> <ol style="list-style-type: none"> <li>1. With the exception of emergencies, work will be conducted during normal working hours (8:00 a.m. – 5:00p.m). Maintenance activities in residential areas will not occur on Saturdays, Sundays, or District observed holidays except during emergencies, or with approval by the local jurisdiction and advance notification of surrounding residents.</li> <li>2. Advanced notification will be provided 1 week prior to the start of construction to adjacent properties within 180 feet of a proposed maintenance site where heavy equipment will be used.</li> <li>3. Powered equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with adequate mufflers.</li> </ol>



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BMP Number	BMP Title	BMP Description
		4. Excessive idling of vehicles will be prohibited beyond 5 minutes.
GEN-20	Work Site Housekeeping	<ul style="list-style-type: none"> <li>▪ District employees and contractors will maintain the work site in neat and orderly conditions on a daily basis, and will leave the site in a neat, clean, and orderly condition when work is complete. Slash, sawdust, cuttings, etc. will be removed to clear the site of vegetation debris. As needed, paved access roads and trails will be swept and cleared of any residual vegetation or dirt resulting from the maintenance activity.</li> <li>▪ For activities that last more than one day, materials or equipment left on the site overnight will be stored as inconspicuously as possible, and will be neatly arranged.</li> <li>▪ The District’s maintenance crews are responsible for properly removing and disposing of all debris incurred as a result of construction within 72 hours of project completion and as directed by the Stream Maintenance Program Manager.</li> </ul>

### Vegetation Management BMPs

These BMPs provide specific and detailed guidance on the variety of vegetation management procedures implemented by the District. BMPs for the following maintenance techniques are included: tree pruning, plant removal, herbicide application, and site restoration. It is assumed that these measures will be implemented by field crews trained in these procedures. To avoid potential impacts on biological resources, none of these measures will be implemented until authorization from the Stream Maintenance Manager is received.

BMP Number	BMP Title	BMP Description
<b>Tree Pruning</b>		
VEG-1	Routine Pruning Measures	<ol style="list-style-type: none"> <li>1. Pruning will be performed according to the most recently published National ANSI A300 Pruning Standards and International Society of Arboriculture (ISA) BMPs for Tree Pruning, which include guidance on pruning practices, pruning objectives, pruning methods (types), palm pruning, and utility pruning.</li> <li>2. Pruning activities will follow National ANSI Z133.1-2006 Standards for safe operation of tree care machinery, and safety equipment such as carabiners, helmets, and arborist ropes to</li> </ol>



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BMP Number	BMP Title	BMP Description
		ensure the safety of the tree climbers.
<b>Non-Native and Invasive Plant Removal</b>		
VEG-2	Minimize Local Erosion Increase from In-channel Vegetation Removal	To minimize the potential effect of localized erosion, the toe of the bank will be protected by leaving vegetation to the maximum extent possible.
VEG-3	Arundo and Tamarisk Removal	Removal of arundo and tamarisk will be conducted according to the <i>Team Arundo del Norte Arundo Eradication and Coordination Program</i> . This program provides guidance on hand removal and herbicide treatment methods developed by a consortium of local, state, and federal organizations in Northern and Central California. Program documents are available at: <a href="http://teamarundo.org/">http://teamarundo.org/</a> . Removal of tamarisk may follow the same guidelines as for arundo but may be modified based on further research of effective treatment methods (i.e. mixture of imazapyr and glyphosate).
<b>Herbicide Application</b>		
VEG-4	Standard Herbicide Use Requirements	<ul style="list-style-type: none"> <li>▪ Only herbicides and surfactants that have been approved for aquatic use by the EPA and are registered for use by the CDPR will be used for aquatic vegetation control work.</li> <li>▪ Herbicide application will be consistent with Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) label instructions and use conditions issued by the US EPA, CDPR, and the Napa County Agricultural Commissioner.</li> <li>▪ Herbicide application in upland areas will not be made within 48 hours of predicted rainfall.</li> <li>▪ The lowest recommended rate to achieve project objectives of both herbicides and surfactants will be utilized to achieve desired control.</li> <li>▪ An indicator dye may be added to the tank mix to help the applicator identify areas that have been treated and better monitor the overall application.</li> <li>▪ No application to plants whose base is submerged in the channel. Application of herbicides to plants growing directly in the water are not covered under this program and require additional authorizations according to state and local regulations.</li> </ul>
<b>Site Restoration</b>		
RESTOR-1	Restore Channel Features	Low-flow channels within streams will be returned as closely as possible to their original location and form after sediment removal activities. The restored low-flow channel will be configured



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		with the appropriate depth for fish passage without creating a possible future bank erosion problem. The depth and size of the low flow channel and pools will emulate the pre-construction conditions as closely as possible, within the finished channel topography.
RESTOR-2	Seeding	<p>Sites where maintenance activities result in exposed soil will be stabilized to prevent erosion and revegetated with native vegetation as soon as is appropriate after maintenance activities are complete. For most sites, an erosion control seed mix will be applied to exposed soils, and down to the ordinary high water mark (OHWM).</p> <ol style="list-style-type: none"> <li>1. The seed mix will consist of California native grasses (e.g., <i>Hordeum brachyantherum</i> ssp. <i>californicum</i>, <i>Elymus glaucus</i>, <i>Bromus carinatus</i>, <i>Danthonia californica</i>, and <i>Melica californica</i>).</li> <li>2. One or two nonnative sterile grass species may be added to the seed mix provided that the amount does not exceed 25% of the total seed mix by count.</li> <li>3. Locally native wildflower and/or shrub seeds may also be included in the seed mix.</li> <li>4. Temporary earthen access roads will be seeded when site and horticultural conditions are suitable.</li> </ol>
RESTOR-3	Planting Material	Revegetation and replacement plantings shall consist of locally collected native species or native species acquired from native plant nurseries within the bay area. Plant selection will be developed based on surveys of natural areas on the same creek that have a similar ecological setting. These "reference sites" provide information as to what species would be found in the area and an approximate population density.
RESTOR-4	Bank Protection Plantings	<ol style="list-style-type: none"> <li>1. New trees will have an average spacing of 10-12 feet and shrubs an average spacing of 6-8 feet.</li> <li>2. Pole plantings shall be collected on site and installed wherever possible depending on soil and water conditions.</li> </ol>
RESTOR-5	Site Maintenance	<p>Follow-up maintenance will be performed on sites that have been seeded and planted.</p> <ol style="list-style-type: none"> <li>1. Maintenance will include replacing dead or dying plants where appropriate, weeding, removing non-native plant colonizers, and ensuring that all plants receive sufficient water.</li> <li>2. Irrigation will be implemented as needed throughout the establishment period.</li> </ol>



Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>The District may maintain or repair bank stabilization projects that are less than 2 years old that are damaged by winter flows.</p> <p>The District will report post construction maintenance work at individual sites as part of the Post-Construction Report submitted by January 15 of each year or if necessary, the subsequent year. Appropriate BMPs will be applied during maintenance repairs.</p>

**Biological Resource BMPs**

These BMPs will be implemented as appropriate to avoid and minimize impacts on special-status species. These BMPs may be modified during project permitting and agency approvals of annual projects. Additional measures for protection of aquatic species during dewatering activities are described in Measures GEN-14 through GEN-16. None of these measures will be implemented until authorization from the Stream Maintenance Manager is received.

BMP Number	BMP Title	BMP Description
BIO-1	Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures	<ol style="list-style-type: none"> <li>1. For activities occurring between February 15 and August 15, project areas will be checked by a qualified biologist, for nesting birds within 2 weeks prior to starting work. If a lapse in project-related work of 2 weeks or longer occurs, another focused survey will be conducted before project work can be reinitiated.</li> <li>2. If nesting birds are found, a buffer will be established around the nest and maintained until the young have fledged. Appropriate buffer widths are 250 feet for raptors, herons, and egrets; 25 feet for ground-nesting non-raptors; and 50 feet for non-raptors nesting on trees, shrubs and structures. A qualified biologist may identify an alternative buffer based on a site specific-evaluation. No work within the buffer will occur without written approval from a qualified biologist, for as long as the nest is active.</li> <li>3. If a pre-activity survey in high-quality San Francisco common yellowthroat breeding habitat (as determined by a qualified biologist) identifies more singing male San Francisco common yellowthroats than active nests, then the inconspicuous nests of this species might have been missed. In that case, maintenance activities in that area shall be delayed until the San</li> </ol>



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Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>Francisco common yellowthroat non-breeding season (i.e., August 16–March 14).</p> <ol style="list-style-type: none"> <li>4. The boundary of each buffer zone will be marked with fencing, flagging, or other easily identifiable marking if work will occur immediately outside the buffer zone.</li> <li>5. All protective buffer zones will be maintained until the nest becomes inactive, as determined by a qualified biologist.</li> <li>6. If monitoring shows that disturbance to actively nesting birds is occurring, buffer widths will be increased until monitoring shows that disturbance is no longer occurring. If this is not possible, work will cease in the area until young have fledged and the nest is no longer active.</li> </ol>
BIO-2	Avoid and Minimize Impacts to Special-Status Invertebrate Species	<ol style="list-style-type: none"> <li>1. A District qualified biologist will conduct a desk top audit of the CNDDDB, vegetation maps, soils maps, and aerial photos to determine whether suitable special-status invertebrate habitat is potentially present in or adjacent to a maintenance activity.</li> <li>2. If the District Wildlife or Fisheries Biologist determines that a special-status invertebrate could occur in the activity area, a qualified biologist will conduct a habitat suitability assessment at the maintenance site.</li> <li>3. If the District Wildlife or Fisheries Biologist determines that:               <ol style="list-style-type: none"> <li>a. suitable habitat is present for valley elderberry longhorn beetle, then no maintenance would be conducted within 100 feet of an elderberry tree/shrub</li> <li>b. suitable habitat is present for California freshwater shrimp, then no maintenance would be conducted under the program in this area.</li> </ol> </li> </ol>
BIO-3	Protection of Sensitive Fauna Species from Herbicide Use	<p>Approved herbicides and adjuvants may be applied in habitat areas for sensitive wildlife species (including salmonids, California red-legged frog, California freshwater shrimp); all applications will occur in accordance with federal and state regulations.</p> <p>For sprayable or dust formulations: when the air is calm or moving away from sensitive wildlife habitat, applications will commence on the side nearest the habitat and proceed away from the habitat. When air currents are moving toward habitat, applications will not be made within 200 yards by air or 40 yards by ground upwind from occupied habitat. However, these distances may be modified for the control of invasive species on salmonid streams if the following measures are</p>



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Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>implemented:</p> <ul style="list-style-type: none"> <li>▪ A qualified biologist will determine presence/absence of sensitive resources in designated herbicide use areas and develop site-specific control methods (including the use of approved herbicide and surfactants). Proposed herbicide use would be limited to the aquatic formulation of glyphosate (Rodeo or equal). Surfactant would be limited to Agri-dex, Competitor, or another brand name using the same ingredients.</li> <li>▪ A qualified fisheries biologist will review proposed herbicide application methods and stream reaches. The fisheries biologist will conduct a pre-construction survey (and any other appropriate data research) to determine whether the proposed herbicide application is consistent with SMP approvals concerning biological resources and determine which BMPs would be instituted for work to proceed.</li> </ul>
BIO-4	Avoid and Minimize Impacts to Special-Status Plant Species and Sensitive Natural Vegetation Communities	<p>A qualified botanist will identify special status plant species and sensitive natural vegetation communities and clearly map or delineate them as needed in order to avoid and/or minimize disturbance, using the following protocols:</p> <ol style="list-style-type: none"> <li>1. A qualified botanist will conduct a desktop audit of the CNDDDB, vegetation maps, soils maps, and aerial photos to identify if suitable habitats for special status plants and sensitive natural vegetation communities are potentially located within or near work areas.</li> <li>2. Surveys of areas identified as sensitive natural communities or suitable habitat for special status plant species will be conducted by a qualified botanist prior to commencement of work.</li> <li>3. Surveys will be conducted during the appropriate time of the year to adequately identify plants.</li> <li>4. The qualified botanist will ensure avoidance and minimize impacts by implementing one or more of the following, as appropriate, per the botanist's recommendation:             <ol style="list-style-type: none"> <li>a) Flag or otherwise delineate in the field the special status plant populations and/or sensitive natural community to be protected;</li> <li>b) Allow adequate buffers around plants or habitat; the location of the buffer zone will be shown on the maintenance design drawings and marked in the field with stakes and/or</li> </ol> </li> </ol>



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Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>flagging in such a way that exclusion zones are visible to maintenance personnel without excessive disturbance of the sensitive habitat or population itself (e.g., from installation of fencing).</p> <ul style="list-style-type: none"> <li>c) Time construction or other activities during dormant and/or non-critical life cycle period;</li> <li>d) Store removed sediment off site; and</li> <li>e) Limit the operation of maintenance equipment to established roads whenever possible.</li> </ul> <p>5. No herbicides, terrestrial or aquatic, will be used in areas identified as potential habitat for special status plants species or containing sensitive natural communities, until a qualified botanist has surveyed the area and determined the locations of special status plant species present.</p> <p>6. If special status plant species are present and maintenance cannot avoid impacts to the species, then a qualified botanist will determine the ecologically appropriate minimization measures for the species. Minimization measures may include transplanting, seed collection, or both, depending on the physiology of the species.</p> <p>7. The District will not conduct maintenance activities that would result in the reduction of a plant species range or compromise the viability of a local population.</p>
BIO-5	Protection of Special-Status Amphibian and Reptile Species	<p>4. A District qualified biologist will conduct a desk audit of the CNDDDB, vegetation maps, soils maps, and aerial photos to determine whether suitable special-status amphibian or reptile habitat is present in or adjacent to a maintenance activity.</p> <p>5. If the District Wildlife or Fisheries Biologist determines that a special-status amphibian or reptile could occur in the activity area, a qualified biologist will conduct one daytime survey within a 7 day period preceding the onset of maintenance activities.</p> <ul style="list-style-type: none"> <li>a. If no special status amphibian or reptile is found within the activity area during a pre-activity survey, the work may proceed.</li> <li>b. If a special-status amphibian or reptile, or the eggs or larvae of a special status amphibian or reptile, is found within the activity area during a pre-activity survey or during project activities, the qualified biologist shall notify the District’s program manager about the special-status species and conduct the following work specific activities: <ul style="list-style-type: none"> <li>i. For minor maintenance activities and for vegetation removal activities that will take</li> </ul> </li> </ul>



Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>less than 1 day, the qualified biologist shall conduct a special status species survey on the morning of and prior to the scheduled work.</p> <ul style="list-style-type: none"> <li>A. If no special status species is found, the work may proceed.</li> <li>B. If eggs or tadpoles of a special status species are found, a buffer will be established around the location of the eggs/tadpoles and work may proceed outside of the buffer zone. Work within the buffer zone will be rescheduled until the time that eggs have hatched and/or tadpoles have metamorphosed.</li> <li>C. If an active western pond turtle nest is detected within the activity area, a 25 ft-buffer zone around the nest will be established and maintained during the breeding and nesting season (April 1 – August 31). The buffer zone will remain in place until the young have left the nest, as determined by a qualified biologist.</li> <li>D. If adults or juveniles of a special status species are found, one of the following two procedures will be implemented: <ul style="list-style-type: none"> <li>i. If, in the opinion of the qualified biologist, capture and removal of the individual to a safe place outside of the work area is less likely to result in adverse effects than leaving the individual in place and rescheduling the work (e.g., if the species could potentially hide and be missed during a follow-up survey), the individual will be captured and relocated by a qualified biologist (with USFWS and/or CDFG approval, depending on the listing status of the species in question), and work may proceed.</li> <li>ii. If, in the opinion of the qualified biologist, the individual is likely to leave the work area on its own, and work can be feasibly rescheduled, a buffer will be established around the location of the individual(s) and work may proceed outside of the buffer zone. No work will occur within the buffer zone. Work within the buffer zone will be rescheduled.</li> </ul> </li> <li>ii. For minor maintenance and vegetation removal activities that will take more than 1 day, the qualified biologist shall conduct a special-status species survey on each morning of and prior to the scheduled work commencing. <ul style="list-style-type: none"> <li>E. If eggs or tadpoles of a special status species are found, a buffer will be established around the location of the eggs/tadpole and work may proceed</li> </ul> </li> </ul>



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Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>outside of the buffer zone. Work within the buffer zone will be rescheduled until the time that eggs have hatched and/or larvae have metamorphosed.</p> <p>F. If an active western pond turtle nest is detected within the activity area, a 25 ft-buffer zone around the nest will be established and maintained during the breeding and nesting season (April 1 – August 31). The buffer zone will remain in place until the young have left the nest, as determined by a qualified biologist.</p> <p>G. If adults or juveniles of a special status species are found, the individual will be captured and relocated by a qualified biologist (with USFWS and/or CDFG approval, depending on the listing status of the species in question), and work may proceed.</p>
BIO-6	Protection of Bat Colonies	<ol style="list-style-type: none"> <li>1. A District Wildlife Biologist will conduct a desk audit to determine whether suitable habitat (appropriate roost trees or anthropogenic structures) is present for bat colonies within 100 feet of the work site, staging areas, or access routes.</li> <li>2. If potential bat colony habitat is determined to be present, within two weeks prior to the onset of work activities a qualified biologist will conduct a survey to look for evidence of a bat use. If evidence is observed, or if potential roost sites are present in areas where evidence of bat use might not be detectable (such as a tree cavity), an evening survey and/or nocturnal acoustic survey may be necessary to determine if the bat colony is active and to identify the specific location of the bat colony.</li> <li>3. If an active bat maternity colony is present then the qualified biologist will make the following determinations:               <ol style="list-style-type: none"> <li>a. The work can proceed without unduly disturbing the bat colony.</li> <li>b. There is a need for a buffer zone to prevent disturbance to the bat colony, and implementation of the buffer zone will reduce or eliminate the disturbance to an acceptable level.</li> <li>c. Work cannot proceed without unduly disturbing the bat colony; thus, the work will be postponed until after July 31.</li> </ol> </li> <li>4. If a non-breeding bat hibernaculum is found in a tree or structure that must be removed or physically disturbed, the qualified biologist will consult with DFG prior to initiating any removal</li> </ol>



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Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		or exclusion activities.
BIO-7	Protection of dusky-footed woodrats	<ol style="list-style-type: none"> <li>1. If a woodrat house is identified in a work area, the District will attempt to preserve the house and maintain an intact dispersal corridor between the house and undisturbed riparian habitat.</li> <li>2. If the woodrat house cannot be avoided, a qualified biologist shall deconstruct the house by hand and relocate the house materials to the nearest undisturbed suitable riparian habitat.</li> </ol>

### Cultural Resource BMPs

This group of BMPs are intended to be implemented specifically during ground-disturbing activities, including bank stabilization, sediment removal, and tree removal activities. Implementation of these BMPs will be coordinated by the Stream Maintenance Manager and directed by qualified cultural resource specialists.

BMP Number	BMP Title	BMP Description
CUL-1	Review Cultural Sensitivity Maps	<p>During the early phases of the Annual Work Plan development, the District will review the Cultural Sensitivity Maps (Appendix E) for all locations where ground-disturbing activities are proposed. Based on the location of such projects, BMPs CUL-2 through CUL-4 shall be implemented as follows:</p> <ul style="list-style-type: none"> <li>• High Sensitivity: BMP CUL-2 and CUL-3</li> <li>• Moderate Sensitivity: BMP CUL-2</li> <li>• Low Sensitivity: <i>BMPs CUL-2 through CUL-4 not required</i></li> <li>• Unknown Sensitivity: BMP CUL-4</li> </ul> <p>BMPs CUL-5 and CUL-6 are applicable to all ground-disturbing projects, no matter the sensitivity level of the project location.</p>
CUL-2	Field Inventory for High or Moderately Sensitive Areas	A cultural resources specialist will conduct a field inventory of the project area will be conducted to determine the presence/absence of surface cultural materials associated with either prehistoric or historic occupation. The results along with any mitigation and/or management recommendations would be presented in an appropriate report format and include any necessary maps, figures, and correspondence with interested parties. A summary table indicating



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BMP Number	BMP Title	BMP Description
		appropriate management actions (e.g., monitoring during construction, presence/absence testing for subsurface resources; data recovery, etc.) will be developed for each project site reviewed. The management actions will be implemented on site to avoid significant effects to cultural resources.
CUL-3	Construction Monitoring for Highly Sensitive Cultural Areas	The District will retain a qualified archaeologist to be present onsite during any ground disturbing activities within highly sensitive cultural areas (as indicated in the maps of Appendix E). If any cultural resources are discovered during these or any other project activities, the mitigation measures developed under BMP CUL-2 or as described for BMP CUL-6 will be implemented as appropriate.
CUL-4	Review of Projects with Native Soil	A cultural resources specialist will conduct a review and evaluation of those sites that would involve disturbance/excavation of soil to determine their potential for affecting significant cultural resources. The evaluation of the potential to disturb cultural resources will be based on an initial review of archival information provided by the California Historical Resources System/Northwest Information Center (CHRIS/NWIC) in regard to the project area based on a 0.25 mile search radius. It is recommended that this initial archival review be completed by a professional archaeologist who will be able to view confidential site location data and literature to arrive at a preliminary sensitivity determination. If necessary, a further archival record search and literature review (including a review of the Sacred Lands Inventory of the Native American Heritage Commission); and a field inventory of the project area will be conducted. The results along with any mitigation and/or management recommendations would be presented as described above in BMP CUL-2.
CUL-5	Pre-Maintenance Educational Training	At the beginning of each maintenance season and before conducting ground disturbing stream maintenance activities, all personnel will participate in an educational training session conducted by a qualified cultural resources specialist. This training will include instruction on how to identify historic and prehistoric resources that may be encountered, and the appropriate protocol if any resources are discovered during maintenance work.
CUL-6	Discovery of Cultural Remains or Historic or Paleontological Artifacts	Examples of cultural remains are: obsidian and chert flaked-stone tools (e.g., projectile points, knives, scrapers) or significant areas of tool making debris; culturally darkened soil ("midden") containing heat-affected rocks, artifacts, or shellfish remains; and stone milling equipment (e.g., mortars, pestles, handstones, or milling slabs); and battered stone tools, such as hammerstones



Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>and pitted stones. Historic-period artifacts might include stone, concrete, or adobe footings and walls; filled wells or privies; and deposits of metal, glass, and/or ceramic refuse. Paleontological artifacts include fossilized remains of plant and animals.</p> <p>Work in areas where remains or artifacts are found will be restricted or stopped until proper protocols are met.</p> <ol style="list-style-type: none"> <li>1. Work at the location of the find will halt immediately within 50 feet of the find. A “no work” zone shall be established utilizing appropriate flagging to delineate the boundary of this zone, which shall measure at least 50 feet in all directions from the find.</li> <li>2. The District shall retain the services of a Consulting Archaeologist or Paleontologist, who shall visit the discovery site as soon as practicable, and perform minor hand-excavation to describe the archaeological or paleontological resources present and assess the amount of disturbance.</li> <li>3. The Consulting Archaeologist shall provide to the District and the Corps, at a minimum, written and digital-photographic documentation of all observed materials, utilizing the guidelines for evaluating archaeological resources for the California Register of Historic Places (CRHP) and National Register of Historic Places (NRHP). Based on the assessment, the District and Corps shall identify the CEQA and Section 106 cultural-resources compliance procedure to be implemented.</li> <li>4. If the find appears to not meet the CRHP or NRHP criteria of significance, and the Corps archaeologist concurs with the Consulting Archaeologist’s conclusions, construction shall continue while monitored by the Consulting Archaeologist. The authorized maintenance work shall resume at the discovery site only after the District has retained a Consulting Archaeologist to monitor and the Watershed Manager has received notification from the Corps to continue work.</li> <li>5. If the find appears significant, avoidance of additional impacts is the preferred alternative. The Consulting Archaeologist shall determine if adverse impacts to the resources can be avoided.</li> <li>6. When avoidance is not practical (e.g., maintenance activities cannot be deferred or they must</li> </ol>



Table 2-2: Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		<p>be completed to satisfy the SMP objective), the District shall develop an Action Plan and submit it to the Corps within 48 hours of Consulting Archaeologist’s evaluation of the discovery. The action Plan may be submitted via e-mail (<a href="mailto:rstradford@spd.usace.army.mil">rstradford@spd.usace.army.mil</a>). The Action Plan is synonymous with a data-recovery plan. It shall be prepared in accordance with the current professional standards and State guidelines for reporting the results of the work, and shall describe the services of a Native American Consultant and a proposal for curation of cultural materials recovered from a non-grave context.</p> <p>7. The recovery effort will be detailed in a report prepared by the archaeologist in accordance with current archaeological standards. Any non-grave artifacts will be placed with an appropriate repository.</p> <p>8. The Consulting Paleontologist will meet the Society for Vertebrate Paleontology’s criteria for a “qualified professional paleontologist” (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995).</p> <p>9. The paleontologist will follow the Society for Vertebrate Paleontology’s guidelines for treatment of the artifact. Treatment may include preparation and recovery of fossil materials for an appropriate museum or university collection, and may include preparation of a report describing the finds. The District will be responsible for ensuring that paleontologist’s recommendations are implemented.</p> <p>10. In the event of discovery of human remains (or the find consists of bones suspected to be human), the field crew supervisor shall take immediate steps to secure and protect such remains from vandalism during periods when work crews are absent.)</p> <p>11. Immediately notify the Napa County Coroner and provide any information that identify the remains as Native American. If the remains are determined to be from a prehistoric Native American, or determined to be a Native American from the ethnographic period, the Coroner shall contact the Native American Heritage Commission (NAHC) within 24 hours of being notified of the remains. The NAHC then designates and notifies within 24 hours a Most Likely Descendant (MLD). The MLD has 24 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods.</p>



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BMP Number	BMP Title	BMP Description
		<p>12. Preservation in situ is the preferred option. Human remains shall be preserved in situ if continuation of the maintenance work, as determined by the Consulting Archaeologist and MLD, will not cause further damage to the remains. The remains and artifacts shall be documented and the find location carefully backfilled (with protective geo-fabric if desirable) and recorded in District project files.</p> <p>13. Human remains or cultural items exposed during maintenance that cannot be protected from further damage shall be exhumed by the Consulting Archaeologist at the discretion of the MLD and reburied with the concurrence of the MLD in a place mutually agreed upon by all parties.</p>

## Chapter 3

# ENVIRONMENTAL CHECKLIST

This chapter of the IS/MND assesses the Proposed Project's environmental impacts based on the environmental checklist provided in Appendix C of Napa County's Local Procedures for Implementing the California Environmental Quality Act (Napa County 2010a) as well as Appendix G of the state's CEQA Guidelines. The environmental resources and potential environmental impacts of the SMP are described in the individual subsections below. Each section (3.1 through 3.18) provides a brief overview of existing environmental conditions for each resource topic to help the reader understand the conditions that could be affected by the SMP. In addition, each section includes a discussion of the rationale used to determine the significance level of the Project's environmental impact for each checklist question. It is noted that the description of baseline resources is focused on the Napa Valley region where the great majority of the District's stream maintenance activities occur.

The primary sources of information for the setting sections below are derived from the County's 2008 General Plan and the 2005 Napa County Baseline Data Report (Napa County BDR or BDR). The Napa County BDR was developed to provide a baseline of existing condition information for a wide range of environmental and resource topics in Napa County. Initially developed to support the update of the Napa County General Plan, the BDR continues to provide environmental setting information for use in environmental compliance, permitting, and planning projects in Napa County. According to section 15150 of the CEQA Guidelines, a lead agency may incorporate all or portions of another environmental document available to the public to avoid redundancy in the environmental review process. Applicable sections from the County General Plan and BDR have been summarized and incorporated into this IS/ND. These documents are available for review at the Napa County Planning Division office.

In addition to these primary sources of setting information, other resources reviewed for relevant information are included and cited as applicable.

### 3.1 AESTHETICS

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the project:				
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including trees, rock outcroppings, and historic buildings along a scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

Napa County’s rural nature, wine and grape heritage, and unique geography contribute to its rustic charm and distinctive character which sets it apart from other Bay Area locations. Its combination of rural development, distinguished vineyards, and premier culinary institutions make it one of the nation’s top tourist destinations, in part owing to the distinct aesthetic environment created by these features.

#### **Visual Character**

The following is an abbreviated discussion of the relevant information contained in the Visual and Aesthetic Resources chapter of the Napa County BDR.

The visual character of Napa County is greatly diverse. Napa County is situated within the California Coastal Range, the mountains of which surround the area to the east, north, and west, and run through the County. At the southern boundary of the area lies San Pablo Bay, a segment of the San Francisco Bay. The mountainous ridgelines that frame the County’s eastern and western boundaries provide visually distinct valley regions. The visual character of these mountain areas is varied; some are densely forested with evergreen trees, while others are open grasslands dominated by mature oak trees.

The Napa Valley is a central narrow valley which extends from just south of the City of Napa to near the County’s northwestern border with Sonoma County. Agriculture is the dominant land cover in the valley, with vineyards and other agricultural uses occupying more than half of the land on the valley floor. These agricultural uses, combined with areas of natural

vegetation, give the valley its characteristic natural Mediterranean, yet managed, appearance. In general, transitions between land uses along the valley floor are gradual and smooth.

Urbanization is concentrated in four areas: the City of St. Helena, the Town of Yountville, and the Cities of Napa and American Canyon. The transition from agricultural uses to these urban environments is softened by the presence of semi-rural residences, such that abrupt visual delineations between city and farmland are rare. Partly as a result of these gradual transitions, the built environment is visually apparent throughout the valley floor area, woven into the agricultural and natural visual fabric. The natural environment - streams, mature valley oak stands, and riparian areas - serve as buffers between residences and agricultural uses in many locations, further blending the appearance of diverse land uses.

The Reach Characterizations Sheets contained in Chapter 2 of the Manual provide photographs of each of the District's primary maintenance locations. In general, riparian vegetation lines the maintenance channels, though density and composition varies. In most areas, this vegetation provides a visual buffer from the adjacent land uses which range from urban (commercial, residential) to agricultural (vineyards, farmland).

### ***Scenic Highways***

The County General Plan identifies over 280 miles of County-designated scenic roadways; however, none have been officially designated as Scenic Highways by the State of California. Although several segments of Highways 29, State Route 121, and State Route 221 are eligible for state designation, the County has not pursued inclusion in the State Scenic Highway Program at this time. Instead, the General Plan has an adopted Viewshed Protection Program which contains policies aimed at protecting the County-designated scenic roadways. These policies are primarily focused on ensuring aesthetic compatibility of new development or infrastructure constructed along these sensitive corridors.

### ***Viewer Groups***

The vast majority of District-maintained channels are located on privately-owned land. However, depending on adjacent land uses and vegetation density, viewer groups may include recreational users (tourists), residents, workers, and motorists. Although not specifically developed for public recreation, many SMP channels are not gated or otherwise closed to use by recreationalists for any number of activities (i.e. picnicking, bike riding, walking, nature viewing).

For viewers who experience project reaches from a close perspective, viewer sensitivity can be moderately high because they are more likely to value the natural environment, appreciate the visual experience, and be more sensitive to changes in views or incompatible elements. Groups who view project channels from a distance or for short duration (i.e. motorists) experience a more moderate viewer sensitivity because they are generally not highly focused on details of the channel. Rather, the visual features of the channels appear as a backdrop to the overall visual surroundings.

## Discussion of Checklist Responses

### a. Adverse Effects on Scenic Vistas — *Less than Significant*

Scenic viewpoints within the Project Area are generally located at high elevations along mountain ranges and hillsides that surround the Napa valley, or at locations along the Napa Valley floor which afford clear views of the valley and adjacent mountains. Scenic vistas of the nearby mountains may be visible within or adjacent to the larger SMP-maintained channels where accessible. Many of the SMP channel corridors, however, do not have scenic views due to the presence of riparian vegetation, or narrowly confined easements bordered with fences, that block vistas.

The proposed SMP maintenance activities would be conducted within channel corridors which are situated at lower elevations in the watershed. Due to their location and often the presence of confining vegetation, it is unlikely that stream maintenance activities would have a pronounced effect on scenic vistas from these viewpoints.

SMP activities would involve minimal use of heavy equipment and would occur only temporarily during daytime hours on weekdays. Similarly, SMP activities are not anticipated to reduce the quality of views within the SMP channels or from nearby adjacent lands. As detailed in Chapter 2, maintenance activities are performed in a manner to restore channel capacities and natural function. Only the minimum maintenance necessary would be performed at project locations, and feasible actions to protect and enhance riparian ecology would be implemented (including revegetation as applicable). Activities would not result in the construction of any structures or facilities that would block views of surrounding scenic vistas.

Due to the sensitive manner in which activities would be performed and the overall small number of projects undertaken by the District annually, the impact on scenic vistas would be less than significant. No mitigation is required.

### b. Damage to Scenic Resources along a Scenic Corridor — *Less than Significant*

Over 280 miles of County-designated scenic roadways are located throughout the Project Area. Maintenance may occur in channels which intersect with, or are adjacent to, designated scenic roadways. Maintenance activities conducted at roadside crossings is minimal, occurring on an as-needed basis, and typically includes the removal of debris jams, accumulated sediment at culverts, and the clearance of vegetation to remove significant flow obstructions. Maintenance in areas other than roadside crossings may include any of the treatments described in Chapter 2 *Project Description*, as needed.

While the presence of maintenance equipment in these locations could temporarily disrupt scenic views, such disruption would be temporary. The use of heavy equipment is minimal and work activities are generally completed within three days. As described in BMP GEN-5, staging areas would be sited as far away from major roadways as possible. In addition, any physical changes to the channels would not substantially affect their aesthetic quality, since such changes would be infrequent, of limited spatial extent, and would quickly return to a

“natural” appearance over the course of a growing season. Tree removal would be conducted only under circumstances where it has or is in danger of falling, is causing damage, or is posing a safety or flood hazard. The removal of such trees would not substantially damage the overall scenic resources along these corridors. Overall, the appearance of maintenance activities and post-maintenance alterations would not leave a lasting impression on the view from motorists traveling at high speeds.

#### *Applicable Best Management Practices*

The following BMPs are included as part of the Proposed Project to address temporary visual impacts during maintenance. Descriptions of each BMP are provided in Chapter 2, *Project Description*.

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-20: Work Site Housekeeping
- BMP RESTOR-2: Seeding
- BMP RESTOR-3: Planting Material

Because maintenance activities would be short-term and visual disruptions along scenic corridors would be temporary, there would be no substantial or long-term degradation of the scenic resources as viewed by the various viewer groups. This impact would be less than significant. No mitigation is required.

### **c. Changes to Existing Visual Character or Quality — *Less than Significant Impact***

The visual character and quality of creek channels potentially maintained under the Proposed Project vary widely, from densely vegetated riparian corridors to sparsely vegetated roadside ditches (see representative photos of channels in the Reach Characterization Sheets in Chapter 2 of the Stream Maintenance Manual). Viewing opportunities range from roadways which parallel or cross the channels, adjacent residential and commercial structures in urbanized areas, and more restricted areas on privately owned land with agricultural uses (not officially designated for public access). While maintenance activities could result in a temporary degradation of visual quality, the overall long-term effect of the SMP would improve the visual quality and character of the Project Area.

#### Temporary Effects

During maintenance activities, temporary visual impacts would occur from the presence of personnel and equipment, staging, vegetation removal, earthwork, and on-site stockpiling of materials. Specifically, the following effects would occur from the various work activities:

**Vegetation Maintenance** - Invasive plant removal and pruning activities may alter a densely vegetated area to a partially vegetated or bare area until the area becomes re-established. Herbicide application also could alter the visual character of a site where targeted vegetation has been treated. In addition, tree removal could alter the visual quality of certain locations. However, as described above for *Checklist Response B*, the District would only selectively remove trees which are fallen or poses a danger of falling, or for

other safety and flood risks. Even in areas where trees are sparse, the removal of such hazard trees is not expected to significantly alter the visual quality of the area. In addition, although temporary changes in vegetation density and composition would result, the removal of invasive species would restore the area to a more natural state and revegetation efforts (as described below) would further offset temporary visual impacts.

**Sediment Removal/Bank Stabilization** – Both sediment removal and bank stabilization projects could result in areas that would be temporarily exposed and de-vegetated. Revegetation would be implemented at bank repair sites regardless of whether or not vegetation existed prior to project activities, though in previously vegetated areas it would take a few years before the aesthetic character of the site is fully re-established. This temporary visual change would be offset by the immediate aesthetic benefits of blockage removal and stabilization of eroding banks that would allow the channels to function more naturally.

**Minor Maintenance** – These activities would have limited potential to impact visual quality. Culvert repairs would involve localized replacement with similar materials, such that visual changes would be minor. Actions such as trash clearing and access road maintenance would improve the visual quality.

**Habitat Protection and Enhancement** – Riparian planting is initiated to revegetate areas disturbed by maintenance activities. Although some ground disturbance associated with minor grading and soil amendments would occur, it is generally done in conjunction with the maintenance projects, and restoration of riparian habitat with native species would provide a visual benefit. Similarly, the creation of complexity features and gravel augmentations in-channel would allow for more natural functioning of the stream. Once installation is completed for these enhancements, it could take up to five years before the site is fully established and the full aesthetic benefit of the restoration is realized.

The following standard BMPs would further aid to minimize adverse visual impacts associated with temporary disturbances.

- BMP GEN-2: Minimize the Area of Disturbance
- BMP GEN-5: Staging and Stockpiling of Materials
- BMP GEN-20: Work Site Housekeeping
- BMP RESTOR-2: Seeding
- BMP RESTOR-3: Planting Material

Although viewer response to altered channel areas after maintenance activities may vary, temporary degradation of visual quality due to site disturbance would be less than significant given the temporary nature and small scale of the projects.

### Long-Term Effects

The removal of invasive plant species and revegetation with native species would improve the long-term aesthetic value of the riparian corridors in the Project Area. In addition, the replanting efforts conducted as part of the Riparian Planting Program would improve the connectivity between patches of riparian areas and allow for the development of more complex canopies along SMP channels.

Clearing of sediment and debris from District channels and facilities would allow waterways to function more naturally, thus resulting in an aesthetic benefit. Instream habitat enhancements, including gravel augmentation and instream complexity features, would also act to restore natural functions and appearances of SMP maintained channels. Similarly, stabilization and repair of eroding banks would reduce sediment loss and in-channel build-up. Although the limited use of certain materials (i.e., rock, riprap) to repair banks could appear visually different, the use of hardscape would be limited and on-site revegetation would ensure that long-term visual impacts are less than significant.

### Conclusion

Maintenance would be intermittent and temporary (one to 3 days on average per site maintenance project). Maintenance could result in temporary visual disturbances associated with the presence of maintenance crews and heavy equipment, but the duration and scale of disturbance is limited. Furthermore, actions under the SMP would not be out of character with the ongoing agricultural activities in the County. Visual changes in channel appearance would result from thinning or localized removal of vegetation to restore channel capacity, the presence of newly stabilized bank areas, and alterations associated with sediment removal and other minor maintenance. However, all maintenance undertakings would be designed and implemented to ensure proper channel function and maximize the natural appearance of the river corridors. Restoration efforts as part of the habitat protection and enhancement element of the SMP would offset adverse effects by enhancing and restoring the habitat quality of the channels. Consequently, to the extent that the channels and riparian corridors can be seen by the public, most viewers are expected to consider the changes to be beneficial to the overall functioning and visual quality of the channel. Visual impacts would therefore be less than significant or beneficial, and no mitigation is required.

### **d. New Sources of Light or Glare — *No Impact***

SMP maintenance activities would be conducted during daylight hours only, thus no nighttime lighting would be needed. The SMP would not involve construction of new facilities or modifications to existing facilities that would result in new reflective surfaces or installation of lighting. Consequently, there would be no impact and no mitigation is required.

## 3.2 AGRICULTURAL RESOURCES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
<p>In determining whether impacts on agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation (DOC). In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the Project:</p>				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to nonagricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use in a manner that will significantly affect timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, or other public benefits?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 3.2 AGRICULTURAL RESOURCES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
e. Involve other changes in the existing environment that, because of their location or nature, could result in a conversion of Farmland to a nonagricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

The preservation of the County’s agricultural land has long been at the forefront of the County’s planning approach, and is critically important to the overall character and economic viability of Napa County. In 2010, the total value of agricultural production was \$461 million. While this total value is down 8.1 % from 2009, agriculture (especially that of wine and grape production) remains the County’s top industry. (Napa County 2011)

Napa County is a renowned grape-growing and wine-making region, which as of 2007, boasts 14 separate designated American Viticultural Areas [AVAs] for vineyards. The greatest amount of vineyard acreage is devoted to the production of black varieties of wine grapes. (Napa County 2011)

As of 2010, the County consists of the following agricultural land uses:

**Table 3-1.** Napa County Agricultural Land Uses

Land Use Category	Total Acres
Prime Farmland	31,621
Farmland of Statewide Importance	9,711
Unique Farmland	16,414
Farmland of Local Importance	18,464
Grazing Land	179,029

*Source: CA Dept. of Conservation 2011*

Consistent with the County’s dedication to agricultural land preservation, there has been a zero net change in total farmland acreage from 2008-2010 (CA. Dept. of Conservation 2011). According to the California Department of Conservation, there are currently 70,614 acres of agricultural lands in Napa County under a Williamson Act Contract (CA. Dept. of Conservation 2010). These lands are protected from conversion to non-agricultural uses for the duration of the contract (usually 10 years).

In addition to agricultural lands, Napa County has approximately 40,000 acres of potential timberland. The majority of the County’s timberland is concentrated in the two mountainous areas surrounding the valley floor and the northern area between Calistoga/St. Helena and Lake Berryessa. Sustainable yield timber harvesting is limited;

most harvesting is conducted as a one-time event during the conversion of land from forest to vineyard. (Napa County 2008)

## Discussion of Checklist Responses

### **a-e. Conflicts or Loss of Agricultural or Forest Lands — *No Impact***

Farmland, agricultural, and designated forest lands may be located in proximity to the maintenance channels, however all SMP activities would take place within flood control channels maintained by the Napa County Flood Control and Water Conservation District. These maintained channels are used exclusively for flood control and water conveyance, and are not actively used for agriculture.

The activities proposed under the SMP focus exclusively on channel maintenance and enhancement, and would not alter land use designations or farmland/timberland classifications at either the local or state level. Furthermore, the maintenance actions of the SMP would not create pressure for future land conversions.

No Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, forest lands, or lands under a Williamson Act contract would be converted by, or conflict with, SMP activities. In addition, the majority of the District's stream maintenance activities will occur in urban settings or on channels along transportation corridors, where potential impacts to agricultural lands are minimal or non-existent. Therefore, there is no potential for impact. Instead, the Project is likely to contribute to a long-term benefit to agriculture and timberlands in the County by reducing regional flooding and improving channel stability.

### 3.3 AIR QUALITY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
When available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Regulatory Setting

The Clean Air Act is implemented by the U.S. Environmental Protection Agency and sets ambient air limits, the National Ambient Air Quality Standards (NAAQS), for six criteria pollutants: particulate matter, carbon monoxide, nitrogen oxides (NOx), ground-level ozone and lead. Of these criteria pollutants, particulate matter and ground-level ozone pose the greatest threat to human health. The California Air Resources Board (CARB) sets standards for criteria pollutants that are more stringent than NAAQS, and includes the following additional contaminants: visibility reducing particles, sulfates, and vinyl chloride. The Project Area is located within the San Francisco Bay Area Air Basin (SFBAAB), which includes all or portions of the nine-county Bay Area. The Bay Area Air Quality Management District (BAAQMD) manages air quality within the SFBAAB for attainment and permitting purposes. Table 3-2 shows the current Bay Area attainment status for the state and federal ambient air quality standards.

The BAAQMD has also developed thresholds of significance for criteria air pollutants, which were published in the BAAQMD's *California Environmental Quality Act Air Quality Guidelines*

(2011a). Table 3-3 provides the BAAQMD’s recommended significance criteria for analysis of air quality impacts, including cumulative impacts. The term “sensitive receptor” is used by the BAAQMD to refer to facilities or land uses that include members of the population particularly sensitive to the effects of air pollutants, such as children, the elderly and people with illnesses. Examples of sensitive receptors within the Project Area include schools, hospitals and residential areas.

The Napa County 2008 General Plan includes policies to reduce air pollution by achieving and maintaining air quality in Napa County which meets or exceeds state and federal standards.

**Table 3-2.** Bay Area Attainment Status of the State and Federal Ambient Air Quality Standards

Contaminant	Averaging Time	State Standards Attainment Status <sup>1</sup>	Federal Standards Attainment Status <sup>2</sup>
Ozone	1-hour	N	See note 4
	8-hour	N <sup>7</sup>	N <sup>3</sup>
Respirable Particulate Matter (PM <sub>10</sub> )	24-hour	N	U
	Annual arithmetic mean	N <sup>6</sup>	
Fine Particulate Matter (PM <sub>2.5</sub> )	24-hour		N
	Annual arithmetic mean	N <sup>6</sup>	A
Carbon Monoxide	8-hour	A	A <sup>5</sup>
	1-hour	A	A
Nitrogen Dioxide	Annual arithmetic mean		A
	1-hour	A	U
Sulfur Dioxide	24-hour	A	A
	1-hour	A	A
Lead	30-day average		A
	Calendar quarter		A
Visibility Reducing Particles	8-hour	U	
Sulfates	24-hour	A	
Hydrogen Sulfide	1-hour	U	
Vinyl Chloride	24-hour	Not available	

A – attainment  
N – non-attainment  
U – unclassified

Notes:

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter—PM<sub>10</sub>, and visibility reducing particles are values that are not to be exceeded. The standards for sulfates, Lake Tahoe carbon monoxide, lead, hydrogen sulfide, and vinyl chloride are not to be equaled or exceeded. If the standard is for a 1-hour, 8-hour, or 24-hour average (i.e., all standards except for lead and the PM<sub>10</sub> annual standard), then some measurements may be excluded. In particular, measurements are excluded that CARB determines would occur less than once per year on the average. The Lake Tahoe CO standard is 6.0 ppm, a level one-half the national standard and two-thirds the state standard.
2. National standards shown are the "primary standards" designed to protect public health. National standards other than for ozone, particulates and those based on annual averages are not to be exceeded

more than once a year. The 1-hour ozone standard is attained if, during the most recent 3-year period, the average number of days per year with maximum hourly concentrations above the standard is equal to or less than one. The 8-hour ozone standard is attained when the 3-year average of the 4th highest daily concentrations is 0.075 ppm (75 ppb) or less. The 24-hour PM<sub>10</sub> standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 µg/m<sup>3</sup>. The 24-hour PM<sub>2.5</sub> standard is attained when the 3-year average of 98th percentiles is less than 35 µg/m<sup>3</sup>. Except for the national particulate standards, annual standards are met if the annual average falls below the standard at every site. The national annual particulate standard for PM<sub>10</sub> is met if the 3-year average falls below the standard at every site. The annual PM<sub>2.5</sub> standard is met if the 3-year average of annual averages spatially-averaged across officially designed clusters of sites falls below the standard.

3. In June 2004, the Bay Area was designated as a marginal non-attainment area of the national 8-hour ozone standard. USEPA lowered the national 8-hour ozone standard from 0.80 to 0.75 PPM (i.e., 75 ppb) effective May 27, 2008.
4. The national 1-hour ozone standard was revoked by USEPA on June 15, 2005.
5. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
6. In June 2002, CARB established new annual standards for PM<sub>2.5</sub> and PM<sub>10</sub>.
7. The 8-hour California ozone standard was approved by CARB on April 28, 2005, and became effective May 17, 2006.

Source: BAAQMD, 2011b

**Table 3-3. BAAQMD CEQA Thresholds of Significance for Criteria Air Pollutants**

Criteria Air Pollutants and Precursors (Regional)	Operational Thresholds	
	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tpy)
Reactive Organic Gases (ROG)	54	10
Nitrogen oxides (NO <sub>x</sub> )	54	10
Particulate Matter (PM <sub>10</sub> )	82	15
Particulate Matter (PM <sub>2.5</sub> )	54	10
PM <sub>10</sub> /PM <sub>2.5</sub> (fugitive dust)	None	
Local Carbon Monoxide (CO)	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
Risk and Hazards for new sources and receptors (Individual Project) Note: <i>Threshold for new receptors is effective May 1, 2011.</i>	Compliance with Qualified Community Risk Reduction Plan OR <ul style="list-style-type: none"> <li>• Increased cancer risk of &gt;10.0 in a million</li> <li>• Increased non-cancer risk of &gt; 1.0 Hazard Index (Chronic or Acute)</li> <li>• Ambient PM<sub>2.5</sub> increase: &gt; 0.3 µg/m<sup>3</sup> annual average</li> </ul> <u>Zone of Influence:</u> 1,000-foot radius from property line of source or receptor	
Risk and Hazards for new sources and receptors (Cumulative Threshold). Note: <i>Threshold for new receptors is effective May 1, 2011.</i>	Compliance with Qualified Community Risk Reduction Plan OR <ul style="list-style-type: none"> <li>• Cancer risk: &gt;100 million (from all local sources)</li> <li>• Non-cancer risk: &gt; 10.0 Hazard Index (from all local sources, Chronic)</li> <li>• Ambient PM<sub>2.5</sub>: &gt; 0.8 µg/m<sup>3</sup> annual average (from all local sources)</li> </ul> <u>Zone of Influence:</u> 1,000-foot radius from property line of source or receptor	
Accidental Release of Acutely Hazardous Air Pollutants	Storage or use of acutely hazardous materials located near receptors or new receptors located near stored or used acutely hazardous materials considered significant	

Criteria Air Pollutants and Precursors (Regional)	Operational Thresholds	
	Average Daily Emissions (lb/day)	Maximum Annual Emissions (tpy)
Odors	Five confirmed complaints per year averaged over 3 years	

tpy – tons per year; lb/day – pounds per day; ppm – parts per million

Source: BAAQMD 2011a

## Environmental Setting

Napa Valley is situated between the Mayacamas Mountains to the west and the Vaca Mountains to the east. Napa Valley is widest at its southern end and narrows to the north, and the mountains surrounding the valley serve as effective barriers to the prevailing northwesterly winds, so pollutants entering the valley can become trapped without pathways to disperse. During the summer and fall, prevailing winds can transport non-local air pollution from the San Pablo Bay and locally generated ozone precursors northward where the valley narrows, effectively trapping and concentrating the pollutants under stable conditions. The local upslope and downslope flows set up by the surrounding mountains may also recirculate pollutants, adding to the total burden. The high frequency of light winds and associated stable conditions during the later fall and winter contributes to the buildup of particulates and carbon monoxide from automobiles, agricultural burning and fireplace burning.

## Discussion of Checklist Responses

### a, b. Conflicts with or Violates Applicable Air Quality Plans or Standards — *Less than Significant*

Use of vehicles, off-road equipment, such as wood chippers and excavators, and herbicides for SMP activities would generate emissions of criteria air pollutants. Fuel combustion involved with vehicle use and operating off-road equipment would release particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>) and other contaminants associated with motor vehicle operation, including carbon monoxide and ozone precursors (reactive organic gases [ROG] and NO<sub>x</sub>). Herbicide use would result in emissions of ROG (specifically volatile organic compounds).

The SMP would require use of a variety of vehicles (light- and heavy-duty pickups and a tractor). Although some proposed activities would be conducted year-round, the majority of work would be conducted over approximately 140 workdays (April through October). As shown in Table 3-4, in any given year the SMP would generate a maximum of 200 trips per year covering an average of 4,050 miles. On average, the maximum duration of any SMP activity is approximately 3 days. Thus, the maximum number of vehicle trips likely to result from a maintenance event is 6 round trips per day (for further discussion of vehicle trip generation, refer to Section 3.16 *Traffic and Transportation*).

In any given year, annual off-road equipment use would occur for a maximum of 56 days per year, including 50 days from use of a chipper and the remaining days split between an excavator/backhoe and a dump truck (Sarrow, pers. comm.) Herbicide use is estimated to

total 127.7 gallons per year. The District uses the following herbicide products: Karmex, Oust, AquaMaster, Habitat, Polaris, and Competitor (Sarrow, pers. comm.).

**Table 3-4.** District SMP On-Road Vehicle Use

On-Road Vehicle Use	Maximum Annual Trips	Average Roundtrip (miles)	Maximum Annual Vehicle Miles Traveled	Vehicles Used
Napa County Staff	125	12	1,500	2 light-duty pickups; 1 heavy-duty pick up
Contractor	75	34	2,550	1 heavy-duty pickup truck; 1 tractor
<i>Total</i>	<i>200</i>	<i>46</i>	<i>4,050</i>	<i>n/a</i>

Sources: Sarrow, pers.com.

An overview of estimated 2012 and 2020 maximum daily and annual emissions of criteria air pollutants is presented in Tables 3-5 and 3-6. Maximum emissions estimates present a conservative scenario, as daily and annual emissions would often be less. While the extent of the District's SMP activities would not change between 2012 and 2022, fleet vehicle turnover during this period would result in lower emissions of criteria air pollutants in 2022. For additional information on how emissions were estimated refer to Appendix B.

**Table 3-5.** Maximum Daily Emissions Estimates (pounds per day)

Source	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>2012</b>				
Off-Road	2.4	20.7	1.0	0.8
On-Road	0.04	0.23	0.09	0.02
Pesticide Use	0.8	-	-	-
<i>Total</i>	<i>3.3</i>	<i>20.9</i>	<i>1.1</i>	<i>0.8</i>
<b>2020</b>				
Off-Road	1.5	8.0	0.5	0.3
On-Road	0.02	0.1	0.1	0.02
Pesticide Use	0.8	-	-	-
<i>Total</i>	<i>2.4</i>	<i>8.1</i>	<i>0.6</i>	<i>0.3</i>
BAAQMD Threshold	54	54	82	54

Note: See Table 3-3 for BAAQMD CEQA Thresholds of Significance for criteria air pollutants.  
Source: Data compiled by URS in 2011 (refer to Appendix B).

**Table 3-6.** Maximum Annual Emissions Estimates (tons per year)

Source	ROG	NO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>2012</b>				
Off-Road	0.1	0.6	0.03	0.02
On-Road	0.003	0.016	0.006	0.002
Pesticide Use	0.15	-	-	-
<i>Total</i>	<i>0.2</i>	<i>0.6</i>	<i>0.0</i>	<i>0.0</i>
<b>2020</b>				
Off-Road	0.04	0.2	0.01	0.01
On-Road	0.002	0.007	0.006	0.001
Pesticide Use	0.15	-	-	-
<i>Total</i>	<i>0.2</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>
BAAQMD Threshold	10	10	15	10

Note: See Table 3-3 for BAAQMD CEQA Thresholds of Significance for criteria air pollutants.  
Source: Data compiled by URS in 2011( refer to Appendix B).

Tables 3-5 and 3-6 show that even the maximum extent of District SMP activities would generate emissions substantially below both daily and annual BAAQMD significance thresholds for all criteria air pollutants. As a result, the District’s SMP would not violate any air quality standards or plans. This is considered a less than significant impact.

**c. Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region is a Nonattainment Area — *Less than Significant***

As determined above in *Checklist Responses A and B*, the Proposed Project would not generate criteria air pollutant emissions in excess of BAAQMD significance thresholds. The BAAQMD significance thresholds utilized also represent cumulative thresholds. Therefore, the Proposed Project would not make a considerable contribution to cumulative impacts related to air quality (also refer to *Checklist Response B* in Section 3.18 *Mandatory Findings of Significance*). No mitigation is necessary.

**d. Expose Sensitive Receptors to Substantial Pollutant Concentrations — *Less than Significant***

Examples of sensitive receptors within the Project Area that would be exposed to emissions of criteria air pollutants include schools, hospitals and residential areas. However, as determined above in *Checklist Responses A, B and C*, the District’s SMP would occur infrequently and would not generate emissions of criteria air pollutants in excess of BAAQMD significance thresholds. Therefore, sensitive receptors would not be exposed to substantial pollutant concentrations. This is considered a less than significant impact.

**e. Create Objectionable Odors — *Less than Significant***

Sediment removal is the only proposed SMP activity with the potential to generate objectionable odors. Excavated sediment from stream channels may contain high levels of organic material or reduced sulfur, which upon excavation and/or decomposition, could generate odors. On average the District expects to conduct two to five sediment removal projects annually (10-25 cubic yards per year), and the District does not undertake large reach-scale (i.e., greater than 500 linear feet) sediment removal projects.

The BAAQMD indicates that odor impacts could result from siting a new odor source near existing sensitive receptors. As the Proposed Project's sediment removal activities would be small and infrequent, the number of people exposed to odor from any sediment removal event would be small and the duration of exposure would be temporary and short. Therefore, the Proposed Project is not considered to have the potential to generate substantial annoyances from odors to sensitive receptors. This is considered a less than significant impact.

### 3.4 BIOLOGICAL RESOURCES

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	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 DFG or USFWS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the DFG or USFWS?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including marshes, vernal pools, and coastal wetlands) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	Conflict with the provisions of an adopted habitat conservation plan (HCP); natural community conservation plan; or other approved local, regional, or state HCP?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Setting

The Project Area supports a range of aquatic and terrestrial habitats that are potentially affected by maintenance activities. General descriptions of these habitat types, and the species that commonly utilize them, are provided in this section.

## ***Aquatic Habitats***

Aquatic habitats in Napa County are highly diverse in type and function. The streams that form the drainage network within the County are the primary aquatic habitat relevant to Project activities. To a lesser extent, freshwater wetlands, including seeps and springs, may also be affected by SMP activities. The extensive saline wetlands (i.e., salt and brackish marsh) that occur in the southern part of the County are not included in the Project Area. Likewise, vernal pool habitat is not likely to be affected by the activities conducted under the Proposed SMP.

### Streams and Drainages

Streams and drainages in the Project Area include the Napa River and its tributaries, streams that drain directly to Suisun Bay in the southeastern portion of the County, and other smaller water conveyance features such as ditches and swales. The characteristics of the aquatic habitat associated with these features vary considerably. Several of the Napa River tributaries provide perennial aquatic habitat for fish and wildlife. Many smaller streams and drainages experience periods of low flow or no surface flow during summer and fall.

Only a few species of vascular plants typically grow within the moderate to high gradient, fast-flowing streams of the County. Species that may be found in or adjacent to such streams in the Project Area include torrent sedge (*Carex nudata*), giant chain fern (*Woodwardia fimbriata*), spicebush (*Calycanthus occidentalis*), and small-fruited bulrush (*Scirpus microcarpus*). Certain non-vascular plants, such as aquatic mosses and filamentous algae that are tightly attached to rocks by strong holdfasts, can survive the fast current. Low gradient, slow flowing streams and drainages in the Project Area support dense growth of aquatic vegetation such as *Ludwigia*, water plantain (*Alisma plantago-aquatica*), cattail (*Typha* spp.), nutsedge (*Cyperus* spp.) and smartweeds (*Polygonum* spp.).

Common, widespread bird species that use streams habitats in the Project Area include herons, egrets, and waterfowl. Some species of amphibians use stream habitats for breeding, particularly bullfrogs (*Lithobates catesbeianus*), which are not native to California. Native amphibians that may be present in and around aquatic habitats in the Project Area include Coast Range newt (*Taricha torosa torosa*), Pacific treefrog (*Hyla regilla*), California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylei*), and California toads (*Bufo boreas halophilus*). Pacific pond turtles (*Actinemys marmorata*) also use these habitats, often concentrated in areas of optimal habitat such as side channel and backwater areas. California freshwater shrimp (*Syncaris pacifica*) occur in select habitats within Napa River, Garnett Creek and Huichica Creek (USFWS, 2007).

The Napa River, its estuary, and its tributaries provide habitat for a wide variety of fresh water, marine, and anadromous fish species. Fish communities in the Napa River watershed include both native and non-native (introduced) fish species. Native fish species that spend a significant portion of their life in freshwater habitats in the Napa River watershed include river lamprey (*Lampetra ayresi*), Western brook lamprey (*L. richardsoni*), Pacific lamprey (*L. tridentata*), Sacramento splittail (*Pogonichthys macrolepidotus*), Sacramento pikeminnow (*Ptychocheilus grandis*), hardhead (*Mylopharodon conocephalus*), California roach (*Hesperoleucus symmetricus*), Sacramento sucker

(*Catostomus occidentalis*), steelhead/rainbow trout (*Oncorhynchus mykiss*), Chinook salmon (*O. tshawytscha*), threespine stickleback (*Gasterosteus aculeatus*), riffle sculpin (*Cottus gulosus*), prickly sculpin (*Cottus asper*), and tule perch (*Hysterocarpus traski*) (Leidy 2007, Koehler and Blank 2010).

Non-native freshwater species common in the watershed include common carp (*Cyprinus carpio*), goldfish (*Carassius auratus*), fathead minnow (*Pimephales promelas*), golden shiner (*Notemigonus crysoleucas*), channel catfish (*Ictalurus punctatus*), white catfish (*Ameiurus catus*), brown bullhead (*Ameiurus nebulosus*), wakasagi (*Hypomesus nipponensis*), inland silverside (*Menidia beryllina*), western mosquitofish (*Gambusia affinis*), striped bass (*Morone saxatilis*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), bluegill (*Lepomis macrochirus*), redear sunfish (*Lepomis microlophus*), green sunfish (*Lepomis cyanellus*), white crappie (*Pomoxis annularis*), and black crappie (*Pomoxis nigromaculatus*) (USACE 2006, Leidy 2007, Koehler and Blank 2010).

Steelhead are relatively widespread in Napa Valley streams (Ecotrust and Friends of Napa River 2001 and 2002, Stillwater Sciences and Dietrich 2002, Leidy et al. 2005, Koehler and Blank 2010), but current abundance is thought to be only a small fraction of historical levels. Fall-/late fall-run Chinook salmon also spawn and rear in the Napa River (Koehler and Edwards 2008, Koehler and Blank 2010). Annual observations in the Napa River of spawning adults and juvenile Chinook salmon by the Napa County Resource Conservation District from 2004–2010 indicate that successful spawning occurs in most years (Koehler and Blank 2010).

Small numbers of juvenile chum salmon (*Oncorhynchus keta*) have been found in the Napa River estuary (USACE 2006), but a spawning population has not been documented in the Napa River watershed. In 2010, several hundred juvenile sockeye/kokanee salmon (*O. nerka*) were identified in outmigrant traps in the Napa River (Koehler and Blank 2010). These fish are believed to have originated from a landlocked population in an upstream reservoir (J. Koehler, pers. comm., 2010).

Despite considerable habitat degradation and loss of anadromous fish habitat relative to historical conditions, the Napa River watershed still contains extensive areas of relatively high-quality spawning and rearing habitat for steelhead and salmon (Koehler and Blank 2010). The Napa River watershed is considered one of the most important watersheds in the San Francisco Bay Area for conservation and restoration of the Central California Coast Distinct Population Segment (DPS) of steelhead (Becker et al. 2007).

### Freshwater Wetlands

Freshwater wetlands are distributed throughout the Project Area in swales, low-lying areas and around ponds and reservoirs. Perennial wetlands that hold water for most or all of the year are characterized by dense stands of cattail and bulrush (*Schoenoplectus* [= *Scirpus*] spp). Ponds and other open water areas may support plants with floating leaves, such as pondweeds (*Potamogeton* spp.), mosquito fern (*Azolla* spp.), and duckweed (*Lemna* spp. and *Wolffia* spp.), or submerged plants, such as Canadian pondweed (*Elodea canadensis*) and *Najas* spp.

Freshwater wetlands, particularly those with native vegetation and high structural complexity, provide high-quality wildlife habitat that offers nesting, foraging, roosting, and cover for a variety of species. The high plant productivity typical of freshwater wetlands offers abundant food sources and cover for wildlife. The wildlife community that receives the most evident benefit from freshwater wetlands is birds. Common and uncommon bird species typically associated with emergent freshwater wetlands that may be found in the County include grebes, rails (e.g., Virginia rail [*Rallus limicola*], American coot [*Fulica americana*]), herons, egrets, ducks (e.g., wood duck [*Aix sponsa*], cinnamon teal [*Anas cyanoptera*]), shorebirds, marsh wren (*Cistothorus palustris*), and common yellowthroat (*Geothlypis trichas*). In addition to the abundance of birds, other vertebrates found in freshwater wetlands include amphibians, reptiles, and mammals. Amphibians and reptiles that use freshwater wetlands include Pacific chorus frogs, western toads (*Bufo boreas*), and garter snakes (*Thamnophis* spp.), which in turn provide food for animals including birds and mammals. Mammal visitors to freshwater wetlands include deer mouse (*Peromyscus* spp.), California meadow vole (*Microtus californicus*), river otter (*Lutra canadensis*), and mule deer (*Odocoileus hemionus*). Muskrats (*Ondatra zibethicus*) and beaver (*Castor canadensis*) may use freshwater wetlands for cover, food, and/or hut construction. Many bat species forage for insect prey over wetlands. Freshwater wetlands typically contain many invertebrates—such as dragonflies, crane flies, and snails—that provide an important food source for other species.

## **Terrestrial Habitats**

### Riparian Woodlands

Riparian woodlands and forests are found along waterways throughout the County. Valley oak riparian woodlands and mixed willow riparian forest are the most common riparian vegetation community types in the Napa Valley, Carneros, and Jameson/American Canyon areas (Napa County 2005). Valley oak riparian woodlands in Napa County are characterized by valley oak (*Quercus lobata*) and one of two suites of co-dominant tree species, either California bay (*Umbellularia californica*), coast live oak (*Q. agrifolia*), walnut (*Juglans californica* var *hindsii*) and Oregon ash (*Fraxinus latifolia*), or Fremont cottonwood (*Populus fremontii*) and coast live oak (Napa County 2005). Valley oak riparian woodlands constitute only a small fraction of the County's overall area, but are particularly valuable in terms of providing wildlife habitat. Valley oak riparian woodlands that are not heavily grazed typically contain a variety of plant species in the understory, such as bracken fern (*Pteridium aquilinum*), Santa Barbara sedge (*Carex barbarae*), arroyo willow (*Salix lasiolepis*), California rose (*Rosa californica*), common snowberry (*Symphoricarpus albus*), California blackberry (*Rubus ursinus*), and wild grape (*Vitis californica*) (Napa County 2005). Valley oak woodland and savanna also occurs on the open valley floor, where it was historically quite extensive (Napa County 2005, SFEI 2008).

Mixed willow riparian woodlands and scrub includes Pacific willow (*Salix lucida* ssp. *lasiandra*), red willow (*S. laevigata*), black willow (*S. gooddingii*), narrowleaf or sandbar willow (*S. exigua*), and arroyo willow (Napa County 2005). These species may be found in pure or mixed stands. Other species found in mixed willow riparian forests include Fremont cottonwood, valley oak, coast live oak, California rose, California blackberry, common snowberry, white alder (*Alnus rhombifolia*), and big-leaf maple (*Acer macrophyllum*).

Riparian woodlands and forests are valuable for wildlife since they provide shade, water, favorable microclimates, and important movement corridors. In-stream woody debris from riparian trees and shrubs also provides important habitat elements, forming scour pools and logjams used by insects, amphibians, and fish (Riparian Habitat Joint Venture 2004). Riparian forests are particularly important for California landbird species, providing breeding habitat, over-wintering grounds, migration stopover areas (Riparian Habitat Joint Venture 2004), and movement corridors for bird species with somewhat limited mobility such as California quail (*Callipepla californica*). Multilayered, structurally complex vegetation enhances quality of riparian habitat.

Wildlife associated with riparian forests include amphibians such as Pacific tree frog (*Pseudacris regilla*); reptiles such as ring-necked snake (*Diadophis punctatus*) and sharp-tailed snake (*Contia tenuis*); birds such black phoebe (*Sayornis nigricans*), yellow-breasted chat (*Icteria virens*), bushtit (*Psaltriparus minimus*), Pacific-slope flycatcher (*Empidonax difficilis*), orange-crowned warbler (*Vermivora celata*), and great-horned owl (*Bubo virginianus*); and mammals such as raccoon (*Procyon lotor*), bobcat (*Lynx rufus*), dusky-footed woodrat (*Neotoma fuscipes*) and shrews (*Sorex* spp.). In recent years, beaver (*Castor Canadensis*) have established a colony on Salvador Creek near Vintners High School. A variety of bat species may roost in riparian trees including the western red bat (*Lasiurus blossevillii*), a state species of special concern. Riparian habitat also contributes essential functions to aquatic habitats that support steelhead, Chinook salmon, and other fish species.

## Discussion of Checklist Responses

### a. Substantial Adverse Effect, Either Directly or Through Habitat Modifications, on Any Species Identified As A Candidate, Sensitive, or Special-Status Species — *Less than Significant*

For the purposes of this assessment, special status species are those that are listed as rare, species of concern, candidate, threatened or endangered by the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), California Department of Fish and Game (CDFG)<sup>1</sup>, and local experts as documented in the Napa County BDR (Napa County 2005). Special-status plant and animal species with the potential to occur in the Project Area were identified through a review of the following resources:

- U.S. Fish and Wildlife Service (USFWS) List of Federal Endangered and Threatened Species that Occur in or May Be Affected by Projects in Napa County (USFWS 2011, Appendix C).
- California Natural Diversity Database (CNDDDB) Database Query for Napa County (Appendix D)
- Napa County BDR (Napa County 2005).

The potential for special status species to occur in areas affected by SMP activities was evaluated according to the following criteria:

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<sup>1</sup> Includes California Rare Plant Rank (CRPR) listed species.

- **No Potential:** Project activities would not occur in habitat that supports the species. Species considered to have no potential to be affected by Project activities include those associated with: salt and brackish marsh, salt ponds, vernal pools, serpentine substrate, broadleafed upland forest, chaparral, coniferous forest, and cismontane woodland.
- **Low:** Few of the habitat components meeting the species requirements are present in areas that may be impacted by Project activities. In these instances, the species is not likely to be impacted.
- **Moderate:** Some of the habitat components meeting the species requirements are present in areas that may be impacted by Project activities. The species has a moderate probability of occurring at a maintenance site.
- **High:** All of the habitat components meeting the species requirements are present in areas that may be impacted by Project activities; the species has a high probability of occurring at a maintenance site.

A discussion of the Project's potential effects on special status species and the resultant level of impacts are provided below.

#### Impacts to Special Status Plant Species

Maintenance of streamside vegetation and ground-disturbing activities including bank stabilization, debris and sediment removal have the potential to destroy or otherwise harm special status plant species if they are present in work areas. Table D-1 in Appendix D lists the special status plant species known to occur in the vicinity of the Project Area. The vast majority of plant species listed in Table D-1 are associated with habitats that would not be affected by Project activities including salt/brackish marsh, vernal pool, serpentine substrates, and several upland communities. Therefore, these species are considered to have no potential to occur in areas affected by Project activities. Plant species associated with valley grassland, ephemeral drainages or ditches, and wet meadow habitats are considered to have a low potential to occur in areas affected by Project activities. Plant species associated with freshwater marsh and riparian habitat are considered to have moderate potential to occur in areas affected by Project activities. Because the streams and wetlands that are commonly the focus of maintenance activities are typically degraded and moderately to highly disturbed, no special status plant species are considered to have a high potential to occur in areas affected by Project activities.

#### *Applicable Best Management Practices*

It is the District's intent to avoid all impacts to special status plant species, to the greatest extent feasible. Standard operating procedures for SMP activities include implementing BMP BIO-4: *Avoid and Minimize Impacts to Special-Status Plant Species and Sensitive Natural Vegetation Communities*. This measure includes pre-maintenance planning by a qualified botanist to identify maintenance sites with the potential to support special status plant species listed in Table D-1. This pre-maintenance planning would also include targeted plant surveys, as needed, to ensure that species are not present in work areas. If a special status plant species is present in a work area and cannot be avoided, then the District will conduct minimization measures such as transplanting or seed collection. The District will not conduct maintenance activities that would result in the reduction of a plant species

range or compromise the viability of a local population. The following BMPs would further minimize potential impacts to special status plant species and their habitats:

- BMP GEN-3 (Minimize the Area of Disturbance), GEN-5 (Staging and Stockpiling of Materials), GEN-6 (Stream Access): These measures would minimize disturbance of special status plants and their potential habitats during construction activities and when constructing temporary stream access routes.
- BMP RESTOR-2: Seeding: This measure would minimize impacts to special status plant species by stabilizing exposed soils and preventing erosion such that suitable habitat is appropriately restored.

Complete descriptions of these BMP are provided in Chapter 2, *Project Description*.

By implementing BMP BIO-4, along with the other measures listed above, the Proposed Project is not likely to result in a substantial adverse effect on any special status plant species or their habitat. Therefore, this impact would be less than significant and no mitigation is required.

#### Impacts to Special Status Invertebrate Species

Table D-2 in Appendix D lists the special status invertebrate species known to occur in the vicinity of the Project Area. Most invertebrate species listed in Table D-2 have no potential to be impacted by Project activities because the Project Area is not within the species current range or the species are associated with habitats (e.g., vernal pools) that would not be impacted by Project activities. Two special status invertebrate species are considered to have the potential to occur in the Project Area: Valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) and California freshwater shrimp (*Syncaris pacifica*). Valley elderberry longhorn beetle are considered to have a low potential to occur in areas affected by Project activities because the species range in Napa County is restricted to a small section in the southeastern portion of the County near Lake Curry; maintenance activities are not common in this area. California freshwater shrimp are considered to have a moderate potential to occur in areas affected by Project activities. The known distribution of California freshwater shrimp in the County is restricted to the Napa River, Garnett and Huichica creeks (USFWS, 2007). Maintenance activities do not occur in the Garnett and Huichica Creek drainages, but may occur on the Napa River where California freshwater shrimp may be present. If maintenance activities, such as vegetation management or bank stabilization, were to occur in occupied California freshwater shrimp habitat this could result in a potentially significant impact.

It is the District intent to avoid all impacts to special status invertebrate species. Standard operating procedures for SMP activities include implementing BMP BIO-2: *Avoid and Minimize Impacts to Special-Status Invertebrate Species*. This includes pre-maintenance planning by a qualified biologist to identify sites with the potential to support valley elderberry longhorn beetle and California freshwater shrimp. This pre-maintenance planning would also include habitat assessments, as needed, to ensure that these species have no potential to occur in work areas. A complete description of this BMP is provided in *Chapter 2, Project Description*. By implementing BMP BIO-2 the Proposed Project is not likely to impact special status invertebrate species or their habitat. Therefore, this impact would be less than significant and no mitigation is required.

### Impacts to Special Status Fish Species

Table D-2 in Appendix D lists the special status fish species known to occur in the vicinity of the Project Area. Many fish species listed in Table D-2 have no potential to be impacted by Project activities because they are associated with estuarine environments that would not be impacted by Project activities. Four special status fish species are considered to have the potential to occur in the Project Area. Of these fishes, steelhead (*Oncorhynchus mykiss*) have the broadest distribution in the Project Area, with the other fishes being restricted primarily to the mainstem Napa River.

Maintenance activities including removal of sediment or large woody debris, bank stabilization, and vegetation management have the potential to result in significant impacts to special status fish species and their habitat.

#### *Applicable Best Management Practices*

Standard operating procedures for SMP activities include several BMPs that would avoid or minimize impacts. These measures include:

- BMP GEN-1: Work Windows. This measure would avoid potential impacts to salmonid species during critical lifestages including up-migration, spawning, egg incubation and emergence.
- BMP GEN-2: Minimize the Area of Disturbance. This measure would minimize the area of impact to fish habitat.
- BMP GEN BMP GEN-3: Erosion and Sediment Control Measures. This measure would minimize the potential for degradation of fish habitat due to erosion and release of fine sediment.
- BMP GEN BMP GEN-7: In-Channel Minor Sediment Removal. This measure would minimize disturbance to the channel bed and banks during sediment removal.
- BMP GEN-10: Spill Prevention and Response. This measure would avoid and minimize the potential for degradation of habitat or direct impacts due to the release of fuels and lubricants.
- BMP GEN-14: Dewatering. This measure would minimize impacts to fish species by following strict protocols for dewatering.
- BMP GEN-15: Relocation of Aquatic Species for Dewatering. This measure would further minimize impacts to fish species that are recovered during dewatering activities.
- BMP RESTOR-2: Restore Channel Features. This measure would minimize impacts to fish passage by restoring channel bed conditions following maintenance activities.

By implementing these measures impacts to special status fish species and their habitat would be avoided or sufficiently minimized such that adverse impacts are not likely to occur. Therefore, this impact would be less than significant and no mitigation is required. As part of the SMP, the District may implement projects that improve fisheries habitat (e.g., bioengineered bank repairs, planting of riparian trees). These measures are likely to result in beneficial effects to special status fish species and their habitat.

### Impacts to Special Status Amphibian and Reptile Species

Table D-2 in Appendix D lists the special status amphibian and reptile species known to occur in the vicinity of the Project Area. These species include California red-legged frog (CRLF) (*Rana draytonii*), foothill yellow-legged frog (FYLF) (*Rana boylei*), and western pond turtle (WPT) (*Actinemys marmorata*). Maintenance activities, including removal of sediment or large woody debris, bank stabilization, and vegetation management have the potential to result in significant impacts to special status amphibian and reptile species and their habitat. These activities could directly impact individuals or reduce the habitat quality by removing breeding substrate, basking sites and escape cover in areas where maintenance activities occur.

#### *Applicable Best Management Practices*

It is the District's intent to avoid or minimize impacts to special status amphibian and reptile species. Standard operating procedures for SMP activities include implementing BMP BIO-5: *Protection of Special-Status Amphibian and Reptile Species*. This includes pre-maintenance planning by a qualified biologist to identify maintenance sites with the potential to support special status amphibian and reptile species. This pre-maintenance planning would also include surveys, as needed, to ensure that these species are not present in work areas. If species are identified in the work area, several minimization measures are identified to reduce the potential for impacts to occur. In addition to BMP BIO-5, implementing several other BMPs would avoid or minimize impacts. These measures include:

- BMP GEN-1: Work Windows. This measure would minimize the potential for impacts during breeding and amphibian egg development.
- BMP GEN-2: Minimize the Area of Disturbance. This measure would minimize the area of impact to habitat.
- BMP GEN BMP GEN-3: Erosion and Sediment Control Measures. This measure would minimize the potential for siltation due release of fine sediment.
- BMP GEN BMP GEN-7: In-Channel Minor Sediment Removal. This measure would minimize disturbance to the potential habitat during sediment removal.
- BMP GEN-10: Spill Prevention and Response. This measure would avoid and minimize the potential for degradation of habitat or direct impacts due to the release of fuels and lubricants.

Complete descriptions of these BMPs are provided in Chapter 2, *Project Description*.

By implementing these measures impacts to special status amphibians and reptile species and their habitat would be avoided or sufficiently minimized such that adverse impacts are not likely to occur. Therefore, this impact would be less than significant and no mitigation is required.

### Impacts to Special Status Bird Species

Table D-2 in Appendix D lists the special status bird species known to occur in the vicinity of the Project Area. Special status bird species considered to have the potential to occur in the Project Area include passerine species such as Yellow Warbler (*Dendroica petechia*) and

Yellow-breasted Chat (*Icteria virens*), and raptors such as Sharp-shinned Hawk and Cooper's Hawk (*Accipiter striatus* and *A. cooperii*, respectively). There is also the potential for heron rookeries to occur in the Project Area.

Maintenance activities such as vegetation management and sediment removal have the potential to disturb nesting special status bird species and their habitat. This may cause nesting failure, which could result in a significant impact.

#### *Applicable Best Management Practices*

It is the District's intent to avoid or minimize impacts to special status bird species. Standard operating procedures for SMP activities include implementing BMP BIO-1: *Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures*. This BMP includes pre-maintenance site inspections during the nesting season (February 15- August 15). If nesting birds are found, a buffer will be established around the nest and maintained until the young have fledged. A complete description of this BMP is provided in Chapter 2, *Project Description*.

In addition to BMP BIO-1, several other BMPs would avoid or minimize impacts to special status bird species and their habitat. These measures include:

- BMP GEN-1: Work Windows. This measure would minimize the potential for impacts during the nesting season.
- BMP GEN-2: Minimize the Area of Disturbance. This measure would minimize the area of impact to habitat.
- BMPs RESTOR-2 (Seeding) and RESTOR-3 (Planting Material). These measures would restore bird habitat that is temporarily disturbed by maintenance activities.

By implementing these measures impacts to special status bird species and their habitat would be avoided or sufficiently minimized such that adverse impacts are not likely to occur. Therefore, this impact would be less than significant and no mitigation is required.

#### Impacts to Special Status Mammal Species

Table D-2 in Appendix D lists the special status mammal species known to occur in the vicinity of the Project Area. Special status mammals listed in Table D-2 generally occupy habitats that are not commonly the focus of maintenance activities. Mammal species that are likely to occur in areas impacted by the Project include beaver, raccoon, bat species, and dusky-footed woodrat. Of these species, only western red bat is a listed as a species of concern by CDFG<sup>2</sup>. The SMP includes BMPs to protect sensitive mammal species associated with riparian habitat. Prior to commencing maintenance, the District will implement BMP BIO-6 which includes measures to protect bat colonies and BMP BIO-7 which minimizes potential impacts to dusky-footed woodrats. Several other BMPs would also provide surrogate protection for mammal species. By implementing these measures impacts to mammal species and their habitat would be avoided or sufficiently minimized such that

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<sup>2</sup> The San Francisco sub-species of dusky-footed woodrat is considered a species of concern by CDFG, but this is not the subspecies that occurs in Napa County (Matocq, 2002).

significant adverse impacts are not likely to occur. Therefore, this impact would be less than significant and no mitigation is required.

**b. Have a Substantial Adverse Effect on Any Riparian Habitat or Other Sensitive Natural Community — *Less than Significant***

Project activities largely occur in sensitive natural communities including oak woodland, riparian habitat, freshwater wetlands, and riverine aquatic habitat. Temporary impacts to sensitive natural communities are likely to occur through maintenance activities including vegetation management, including tree removal, sediment removal, debris removal, bank stabilization or minor maintenance. Permanent impacts (i.e., reduction in the extent or quality of a sensitive natural community) are not anticipated to occur. For several years the District has made a concerted effort to enhance the ecological functions and values of engineered and modified channels in the Project Area with extensive planting of riparian trees. The District also minimizes impacts to modified, semi-natural and natural channels by only conducting maintenance when absolutely necessary to protect property and human safety.

*Applicable Best Management Practices*

The Proposed Project contains many BMPs designed to protect and minimize disturbance to sensitive natural communities including:

- BMP GEN-3 (Minimize the Area of Disturbance), GEN-5 (Staging and Stockpiling of Materials), GEN-6 (Stream Access): These measures would minimize disturbance of trees and riparian habitat during construction activities and when constructing temporary stream access routes.
- BMP BIO-4: Avoid and Minimize Impacts to Special-Status Plant Species and Sensitive Natural Vegetation Communities: This measure includes pre-maintenance planning and identification of sensitive natural communities for maintenance sites, as well as avoidance and minimization measures to reduce impacts on communities that are present in work areas.
- BMPs RESTOR-2 (Seeding) and RESTOR-3 (Planting Material): These measures would minimize impacts to riparian habitat by stabilizing exposed soils and planting native species to restore habitat functions.

With these BMPs in place, the SMP would have a less than significant or potentially beneficial impact to sensitive natural communities including riparian habitat.

**c. Substantial Adverse Effects on Federally Protected Wetlands — *Less than Significant***

Project activities would largely avoid impacts to CWA Section 404 jurisdictional wetlands. However, maintenance activities including sediment removal, debris removal, and bank stabilization may result in discharge of fill material (e.g., rock for toe protection) or removal of small quantities of sediment from streams. Discharge of fill would most commonly be associated with bank stabilization (e.g., rock toe protection) and would be implemented in concert with biotechnical stabilization approaches (refer to Figures 6-1 through 6-6 in the

Stream Maintenance Manual). These measures are implemented to control erosion that either threatens property or contributes fine sediment to aquatic habitat. The discharge of fill associated with bank stabilization would not result in loss of wetland area or conversion in type; some temporary loss of wetland functions may occur during the re-establishment of riparian vegetation.

Sediment and debris removal activities are undertaken to remove obstructions in streams and maintain flow at culvert crossings. These activities would not result in loss of wetland area or conversion in type. These activities would generally improve water circulation and water quality. Some temporary loss of wetland functions may occur associated with loss of aquatic and wetland vegetation.

Proposed Project activities are not likely to result in the permanent reduction of wetland area, substantial conversion of wetland type, or a significant permanent decline in functions and values. Adverse effects are anticipated to be short-term (less than two years). Biotechnical bank stabilizations and riparian tree plantings implemented as part of the SMP are likely to have a beneficial effect to CWA Section 404 jurisdictional wetlands. Therefore, this impact would be less than significant and no mitigation is required.

**d. Substantial Interference With Wildlife Movement, Established Wildlife Corridors, or the Use of Native Wildlife Nursery Sites — *Less than Significant***

Maintenance activities including sediment and large woody debris removal may affect the movement of fish species by altering flow paths or the distribution of stream substrate. Work in riparian areas, including vegetation maintenance, may temporarily alter dispersal corridors for native amphibians, reptiles, birds and mammals.

*Applicable Best Management Practices*

Standard operating procedures for SMP activities include implementing several BMPs that would avoid or minimize impacts to the movement of native fish and wildlife species. These measures include:

- BMP GEN-1: Work Windows. This measure would avoid potential impacts to the migration/movement of salmonid species and limit the amount of work conducted during bird and amphibian breeding seasons.
- BMP GEN-2: Minimize the Area of Disturbance. This would reduce the potential for substantial impacts to wildlife dispersal and movement.
- BMP GEN-7: In-Channel Minor Sediment Removal. This measure would minimize disturbance to the channel bed and banks during sediment removal.
- BMP GEN-14: Dewatering. This measure would minimize impacts to movement of fish in work areas.
- BMP GEN-15: Relocation of Aquatic Species for Dewatering. This measure would further minimize impacts to fish species by relocating species to suitable habitat.

- **BMP RESTOR-2: Restore Channel Features.** This measure would minimize impacts to fish passage by restoring channel bed conditions following maintenance activities.

By implementing these measures, impacts to wildlife movement and migration would be avoided or sufficiently minimized such that adverse impacts are not likely to occur. Furthermore, individual maintenance activities are generally small-scale (typically less than 0.5 acres of disturbance) and do not result in creation of permanent barriers or obstructions to wildlife movement. Therefore, this impact would be less than significant and no mitigation is required.

**e. Conflicts With Local Policies or Ordinances Protecting Biological Resources — *No Impact***

Title 16, Chapter 4 of the Napa County municipal code addresses floodplain management in the County. Section 16.4.750 of the municipal code includes restrictions on riparian zone vegetation removal applicable to all proposed activities within any riparian zone. As described in Chapter 4 of the Manual, the SMP would not involve the removal of native trees located outside of the channel unless they have fallen or pose a safety hazard. All disturbed soils would be revegetated with native seed mixes and plantings as detailed under BMPs RESTOR-1 and RESTOR-2. Furthermore, GEN BIO-4 would be implemented which would ensure that special-status plants species (including native riparian trees) are assessed and protected prior to the implementation of maintenance activities. With these measures the Proposed Project would not conflict with any of the restrictions described in the County municipal code, and therefore there is no impact.

In 2010, Napa County adopted a Voluntary Oak Woodland Management Plan (Napa County 2010b). This plan discusses the value of oak woodlands and outlines conservation strategies for protection of oak woodlands. The Proposed Project would not conflict with any of the conservation strategies described in the Voluntary Oak Woodland Management Plan, therefore there is no impact.

**f. Conflict With the Provisions of an Adopted HCP, Natural Community Conservation Plan — *No Impact***

The only HCP approved in Napa County is the Terra Springs LLC Low Effect HCP (HCP Permit #TE065890-0) which covers impacts to Northern Spotted Owl (*Strix occidentalis caurina*) over 76 acres of second-growth Douglas fir forest. Proposed SMP activities are not likely to occur in this area, and Project activities would not conflict with the provisions of this HCP. Therefore, there is no impact.

### 3.5 CULTURAL RESOURCES

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Cultural and paleontological resources are protected by the National Historic Preservation Act, the California Environmental Quality Act, and the California Public Resources Code. The County General Plan also contains goals and policies to protect Napa County’s archaeological and historical resources.

### Ethnographic Setting

The following is an abbreviated discussion of the relevant information contained in the Cultural Resources chapter of the Napa County BDR.

#### ***Native American Period***

Archaeological records show that the Napa region was inhabited primarily by the Wappo, Lake Miwok, and Patwin tribal groups. These tribes shared similar lifestyles, technologies, subsistence strategies, and settlement patterns. The territorial boundaries of the Wappo tribe extended from just north of Napa and Sonoma, northward along the valley floor to Cloverdale on the west and Middletown on the east. The Lake Miwok inhabited an area that extended south from Clear Lake to Pope Valley, west to Cobb Mountain in Lake County, and east to the boundaries of the Patwin territory. The Patwin inhabited an extensive region within north-central California that included the lower portion of the western Sacramento Valley, west of the Sacramento River from about Princeton in the north to Benicia in the south.

### ***Hispanic and American Periods***

In 1823 the first European explorers, Don Francisco Castro and Franciscan Friar Jose Altamira, traveled through Napa Valley in search of a site for a new mission. They explored present-day Petaluma, Sonoma, and Napa before settling on Sonoma as the location for the mission.

In the 1830s, the Napa Valley became one of the first areas in California to be settled by American farmers. George C. Yount was the first pioneer to settle in Napa County. Yount, who came to California in 1831 to hunt and trap sea otters, received a land grant in the Napa Valley from the Mexican government. Rancho Caymus encompassed more than 11,000 acres and extended north from the western foothills of Mt. St. John to what is now the intersection of Zinfandel Lane and Silverado Trail. From 1836 to 1846, most of the Rancho was used for grazing horses, cattle, and sheep, with a small portion set aside for cultivating wheat.

When California was granted statehood in 1850, Napa was part of the district of Sonoma. Later that year, when counties were established throughout the state, Napa became one of the original 27 California counties, with Napa City (later shortened to Napa) as the County seat.

The Spanish and Mexican missionaries are credited with planting the first grapevines and introducing winemaking to California. In 1838 the first grape vines in Napa Valley were planted by George Yount. While Yount is considered the first to plant table grapes in Napa Valley, it was Agoston Harazthy who made the first effort to improve the variety of planted grapes, growing techniques, and winemaking. Harazthy introduced zinfandel into California in 1852 and also planted additional European varieties in the Napa Valley in the 1860s.

The wine industry continued to grow in Napa Valley during the 1870s, with the number of wineries between Calistoga and Oakville doubling from 15 to 30. Since then, the wine industry weathered a series of highs and lows—phylloxera infestations, the San Francisco earthquake of 1906, Prohibition, the economic crisis of the Great Depression—however viticulture remained the dominant agricultural activity in Napa Valley. Rising from the problems that faced the wine and wheat industries during the late 1800s, fruit growing (mostly apples, peaches, olives, and prunes) became important secondary crops in the valley.

## **Existing Conditions**

### ***Archaeological Resources***

A records search was conducted at the Northwest Information for the routine maintenance locations in Project Area. The record search revealed that there are two types of areas which are highly culturally sensitive: stream confluences and areas where watercourses are adjacent to/interacting with the interface between the valley floor and hillsides (Origer and Associates 2011).

The record search revealed that multiple cultural resources were documented at many of the points where two watercourses came to a confluence. One such confluence had three resources within 1,000 feet, while another had three resources within a couple hundred feet. Similarly, 17 cultural resources were documented within a quarter mile of a watercourse in an interface area. (Origer and Associates 2011)

Based on the information gathered from the records search, a series of maps were developed which indicate the cultural sensitivity of routinely maintained channels (Appendix E).

***Paleontological Resources***

The term ‘paleontological resources’ refers to the fossilized remains of vertebrate and invertebrate organisms, fossil tracks and trackways, and plant fossils.

The paleontological sensitivity of the Project Area was evaluated using the criteria of the Society of Vertebrate Paleontology (SVP). The SVP’s Conformable Impact Mitigation Guidelines Committee developed guidelines (SVP 1995) in response to a recognized need for standardized methods to assess and mitigate impacts on paleontological resources. Because the majority of fossil materials are buried in subsurface geologic units rather than exposed at the ground surface, assessment and mitigation strategies for paleontological resources are based on probabilities of discovery. Based on the anticipated sensitivity of a particular project location, general strategies supporting adaptive management are developed. Table 3-7 defines the SVP’s sensitivity categories for paleontological resources.

**Table 3-7.** Society of Vertebrate Paleontology Sensitivity Criteria

<b>Sensitivity Level</b>	<b>Definition</b>
High	Geologic units from which vertebrate or significant fossils or suites of plant fossils have been recovered.
Undetermined	Geologic units for which little information is available.
Low	Geologic units that are not known to have produced a substantial body of significant paleontologic material.

*Source: SVP 1995*

As used in the table above, the term significant refers to paleontological resources that fulfill one or more of the following criteria (SVP 1995):

- Provides important information shedding light on evolutionary trends and helps to relate living organisms to extinct organisms;
- Provides important information regarding the development of biological communities;
- Demonstrates unusual circumstances in the history of life;
- Represents a rare taxon or a rare or unique occurrence; is in short supply and in danger of being destroyed or depleted;

- Has a special and particular quality, such as being the oldest of its type or the best available example of its type; and
- Provides important information used to correlate strata for which it may be difficult to obtain other types of age dates.

Vertebrate fossils are typically considered significant and other types of materials (invertebrates, plants, trace fossils) may also qualify (SVP 1995).

The geologic information presented herein is based on the work of Graymer et. al. (USGS, 2007). The majority of project maintenance activities are expected to be confined to the Holocene aged alluvial deposits along stream and flood control channels within the southern and central Napa Valley area. Due to the young age of the alluvial material where the great majority of maintenance activities occur, there is a very low likelihood and sensitivity for paleontological resources to be encountered by SMP activities. While the potential occurrence of significant fossils is rare due to stream maintenance activities, there are geologic strata in Napa County that do contain abundant fossils. The Tertiary aged Wilson Grove and Cotati formations include mollusk and gastropod fossils from the late Pliocene to late Miocene period. These fossils are not significant according to the SVP criteria described above. Potentially more significant, the Petaluma Formation of the Miocene contains land mammal fossils within its sandstone units. These rocks are found in the hills and mountains to the east and west of the central Napa Valley, in the vicinity of Yountville, and in other locations in Napa County. For reference, Map 1-4 from the BDR *General Geology Napa County* – shows these Miocene sedimentary rocks in the category called “*Late Tertiary Assemblages*”, and are unlikely to be encountered through stream maintenance activities. Older rocks in Napa County, including sandstones and shale of the Cretaceous Great Valley Sequence contain fossil foraminifera and ammonites. Jurassic rocks of the Franciscan complex include small marine radiolarians and other microfossils. These fossils are regionally abundant and are found in the eastern portion of the County in the hills and valleys surrounding Lake Berryessa. While not included in the significance criteria of the SVP listed above, the foraminifera and radiolarians of these Jurassic and Cretaceous formations were important in providing radiometric dating data that supported development of the plate tectonic theory in California. These fossil resources will not be impacted by the Project’s stream maintenance activities.

## Discussion of Checklist Responses

### **a,b. Adverse Chance in Significance of Historical or Archaeological Resources — *Less than Significant***

Due to the long historical record of human occupation in the Project Area, there is some potential for SMP activities to disturb previously unknown cultural resources. Depending on the project location, extent and severity of disturbance, and the nature of the materials affected, impacts could be significant. However, BMP CUL-1 *Review Cultural Sensitivity Maps* would ensure that the locations of culturally sensitive areas are assessed during the early phases of project planning such that the appropriate actions to protect historical or archeological resources are implemented. Projects located in areas with designated sensitivity (high, moderate, low as shown in the maps of Appendix E) each have a recommended BMP treatment set (BMPs CUL-2 through CUL-4), which is detailed in Table

2-1. This measure also addresses project areas which do not have a designated sensitivity (unknown sensitivity), which are subject to a review and evaluation by a cultural resources specialist (BMP CUL-4). Therefore, effects on historical or archaeological resources would be less than significant. No mitigation is necessary.

**c. Destruction of Unique Paleontological Resource — *Less than Significant***

SMP activities generally take place in two types of channels: modified (i.e. man-made roadside ditches) and natural streams. In general, channels which have been modified from their natural condition do not contain geologic material with a high likelihood of containing paleontological resources. As described in the setting section above, the majority of routine SMP activities would take place in areas with a low potential for discovery of paleontological resources.

However, SMP activities involving ground disturbance of native soils, especially bank stabilization, could potentially uncover previously undiscovered paleontological resources. As described in BMP CUL-5 *Discovery of Cultural Remains or Historic or Paleontological Artifacts*, work would cease and appropriate treatment measures would be implemented in the event of discovery of such resources during SMP activities. As such, effects on paleontological resources in the Project Area would be less than significant. No mitigation is required.

**d. Disturbance of Human Remains — *Less than Significant***

As noted above, important archaeological resources have been documented along Project Area channels. Therefore, ground-disturbing activities associated with the SMP could disturb human remains. As described in *Checklist Response A, B* above, activities involving excavation would be required to implement BMP CUL-1. This measure would ensure that appropriate measures are implemented based on the potential sensitivity of the project location. In addition, as described in BMP CUL-5 *Discovery of Cultural Remains or Historic or Paleontological Artifacts*, work would cease and appropriate treatment measures would be implemented in the event of discovery human remains during SMP activities. With the implementation of these measures, impacts would be less than significant. No mitigation is required.

### 3.6 GEOLOGY, SOILS, AND SEISMICITY

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
1. 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? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. 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 an on-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The geologic setting for the Proposed Project is based on the Geological Resources Chapter of the Napa County BDR (Napa County 2005). The following is an abbreviated discussion of the relevant information contained in the Napa County BDR.

## Setting

Napa County is located in the Coast Ranges geomorphic province, which is bounded on the west by the Pacific Ocean and on the east by the Great Valley geomorphic province. The physiography of Napa County is generally defined as having a series of long, linear major and lesser valleys separated by steep, rugged ridge and hill systems that have been deeply incised by their drainage systems. It is exactly this physiography which has influenced the local climate, soil development, giving rise to the production of premium wine grapes and other agricultural produces for which the County is famous.

The County's highest topographic feature is Mount St. Helena (elevation 4,343 ft.), located in the northwest corner of the County. Napa Valley is the main valley in the County, extending southeast along the west side of the County to near the edge of San Pablo Bay. The Napa Valley contains the Napa River, the principal drainage course in the County, which has numerous tributary streams that drain its flanking ridge systems. The majority of SMP maintained facilities are located within this valley.

Expansive soils are present at many locations throughout the County. Landslides occur most often along the base of slopes and steep stream banks while accelerated erosion can occur on both hills and gently sloping valley areas. Similarly, areas susceptible to lateral spreading and liquefaction are the younger alluvial areas such as those adjacent to the Napa River or other incised rivers within the County.

The chance for a magnitude 6.7 or larger earthquake to occur in the greater Bay Area by the year 2032 is 62%. Similar smaller earthquakes (between magnitudes 6.0 and 6.7) have an 80% chance of occurrence by 2032. Earthquakes of these sizes are capable of considerable damage depending on epicenter proximity. Seismic risk is not isolated to active faults within Napa County; damage can result from activity on one of the major faults located outside of the County (i.e. San Andreas). The closest active fault to SMP maintained channels is the West Napa fault.

Due to the lack of bay front exposure within the County, tsunamis pose little risk. Though the risk for seiche is presumably low, some potential may exist within large bodies of water in the County (i.e., Lake Berryessa).

## Discussion of Checklist Responses

### **a, c, d. Exposure of People or Structures to Adverse Effects Associated with Seismic Activity, Landslide, or Location on Unstable or Expansive Soils — *Less than Significant***

As described in setting section above, the Project Area could be subject to ground shaking as a result of earthquake activity on any of a number of faults. Maximum ground accelerations and other earthquake induced hazards could be sufficient to damage SMP facilities. Similarly, expansive soils exist at a number of locations in the County and may damage facilities during seasonal changes in moisture content. However, the Project does not propose to create any additional facilities which would be permanently or temporarily

occupied. The vast majority of activities proposed under the Project are related to routine maintenance such as vegetation management, sediment and debris removal, and habitat restoration. These activities would not substantially affect, or be affected by risks related to seismic events or other geologic hazards.

Culvert replacement and repair is the only activity proposed as part of the SMP which could potentially be affected by seismic and geological hazards. While no additional facilities would be constructed, the replacement or repair of existing structures could be subject to damage if improperly designed or installed. However, damage resulting from seismic hazards is avoided by using one of the many techniques available to enable utilities to withstand the effects of seismic events.

The State of California's minimum standards for structural design and construction are given in the California Building Code (CBC) (California Code of Regulations, Title 24). The CBC provides standards for various aspects of construction, including but not limited to excavation, grading, and earthwork construction; fill placement and embankment construction; construction on expansive soils; foundation investigations; resistance to ground shaking in various zones of the state; and liquefaction potential and soil strength loss. In accordance with California law, project design and construction is required to comply with provisions of the CBC.

Adherence to applicable CBC standards, as well as city and County construction requirements would reduce the potential for structural damage to replacement or repaired culvert infrastructure associated with seismic hazards and unstable geologic units. Incorporation of appropriate construction requirements for geologic hazard considerations is a standard operating procedure which is protective of public health and property.

In addition, BMP GEN-6, which provides general provisions to prevent land-sliding for construction activities requiring in-channel access would be implemented. Therefore, this impact is less than significant and no mitigation is required.

**b. Result in Substantial Soil Erosion or Loss of Topsoil — *Less than Significant***

The Proposed Project would involve ground-disturbing activities including bank repair, removal of vegetation, debris, and sediment, including related activities such as construction of temporary coffer dams for dewatering and culvert clearing. Channel access and staging may result in erosion from the streambanks or sediment loading into the channel. Sediment loads to the channel could also result if stockpiled soils or sediment-laden water at work sites enters the channel or if new areas are disturbed for staging activities. Erosion or sediment loading into the channel also could occur if the activities do not revegetate exposed soils or restore low-flow channels as closely as possible to their original location and form.

*Applicable Best Management Practices*

The following BMPs are included as standard operating procedures for SMP activities to minimize the potential for erosion and sedimentation from proposed maintenance activities. Descriptions of these BMP are provided in Chapter 2, *Project Description*.

BMP GEN-2: Minimize the Area of Disturbance  
BMP GEN-3: Erosion and Sediment Control Measures  
BMP GEN-5: Staging and Stockpiling of Materials  
BMP GEN-6: Stream Access  
BMP GEN-7: In-Channel Minor Sediment Removal  
BMP VEG-2: Minimize Local Erosion Increase from In-channel Vegetation Removal  
BMP RESTOR-1: Seeding  
BMP RESTOR-1: Restore Channel Features

In the long-term, the proposed vegetation removal, revegetation, bank repair, and sediment and debris removal activities would have beneficial effects on potential erosion and sedimentation. Pruning and selective removal of trees on streambanks that have the potential to capture debris or redirect erosive flows toward the banks would tend to reduce erosion/sedimentation processes along streambanks. Similarly, the stabilization and treatment of streambanks that are actively eroding or slumping would tend to reduce the long-term erosion and sedimentation of an actively destabilized streambank.

Therefore, the Proposed Project would not substantially affect instream erosion or sedimentation rates. This impact would be less than significant and no mitigation is required.

**e. Support of Septic Tanks or Alternative Wastewater Disposal Systems —  
*No Impact***

The SMP would not result in the generation of wastewater, nor involve the construction or modification of any septic tanks or alternative wastewater disposal systems. As such, the SMP would have no impact associated with placement of such systems on unsuitable soils in the Project Area.

### 3.7 GREENHOUSE GAS EMISSIONS

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Generate a net increase in greenhouse gas emissions in excess of applicable thresholds adopted by the BAAQMD or the CARB which may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with a county-adopted climate action plan or another applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gasses?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Regulatory Setting

This section describes the federal, state, and local regulations related to greenhouse gas (GHG) emissions and climate change. At the federal level, the U.S. EPA has developed regulations to reduce GHG emissions from motor vehicles and has developed permitting requirements for large stationary emitters of GHGs. On April 1, 2010, EPA and the National Highway Traffic Safety Administration established a program to reduce GHG emissions and improve fuel economy standards for new model year 2012-2016 cars and light trucks. On August 9, 2011, EPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses.

California has recently enacted a number of policies and plans to address GHG emissions and climate change. In 2006, AB 32, the Global Warming Solutions Act was passed, which set the overall goals for reducing California’s GHG emissions. The goals are to reduce GHG emissions to 2000 GHG emission levels by 2010, to 1990 levels by 2020, and to 80 percent below 1990 levels by 2050 (CARB 2011). CARB is in the process of completing rulemakings to implement GHG emission reduction regulations, with the goal of adopting legally enforceable GHG rules and market mechanisms by January 1, 2012.

The 2008 Napa County General Plan includes policies aimed at reducing local contributions to global climate change. These policies include supporting efforts to reduce GHG emissions, participating in programs related to global climate change, promoting sustainable practices and green technology in development, promoting the research and development of renewable energy technology, and providing incentives for energy-efficient forms of transportation, among others.

The BAAQMD has also developed thresholds of significance for GHG emissions, which were published in the BAAQMD’s *California Environmental Quality Act Air Quality Guidelines*

(CEQA Guidelines) (2011a). Table 3-8 provides the BAAQMD’s recommended significance criteria for analysis of GHG impacts, including cumulative impacts.

**Table 3-8.** Applicable BAAQMD CEQA Thresholds of Significance for GHGs

Pollutant	Operational Significance Thresholds
GHGs—projects other than stationary sources	a) Compliance with qualified GHG reduction strategy <b>OR</b> b) 1,100 metric tons (MT) of carbon dioxide equivalent (CO <sub>2</sub> e) per year <b>OR</b> c) 4.6 MT CO <sub>2</sub> e/service population (residents and employees) per year

Source: BAAQMD 2011a

## Environmental Setting

Anthropogenic emissions of GHGs are widely accepted in the scientific community as contributing to global climate change. Temperature rises associated with climate change are expected to negatively impact plant and animal species, cause ocean acidification and sea level rise, affect water supplies, impact agriculture, and harm public health. California has contributed to GHG emissions and was estimated in 2006 by the California Energy Commission to be responsible for approximately 2 percent of the world’s total GHG emissions (California Climate Change Center 2006). California’s total GHG emissions were estimated as 471 million metric tons of CO<sub>2</sub> equivalents in 2006 by CARB in its Greenhouse Gas Inventory Data (CARB 2010).

Due to Napa County’s rural character, the amount of GHGs emitted is small compared to other counties in the Bay Area and in statewide terms. The Napa Valley Community Foundation Green Fund and MIG developed a baseline of Napa County GHG emissions in 2009, and found that Napa County’s total emissions in 2006 were 1.1 million metric tons of CO<sub>2</sub> equivalents (Napa Valley Community Foundation et al. 2009), approximately 0.2 percent of the state’s total emissions. The largest sources of emissions were from commercial/industrial uses (38.8 percent), followed by on-road vehicles (34.2 percent), residential (18.3 percent), solid waste (6.8 percent), off-road industrial/commercial (1.5 percent), and off-road garden (0.3 percent).

## Discussion of Checklist Responses

### **a, b. Generation Of, Or Conflicts With, Plans Or Policies To Reduce Greenhouse Gas Emissions — *Less than Significant***

Use of vehicles and off-road equipment, such as wood chippers and excavators, for SMP activities would generate emissions of GHGs. As discussed in Section 3.2 *Air Quality*: work would be conducted over approximately 140 workdays (April through October), a maximum of 200 trips per year covering an average of 4,050 miles would be generated (refer to Table 3-4), and off-road equipment use occurs up to 56 days per year.

An overview of estimated 2012 and 2020 maximum daily and annual emissions of GHGs is presented in Table 3-9. Maximum emissions estimates present a conservative scenario, as daily and annual emissions would often be less. While the extent of the District’s SMP activities would not change between 2012 and 2022, California Air Resources Board’s Low Carbon Fuel Standard is expected to reduce CO<sub>2</sub>e emissions from vehicles by a total of 7.2 percent by 2020. For additional information on how emissions were estimated refer to Appendix B.

**Table 3-9. CO<sub>2</sub>e Emissions Estimates (pounds per day)**

Source	Daily (pounds per day)		Annual (tons per year)	
	2012	2020	2012	2020
Off-Road	2,979.6	2,086.1	75.7	53.0
On-Road	74.3	52.2	4.7	3.3
<i>Total</i>	<i>3,053.9</i>	<i>2,138.3</i>	<i>80.4</i>	<i>56.3</i>
BAAQMD Threshold <sup>1</sup>	None		1,100	

Note: See Table 3-3 for BAAQMD CEQA Thresholds of Significance for criteria air pollutants.  
Source: Data compiled by URS in 2011(refer to Appendix B).

Table 3-9 shows that even the maximum extent of District SMP activities would generate emissions substantially below annual BAAQMD significance thresholds for GHGs. As a result, the District’s SMP would not generate GHG emissions with the potential to significantly affect the environment or conflict with any plans to reduce GHGs. This is considered a less than significant impact.

### 3.8 HAZARDS AND HAZARDOUS MATERIALS

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within 2 miles of a public airport or public use airport and result in a safety hazard for people residing or working in the study area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	Be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the study area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g.	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h.	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Setting

### ***Contaminated Sites***

There are 92 known and monitored sites throughout Napa County where hazardous substances have contaminated the soil or groundwater (State Water Resources Control Board 2011). Most of the sites are located within the valley floor, within incorporated cities located along Highway 29 and particularly the Cities of Napa and St. Helena. There are several hundred wineries and vineyards in Napa County where hazardous substances, such as pesticides, are used. Hazardous substances and contaminated sites are regulated under federal and state laws, including the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), and the Superfund Amendment and Reauthorization Act (SARA). The majority of these laws are administered and enforced by state agencies such as the California Department of Toxic Substances Control and the State Water Resource Control Board (SWRCB). More information on known contaminated sites is available online at the EnviroStor database maintained by the California Department of Toxic Substances Control: <http://www.envirostor.dtsc.ca.gov> and the SWRCB's GeoTracker database accessible online at: <http://geotracker.swrcb.ca.gov>.

Napa Valley has been under active land cultivation for over 100 years, but there may be unknown contamination associated with past agricultural practices (e.g., fuel and pesticide storage and use).

### ***Airports***

There are two public use airports in the county: the Napa County Airport located south of the City of Napa, and the Angwin-Parrett Field located in Angwin east of St. Helena.

### ***Wildland Fire Hazards***

Napa County has a high wildland fire potential with its long, dry summers, narrow valleys and steep, hilly terrain, and fire-adapted vegetation. In the last several decades, the combination of fire protection technology, environmental regulations, fire suppression policies, and developmental trends have led to increasing fuel loads, and greater potential for catastrophic wild fires. Recognizing the need to assess fire severity, the County closely monitors fire-prone areas with a GIS-based model. The valley floor is ranked as low or moderate fire hazard risk; while the hillslopes on both sides of the valley, and surrounding Lake Berryessa, are ranked as high to very high fire hazard risk.

### ***Mosquito Abatement***

Vector control in Napa County is managed by the Napa County Mosquito Abatement District (MAD), under the Mosquito Abatement Act of 1915. The MAD manages vectors such as rats, arthropods, mosquitoes, ticks, yellow jackets, wasps, and bees to control the spread of vector-borne diseases including encephalitis, dog heartworm, West Nile virus, Lyme disease, malaria, and Rocky Mountain Spotted Fever. The MAD uses a variety of methods to control vectors, including biological controls (mosquito fish, bacteria, and natural enemies),

chemical controls (pesticides and insect growth indicators), physical control (source reduction), and community education (prevention).

Larval and adult mosquito surveys are conducted to monitor of the spread of vector-borne diseases. Under the California Health and Safety Code, mosquito abatement districts are empowered to take all necessary and proper steps for elimination and extermination of mosquitoes. MAD personnel make routine inspections of mosquito sources, such as ditches, channels, lagoons, drain lines, marsh areas, creeks, lakes, flood control basins, utility vaults, catch basins and fish ponds. If mosquito production is found, the MAD has the authority to take action to control or eliminate the problem.

Vegetation control actions are also taken to reduce the wind protected cover that is created by plants for both adult and immature vectors, particularly mosquitos. Vegetation controls may be accomplished with hand tools, heavy equipment, or use of herbicides. Herbicides are used to control vegetation at wastewater ponds of water treatment facilities and wineries. The materials used are Karmex DF and Oust (pre-emergent for grasses and some broadleaf weeds), and RoundUp and Aquamaster (for post-emergent weed control). (Napa County Mosquito Abatement District 2006).

## Discussion of Checklist Responses

### **a, b. Creation Of Hazard Through Transport, Use Or Disposal Of Hazardous Materials — *Less than Significant***

#### Use and Transport of Hazardous Materials

Maintenance activities would involve the use of fuels and lubricants for maintenance equipment and herbicides for vegetation management. If these materials were released into the water or ground during application or equipment refueling or maintenance, contamination and harm to people could result. These hazardous materials would be transported to and from the maintenance sites and would be removed once the project is complete; hazardous materials would not be permanently stored at any of the maintenance sites.

Potential impacts related to use or transport of hazardous materials would be avoided or reduced through implementation of the SMP BMPs (see Table 2-1 in Chapter 2, *Project Description*), which include provisions for safe staging, stockpiling, and on-site hazardous materials management (GEN-5 and GEN-8), measures to prevent and respond to accidental releases of hazardous materials (GEN-10), proper vehicle and equipment and fueling measures (GEN-12 and GEN-13), and standard practices for herbicide use (VEG-4). This impact is less than significant and no mitigation is required.

#### Disposal of Hazardous Materials

Creeks are common locations for illegal dumping of trash containing hazardous wastes, such as tires, oil filters, and paint cans. In addition, pollutants transported in stormwater runoff can accumulate in these water bodies. Hazardous waste deposited in stream channels would potentially be removed as part of proposed maintenance activities. Maintenance activities would be conducted with implementation of BMP GEN-9 *Existing*

*Hazardous Materials.* This measure directs the District in proper handling and disposal of hazardous waste encountered during maintenance activities. This impact is less than significant and no mitigation is required.

#### Hazards Related to Mosquitoes

As described in the setting section above, vector-borne disease carriers including mosquitoes are present in the stream corridor. If the Proposed Project would create or increase mosquito breeding areas or habitat for other vectors, a significant impact may occur. Maintenance activities would generally improve drainage through removing sediment and vegetation blockages that create standing water conditions where mosquitoes tend to breed. Therefore, proposed maintenance activities would reduce the risk of mosquito breeding within maintained stream channels. In no event would maintenance create areas of standing water that could foster mosquitoes. Finally, proposed maintenance activities would not interfere with mosquito abatement efforts conducted by the Napa County MAD. There would be a beneficial effect of reduced public health hazards as a result of the Proposed Project. No mitigation is required.

#### **c. Generation of Hazardous Emissions/ Use of Hazardous Materials Within 0.25 Mile of Schools — *Less than Significant***

Stream maintenance activities would involve transport and use of small quantities of fuels, lubricants, and herbicides, which may be hazardous. Additionally, stream channels may intersect with areas of existing soil or groundwater contamination.

There are many schools located within 0.25 mile of stream channels maintained by the District. Most of these schools are in session during a traditional school calendar, and some are open year-round. Thus, children may be present when maintenance activities are implemented near schools and could potentially be exposed to hazardous materials from maintenance work sites.

Potential impacts related to use of hazardous materials would be avoided or reduced through implementation of the SMP BMPs, which include provisions for restricting the timing of maintenance activities (GEN-1), proper on-site handling and use of hazardous materials, including herbicides (GEN-8 and VEG-4), prevention against and response procedures for accidental hazardous material spills (GEN-10), prevention against fires (GEN-11), and measures to protect public safety and prevent disruption to school access (GEN-17 and GEN-18). Therefore impacts due to use or emissions of hazardous materials in close proximity to schools would be less than significant and no mitigation is required.

#### **d. Location on Listed Toxic Site, and Related Impacts — *Less than Significant***

As stated above, there are numerous known contaminated sites identified in the county. This information is tracked and made publically available on the California Department of Toxic Substances Control's EnviroStor website (<http://www.envirostor.dtsc.ca.gov>) and the SWRCB's GeoTracker website (<http://geotracker.swrcb.ca.gov>). Because the proposed maintenance activities would vary each year and the status of existing contamination and cleanup efforts changes frequently, it is difficult to determine the degree to which

maintenance activities would impact (or be impacted by) existing contaminated sites. However, excavation of sediment from channels and bank repair activities may encounter existing contaminated groundwater or sediment. Handling or release of contaminated water or sediments during maintenance activities could threaten people or the environment.

The potential to disturb existing contaminated sites in the county would be evaluated as part of the annual maintenance planning process. As described in BMP GEN-9 *Existing Hazardous Materials*, upon selection of maintenance project locations, the District will conduct a search for existing known contaminated sites on the SWRCB's GeoTracker website (<http://www.geotracker.waterboards.ca.gov>). The Geotracker search will only be performed for proposed ground disturbing activities. For any proposed ground disturbing maintenance sites located within 1,500 feet of any "open" sites where contamination has not been remediated, the District will contact the Regional Water Quality Control Board case manager identified in the database. The District will work with the case manager to ensure maintenance activities would not affect cleanup or monitoring activities or threaten the public or environment.

BMP GEN-9 also requires proper handling and disposal of hazardous materials encountered during maintenance activities. Planned maintenance activities would not significantly impact known contaminated sites or remediation efforts. Therefore, this impact would be less than significant and no mitigation would be required.

#### **e, f. Location in the Vicinity of A Public or Private Airstrip — *No Impact***

The Napa County and Angwin airports are located within 2 miles of stream channels which may be maintained by the District. Although proposed maintenance activities may be performed within 2 miles of an airport, these activities would not interfere with airport operations, would not involve the use of any equipment that would affect aircraft utilizing any airports in the county, and would not result in a substantial safety hazard to people residing or working in vicinity of airports. Therefore, there would be no impact, and no mitigation is required.

#### **g. Interference with Emergency Response or Evacuation Plan — *Less than Significant***

During maintenance activities, road closures may be necessary. If road closures or traffic generated by maintenance activities (such as hauling of fill or disposal materials) were to interfere with emergency response measures such that response times were extended, a significant impact would result. However, implementation of BMP GEN-17 *Planning for Pedestrians, Traffic Flow, and Safety Measures* would ensure that temporary lane closures are coordinated with local emergency response agencies, and that haul routes consider level of service and existing traffic (see also the section on Traffic and Transportation). With implementation of this BMP, this impact would be less than significant. No mitigation is required.

#### **h. Exposure of People or Structures to Risk of Wildland Fires — *Less than Significant***

The primary fire season in the county extends from late summer through fall, when conditions are driest and air temperatures are high. The valley floor is ranked as low or moderate fire hazard risk; while the hillslopes on both sides of the valley, and surrounding Lake Berryessa, are ranked as high to very high fire hazard risk.

Proposed maintenance activities would not involve placement of people or habitable structures in areas without adequate fire protection. Additionally, proposed maintenance activities would not result in the creation of new wildland areas which could increase fire dangers. In the long term, management of riparian vegetation in District-maintained channels would reduce the risk of urban fires.

However, because maintenance activities would be conducted during the dry summer months when fire danger is the highest and in locations along the urban/wildland interface, there is a potential for an accidental ignition of a wildland fire. The District implements BMP GEN-11 *Fire Prevention*, which requires on-site fire suppression equipment, spark arrestors on all equipment with internal combustion engines, and restricts activities on high fire danger days. Therefore, this impact would be less than significant, and no mitigation is necessary.

### 3.9 HYDROLOGY AND WATER QUALITY

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d.	Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on-site or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g.	Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h.	Place within a 100-year flood hazard area structures that would impede or redirect floodflows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### 3.9 HYDROLOGY AND WATER QUALITY

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
i.	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j.	Contribute to inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Setting

Water quality and hydrologic function are protected by the federal Clean Water Act and by California’s Porter-Cologne Water Quality Control Act and Groundwater Management Act. The County General Plan also contains a number of goals, policies, and action items for water resources protection and management. For additional information, see Chapter 11 of the Napa County Stream Maintenance Manual (Manual) and the *Napa County Baseline Data Report* (Napa County 2005).

#### ***Climate and Precipitation***

Napa County has a Mediterranean climate with distinct wet and dry seasons. Approximately 90% of the precipitation occurs between November and April and can vary significantly from year to year. In general, precipitation increases from south to north with increasing elevation, and annual precipitation varies by more than a factor of three throughout the County, from 22.5 to 75 inches/year. Precipitation is lowest in the southern portion of the County and in the vicinity of Lake Berryessa, at about 22.6 inches/year. Annual precipitation in the City of Napa averages approximately 26.5 inches per year. Average annual precipitation is highest in the higher portions of the Mayacama Mountains, the mountains north of Calistoga, and the mountains in the northern portion of the Lake Berryessa subarea (Napa County 2005). The remainder of this section focuses on the Napa River watershed only, where the majority of maintenance activities are conducted. However, maintenance activities can occur countywide.

#### ***Surface Water Hydrology and Quality***

As described in Chapter 1 of the Manual, the District’s maintenance activities are focused in the Napa River watershed. The Napa River is the largest river in Napa County. Its watershed covers approximately 426 square miles, extending in a northwesterly direction approximately 45 miles from San Pablo Bay on the south to Calistoga on the north, and including the central valley floor and the eastern and western mountains. The valley is bounded on the west by the Mayacama Mountains (ranging from 1,000 to 2,700 feet above sea level [asl]), on the north by Mt. St. Helena (elevation 4,343 feet asl), and on the east by a northwest-trending range of mountains that are generally above 2,000 feet asl. The

southern portion of Napa Valley is very flat, with elevations ranging from near sea level on the valley floor to 400 feet asl along the valley flanks. The Napa River empties into San Pablo Bay in the south. Stream flows in the Napa River and its tributaries generally peak in January and February and are lowest from August through November. Detailed descriptions of the stream reaches routinely maintained by the District are included in the Channel Reach Characterization Sheets in Chapter 2 of the Manual.

The watershed structure and its stream network are relevant in considering sediment delivery and stream maintenance needs. The higher mountains that ring the Napa River watershed provide the headwater source areas for runoff and sediment that accumulate in the tributary and valley floor streams below. The steep canyons and headwater mountain streams deliver flows and sediment to the valley floors and often build characteristic alluvial fans at the base of the mountains. Historically, these alluvial fans functioned as depositional areas that stored sediments in the topographic transition between the higher and steeper headwater areas and the more gently sloping floodplain of the Napa Valley floor. Historically, during large flood events, streams migrated across these alluvial fan and valley floor floodplain and distributed sediments evenly across the surface. Over time, fans prograded downstream onto the valley floor at variable rates depending upon sediment sources, climatic conditions, and tectonic activity (earthquakes and motion along fault lines). Further discussion on the geomorphic setting of the County is provided in Chapter 2 of the Manual.

Surface water quality in the Napa River and its tributaries varies seasonally. During the winter months, stormflows convey urban and agricultural runoff and associated pollutants (e.g., fine sediments, fertilizer residue, pesticides, pathogens, metals, and nutrients) into the River. However, because of high flows and the resulting dilution of pollutant input, pollutant concentrations during this period are relatively low, although turbidity can be elevated by high sediment loading.

During the summer months when streamflow is low, inflows are reduced, but pollutants are more concentrated, water temperatures are higher, and oxygen levels are reduced, resulting in decreased water quality. Because of concerns about degraded water quality, the Napa River was placed on the 303(d) list of “impaired” water bodies that do not meet water quality standards for sediment and pathogens by the San Francisco Bay Regional Water Quality Control Board (Regional Board). As a result of this listing and concerns about adverse impacts to aquatic habitat and associated species, the Regional Board has developed Total Maximum Daily Load (TMDL) programs that established pollutant budgets and control plans in the Napa River. Additionally, the Regional Board is developing a TMDL to address elevated nutrient concentrations. The Napa River Sediment TMDL identified streambank erosion as a primary source of fine sediments in the Napa River and recommends implementation of projects to stabilize actively eroding streambanks, control channel incision, and restore aquatic habitat (San Francisco Bay Regional Water Quality Control Board 2005).

### ***Groundwater Hydrology and Quality***

Napa County consists of a series of roughly parallel groundwater basins filled to varying depths with unconsolidated and semi-consolidated alluvial materials. These basins are underlain by marine sediments, and metamorphic and igneous rocks that act as confining

units restricting the flow of groundwater. The major aquifers in the County are the North Napa Valley and Milliken-Sarco-Tulucay groundwater basins. Smaller aquifers include the Carneros groundwater basin and small basins within the Putah Creek Watershed (Napa County 2005).

The largest and most productive aquifer in the County is the North Napa Valley groundwater basin. This basin extends from just north of the City of Napa up the valley floor to the northwestern end of the valley just north of the City of Calistoga, covering an area of approximately 60 square miles. In general, groundwater flow in the North Napa Valley groundwater basin is from the valley edges inward toward the center, and southwest towards San Pablo Bay. Studies conducted by the District estimate the storage capacity of these surficial deposits at approximately 190,000 acre-feet, and the average annual recharge for the basin from deep percolation, surface tributary flow, and subsurface flow at approximately 26,800 acre-feet per year. Within the Project Area, groundwater is pumped for both domestic and agricultural use. (Napa County 2005)

In Napa Valley, the depth to groundwater ranges from about 20 to 50 feet below ground surface during the spring. Long-term trends have been generally stable with the exception of the northeastern area where there has been a 10 to 30 foot decline over the past 10 years. Seasonal groundwater elevations in generally fluctuate from 10 to 40 feet (Luhdorff & Scalmanini 2011).

Groundwater quality in the basin is primarily affected by pollutants (e.g., pesticide and/or fertilizer residues) that are leached out of surface soils by rainfall and conveyed into the aquifer through percolation. Surface water contaminants also have the potential to impact groundwater quality (Napa County 2005).

## Discussion of Checklist Responses

### **a, c, f. Violation of Water Quality Standards or Waste Discharge Requirements, Erosion and Siltation Impacts Related to Alteration in Existing Drainage Patterns, Other Degradation of Water Quality — *Less than Significant***

#### Erosion and Siltation

Stream maintenance activities involving ground disturbance, such as for sediment removal and bank repairs, could cause soil erosion and sedimentation, and reduce water quality within streams. Disturbing soil on the banks and within the beds of surface water bodies could cause sediment to be eroded and transported downstream. Adverse effects of sediment releases could include increased turbidity, which could cause an increase in water temperature and a corresponding decrease in dissolved oxygen levels. Though ground disturbing stream maintenance activities (such as sediment removal) would be short-term and temporary, discharge of sediment to surface waters could adversely impact water quality, endanger aquatic life, and/or result in a violation of water quality standards.

Potential impacts on water quality during maintenance would be avoided or reduced through implementation of the SMP BMPs (see Table 2-1 in Chapter 2, *Project Description*),

which include provisions to conduct work during the dry season (GEN-1) and control erosion and sedimentation (GEN-3) to prevent accidental releases of sediment during maintenance activities.

In addition, during the period following bank repairs, before vegetation is fully established, there is some potential for erosion and associated increases in sediment loading and sedimentation. However, all bank repairs would be hydromulched, and erosion control blankets and coir logs installed in erosion-prone areas, to prevent erosion and sedimentation (see BMPs RESTOR-1 through RESTOR-5). Additionally, all new bank repairs would be monitored annually, and any necessary remedial actions (e.g., additional planting and/or erosion controls) would be implemented by the District, as described in Chapter 10 of the Manual.

With these commitments, adverse effects on water quality due to maintenance activities would be avoided and minimized to the extent feasible, and no violation of water quality standards or waste discharge requirements is anticipated. Impacts are considered less than significant, and no mitigation is required.

#### Hazardous Materials

Hazardous materials, including gasoline, oils, grease, and lubricants, are associated with maintenance equipment and would be present during maintenance activities, particularly those involving use of heavy equipment. The use, storage, and refueling of equipment and vehicles could release these hazardous materials. If accidentally released directly or indirectly into the stream channel, the sediment and water nearby the work site could be significantly degraded. Fine sediments within stream channels could readily absorb pollutants and be transported downstream. The presence of hazardous materials during stream maintenance activities, and related potential for accidental release, would be short-term and temporary. However, discharge of these materials to surface waters could adversely impact water quality, endanger aquatic life, and/or result in a violation of water quality standards.

Ground-disturbing maintenance activities and debris removal activities may also encounter existing hazardous materials, such as discarded oil, batteries, and paint cans. Hazardous debris is often discarded in stream channels, particularly those next to roadways and overcrossings. The District removes and disposes of this debris as part of their regular stream surveys and maintenance activities. If not removed from the streams in a proper manner, the hazardous materials would continue to degrade the quality of water and surrounding environment.

Potential impacts on water quality from use of hazardous materials during maintenance would be avoided or reduced through implementation of the SMP BMPs, which include provisions for staging and stockpiling of hazardous materials (GEN-5), proper storage and handling of on-site hazardous materials (GEN-8), proper handling and disposal of hazardous materials encountered on-site (GEN-9), prevention against and response to accidental releases of hazardous materials (GEN-10), and proper vehicle and equipment maintenance and fueling practices (GEN-12 and GEN-13). These BMPs ensure that potential hazardous materials-related impacts on water quality would be less than significant, and no mitigation is necessary.

### Herbicide Use

The District applies herbicides to control invasive and exotic plants in upland areas (vegetation growing along and on top of stream banks). Herbicide application on aquatic vegetation (plants growing in or adjacent to the water, such as cattails or Ludwigia) is not conducted under the SMP. Herbicides are used on a site by site basis and only when necessary, such as when hand and mechanical methods would be infeasible or unsuccessful. Herbicide application is conducted by targeted spot spraying and hand painting of cut stumps. These methods result in the least amount of overspray and drift. Foliar spraying may be conducted to control growth on larger plants such as exotic trees or large stands of pampas grass.

Herbicides can be toxic to people and wildlife if not handled properly. Herbicides could be accidentally released into channels and could be washed into the stream during storm events, resulting in impacts to stream water quality. Herbicides also could cause impacts on groundwater quality if they were dissolved in water and filtered through the soil into the groundwater table. However, the majority of harmful constituents contained in herbicides sorb onto soil particles, would be broken down by organic matter into non-toxic forms, and would not reach the groundwater table.

Potential impacts on water quality and sediment from herbicide applications would be avoided or reduced through implementation of the SMP BMPs, which include restrictions on application work windows (GEN-1), standard herbicide use requirements (VEG-4), and provisions to protect sensitive fauna species from herbicide use (BIO-3). These BMPs would ensure that potential herbicide-related impacts on water quality are less than significant, and no mitigation is necessary.

### Compliance with CWA Section 303(d) Total Maximum Daily Loads and Other Water Quality Regulations

As described above, the Napa River has been placed on the list of “impaired” water bodies that do not meet water quality standards for sediment and pathogens, and TMDL programs have been developed for the Napa River system. The proposed stream maintenance activities would not affect or contribute to pathogen contamination in the Napa River watershed, and so the project would have no impact related to implementation of the TMDL for pathogens. However, proposed maintenance activities could affect sediment transport and implementation of the TMDL for sediment, as discussed below.

Maintenance activities involving ground disturbance, including bank stabilization, sediment removal, and access road and culvert maintenance, could cause temporary soil erosion and sedimentation, and reduction in water quality (see the discussion above on temporary erosion and sedimentation impacts due to maintenance activities). However, in the long term these maintenance activities –along with habitat enhancement activities including riparian planting and instream habitat complexity projects – would stabilize actively eroding streambanks, reduce local flow velocities, and reduce inputs of fine sediments to the channel; control channel incision; and enhance habitat for native aquatic species. Overall, maintenance activities would improve the channel’s ability to convey flood flows, thereby reducing undesirable bank erosion and sediment loading effects. All of these outcomes are consistent with recommendations in the sediment TMDL and would

represent long-term improvements to water quality. This is a beneficial impact, and no mitigation is required.

As described in Chapter 11 of the Manual, stream maintenance activities described in this manual function to ensure compliance with County stormwater discharge permits (NPDES permits issued in compliance with section 402 of the Clean Water Act) through enhancement of riparian and in-channel features which filter storm runoff and improve water quality. Additionally, maintenance activities include trash and debris clearing and consistent implementation of maintenance BMPs throughout the watershed. Stream maintenance efforts would not conflict with existing regulation of stormwater discharges in the county. This is a beneficial impact, and no mitigation is required.

#### **b. Effects on Groundwater Supply or Recharge — *Less than Significant***

Proposed maintenance activities would not affect existing groundwater wells and pumping facilities, and no new wells or pumps would be installed as part of the project. The proposed maintenance activities would not involve any actions that would substantially deplete groundwater supplies or affect the aquifer volume or groundwater table level.

For bank stabilization or culvert repair projects that require use of hardscape, such as riprap, there would be a slight increase in impervious area from the hardscape. This new impervious surface would have very little effect on groundwater recharge or on groundwater supply. Impacts are therefore expected to be less than significant, and no mitigation is required.

Maintenance activities may improve groundwater recharge functioning through sediment removal and habitat enhancement activities. Stream channel bottoms are perhaps the most effective groundwater recharge locations in a groundwater basin. Removal of fine sediments from channel bottoms and addition of gravel would encourage groundwater recharge functioning in channel bottoms. This would have a beneficial impact on groundwater recharge.

#### **d, e, g, h, i. Runoff and Flooding Impacts Related to Alteration in Existing Drainage Patterns, Effects on Capacity of Existing or Planned Stormwater Drainage Systems, Potential to Increase Flooding Hazards — *Less than Significant***

##### Effects on Stormwater Systems

Maintenance activities associated with stormwater systems would include installation and repair of drop-inlet culverts and the clearing, repair, or replacement of culverts at road crossing. Culvert maintenance is conducted to prevent overtopping flows (due to poor drainage) which can result in erosion or bank failure due to saturated soils. Therefore, stream maintenance activities function to maintain the stormwater system. Maintenance activities would not alter the rate or timing of stormwater runoff, or otherwise result in decreases in the capacity of existing or planned stormwater drainage systems in the county. Overall impacts on stormwater drainage systems would be beneficial, and no mitigation is required.

### Changes in Drainage Patterns and Increased Flood Hazards

As described in the Manual, the purpose of the Stream Maintenance Program is to maintain flood control channels, manage debris and vegetation to protect resources, and prevent against stream and bank erosion. The Stream Maintenance Program does not include large scale redesign or reshaping of channels or capital improvement projects (such as the Napa Creek Flood Protection Project). Rather, the District maintains the drainage capacity and functioning of the existing stream channel network and its associated structures, including culverts. No significant changes to drainage patterns would result from the proposed stream maintenance activities.

By conducting vegetation management, downed tree management, bank and erosion repairs, sediment removal, and culvert maintenance activities, the District's maintenance activities prevents and reduces the potential for flooding and resulting damage caused by floods. As described in Chapter 10 of the Manual, maintenance activities are conducted in an annual cycle to identify and address flood hazard issues prior to the next flood season. Maintenance activities would be conducted during the dry season. Therefore, impacts related to drainage patterns and flood hazards would be beneficial, and no mitigation is required.

#### **j. Potential to Contribute to Seiche, Tsunami, and Mudflow Hazards — *No Impact***

The southern portion of the Project Area, south of the City of Napa and near the City of American Canyon, is tidally influenced by San Pablo Bay and the larger San Francisco Bay. Consequently, effects of seiche or tsunami events would potentially influence stream channels within the Project Area. Tidally influenced areas in the County are not routinely surveyed or maintained by the District, but are the responsibility of the District to maintain if necessary. Such stream maintenance activities would not increase the risks posed by these events; instead, stream maintenance activities would ensure channels are maintained free of blockages that could cause flooding, both from downstream flowing waters and upstream flowing waters occurring under seiche or tsunami events. Proposed maintenance activities would beneficially protect against impacts from seiche or tsunami.

The Project Area includes maintenance of drainages within hillslope areas that may be prone to mudflows. However, maintenance activities would not increase the potential for mudflows to occur. On the contrary, maintenance activities are implemented to prevent against occurrences of bank failures and mudflows, and the resulting sedimentation and degradation of water quality. Therefore, no impact related to increase of mudflow risks is anticipated. No mitigation is required.

### 3.10 LAND USE AND PLANNING

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Setting

Land use planning in the Project Area is governed by one of several general plan documents. In unincorporated areas, the Napa County General Plan provides goals and policies to guide development while protecting sensitive and valued County resources. Incorporated areas in the Project Area include the cities of American Canyon, Calistoga, Napa, St. Helena, and Yountville. Land uses in each of these areas are regulated by their respective General Plans and ordinances which are specific to local needs and land use development issues. Although the policies contained in each of these general plans may differ, the importance of maintaining consistency throughout the County is recognized by each planning agency.

Land uses adjacent to the maintenance channels vary from agricultural uses to residential/commercial areas. The maintenance channels themselves are either owned by the County or are privately owned, but remain undeveloped and function as flood control and water conveyance facilities for the Project Area.

#### Discussion of Checklist Responses

##### a. Divide an Established Community — *Less than Significant*

The SMP would consist of maintenance activities that are restricted to channel areas and easements. The SMP activities would not permanently affect access to any of the surrounding land uses, nor create any new permanent, physical barriers between developed areas. However, on occasion, temporary access restrictions of existing trails and roadways may be required to conduct maintenance. These potential disturbances are further addressed in Section 3.15, *Recreation* and Section 3.16, *Traffic and Transportation*.

As detailed in these sections, temporary maintenance-related disturbances would be less than significant. Once maintenance activities were completed, SMP-related access disruptions to existing neighborhoods would cease.

*Applicable Best Management Practices*

The following BMPs, detailed in Chapter 2, would prevent maintenance activities from substantially disrupting existing roadways or recreational trails connecting existing communities.

BMP GEN-2: Minimize the Area of Disturbance

BMP GEN-17: Planning for Pedestrians, Traffic Flow, and Safety Measures

BMP GEN-18: Public Safety Measures

Because active maintenance related to the Proposed Project would be short-term and access disruptions would be temporary, this impact would be less than significant. No mitigation is required.

**b. Conflicts with Land Use Plans or Policies — *Less than Significant***

The proposed SMP activities would not result in new development, as no new permanent habitable structures would be created nor would land be altered from its present use. In some areas however, activities would take place within designated streamside conservation corridors, setbacks, and/or protection zones. Such setbacks and protection zones are intended to limit development and encourage resource conservation in these sensitive areas. Although temporary impacts are associated with the proposed activities (see the other impact discussions in this chapter), the actions proposed under the SMP would act to improve the quality and condition of habitat along the flood control channels. Furthermore, the SMP activities would support the policies and goals of the regional and municipal general plans of Project Area which mutually emphasize natural resource protection and enhancement while acknowledging the need for flood risk reduction. Over the long-term, implementation of the SMP would protect existing development and land uses by maintaining water conveyance capacity and provide enhanced riparian and instream habitat in the Project Area.

Achieving these objectives would support existing land use plans and would not result in incompatibilities with existing and adjacent land uses. This impact is considered less than significant. No mitigation is required.

**c. Conflicts with Habitat Conservation Plans — *No Impact***

As discussed in Section 3.4 *Biological Resources*, SMP activities would not occur within the boundaries of any existing or proposed habitat conservation plans. Therefore, there would be no impact related to conflict with an adopted or proposed conservation plan. No mitigation is required.

### 3.11 MINERAL RESOURCES

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Setting

As described in the Napa County General Plan, state mineral resource zone maps do not exist for the majority of the County. However, the State Department of Conservation, Office of Mine Reclamation currently recognizes 3 active mines in County: the Napa Quarry, the Pope Creek Quarry, and the American Canyon Quarry. Of these, the Napa Quarry is the only significantly producing mine which generates approximately 500,000 tons of basalt rock annually for use as concrete aggregate. (Napa County 2008)

#### Discussion of Checklist Responses

##### **a, b. Loss of Availability of Mineral Resources — *No Impact***

None of the mines described above are located in within the boundaries of District owned or maintained channels where SMP activities would take place. Although mines or mineral resource areas may be located in proximity to SMP activity areas, the SMP would not involve any activities that could directly affect mineral production sites.

Sediment excavated under the SMP may be reused, with the potential to offset demand for mineral resources such as aggregate. However, the total volume of reused material under the SMP in any given year would be small (less than 125 cubic yards), and would not represent an appreciable fraction of the total aggregate resources used annually in the County.

There would be no impact, and no mitigation is required.

### 3.12 NOISE

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project result in:					
a.	Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d.	A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	For a project located within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public-use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

#### ***Overview of Noise Concepts and Terminology***

Noise can be defined as unwanted sound. Sound is characterized by various parameters that include the rate of oscillation of sound waves (frequency), the speed of propagation, and the pressure level or energy content (amplitude). In particular, the sound pressure level is the most common descriptor used to characterize the loudness of an ambient sound level, or sound intensity. The decibel (dB) scale is used to quantify sound intensity. Because sound pressure can vary enormously within the range of human hearing, a logarithmic scale is used to keep sound intensity numbers at a convenient and manageable level. The human ear is not equally sensitive to all frequencies in the entire spectrum, so

noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called “A-weighting,” written “dBA.”

Different types of measurements are used to characterize the time-varying nature of sound. Below are brief definitions of these measurements and other terminology used in this chapter.

- **Sound** is a vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, can be detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise** is sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB)** is a unitless measure of sound on a logarithmic scale, which indicates the squared ratio of sound pressure amplitude to a reference sound pressure amplitude. The reference pressure is 20 micro-pascals.
- **A-weighted decibel (dBA)** is an overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.
- **Maximum sound level ( $L_{max}$ )** is the maximum sound level measured during the measurement period.
- **Minimum sound level ( $L_{min}$ )** is the minimum sound level measured during the measurement period.
- **Equivalent sound level ( $L_{eq}$ )** is the equivalent steady-state sound level that, in a stated period of time, would contain the same acoustical energy as a time-varying sound level during that same period of time.
- **Percentile-exceeded sound level ( $L_{xx}$ )** is the sound level exceeded x% of a specific time period.  $L_{10}$  is the sound level exceeded 10% of the time.
- **Day-night level ( $L_{dn}$ )** is the energy average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the A-weighted sound levels during the period from 10:00 p.m. to 7:00 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is just noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as doubling or halving the sound level. Table 3-10 presents example noise levels for common noise sources, the levels are measured adjacent to the source.

**Table 3-10.** Examples of Common Noise Levels

Source	Noise Level (dBA)
Weakest sound heard by average ear	0
Whisper	30
Normal conversation	60
Ringling telephone	80
Power lawnmower	90
Tractor	96
Hand drill	98
Bulldozer	105

Chain saw	110
Ambulance siren	120
Jet engine at takeoff	140

Source: National Institute of Safety and Health 2008

The term *noise sensitive land uses*, also referred to in this section as *sensitive receptors* include residences, schools, hospitals, or other similar locations where excess noise would negatively affect normal functions. Some of the reaches maintained under the Stream Maintenance Program may be located in the vicinity of noise sensitive land uses.

### Regulatory Setting

Acceptable noise levels in unincorporated areas of Napa County are established in Title 8 of the County Code of Ordinances. The standards as applicable to construction activities are described below in Table 3-11. While stream maintenance activities are not construction activities per se, they often involve similar types of equipment and are very similar in terms of their potential for noise generation.

**Table 3-11.** Napa County Noise Limits for Construction Activities

Time Period	Residential	Commercial	Industrial
Day (7 am- 7pm)	75 dBA	80 dBA	85dBA
Night (7 pm-7 am)*	60 dBA	65 dBA	70 dBA

\* construction generally not permitted at night

The County Noise Ordinance also prohibits the loading or unloading of building materials or other similar objects between the hours of 10 pm and 6 am.

In addition, activities conducted in incorporated areas of the County are subject to the adopted noise ordinances of each local jurisdiction. Table 3-12 presents the noise ordinance standards applicable to the Proposed Project activities. Note that the noise ordinances of incorporated County areas do not specify a maximum permissible noise level. Rather, ordinances regulate the timing and work windows for construction activities.

**Table 3-12.** Incorporated Area Noise Ordinance Standards

Jurisdiction	Noise Criteria
Calistoga	Construction is prohibited on Sundays and during the weekdays between the hours of 7 p.m. and 7 a.m. However, exceptions are granted to city public works crews in response to an emergency situation or scheduled maintenance. (8.20.025 – Construction activity – Noise – Prohibited hours)
City of Napa	Construction permitted between 7 a.m. and 7 p.m. Monday through Friday. Several additional prohibitions are also listed, however construction activity by or on behalf of a public agency is exempt from the time established limitations (8.08.025-Noise-Construction Activity).

Jurisdiction	Noise Criteria
St. Helena	Construction equipment may only be operated between the hours of 8 a.m. and 5 p.m. Monday through Saturday. Deliveries and cleaning/servicing of equipment is limited to 7 a.m. and 6 p.m. Exceptions may be granted by the public works director for SMP activities with prior notice. (8.24.10 <i>Unnecessary noises generally</i> )
Yountville	Town, State, Federal, and public utility projects and activities, for maintenance, repair, or construction projects are exempt from the Town's noise standards (8.04.040 <i>Exemptions to Noise Regulations</i> ).

### ***Existing Conditions***

Noise conditions in the Project Area vary greatly based on local land uses. The Napa BDR identifies major noise sources in the County, which includes roadway traffic, aircraft, agricultural activity, and the Napa Valley Wine Train. A brief summary of the existing noise conditions as detailed in the Napa BDR is provided below.

Roadways that have traffic volumes in excess of 3,000 vehicles per day are major sources of traffic noise in the County. Such roadways include Interstate 80, State Routes 12, 29, 121, 128, the Silverado Trail, and other County collector and arterial roads. Existing noise levels at 100 feet from such roadways range from a high of 79 L<sub>dn</sub> (along Interstate 80) to a low of 54 L<sub>dn</sub> (along College Avenue in the unincorporated Angwin area).

There are several airports and local landing strips in the County, though the Napa County Airport is the main source of aircraft operations in the Project Area. Activity at private airstrips is highly variable. Some airstrips are primarily used for crop-dusting and use is dependent on seasonal farming needs.

Tractors, harvesters, and crop-dusting aircraft are primary agricultural noise sources in the County. Typical noise levels from tractors, measured at a distance of 50 feet, average approximately 84 dBA. Other noise sources in agricultural areas include winery operation activities, such as refrigeration equipment, barrel washing, bottling, and delivery vehicles.

The Napa Valley Wine Train operates on a 36-mile rail line that runs twice daily from the City of Napa to the City of St. Helena. On weekends, the train offers lunch trips from the City of Napa to the City of Rutherford. The train generates noise levels of approximately 85 to 90 dBA.

## **Discussion of Checklist Responses**

### **a. Exposure to Noise Levels in Excess of Local or County Standards — *Less than Significant***

As described in Chapter 2 *Project Description*, the District implements maintenance activities using hand tools to the greatest extent feasible. On occasion heavy equipment may be needed, though use is temporary and intermittent. The number and type of heavy

equipment needed for a particular activity will vary depending on site conditions and project needs. This noise analysis assumes that noise from maintenance would be similar to construction noise generation described in the Napa BDR.

Noise levels associated with a variety of equipment types are described in the Napa BDR. Data for the equipment types described in Chapter 2 for SMP activities are shown in the table below.

**Table 3-13.** Noise Levels for Equipment Types Applicable to the Proposed Project

Equipment	$L_{max}$ at 50 feet (dBA)
Backhoe	80
Bulldozer	85
Excavator	85
Loader	85
Grader	85
Shovel	82
Wood chipper	89

*Source: Napa County 2005*

The use of equipment can vary from intermittent to fairly continuous. As described in the Napa BDR, specific noise levels depend on a number of conditions including the type and number of pieces of equipment in use, the noise level generated by the various pieces of equipment, distance to the receiver, and possible shielding effects from topography, vegetation, or buildings. A reasonable worst-case assumption of using four different types of heavy equipment (three of which emit the loudest noise levels) is presented in the Napa BDR. Under this scenario, the use of a bulldozer (85 dBA), backhoe (80 dBA), grader (85 dBA), and loader (85 dBA) operating concurrently in the same area would result in peak construction noise as high as 90 dBA at 50 feet from a construction site. Assuming normal geometric and ground attenuation, the estimated noise contours from a 90 dBA sound level at 50 feet would be as shown in Table 3-14.

**Table 3-14.** Noise Contours

Noise Level	Distance from source (ft.)
90 dBA	50
75 dBA	180
70 dBA	300
65 dBA	450
60 dBA	700
50 dBA	1,700

*Source: Napa County 2005*

As shown in the table above, under the worst-case scenario exterior noise levels could exceed the County's construction noise limit at sites in areas where construction occurs within 180 feet of residences or commercial areas. However, the modeled construction noise levels above reflect a conservative condition where the loudest pieces of equipment are used simultaneously and for a fairly constant duration. In practice, noise would be intermittent and temporary. On average, the District uses specialized heavy equipment

(excavator, backhoe, dump trucks) a maximum of three days per year (Sarrow, pers. comm). Wood chippers are used more frequently (approximately 50 days per year) to mulch removed vegetation, however vegetation removal projects typically require a day or less to complete at any given location. Truck traffic going to and from project sites would not continue for more than three days to any specific location given the maximum average duration of activities. Once activities cease, noise levels in the vicinity of the project sites would return to ambient.

Furthermore, BMP GEN-19 *Minimize Noise Disturbances to Residential Areas* would prevent maintenance activities from substantially disrupting surrounding land uses. This BMP includes measures that would ensure that work is only conducted on weekdays during daytime hours, that equipment is adequately muffled and not permitted to excessively idle, and that advance notification is provided to landowners within 180 ft. of a maintenance site where heavy equipment would be used.

Because active maintenance related to the Proposed Project would be short-term and noise disruptions would be temporary, this impact would be less than significant. No mitigation is required.

**b. Exposure to Excessive Groundborne Vibration or Noise — *No Impact***

Activities proposed under the SMP would not include impact construction (i.e. pile driving or other equipment which produce ground-borne vibrations). Therefore there would be no impact and no mitigation is required.

**c. Permanent Substantial Increase in Ambient Noise Levels — *No Impact***

The SMP's maintenance activities would be temporary, and would not involve or create any permanent noise sources. There would be no permanent increase in ambient noise levels as a result of implementation of the Proposed Project. There would be no impact, and no mitigation is required.

**d. Substantial Temporary Increases in Ambient Noise Levels — *Less than Significant***

Maintenance activities proposed under the SMP would result in temporary increases in noise as discussed above in *Checklist Response A*. However, as described, noise from maintenance activities would be short-term, intermittent, and would not occur during the evening hours, on weekends, or on holidays. Furthermore, the District will implement all identified measures described in BMP GEN-19 to minimize effects on sensitive receptors within the Project Area. As such, this impact would be less than significant and no mitigation is required.

**f-g. Exposure to Excessive Noise Levels in an Airstrip or Airport Land Use Area — *Less than Significant***

Maintenance activities may occur in channels located within an airport land use area or the vicinity of a private airstrip. As previously noted, the average duration of project activities is less than three days; therefore activities would not require the permanent or long-term stationing of personnel or residences in these locations. District personnel currently use standard ear protection when operating loud equipment (Thomasser, pers. comm.). Such safety equipment is sufficient protection for District personnel when temporarily working in the vicinity of an airport or airstrip. This is a less than significant impact and no mitigation is required.

### 3.13 POPULATION AND HOUSING

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Displace a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### Setting

As shown in Figures 2-1 through 2-5, District-owned or easement maintained channels are located throughout Napa County and within the cities of Calistoga, Napa, St. Helena, and Yountville. As of 2010, the population in Napa County (including all cities and towns) is approximately 136,484 (U.S. Census Bureau 2010). While there may be existing residences adjacent to channels and streams, none are located within the boundaries of maintenance activities.

#### Discussion of Checklist Responses

##### a. Induce Population Growth — *No Impact*

As a maintenance program, the SMP would not involve new development or infrastructure installation that could directly induce population growth in the area, nor would the SMP involve construction of new housing or create a demand for additional housing. Further, no additional staff would be required to carry out the proposed activities of the SMP. As such, the project would have no impact on population growth, and no mitigation is necessary.

##### b, c. Displace Population or Housing — *No Impact*

As described above, the SMP would not involve the construction or development of additional infrastructure. Furthermore no housing units exist in the channels or within the area where maintenance would occur. As such, the SMP would not displace any existing housing units or persons. There would be no impact, and no mitigation is necessary.

### 3.14 PUBLIC SERVICES

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

### Setting

As previously discussed, District-owned or easement maintained channels are located throughout Napa County and within the cities of Calistoga, Napa, St. Helena, and Yountville. Law enforcement, public safety, recreation, and education services in the SMP Project Area are provided by a combination of County and city departments as detailed in the Public Services and Utilities chapter of the Napa County BDR. In general, law enforcement in the Project Area is provided by the County sheriff and 3 local police departments; fire protection is provided by 5 fire departments (county and local); there are 4 emergency medical service providers and 33 medical facilities in the County; and the County is served by 6 school districts with a total of 70 schools (Napa County 2005). Existing facilities may be located in proximity to SMP channels and streams; however none are located within the channels or boundaries of maintenance activities.

### Discussion of Checklist Responses

#### a1. Effects on Fire, Police, and Emergency Services — *Less than Significant*

The Proposed Project would not increase population in the Project Area (see related discussion in Section 3.13 *Population and Housing*, above) nor would it alter the existing

population distribution temporarily or permanently. As such, the Proposed Project would not increase demand for fire, police, or emergency services as a result of population growth.

However, temporary road closures or detours associated with SMP activities could affect the provision of emergency services in the vicinity of the work site. To the extent feasible, two-way traffic flow on all roadways will be maintained and complete road closures are not anticipated during maintenance activities. As described in BMP GEN-17 *Planning for Pedestrians, Traffic Flow, and Safety Measures*, the District would coordinate with the appropriate local emergency service providers, as needed, to ensure that emergency vehicle response is not impeded. Further details of traffic effects during construction can be found in Section 3.16 *Transportation and Traffic*.

The Proposed Project's effect on police, fire, and emergency services response times and access would be minimal during maintenance, and would be further minimized with BMP GEN-17. This impact is less than significant and no further mitigation is required.

## **a2. Other Services or Facilities — *No Impact***

One of the primary flood control channels maintained by the District is Salvador Creek in the City of Napa. Salvador Creek runs directly through the campus of Vintage High School, southeast of the intersection of Trower Ave. and Jefferson St. The channel reach that flows through the school campus requires periodic vegetation management, downed tree management, and debris clearing. These maintenance activities directly reduce the flood hazard at Salvador Creek which, if not maintained, would negatively affect the operation of the school. Additionally, the District has planted native riparian trees along the channel corridor as it winds through the campus. Beside the direct benefit at this location, the Stream Maintenance Program would have limited to no additional impact on other government services or facilities, or provision/availability of education, parks, or other public government services. Therefore, the Proposed Project would have no impact on these resources. No mitigation is required.

### 3.15 RECREATION

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

Though widely known for sightseeing and agriculturally-based leisure activities (i.e. wine touring and tasting), Napa County also provides public recreation in the form of parks and trails. Parks in the Project Area can be characterized as either regional or community parks. Community parks are generally small in size and located in urban settings. These types of parks are generally maintained by local jurisdictions and are focused on community activities and local sporting events (i.e. soccer games). Regional parks may be owned by state or County agencies and serve both local residents as well as visitors from other communities. Regional parks contain significant natural features (i.e. open space, lakes) and are primarily focused on providing nature-based recreation activities.

The most popular recreational activities in the County by residents are walking for fitness and fun, walking pets, sightseeing, and wildlife viewing (Napa County 2007).

#### **Regional Parks**

More than 120,000 acres have been dedicated to open space in the County, with a subset of that area developed for outdoor recreational opportunities. The largest area of accessible open space is located out of the City of Napa in the Napa-Sonoma marshes and the Napa River floodplain. These areas are managed by the California Department of Fish and Game, and public fishing and hunting activities are allowed. Two state owned parks are located at the north end of the Napa Valley: the 1,900 acre Bothe-Napa Valley State Park and the adjoining 0.75 acre Bale Grist Mill State Historic Park. Both of these areas offer camping, trails, and interpretive programs. The Robert Louis Stevenson State Park provides trails to the top of Mount St. Helena and other areas above Calistoga. Skyline Park, an 850-acre open space owned by the County offers a diverse mix of recreational opportunities including camping, hiking, equestrian and biking trails, an archery range, golf course and native plant garden. This recreation area is located southeast of the City of Napa. (Napa County 2008)

**Trails**

Napa County currently has 67 miles of publically accessible non-motorized trails. Connectivity amongst these trails is limited, as most trails are concentrated primarily in and around Lake Berryessa, Lake Hennessey, Skyline Regional Park, and the Booth-Napa Valley State Park (Napa County 2008).

**Community Parks**

Each incorporated area in the County also provides recreational parks and facilities for their residents. Current park availability is shown in the table below.

**Table 3-15.** Existing City and Town Parks

Area	Number of Parks	Total Acres
American Canyon	22	79
Calistoga	7	14.19
City of Napa	48	800
St. Helena	8	25.58
Yountville	7	n/a

Sources: American Canyon 2011, City of Calistoga 2003, City of Napa 2011, St. Helena 2010, Town of Yountville 2003.

**Discussion of Checklist Responses**

**a. Increase Use of Existing Parks or Recreational Facilities — No Impact**

As noted in the Population and Housing section of this checklist, the Proposed Project would not result in population growth in the County. As such, the SMP would have no impact on recreational demand related to population growth. No mitigation is required.

**b. Creation of New or Altered Recreational Facilities — Less than Significant**

While the SMP would not create any new recreational facilities, maintenance activities could temporarily alter existing facilities such as parks and trails. For the most part, channels maintained under the SMP are located on privately-owned land and are not officially designated for public use. Public recreational facilities in the vicinity of channel courses are generally limited to urban areas, such parks in the vicinity of Salvador Creek in the City of Napa and trails along Beard Ditch and Hopper Creek in Yountville.

Disturbances to public parks and similar facilities would be temporary, being limited to the period during which maintenance would be conducted. Construction activities resulting in secondary nuisance effects (i.e., air quality, noise, traffic, and aesthetics) have been addressed in other sections of this document and have been found to be less than significant. In addition to secondary effects, users of public trails where present in association with SMP channels could experience temporary disruptions during the period of

active maintenance. While maintenance is being conducted, portions of existing trails or trail parking areas may be needed for access or staging for vehicles and equipment, or may need to be closed for public safety reasons. Such activities would temporarily impede recreational traffic.

While trails closures would affect recreation, such closures would be localized to a specific maintenance site, and alternative recreational opportunities would continue to be available in the Project Area. Further, the duration of the closures would be relatively short (generally less than three days). In addition, BMPs GEN-17 *Planning for Pedestrians, Traffic Flow and Safety Measures* and GEN-18 *Public Safety Measures* (see Table 2-1), stipulate that closures would be scheduled outside of peak traffic hours and that adequate warning signs and barriers would be provided. These standard practices would ensure that SMP activities do not result in significant alterations in the availability of public trails or other recreational facilities. Thus, potential effects on recreational facilities would be less than significant, and no mitigation is required.

### 3.16 TRANSPORTATION/TRAFFIC

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system and/or conflict with General Plan Policy CIR-16 which seeks to maintain an adequate Level of Service (LOS) at signalized and unsignalized intersections, or reduce the effectiveness of existing transit services or pedestrian/bicycle facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b.	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 Napa County Transportation and Planning Agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c.	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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d.	Substantially increase hazards because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f.	Conflict with General Plan Policy CIR-23 which requires new uses to meet their anticipated parking demand, but to avoid providing excess parking which could stimulate unnecessary vehicle trips or activity exceeding the site's capacity?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

## Terminology

Following are definitions of key traffic and transportation terms used in this section, based on materials published by the Transportation Research Board (Transportation Research Board 2000).

**Level of service (LOS)** – A qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience. Roadway LOS is defined according to methodologies presented in the Highway Capacity Manual (Transportation Research Board 2000). Using the Highway Capacity Manual procedures, the quality of traffic operation is graded as one of six LOS designations: A, B, C, D, E, or F. LOS A and B represent the best traffic operations, LOS C and D represent intermediate operations, and LOS E and F represent high levels of congestion and unstable traffic flow.

**Delay** – The additional travel time experienced by a vehicle or traveler that results from inability to travel at optimal speed, and stops due to congestion or traffic control.

**Freeway** – A multilane divided highway with a minimum of two lanes in each direction and full access control, with no interruption in traffic flow. Freeways are used exclusively by vehicular traffic.

**Highway** – A roadway with two or more lanes that is not completely access-controlled, and may have at-grade crossings and/or occasional traffic signals. Multilane highways may be divided. Two-lane highways are typically undivided. Highways may accommodate bicycle traffic.

**Local access roadway, local roadway** – A roadway designed with the primary function of providing access to an adjacent site or development; a roadway that connects local points but does not accommodate through traffic.

## Setting

The County General Plan includes countywide goals for traffic and transportation planning and provides the following Level of Service (LOS) standards for roadways and intersections in Napa County:

- LOS D or better on all county arterial roadways, except where maintaining LOS D would require installation of more travel lanes than are shown on the County's current Circulation Map.
- LOS D or better at all signalized intersections, except where the existing LOS is E or F and it is not feasible to increase intersection capacity without acquiring substantial additional right-of-way. The LOS standard for un-signalized intersections is evaluated on a case-by-case basis.

Regional access to the County is provided by State Highways 12, 29, 121, 128, 221 and Interstate 80. Within the County, State Highways 29/128 and Silverado Trail serve as the

primary north-south roadways providing direct access to each of the incorporated areas of the valley.

Napa County experiences daily, weekly, and seasonal variations in traffic volumes and congestion that are related to the agricultural economy and tourist industry. Summer and fall months typically see the highest traffic volumes due to tourist travel and harvest activities. During these seasons, the majority of increased traffic volume occurs outside of the standard morning/evening peak traffic hours. Daily and peak-hour LOS volume thresholds for County roadways are provided below:

**Table 3-16. Napa County Daily LOS Volume Thresholds**

Facility Class	Lanes	Area Type	LOS A	LOS B	LOS C	LOS D	LOS E
Freeway	4	All	23,800	39,600	55,200	67,100	74,600
	6	All	36,900	61,100	85,300	103,600	115,300
	8	All	49,900	82,700	115,300	140,200	156,000
Arterial <sup>1</sup>	2	Rural <sup>2</sup>	2,600	5,300	8,600	13,800	22,300
	2	Urban <sup>3</sup>	1,000	1,900	11,200	15,400	16,300
	4	Rural <sup>2</sup>	17,500	28,600	40,800	52,400	58,600
	4	Urban <sup>3</sup>	1,500	4,100	26,000	32,700	34,500
	6	Urban <sup>3</sup>	2,275	6,500	40,300	49,200	51,800
Collector <sup>1</sup>	2	All	1,067	3,049	9,100	14,600	15,600
	4	All	2,509	7,169	21,400	31,100	32,900

Notes:

<sup>1</sup> All two-lane roads are assumed to be undivided. Four- and six-lane roads are assumed to be divided.

<sup>2</sup> Rural roads are assumed as uninterrupted flow highways

<sup>3</sup> Urban arterials are assumed to be Class III with greater than 4.5 signals per mile

Source: Napa County 2005

Existing and projected traffic volumes in Napa County were evaluated in 2003 as part of the Napa County General Update. Traffic volumes for several major County roadways are presented in the table below:

**Table 3-17. Existing and Projected Daily Traffic Volumes for Selected County Roadways**

Roadway	2003 Volume	2030 Projection
Jamieson Canyon (Hwy 12) at Hwy 29	30,410	53,960
American Canyon Road west of 1-80	19,160	25,170
Hwy 29 south of South Kelly	23,920	67,450
Hwy 29 north of Hwy 12	34,500	59,420
Hwy 29 south of Yountville	24,690	42,070
Hwy 29 north of Zinfandel	19,430	29,490
Hwy 29 north of Tubbs Lane	6,990	7,610

Roadway	2003 Volume	2030 Projection
Hwy 121 to Sonoma	27,200	32,090
Silverado Trail at Sage Canyon	13,520	17,880
Hwy 128 at Monticello Road	2,220	6,620

Source: Napa County 2008

Existing (2003) traffic conditions indicate that 13 out of 94 locations in Napa County currently experience LOS of E and F. By the year 2030, the number of failing roadways is expected to increase to 27. (Napa County 2007)

### **Public Transit Services**

Within the County fixed-route local, intercity, demand-response service, and paratransit services are provided as follows:

- Vine – provides intra-and inter-city fixed route services and operates in the city of Napa, between Calistoga and Vallejo, and between St. Helena and Santa Rosa.
- Downtown Napa Trolley – free shuttle service in downtown Napa.
- American Canyon Transit – fixed route service in American Canyon.
- Yountville Shuttle – fixed route service throughout Yountville, including to the Veterans Hospital.
- St. Helena Shuttle – fixed route service in St. Helena and to St. Helena Hospital.
- Calistoga Handy Van – a public dial-a-ride provider serving Calistoga.
- VINE GO – paratransit service providing curb-to curb service for residents countywide who live in the vicinity of a bus route.

### **Non-Motorized Transportation**

Napa County’s roadway system includes both off-street trails and pathways and on-street bicycle lanes. Sidewalks are confined to within individual cities. The following types of bike facilities are designated in the County:

- Class I Bike Path: specifically designated for the exclusive use of bicycles and pedestrians. Class I bike paths are separate from streets, although they may cross roadways.
- Class II Bike Lanes: striped lanes on a street or highway, designated for use by bicycles. Vehicle parking and vehicle pedestrian cross-flows are permitted at designated locations.
- Class III Bike Routes: usually designated by pavement markings to indicate the use of bicycles within the travel lane of a roadway.

Relatively long distances between cities and the dominant rural nature of the County make walking and inter-city bike travel uncommon outside of urban areas.

## Discussion of Checklist Responses

### **a, b. Substantial Increase in Traffic — *Less than Significant***

The SMP's effect on traffic in the Project Area would be limited to short-term effects in any given location associated with maintenance vehicles and haul trips. Maintenance-related traffic would consist primarily of commutes to and from worksites by maintenance workers and periodic delivery and removal of materials during the maintenance period. The number of maintenance workers and vehicles would vary by project, phase, planned activity, and material needs.

The manner by which SMP maintenance activities are likely to affect traffic volumes and LOS in the Project Area are discussed below:

#### Temporary Lane Closures

Though anticipated to be rare, SMP activities could include the physical encroachment into the traveled way. The availability of travel lanes may be affected when maintenance occurs within or adjacent to roadways and a portion of the pavement is required for maintenance purposes. Where insufficient widths for both maintenance vehicles and regular traffic occur, temporary closing or narrowing of lanes may be necessary to conduct maintenance activities.

Lane closures could lead to traffic delays, temporary reductions in roadway level of service, or create traffic hazards. However, as described in BMP GEN-17 *Planning for Pedestrians, Traffic Flow, and Safety Measures*, two-way traffic on public roadways will be maintained to the extent feasible. If lane closures or traffic delays cannot be avoided, advance notice of road closures would be given to the appropriate jurisdiction and emergency service providers, and adequate warning and detour signs and flaggers will also be provided to safely guide travelers during maintenance activities. BMP GEN-17 also stipulates that temporary lane closures would be scheduled outside of peak traffic hours to the maximum extent feasible.

As such, the effects of temporary lane closures on traffic operations would be less than significant.

#### Maintenance Worker Trip Generation

Maintenance workers would need to access the work sites, which would add vehicle traffic to area roadways. The District estimates that a total of approximately 200 trips are made annually by both District personnel and contractors to conduct SMP-related work in the Project Area. Although some proposed activities would be conducted year-round, the majority of work would be conducted over approximately 140 workdays (April through October). Even if all trips were condensed over this peak work period, the maximum number of trips in the Project Area (1.4 trips per day) would not have a noticeable effect on LOS on regional and local access routes. However, work is not conducted continually; rather it is implemented intermittently as needed in varying locations throughout the County.

Typically, maintenance workers meet at the District maintenance yard and use any number of the three County-owned trucks to drive to the work site. The District also employs a contractor, who arrives separately using a single truck or tractor. Even if each of the three County trucks and both contractor vehicles were used, the number of additional vehicle trips generated by maintenance at any given location, compared to baseline conditions, would be quite small. On average, the maximum duration of any SMP activity is approximately 3 days. Thus, the maximum number of additional trips likely to result from maintenance (5 round trips per day) is considered unlikely to result in a noticeable change in traffic flow or intersection LOS in any particular location.

Both regionally and locally, the temporary added volume of traffic generated on Project Area roadways would be negligible relative to roadway capacity and existing traffic volumes. Impacts would be less than significant and no mitigation is required.

#### Heavy Equipment Deliveries

Hand tools and other smaller equipment types would arrive in the maintenance trucks used by personnel to access the site. However, heavy equipment needed for certain SMP activities would need to be delivered to the work site on trailers and/or flatbed trucks. Slower travel speeds, large size and turning radii typically associated with this kind of traffic could temporarily reduce roadway capacity and result in minor increases in congestion and delay for vehicles.

While the specific impact of heavy equipment traffic on roadways would depend on the number of travel lanes on the roadways, existing traffic volumes on these roadways, terrain, and other factors, the District's use of specialized heavy equipment such as excavators and backhoes is minimal. On average, this type of equipment is used 1-3 days per year (Sarrow, pers. comm.). Even if equipment was used on 3 separate days, thus requiring 6 trips to and from maintenance sites, this estimated volume would have a negligible effect on Project Area traffic. Consequently, this impact would be less than significant. No mitigation is required.

#### Truck Trips Associated with Disposal of Excess Materials or Delivery of Fill for Bank Stabilization

Dump trucks would be used to haul excavated materials for reuse or disposal elsewhere, or may haul fill materials to be used for bank stabilization activities. Under bank stabilization activities, minimal, if any, excess material is expected to be generated that would require off-site disposal, and the amount of material to be hauled to the site would be similarly small. Similarly, minimal volumes of removed vegetation would require hauling or disposal. Vegetation is typically chipped and left on site as mulch or taken to District facilities for composting.

Sediment and debris management are the primary SMP activities which would entail the removal of excess materials and require the use of haul trucks. Sediment management activities would result in approximately 125 cubic yards of sediment removed per year. Up to 75 cubic yards of debris may be removed from channels annually. This range of estimated annual sediment and debris removal volume is based on past records. Actual removal volumes for a particular year are dependent on a combination of factors including rainfall and erosion conditions and the extent of maintenance activities in the recent years.

Based on the 200 cubic yards of estimated annual excavated sediment and debris material, approximately 30 truck haul trips would be generated yearly using standard 10 cubic yard capacity dump trucks (assuming they are filled to 2/3 full). Assuming that sediment maintenance activities would occur during the typical maintenance season (approximately 4 months, or about 80 workdays), this would translate to approximately 0.375 truck trips per day, or slightly less than 2 truck trips per work week. With larger 20-cy trucks, the number of truck trips would be reduced by at least half. Realistically, the District wouldn't distribute this type of hauling over the entire work season, but would focus the work within a 2-4 week period, with a more likely rate of 8-10 truck trips per week. Even if the District generated the maximum truck trips on an annual basis (10 trips per week over 4 weeks), these trips would be intermittent and dispatched to and from varying locations. The addition of these trips would not cause substantial degradation of LOS or delay for motorists in the Project Area.

#### Summary

In summary, impacts on traffic from temporary lane closures, maintenance worker trips, heavy equipment delivery, and truck trips associated with sediment and debris disposal would be less than significant. No mitigation is required.

#### **c. Change in Air Traffic Patterns — *No Impact***

The SMP does not include any features or actions that are related to airports or air traffic. There would be no impact on air traffic or airport service, and no mitigation is required.

#### **d. Increased Hazards Due to Design Features — *Less than Significant***

SMP activities could result in the temporary closing or narrowing of roadway lanes in the vicinity of the project sites. As previously noted above, temporary reductions in available travel lanes could subject vehicles using the affected roadways to increased hazards, congestion, and delays. In addition, temporary lane closures could also create traffic hazards affecting vehicle, transit, bicycle, and pedestrian traffic in the area. Because maintenance activities could temporarily suspend the normal function of roadways, the potential exists for an increase in traffic safety hazards during this period. The increase in safety hazards results from several factors, including the increased potential for conflicts between maintenance vehicles, conflicts between the movement of traffic and maintenance activities, and confusion of drivers, bicyclists, and pedestrians due to temporary alterations in otherwise familiar roadway conditions.

As detailed in Table 2-1, BMP GEN-17 *Planning for Pedestrians, Traffic Flow, and Safety Measures* stipulates that work would be staged and conducted in a manner that would maintain 2-way directional flow and that temporary lane closures are coordinated with the appropriate jurisdictional agencies and scheduled outside of peak traffic hours. In addition, BMP GEN-18 *Public Safety Measures* includes provisions for adequate warning signage in the vicinity of the work site. These measures ensure proper planning of traffic management during maintenance activities, and would provide adequate public awareness of temporarily altered road conditions and potential hazards.

The primary flood control channels maintained by the District include the Salvador and Yountville collectors, which parallel Highway 29. These roadway collectors require periodic maintenance to clear debris and blockages, including cattails, and stabilizing eroding banks. Flooding of these channels could spill over onto the adjacent roadway, resulting in potential lane closures and significant hazards to drivers and other roadway users. Beside the direct benefit at these locations, the reduction of flood threat on this major north-south roadway would benefit transportation in the overall Project Area.

The SMP does not propose any changes that would permanently reconfigure or alter roadways, and overall, would reduce hazards in the Project Area. Therefore the Proposed Project would not result in a permanent adverse impact on roadway safety conditions. The Project's temporary and long-term impact on traffic safety hazards would be less than significant and no mitigation is required.

**e. Inadequate Emergency Access — *Less than Significant***

As described above and in Section 3.14, *Public Services*, road closures, detours, and SMP-related traffic could delay or obstruct traffic in the Project Area, including the movement of emergency vehicles. However, as detailed in BMP GEN-17, the District would maintain two-way traffic flow on public roadways to the maximum extent practicable. In the event that temporary closures are necessary, affected jurisdictional agencies (including police and fire departments) would receive advanced consultation and notification of maintenance schedules for all activities which could affect emergency access.

The SMP does not propose any structures that would permanently block or constrain roadways, and would therefore not result in a permanent impact on emergency access. The Project's impact on emergency access would be less than significant. No mitigation is required.

**f. Inadequate Parking Capacity — *Less than Significant***

The SMP would not generate permanent parking demand, and the activities proposed would not provide permanent parking. Maintenance activities would require temporary parking for maintenance workers. In general, SMP-related parking would occur within District rights-of-way or on privately owned land. For parking which is not able to be kept within these locations, adequate parking or designated public parking would be provided to accommodate work staging and worker vehicle parking as described in BMP GEN-17. The amount of parking required would be small in these cases, and would not be expected to substantially reduce the available parking supply in any given area. Consequently, impacts related to parking would be less than significant. No mitigation is required.

**g. Conflict with Alternative Transportation Policies — *Less than Significant***

The Proposed Project would not result in permanent effects on public transit, bicycle, or pedestrian traffic. As previously described, the majority of SMP activities would occur within District rights-of-way or on private land where public access is not permitted. However, temporary SMP activities occurring within public streets could disrupt transit

operations, as well as pedestrian and bicycle access to transit stops, general access along designated bike routes and trails, and sidewalk-based pedestrian access.

Where road or lane closures are required, BMP GEN-17 would ensure that bus routes are maintained to the extent practicable. If transit routes need to be temporarily detoured, affected transit authorities will be notified and consulted. Similarly, closures of bike and pedestrian facilities, if required, would be scheduled outside of peak traffic hours to minimize conflicts. These standard considerations would also extend to closures of trails and access roads, not normally used by through vehicular traffic. As detailed in BMP GEN-18, traffic controls and signage would be employed at work sites as necessary, and warning signs would be posted in the vicinity of affected public trails.

Consultation with transit providers will ensure that effects on transit systems would be accounted for and that service would not be significantly disrupted. Signage and traffic controls will be adequate to alert transit passengers and bicycle and pedestrian traffic to revised routes and hazards during maintenance activities. Therefore, the Project's temporary impacts on alternative transportation would be less than significant. No mitigation is required.

### 3.17 UTILITIES AND SERVICE SYSTEMS

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than- Significant Impact	No Impact
Would the Project:					
a.	Exceed wastewater treatment requirements of the applicable RWQCB?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b.	Require or result in the construction of new water or wastewater treatment facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c.	Require or result in the construction of new stormwater drainage facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d.	Have sufficient water supplies available to serve the Project from existing entitlements and resources, or would new or expanded entitlements be needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e.	Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has inadequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f.	Be served by a landfill with insufficient permitted capacity to accommodate the Project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g.	Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

### Setting

#### ***Water Supply, Wastewater Disposal, and Sanitary Sewers***

Unincorporated areas of the County are primarily reliant upon groundwater resources and surface water collection for potable water, while most incorporated areas are served by local reservoirs and regional water providers (Napa County 2008). Based on current and future water demands, the County has adopted policies supporting the use of recycled water as a means to meet future water supply demands.

The Proposed Project would not affect water or wastewater demands or capacity needs. As such, these public facilities are not discussed in this setting section.

### ***Solid Waste Disposal***

#### Regulations

As described in the County General Plan, the following plans related to solid waste are currently in place:

- 2002 Napa Countywide Integrated Waste Management Plan
- Summary Plan and Siting Element (Countywide)
- Source Reduction and Recycling Elements
- Household Hazardous Waste Elements
- Non-Disposal Facility Elements

In addition the County adopted the “Waste Source Reduction and Recycled Product Content Procurement Policy” intended to reduce the amount of waste generated by the County’s operations and encourage firms service the County to use recycled materials.

Policies contained in the Conservation Element of the County’s General Plan are also intended to promote waste reduction and recycling.

#### Existing Conditions

As described in Chapter 7 of the Manual, the District maintains two sediment disposal sites in association with USACE. These facilities are used for disposal of sediment generated by dredging activities for navigation along the Napa River, which is not an activity conducted under the Proposed Project; however, these facilities are also approved for disposal of sediment generated under the SMP. The Edgerly Island Disposal Site has the capacity to receive a total of 300,000 cubic yards of sediment, while the Napa Sanitation District Imola Site has a total capacity to accept 55,000 cubic yards.

Napa County is served by five solid waste service providers and two joint power agencies/authorities (Napa County 2008). As discussed in Chapter 2, the majority of materials for disposal (besides sediment) would be taken to the Devlin Road Recycling and Transfer Facility. This facility is located at 889 Devlin Road in American Canyon, and operated by Northern Recycling Operations and Waste Services. The facility accepts garbage, bulky items, and household waste materials (paint, batteries, motor oil, antifreeze, etc.). This facility receives an average of 560 tons of waste a day, but has the capacity to handle up to 1,440 tons of daily waste (Napa County 2008). Items brought to the Devlin Road Facility are first assessed for recycling, reuse, or composting before being sent to the Keller Canyon Landfill for disposal (Napa Recycling and Waste Services 2011).

Keller Canyon Landfill, located in Pittsburg, CA, accepts solid waste, non-liquid industrial waste, contaminated soils, ash, grit, and sludges. The landfill is permitted to accept up to 3,500 tons of waste per day; however, current daily disposal volumes average 2,500 tons

(Allied Waste 2011). A survey of landfill capacity conducted in 2006 indicated that the facility had 64.8 million cubic yards of remaining capacity and an estimated closure date of 2030 (Napa County 2008).

## Discussion of Checklist Responses

### **a-c, e. Wastewater and Stormwater Generation or Treatment — *No Impact***

The Proposed Project is entirely focused on channel maintenance and enhancement activities, and does not include any uses, features, or facilities that would generate wastewater. Furthermore, the SMP would not increase or alter the distribution of the population in the Project Area as to alter the need or demand for wastewater treatment (see also Section 3.13 *Population and Housing*). Consequently, there would be no impact related to wastewater facilities and no mitigation is required.

Similarly, the SMP would not modify existing stormwater drainage facilities, other than in-kind repair or replacement, and would construct only minimal new areas of impervious surface (associated with bank stabilization activities) requiring storm drainage. The Proposed Project would result in maintenance of flood control channels to maintain flood conveyance and hydraulic capacity; all such activities would act to restore channel capacities to original designs. As such, there would be no impact associated with stormwater generation or treatment facilities and no mitigation is required.

### **d. Potable Water Supply — *Less than Significant***

Potential activities that may require water include vehicle cleaning, sediment/soil watering related to dust control activities, and irrigation of revegetated sites. As described in BMP GEN-12 (Chapter 2, Table 2-1), on-site vehicle cleaning may occur, but only as needed to prevent the spread of sediment, pathogens, or exotic/invasive species. In addition, as detailed in BMP GEN-4, active maintenance areas would be watered following required dust control measures set by the Bay Area Air Quality Management District.

Revegetation may be performed as part of bank stabilization and habitat protection and enhancement activities (as described in Chapters 6 and 9 of the Manual). Newly planted vegetation may require irrigation until the plants became established. The amount of water needed for irrigation would vary based on the specific vegetation types and quantities to be planted at each site. However, the post-bank repair revegetation and Riparian Planting Plans include considerations to ensure that plantings are appropriate to the site conditions to minimize irrigation needs and ensure long-term success. Successful establishment of vegetation would not require long-term water supplements.

Water demands would be met with District supplies and generally trucked into work sites, as necessary. Because the amount of water to be used would be very small, it is expected that sufficient water supplies would be available to meet the water requirements related to SMP activities. Furthermore, the Proposed Project would not require the construction of any long-term water distribution or supply facilities. Thus, this impact would be less than significant and no mitigation would be required.

### **f, g. Solid Waste Disposal — *Less than Significant***

The proposed maintenance activities would generate up to 200 cubic yards of sediment and debris for disposal (approximately 320 tons) annually.

Although sediment removal activities alone would generate a maximum of 200 tons (250 cubic yards) of sediment per year, a portion of that material would be reused to support the District's gravel augmentation activities for habitation protection and enhancement. The remainder of sediment would require disposal. As described above, the District has an agreement for sediment disposal at the Edgerly Island Disposal Site and the Napa Sanitation District Imola Site. These sites have a combined capacity to accept a total of 355,000 cubic yards or tons of sediment. Based on the estimated annual sediment disposal volumes, there would be sufficient capacity for these sites to accept sediment generated by SMP activities over the lifetime of the Project.

Though less preferential, sediment may also be sent to the Keller Canyon Landfill. The landfill uses clean soil spread in layers over solid waste debris to contain gasses and assist in the decomposition process. However, even if the disposed sediment was not used at the landfill for cover material, the volume of soil requiring disposal at this facility would not represent a significant portion of available landfill capacity.

Removed debris may include trash, homeless encampments, and other items which may be impairing hydraulic conditions. Such items would require off-site disposal at the Devlin Road Transfer Station. As stated earlier, annual maintenance activities could generate up to 120 tons per year of debris waste; however, only a portion of that material is likely to be sent to the landfill since the Transfer Station prioritizes reuse, recycling, and composting of incoming material. Nonetheless, the Keller Canyon Landfill has sufficient capacity to accept the total volume of debris expected to be generated under the Project.

Capacity at the designated waste facilities is sufficient to accommodate the disposal requirements of SMP activities. Disposal at these facilities is compliant with federal, state, and local regulations. Thus, this impact is less than significant. No mitigation is required

### 3.18 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
a. Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Does the Project have impacts that are individually limited but cumulatively considerable? (“Cumulatively considerable” means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

#### Discussion of Checklist Responses

**a. Effects on Environmental Quality, Fish or Wildlife, and Historic Resources — *Less than Significant***

Please refer to the impact discussions presented in Sections 3.1 through 3.17, in particular the impact analysis for Biological Resources and Cultural Resources. The project would not have potential for significant impacts related to any of the factors described in the checklist question above. Impacts would be less than significant, and no mitigation is required.

**b. Cumulative Impacts — *Refer to discussion of specific impacts below for significance conclusions***

A cumulative impact refers to the combined effect of “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (State CEQA Guidelines Section 15355). As defined by the State of

California, cumulative impacts reflect “the change in the environment which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.” (State CEQA Guidelines Section 15355[b])

Lead agencies may use a “list” approach to identify related projects, or may base the identification of cumulative impacts on a summary of projections in an adopted general plan or related planning document (State CEQA Guidelines Section 15130[b]), also known as the “projection” approach. This document utilizes both approaches. The list approach was utilized by developing a list of past, present and reasonably foreseeable related projects, as shown in Table 3-18. The projections approach was utilized by reviewing the current General Plans of the County. Refer to Table 3-19 for a summary of projections contained in planning documents within Napa County. Table 3-20 provides projected population and housing growth in the county between 2010 and 2030. In addition, the Napa County General Plan, Draft Environmental Impact Report (Napa County 2007) and Napa County Baseline Data Report (Napa County 2005) were used in considering potential cumulative impacts and the Proposed Project’s contribution to any cumulative significant impacts.

**Table 3-18.** Summary of Related Projects

Related Activity	Scope of Activity	Activities that Could Potentially Affect Resources Similar to the Proposed Project
Napa River Rutherford Reach Restoration Project	4.5 miles of the Napa River; construction potentially through 2015.	Bank repair, grading, riparian plantings, channel excavation, and creation of instream habitat, among other activities.
Napa River/Napa Creek Flood Protection Project	6 miles of the Napa River/Napa Creek; construction through 2015.	Construction of floodplain terraces and upstream and downstream dry bypass culverts, bank stabilization, and lowering of old dikes, among other activities.
Napa County Road Maintenance Program	Roadways throughout Napa County; ongoing.	Culvert repair, bank repair, grading, among other activities.
Napa County Stormwater Pollution Prevention Program	Throughout Napa County; ongoing.	Stormwater pollution prevention protection and enhancement of water quality in creeks and wetlands, and preservation of beneficial uses of local waterways, among other activities.
Napa River Sediment Total Maximum Daily Load and Habitat Enhancement Plan	Napa River watershed; ongoing.	Specifies actions that will reduce sediment inputs to the Napa River watershed and restore a healthy fishery in the watershed.

**Table 3-19.** Planning Documents Considered in the Cumulative Analysis

Document	Summary
<p>Napa County General Plan (Napa County 2008)</p>	<p>The broad purpose of the Napa County General Plan is to express policies which will guide future decisions related to land use and development of the County. The vision for the General Plan is to ensure that every important land use decision will be scrutinized for its potential to impact the quality of life, the physical environment, and agricultural economy. The General Plan incorporates the concept of adaptive management, whereby monitoring data is collected and analyzed to determine which policies and measures are effective and which policies need to be adjusted or abandoned. The overarching theme of the General Plan is environmental and economic sustainability and social equity.</p> <p><i>Environmental sustainability includes:</i></p> <ul style="list-style-type: none"> <li>• Produce resources locally to minimize energy loss and transport costs;</li> <li>• Efficiently use resources such as water, land, and energy;</li> <li>• Use primarily renewable resources such as solar energy and recycled water; and</li> <li>• Preserve habitat and species diversity</li> </ul>
<p>City of American Canyon General Plan (City of American Canyon 2006)</p>	<p>The vision of the City is a compact urban community surrounded by farmlands, hillsides, and riverine habitats. The goal of the General Plan is to ensure that the City retains its rural character and that development reflects the natural topography and environmental resources of the City. The General Plan outlines three basic functional roles of the City:</p> <ul style="list-style-type: none"> <li>• Provide a sufficient range of uses (a mix of housing types, commercial services, entertainment, employment, recreation, health, religious, cultural facilities, transportation services, and open space);</li> <li>• Be a center of employment for regional as well as local residents; and</li> <li>• Provide uses which capitalize on the unique environmental setting of the foothills, river valleys, and agriculture. Possible uses include environmental education facilities, such as wetlands interpretive centers, overnight camping and recreational vehicle facilities, river recreational facilities, such as boating, golf courses, and hotel/motels and restaurants.</li> </ul>
<p>City of Calistoga 2003 General Plan (City of Calistoga 2003)</p>	<p>The purpose of this General Plan is to guide development and conservation in the City of Calistoga through 2020. The 2003 General Plan supersedes the previous General Plan which was adopted in 1990. The 2003 General Plan also contains a 2009 Housing Element Update (as mandated by Government Code Section 65588 the Housing Element must be updated every five years). The Plan reflects the City's intention to remain a walkable, small town with an eclectic main street within pedestrian-oriented neighborhoods of modestly sized homes and surrounded by wineries, vineyards and other agricultural lands.</p>

Document	Summary
<p>City of Napa General Plan Policy Document (City of Napa 2010)</p>	<p>This General Plan Policy Document was first adopted in 1998 and amended in 2010 to provide an updated vision of the City through the year 2020. The General Plan sets the framework for future growth and development while still maintaining the community’s character and quality of life. The major objectives of the General Plan include:</p> <p><i>Containing growth within the rural urban limit</i></p> <ul style="list-style-type: none"> <li>• Protect agricultural lands by observing the established Rural/Urban Limit line (RUL) with little change from the RUL that was adopted in the 1982 General Plan</li> <li>• A growth monitoring program to prevent excessive residential or commercial growth</li> </ul> <p><i>Environmental protection</i></p> <ul style="list-style-type: none"> <li>• Encourage new development and redevelopment that enhance connections between the built and natural environments</li> <li>• Focus on the Napa River as a natural corridor and recreational spine connecting neighborhoods and downtown</li> <li>• Promote an open space frame that includes views of the natural environment, including agriculture, the hills, water courses and wetlands</li> <li>• Support an accessible array of protected natural amenities both within and beyond the confines of the City</li> </ul> <p><i>Flood control</i></p> <ul style="list-style-type: none"> <li>• Maintain flood management to allow for river-oriented flood management</li> </ul>
<p>City of St. Helena General Plan Update 2030 (City of St. Helena 2010)</p>	<p>This General Plan describes the desired vision for St. Helena in the year 2030. It contains policies to guide future land use decisions and provides a framework to preserve the character and quality of development that the community desires. The guiding principles for the General Plan include:</p> <p><i>Environmental stewardship</i></p> <ul style="list-style-type: none"> <li>• Through a combination of conservation and infrastructure improvements, water and wastewater treatment will be available to meet community needs</li> <li>• Green buildings and infrastructure, renewable energy installations and waste reduction will increase energy saving</li> <li>• Riparian corridors of the Napa River, Sulpher Creek and York Creek will be restored as critical assets</li> <li>• Additional and improved parks, protected hillsides, agriculture, trees, locally grown food and community gardens will contribute to the sustainable community</li> </ul>
<p>Yountville General Plan (Town of Yountville 2003)</p>	<p>This is the fourth General Plan since the incorporation of the Town. The principal objective of the General Plan is to guide future developments in a manner that captures and perpetuates the character of the Town’s oldest neighborhoods. The vision for the Town is to preserve its agrarian flavor.</p>

**Table 3-20.** Projected Napa County Population and Housing Growth 2010-2030

Jurisdiction	Population			Projected Annual Population Growth (%)	Housing			Projected Annual Housing Growth (%)
	2010	2020	2030		2010	2020	2030	
American Canyon	17,400	18,000	18,600	0.3	5,760	5,860	5,960	0.2
Calistoga	5,300	5,400	5,400	0.09	2,140	2,150	2,160	0.05
Napa	77,800	81,800	83,700	0.4	29,440	30,310	31,290	0.3
St. Helena	6,100	6,200	6,200	0.08	2,440	2,480	2,510	0.1
Yountville	3,400	3,600	3,600	0.03	1,110	1,190	1,210	0.5
Unincorporated	28,800	29,600	30,000	0.2	10,370	10,810	10,900	0.3
<b>Napa County Total</b>	<b>138,800</b>	<b>144,600</b>	<b>147,500</b>	<b>0.3</b>	<b>51,260</b>	<b>52,800</b>	<b>54,030</b>	<b>0.3</b>

Source: ABAG 2009.

Detailed analysis of a project’s contribution to cumulative impacts is required when (1) a cumulative impact is expected to be significant, and (2) the project’s contribution to the cumulative impact is expected to be cumulatively considerable, or significant in the context of the overall (cumulative) level of effect. Table 3-21 summarizes cumulatively significant impacts and identifies the Proposed Project’s contribution. Additional analysis is provided below the table for those impacts that the Proposed Project contributes to significant impacts.

**Table 3-21.** Summary of Cumulative Significant Impacts and Proposed Project’s Contribution

Resource Topic	Cumulatively Significant Impacts	Proposed Project’s Contribution
Aesthetics	None identified.	No analysis required.
Agricultural Resources	None identified.	No analysis required.
Air Quality	The San Francisco Bay Area Air Basin (SFBAAB) has been designated by the Bay Area Air Quality Management District (BAAQMD) as being in non-attainment under both federal and state standards for ozone precursors (ROG and NOx); and particulate matter (PM <sub>10</sub> and PM <sub>2.5</sub> ) are also designated as in non-attainment under state standards. These impacts would be considered cumulatively significant.	Vehicle, other equipment, and herbicide use would result in emissions of criteria air pollutants. However, because such emissions would be below BAAQMD thresholds, in accordance with BAAQMD guidance, the Proposed Project would not make a considerable contribution to cumulative impacts related to air quality. <i>Further analysis provided below.</i>
Biological Resources	While the General Plans of the County and various jurisdictions contain policies addressing conservation and preservation of open space, ongoing development in the county is anticipated to result in the incremental loss of riparian habitat, wetlands, and oak woodlands and other sensitive natural communities. These	Stream maintenance activities have the potential to impact special-status species, and would likely result in temporary impacts to sensitive natural communities. However, with the implementation of BMPs the

Resource Topic	Cumulatively Significant Impacts	Proposed Project's Contribution
	<p>outcomes likely will lead to direct take or loss of habitat for both common and special-status species. These impacts would be considered cumulatively significant.</p>	<p>Proposed Project would not make a considerable contribution to cumulative impacts related to biological resources. <i>Further analysis provided below.</i></p>
Cultural Resources	<p>While the General Plans of the County and various jurisdictions contain policies regarding preservation of important cultural resources, ongoing development could lead to the cumulative loss of significant historic, archeological, or paleontological resources. This impact would be considered cumulatively significant.</p>	<p>Ground disturbances under the Proposed Project could impact historic, archeological, or paleontological resources. However, with the implementation of BMPs the Proposed Project would not make a considerable contribution to cumulative impacts related to cultural resources. <i>Further analysis provided below.</i></p>
Geology and Soils	<p>None identified.</p>	<p>No analysis required.</p>
Greenhouse Gas Emissions	<p>Anthropogenic emissions of GHGs are widely accepted in the scientific community as contributing to global warming. This impact is considered cumulatively significant.</p>	<p>Vehicle and equipment use would result in emissions of GHGs. However, because such emissions would be below BAAQMD thresholds, in accordance with BAAQMD guidance, the Proposed Project would not make a considerable contribution to cumulative impacts related to GHG emissions. <i>Further analysis provided below.</i></p>
Hazards and Hazardous Materials	<p>None identified.</p>	<p>No analysis required.</p>
Hydrology and Water Quality	<p>Increased development in the Napa County may lead to a variety of impacts on water resources, including increased demand for water supplies, new sources of point source and non-point source pollution, increased area of impervious surface and volume of stormwater runoff, and potential flooding impacts.</p> <p>In particular, degradation of impaired surface waters identified under Clean Water Act (CWA) Section 303(d) constitutes a significant cumulative impact. Various surface waters in the county and downstream receiving waters are listed for water quality impairments under the CWA Section 303(d), including the Napa River for sediment, nutrients, and pathogens, among others in Napa County.</p>	<p>The Proposed Project could potentially impair water quality from ground disturbances resulting in discharges of sediment to streams, and heavy equipment and herbicide use resulting in release of hazardous materials into streams. With the implementation of BMPs the Proposed Project would not make a considerable contribution to cumulative impacts related to water quality. <i>Further analysis provided below.</i></p>
Land Use and Planning	<p>None identified.</p>	<p>No analysis required.</p>

<b>Resource Topic</b>	<b>Cumulatively Significant Impacts</b>	<b>Proposed Project's Contribution</b>
Mineral Resources	None identified.	No analysis required.
Noise	Traffic-related noise associated with reasonably foreseeable future increased growth in traffic volumes in Napa County is considered a significant cumulative impact.	Vehicle use under the SMP would contribute to traffic-related noise. However, the Proposed Project would not make a considerable contribution to cumulative impacts related to traffic-related noise. <i>Further analysis provided below.</i>
Population and Housing	None identified.	No analysis required.
Public Services	None identified.	No analysis required.
Recreation	None identified.	No analysis required.
Transportation and Traffic	Reasonably foreseeable future increased growth in traffic volumes in Napa County could affect load and capacity of the street system to the extent that level of service and emergency access is affected. This is considered a significant cumulative impact.	Vehicle use under the SMP would temporarily add to traffic volumes. However, the Proposed Project would not make a considerable contribution to cumulative impacts related to effects on LOS or emergency access from traffic generation. <i>Further analysis provided below.</i>
Utilities and Service Systems	None identified.	No analysis required.

The following sections provide a detailed analysis of the Proposed Project's contribution to existing significant cumulative impacts. As identified in Table 3-21, the following resource issues are discussed: air quality, biological resources, cultural resources, global climate change, hydrology and water quality, noise and traffic and transportation.

**Air Quality: Emissions of Criteria Air Pollutants — *Less than Significant***

Vehicle, other equipment, and herbicide use involved with the Proposed Project would result in daily and annual emissions of criteria air pollutants. As discussed in Section 3.2 *Air Quality*, daily emissions of all criteria air pollutants are not considered to have the potential to be significant/substantial, and annual emissions would be below annual BAAQMD significance thresholds. The BAAQMD thresholds utilized also represent cumulative thresholds. Therefore, the Proposed Project would not make a considerable contribution to cumulative impacts related to air quality. No mitigation is necessary.

## **Biological Resources: Impacts to Special-Status Species and Sensitive Natural Communities — *Less than Significant***

### Special-Status Species

Some special-status species do have the potential to occur in the Project Area that could be impacted by the Proposed Project. The following special-status species have the potential to occur in the Project Area:

- Several special-status plant species (refer to Table D-1 in Appendix D);
- Two special-status invertebrate species (Valley elderberry longhorn beetle and California freshwater shrimp);
- Four special-status fish species (steelhead, Pacific lamprey, Hardhead, Chinook Salmon);
- Three special-status amphibian and reptile species (California red-legged frog, foothill yellow-legged frog, and western pond turtle).
- Several special-status bird species (refer to Table D-2 in Appendix D); and
- Two special-status mammal species (western red bat and dusky-footed woodrat).

These species have the potential to be impacted by a variety of stream maintenance activities including vegetation management, sediment removal, debris removal, bank stabilization or minor maintenance. It is the District's intent to avoid all impacts to special-status species to the greatest extent feasible. Therefore, as a part of the Proposed Project the District would implement the following BMPs specifically to avoid or minimize impacts to special-status species:

- BMP GEN-1 Work Window
- BMP GEN-2 Minimize the Area of Disturbance
- BMP GEN-3 Erosion and Sediment Control Measures
- BMP GEN-5 Staging and Stockpiling of Materials
- BMP GEN-6 Stream Access
- BMP GEN-7 In-Channel Minor Sediment Removal
- BMP GEN-10 Spill Prevention and Response
- BMP GEN-14 Dewatering
- BMP GEN-15 Relocation of Aquatic Species for Dewatering
- BMP BIO-1 Minimize Impacts to Nesting Birds via Site Assessments and Avoidance Measures
- BMP BIO-2 Avoid and Minimize Impacts to Special-Status Invertebrate Species
- BMP BIO-4 Avoid and Minimize Impacts to Special-Status Plant Species and Sensitive Natural Vegetation Communities
- BMP BIO-5 Protection of Special-Status Amphibian and Reptile Species
- BMP BIO-6 Protection of Bat Colonies
- BMP BIO-7 Protection of dusky-footed woodrats
- BMP RESTOR-1 Restore Channel Features
- BMP RESTOR-2 Seeding
- BMP RESTOR-3 Planting Material

### Sensitive Natural Communities

Temporary impacts to sensitive natural communities are likely to occur through maintenance activities including vegetation management, sediment removal, debris removal, bank stabilization or minor maintenance (permanent impacts are not anticipated). As initially discussed in Section 3.4 *Biological Resources*, as a part of the Proposed Project the District would implement the following BMPs specifically to protect and minimize disturbances to sensitive natural communities:

- BMP GEN-3 Erosion and Sediment Control Measures
- BMP GEN-5 Staging and Stockpiling of Materials
- BMP GEN-6 Stream Access
- BMP BIO-4 Avoid and Minimize Impacts to Special-Status Plant Species and Sensitive Natural Vegetation Communities
- BMP RESTOR-2 Seeding
- BMP RESTOR-3 Planting Material

With implementation of the BMPs identified above for special-status species and sensitive natural communities the Proposed Project would not make a considerable contribution to potential cumulative impacts related to biological resources. No mitigation is necessary.

### **Cultural Resources: Preservation of Cultural Resources — *Less than Significant***

Impacts on cultural resources, including historic, archeological, or paleontological resources, could occur primarily through ground disturbances associated with the Proposed Project activities. As discussed in Section 3.5, *Cultural Resources*, as a part of the Proposed Project the District would implement the following BMPs specifically to protect cultural resources:

- BMP CUL-1 Review Cultural Sensitivity Maps
- BMP CUL-2 Field Inventory for High or Moderately Sensitive Areas
- BMP CUL-3 Construction Monitoring for Highly Sensitive Cultural Areas
- BMP CUL-4 Review of Projects with Native Soil
- BMP CUL-5 Pre-Maintenance Educational Training
- BMP CUL-6 Discovery of Cultural Remains or Historic or Paleontological Artifacts

With implementation of these BMPs the Proposed Project would not make a considerable contribution to potential cumulative impacts related to cultural resources. No mitigation is necessary.

### **Greenhouse Gas Emissions: Emissions of GHGs — *Less than Significant***

Vehicle and equipment used involved with the Proposed Project would result in daily and annual emissions of GHGs. As discussed in Section 3.7 *Global Climate Change*, daily emissions of GHGs are not considered to have the potential to be significant/substantial, and annual emissions would be below annual BAAQMD significance thresholds. The BAAQMD thresholds utilized also represent cumulative thresholds. Therefore, the Proposed Project would not make a considerable contribution to cumulative impacts related to GHG emissions. No mitigation is necessary.

### **Hydrology and Water Quality: Water Quality Impacts — *Less than Significant***

The Proposed Project has the potential to contribute to significant cumulative effects related to water quality from a variety of stream maintenance activities, including ground disturbance, heavy equipment use, and herbicide use. Ground-disturbing or sediment-disturbing activities could potentially result in discharges of sediment or other sediment-adsorbed contaminants. The use, storage, and refueling of equipment and vehicles could release hazardous materials, such as petroleum products. Herbicides could be accidentally released into channels and could be washed into the stream during storm events.

As discussed in Section 3.9 *Hydrology and Water Quality*, as a part of the Proposed Project the District would implement the following BMPs specifically to avoid and prevent contamination of water quality:

- BMP GEN-1 Work Windows
- BMP GEN-3 Erosion and Sediment Control Measures
- BMP GEN-5 Staging and Stockpiling of Materials
- BMP GEN-8 On-Site Hazardous Materials Management
- BMP GEN-9 Existing Hazardous Materials
- BMP GEN-10 Spill Prevention and Response
- BMP GEN-12 Vehicle and Equipment Maintenance
- BMP GEN-13 Vehicle and Equipment Fueling
- BMP RESTOR-1 Restore Channel Features
- BMP RESTOR-2 Seeding
- BMP RESTOR-3 Planting Material
- BMP RESTOR-4 Bank Protection Planting
- BMP RESTOR-5 Site Maintenance
- BMP VEG-4 Standard Herbicide Use Requirements
- BMP BIO-5 Protection of Special-status Amphibian and Reptile Species

With implementation of these BMPs the Proposed Project would not make a considerable contribution to potential cumulative impacts related to water quality. No mitigation is necessary.

### **Noise: Traffic-Related Noise Generation — *Less than Significant***

SMP activities involve vehicle use that would contribute to traffic-related noise. However, Section 3.16 *Traffic and Transportation* determined that the temporary added volume of traffic generated on Project Area roadways would be very small relative to roadway capacity and existing traffic volumes. Based on this conclusion it is anticipated the Proposed Project would not generate a noticeable increase in traffic noise. The Proposed Project would not make a considerable contribution to cumulative impacts related to traffic-related noise. No mitigation is necessary.

### **Traffic and Transportation: Effects to Level of Service and Emergency Access from Traffic Generation — *Less than Significant***

SMP activities would generate vehicle use that would add to traffic volumes. As discussed in Section 3.16 *Traffic and Transportation*, the volume of traffic generated on Project Area

roadways by the Proposed Project would be very small relative to roadway capacity and existing traffic volumes. The Proposed Project would not be anticipated to generate a noticeable degradation in level of service or emergency access on more than an extremely temporary basis. As a result, the Proposed Project would not make a considerable contribution to cumulative impacts related to level of service or emergency access from traffic generation. No mitigation is necessary.

**c. Effects on Human Beings — *Less than Significant***

Please refer to the impact discussions presented in Sections 3.1 through 3.17. The Project would not have potential for substantial direct or indirect adverse effects on human beings. Impacts would be less than significant, and no mitigation is required.

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# Appendix A

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## **STREAM MAINTENANCE MANUAL**

The Napa County Stream Maintenance Manual is available online at the Napa County Flood Control and Water Conservation District's website: [www.countyofnapa.org/flooddistrict/](http://www.countyofnapa.org/flooddistrict/)

The Manual is also available for review at the District office located at 804 First Street, Napa CA 94559 between the hours of 8:00 AM and 4:45 PM, Monday through Friday (excepting holidays).

# Appendix B

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## **AIR QUALITY AND GREENHOUSE GAS EMISSIONS ESTIMATES**



## Methodology

Emissions from the Napa County Flood Control and Water Conservation District's (District) Stream Maintenance Program (SMP) were estimated for 2012 and 2020 (URS 2011). These estimates included emissions from three categories: on-road vehicles, off-road equipment, and pesticide use. The estimates included both criteria pollutant (ROG, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and CO) and greenhouse gas emissions (CO<sub>2</sub>). The URBEMIS2007 model was used to estimate pounds per day (ppd) emissions from the operation of on-road vehicles and off-road equipment. The key URBEMIS inputs used to estimate on-road vehicle emissions were the types of vehicles and the number of vehicle miles traveled. The key URBEMIS inputs used to estimate off-road equipment emissions were the number and type of equipment needed to support stream maintenance activities. The 2020 CO<sub>2</sub> emission estimates generated by URBEMIS were reduced to account for the California Air Resources Board's Low Carbon Fuels Rule.

Annual off-road vehicle emissions (tons per year) were calculated by multiplying the pounds per day emissions by the maximum number of days per year (56 days) that the vehicles would operate, and then converting to tons. Annual on-road vehicle emissions in tons per year were calculated by multiplying by 140 days, which represents the maximum number of work days per year for the SMP, and then converting the resulting pounds per year to tons per year. Off- and on-road daily CO<sub>2</sub> emissions were converted to metric tons per year.

Pesticide application generates ROG emissions from evaporation. Daily pesticide emissions of ROG (in ppd) were calculated by multiplying the annual quantity of each pesticide used by the pesticide's reactive organic gases emission potential factor and by the pesticide's density, and dividing by the estimated number of days each pesticide would be applied. ROG emission factors for each pesticide were obtained from the California Department of Pesticide Regulation's website. Pesticide densities were obtained from the Material Safety Data Sheets for each pesticide.

## Emissions Estimates

**Table B1.** Maximum Daily Emissions Estimates (pounds per day)

Source	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub> e
<b>2012</b>					
Off-Road	2.4	20.7	1.0	0.8	2,979.6
On-Road	0.04	0.23	0.09	0.02	74.3
Pesticide Use	0.8	-	-	-	-
<i>Total</i>	<i>3.3</i>	<i>20.9</i>	<i>1.1</i>	<i>0.8</i>	<i>3,053.9</i>
<b>2020</b>					
Off-Road	1.5	8.0	0.5	0.3	2,086.1
On-Road	0.02	0.1	0.1	0.02	52.2
Pesticide Use	0.8	-	-	-	-
<i>Total</i>	<i>2.4</i>	<i>8.1</i>	<i>0.6</i>	<i>0.3</i>	<i>2,138.3</i>

**Table B2.** Maximum Annual Emissions Estimates (metric tons per year)

Source	ROG	NOx	PM <sub>10</sub>	PM <sub>2.5</sub>	CO <sub>2</sub> e
<b>2012</b>					
Off-Road	0.1	0.6	0.03	0.02	75.7
On-Road	0.003	0.016	0.006	0.002	4.7
Pesticide Use	0.15	-	-	-	-
<i>Total</i>	<i>0.2</i>	<i>0.6</i>	<i>0.0</i>	<i>0.0</i>	<i>80.4</i>
<b>2020</b>					
Off-Road	0.04	0.2	0.01	0.01	53.0
On-Road	0.002	0.007	0.006	0.001	3.3
Pesticide Use	0.15	-	-	-	-
<i>Total</i>	<i>0.2</i>	<i>0.2</i>	<i>0.0</i>	<i>0.0</i>	<i>56.3</i>

# Appendix C

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## **ENDANGERED AND THREATENED SPECIES LIST**



**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: 110927104651

Database Last Updated: September 18, 2011

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No quad species lists requested.

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**County Lists**

**Napa County**

**Listed Species**

**Invertebrates**

*Branchinecta conservatio*

Conservancy fairy shrimp (E)

*Branchinecta lynchi*

Critical habitat, vernal pool fairy shrimp (X)

vernal pool fairy shrimp (T)

*Desmocerus californicus dimorphus*

valley elderberry longhorn beetle (T)

*Speyeria callippe callippe*

callippe silverspot butterfly (E)

*Speyeria zerene myrtleae*

Myrtle's silverspot butterfly (E)

*Syncaris pacifica*

California freshwater shrimp (E)

**Fish**

*Acipenser medirostris*

green sturgeon (T) (NMFS)

*Eucyclogobius newberryi*

tidewater goby (E)

*Hypomesus transpacificus*

delta smelt (T)

*Oncorhynchus kisutch*

coho salmon - central CA coast (E) (NMFS)

Critical habitat, coho salmon - central CA coast (X) (NMFS)

*Oncorhynchus mykiss*

Central California Coastal steelhead (T) (NMFS)  
Critical habitat, Central California coastal steelhead (X) (NMFS)

*Oncorhynchus tshawytscha*  
Central Valley spring-run chinook salmon (T) (NMFS)  
Critical habitat, winter-run chinook salmon (X) (NMFS)  
winter-run chinook salmon, Sacramento River (E) (NMFS)

## Amphibians

*Ambystoma californiense*  
California tiger salamander, central population (T)

*Rana draytonii*  
California red-legged frog (T)  
Critical habitat, California red-legged frog (X)

## Reptiles

*Thamnophis gigas*  
giant garter snake (T)

## 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)

*Strix occidentalis caurina*  
northern spotted owl (T)

## Mammals

*Reithrodontomys raviventris*  
salt marsh harvest mouse (E)

## Plants

*Astragalus clarianus*  
Clara Hunt's milk-vetch (E)

*Castilleja affinis* ssp. *neglecta*  
Tiburon paintbrush (E)

*Cordylanthus mollis* ssp. *mollis*  
soft bird's-beak (E)

*Lasthenia conjugens*  
California Golden Pincushion (E)

Contra Costa goldfields (E)  
Critical habitat, Contra Costa goldfields (X)

*Navarretia leucocephala ssp. pauciflora*  
few-flowered navarretia (E)

*Plagiobothrys strictus*  
Calistoga allocarya (popcorn-flower) (E)

*Poa napensis*  
Napa bluegrass (E)

## Proposed Species

### Amphibians

*Rana draytonii*  
Critical habitat, California red-legged frog (PX)

### Plants

*Cordylanthus mollis ssp. mollis*  
Critical habitat, soft bird's-beak (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) 414-6520.

### 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 December 26, 2011.

# Appendix D

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## **CNDDDB LIST OF SPECIAL STATUS SPECIES KNOWN TO OCCUR IN THE PROJECT AREA**



Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Amorpha californica</i> var. <i>napensis</i>	Napa false indigo	None	None	1B.2	Broadleafed upland forest, chaparral, cismontane woodland.	Openings in forest or woodland or in chaparral. 150-2000m	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Amsinckia lunaris</i>	bent-flowered fiddleneck	None	None	1B.2	Cismontane woodland, valley and foothill grassland.	50-500m.	<b>Low.</b> Suitable habitat is not likely to be affected by Program activities.
<i>Arctostaphylos manzanita</i> ssp. <i>elegans</i>	Konocti manzanita	None	None	1B.3	Chaparral, cismontane woodland, lower montane coniferous forest.	Volcanic soils. 395-1400m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Arctostaphylos stanfordiana</i> ssp. <i>decumbens</i>	Rincon Ridge manzanita	None	None	1B.1	Chaparral.	Highly restricted endemic to red rhyolites in Sonoma county. 75-310m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Asclepias solanoana</i>	Solano milkweed	None	None	4, LR	Serpentine		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Astragalus claranus</i>	Clara Hunt's milk-vetch	FE	ST	1B.1	Cismontane woodland, valley and foothill grassland, chaparral.	Open grassy hillsides, esp. On exposed shoulders in thin, volcanic clay soil moist in spring. 75-235m.	<b>No Potential.</b> Species distribution is extremely limited. Program activities will avoid any impacts to this species.
<i>Astragalus rattanii</i> var. <i>jepsonianus</i>	Jepson's milk-vetch	None	None	1B.2	Cismontane woodland, valley and foothill grassland, chaparral.	Commonly on serpentine in grassland or openings in chaparral. 320-700m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Atriplex joaquiniana</i>	San Joaquin spearscale	None	None	1B.2	Chenopod scrub, alkali meadow, valley and foothill grassland.	In seasonal alkali wetlands or alkali sink scrub with <i>Distichlis spicata</i> , <i>Frankenia</i> , etc. 1-250m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	big-scale balsamroot	None	None	1B.2	Valley and foothill grassland, cismontane woodland.	Sometimes on serpentine. 35-1000m.	<b>Low.</b> Suitable habitat is not likely to be affected by Program activities.
<i>Brodiaea californica</i> var. <i>leptandra</i>	narrow-anthered California brodiaea	None	None	1B.2	Broadleafed upland forest, chaparral, lower montane coniferous forest.	110-915m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Calochortus uniflorus</i>	Large-flowered pink star tulip	None	None	LR	Seeps and swales in serpentine chaparral, low wet meadows in grassland and woodland	Sometimes on serpentine soils	<b>Low.</b> Suitable habitat is not likely to be affected by Program activities.
<i>Calystegia collina</i> ssp. <i>Oxyphylla</i>	Mt. Saint Helena morningglory	None	None	4	Chaparral, lower montane coniferous forest, valley and foothill grasslands (serpentine)	Sometimes on serpentine soils	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Castilleja affinis</i> ssp. <i>Neglecta</i>	Tiburon Indian paintbrush	FE	ST	1B.1	Valley and foothill grassland.	Rocky serpentine sites. 75-400m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Castilleja rubicundula</i> ssp. <i>rubicundula</i>	pink creamsacs	None	None	1B.2	Chaparral, meadows and seeps, valley and foothill grassland.	Openings in chaparral or grasslands. On serpentine. 20-900m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Ceanothus confusus</i>	Rincon Ridge ceanothus	None	None	1B.1	Closed-cone coniferous forest, chaparral, cismontane woodland.	Known from volcanic or serpentine soils, dry shrubby slopes. 75-1065m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Ceanothus divergens</i>	Calistoga ceanothus	None	None	1B.2	Chaparral, cismontane woodland.	Rocky, serpentine or volcanic sites. 165-950m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Ceanothus purpureus</i>	Holly-leaved ceanothus	None	None	1B.2	Chaparral.	Rocky, volcanic slopes. 120-640m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Ceanothus sonomensis</i>	Sonoma ceanothus	None	None	1B.2	Chaparral.	Sandy, serpentine or volcanic soils. 210-800m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Clarkia gracilis</i> ssp. <i>Tracyi</i>	Pappose tarplant	None	None	1B.2	Coastal prairie, meadows and seeps, coastal salt marsh, valley and foothill grassland.	Vernally mesic, often alkaline sites. 2-420m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Cordylanthus mollis</i> ssp. <i>Mollis</i>	Soft bird's-beak	FE	Rare	1B.2	Coastal salt marsh.	In coastal salt marsh with <i>Distichlis</i> , <i>Salicornia</i> , <i>Frankenia</i> , etc. 0-3m.	<b>No Potential.</b> Suitable habitat does not occur in Program area.
<i>Cryptantha dissita</i>	serpentine cryptantha	None	None	1B.1	Chaparral.	Serpentine outcrops. 330-730m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Cuscuta howelliana</i>	Boggs Lake dodder	None	None	LR	Volcanic vernal pools in chaparral		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Downingia pusilla</i>	dwarf downingia	None	None	2.2	Valley and foothill grassland (mesic sites), vernal pools.	Vernal lake and pool margins with a variety of associates. In several types of vernal pools. 1-485m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Equisetum palustre</i>	Marsh horsetail	None	None	3, LR	Freshwater marsh		<b>Moderate.</b> Program activities may occur in suitable or occupied habitat.
<i>Erigeron greenei</i>	Greene's narrow-leaved daisy	None	None	1B.2	Chaparral.	Serpentine and volcanic substrates, generally in shrubby vegetation. 75-1060m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Eriogonum luteolum</i> var. <i>caninum</i>	Tiburon buckwheat	None	None	3	Chaparral, coastal prairie, valley and foothill grassland, on serpentine		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Eriogonum nervulosum</i>	Snow Mountain buckwheat	None	None	1B.2	Chaparral.	Dry serpentine outcrops, balds, and barrens. 300-2100m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Eriogonum tripodum</i>	Tripod buckwheat	None	None	4	Rocky slopes in serpentine chaparral		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Eriogonum umbellatum</i> var. <i>bahiiforme</i>	Bay buckwheat	None	None	4, LR	Cismontane woodland, lower montane coniferous forest, rocky or serpentine areas		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Erodium macrophyllum</i>	Round-leaved filaree	None	None	1B.1	Open sites, dry grasslands, and shrublands	clay soils	<b>Low.</b> Suitable habitat is not likely to be impacted by Program activities.
<i>Erythronium helenae</i>	St. Helena fawn lily	None	None	4	Chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland on volcanic or serpentinite soils		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Fritillaria pluriflora</i>	adobe-lily	None	None	1B.2	Chaparral, cismontane woodland, foothill grassland.	Usually on clay soils; sometimes serpentine. 55-820m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Harmonia hallii</i>	Hall's harmonia	None	None	1B.2	Chaparral.	Serpentine hills and ridges. Open, rocky areas within chaparral. 500-900m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Hesperolinon bicarpellatum</i>	two-carpellate western flax	None	None	1B.2	Serpentine chaparral.	Serpentine barrens at edge of chaparral. 150-820m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Hesperolinon breweri</i>	Brewer's western flax	None	None	1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Often in rocky serpentine soil in serpentine chaparral and serpentine grassland. 30-885m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Hesperolinon drymarioides</i>	drymaria-like western flax	None	None	1B.2	Closed-cone coniferous forest, chaparral, cismontane woodland, valley and foothill grassland.	Serpentine soils, mostly within chaparral. 390-1000m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Hesperolinon</i> sp. nov. "serpentinum"	Napa western flax	None	None	1B.1	Chaparral.	Mostly found in serpentine chaparral. 225-850m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Juglans californica</i> var <i>hindsii</i>	Northern California black walnut	None	None	1B.1	Riparian forest, riparian woodland. Few extant native stands remain; widely naturalized.	Deep alluvial soil associated with a creek or stream. 0-395m.	<b>No Potential.</b> A single native stand exists in the County (Wooden Valley site = Mudson Ranch Area, Circle oaks Subdivisions) (Napa County 2010, CNDDDB 2011). Program activities will avoid any impacts to this site.
<i>Juncus luciensis</i>	Santa Lucia dwarf rush	None	None	1B.2	Vernal pools, meadows, lower montane coniferous forest, chaparral, great basin scrub.	Vernal pools, ephemeral drainages, wet meadow habitats and streamsides. 300-2040m.	<b>Low.</b> Program activities highly unlikely to occur in species range.
<i>Lasthenia burkei</i>	Burke's goldfields	None	None	1B.1	Vernal pools, meadows and seeps.	Most often in vernal pools and swales. 15-580m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lasthenia conjugens</i>	Contra Costa goldfields	None	None	1B.1	Valley and foothill grassland, vernal pools, cismontane woodland. Extirpated from most of its range.	Vernal pools, swales, low depressions, in open grassy areas. 1-445m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lathyrus jepsonii</i> var <i>jepsonii</i>	Delta tule pea	None	None	1B.2	Freshwater and brackish marshes.	Often found w/ Typha, Aster lentus, Rosa calif., Juncus spp., Scirpus, etc. Usually on marsh and slough edges.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Layia septentrionalis</i>	Colusa layia	None	None	1B.2	Chaparral, cismontane woodland, valley and foothill grassland.	Scattered colonies in fields and grassy slopes in sandy or serpentine soil. 145-1095m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Legenere limosa</i>	Legenere	None	None	1B.1	Vernal pools. Many historical occurrences are extirpated.	In beds of vernal pools. 1-880m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lessingia hololeuca</i>	Woolly-headed lessingia	None	None	3, LR	Dry, grassy areas in foothill woodland		<b>Low.</b> Suitable habitat is not likely to be impacted by Program activities.
<i>Lilaeopsis masonii</i>	Mason's Lilaeopsis	None	Rare	1B.1	Freshwater and brackish marshes, riparian scrub.	Tidal zones, in muddy or silty soil formed through river deposition or river bank erosion. 0-10m.	<b>No Potential.</b> Program activities do not overlap with species distribution.
<i>Lilium rubescens</i>	Chaparral lily	None	None	4, LR	Slopes in chaparral and mixed evergreen forest on volcanic soil		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Limnanthes floccosa</i> ssp. <i>floccosa</i>	woolly meadowfoam	None	None	4	Chaparral, cismontane woodland, valley and foothill grassland, vernal pools.	Vernally wet areas, ditches, and ponds. 60-1275m.	<b>Low.</b> Suitable habitat is not likely to be impacted by Program activities.

Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Limnanthes vinculans</i>	Sebastopol meadowfoam	FE	SE	1B.1	Mesic meadows, vernal pools, valley and foothill grassland.	Swales, wet meadows and marshy areas in valley oak savanna; on poorly drained soils of clays and sandy loam. 15-115m.	<b>No Potential.</b> The only occurrence within the County is in a CDFG Ecological Reserve (CNDDDB 2011). Program activities will avoid any impacts to this population.
<i>Linanthus acicularis</i>	Bristly linanthus	None	None	4	Grassy slopes in foothill woodlands		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lomatium ciliolatum var. hooveri</i>	Hoover's wild parsnip	None	None	4., LR	Rocky slopes and ridgetops in serpentine chaparral		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lupinus sericatus</i>	Cobb Mountain lupine	None	None	1B.2	Chaparral, cismontane woodland, lower montane coniferous forest.	In stands of knobcone pine-oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine. 180-1500m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lythrum californicum</i>	California loosestrife	None	None	LR	Freshwater marsh		<b>Moderate.</b> Program activities may occur in suitable or occupied habitat.
<i>Monardella villosa ssp. globosa</i>	robust monardella	None	None	1B.2	Broadleaved upland forest, chaparral, cismontane woodland, valley and foothill grassland.	Openings. 30-300m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Navaretia cotulifolia</i>	Cotula navaretia	None	None	4, LR	Chaparral, foothill woodland, grassland		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Navaretia leucocephala ssp. bakeri</i>	Baker's navaretia	None	None	1B.1	Cismontane woodland, meadows and seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest.	Vernal pools and swales; adobe or alkaline soils. 5-950m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Navaretia leucocephala ssp. pauciflora</i>	few-flowered navaretia	FE	ST	1B.2	Vernal pools.	Volcanic ash flow, and volc substrate vernal pools. 400-855m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

**Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area**

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Navarretia rosulata</i>	Marin County navarretia	None	None	1B.2	Closed-cone coniferous forest, chaparral.	Dry, open rocky places; can occur on serpentine. 200-635m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Penstemon newberryi</i> var. <i>sonomensis</i>	Sonoma beardtongue	None	None	1B.3	Chaparral.	Crevice in rock outcrops and talus slopes. 180-1390m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Perideridia gairdneri</i> ssp. <i>Gairdneri</i>	Gairdner's yampah	None	None	4	Broad-leaved upland forest, chaparral, coastal prairie, valley and foothill grassland, vernal pools, in mesic		<b>Low.</b> Suitable habitat is not likely to be impacted by Program activities.
<i>Plagiobothrys strictus</i>	Calistoga popcorn-flower	FE	ST	1B.1	Broadleaved upland forest, meadows and seeps, valley and foothill grassland, vernal pools.	Alkaline sites near thermal springs and on margins of vernal pools in heavy, dark, adobe-like clay. 90-160m.	<b>No Potential.</b> Only 3 occurrences within the County, all around Calistoga (CNDDDB 2011). Program activities will avoid any impacts to this population(s).
<i>Poa napensis</i>	Napa blue grass	FE	SE	1B.1	Meadows and seeps, valley and foothill grassland.	Moist alkaline meadows fed by runoff from nearby hot springs. 100-125m.	<b>No Potential.</b> Only 2 occurrences within the County; One at Calistoga Airport and another population off Myrtle Dale Road and Tubbs Lane approx. 2 miles WNW OF Calistoga.(CNDDDB 2011). Program activities will avoid any impacts to this population(s) and other suitable habitat.
<i>Pogogyne douglasii</i> ssp. <i>Parviflora</i>	Small-flowered pogogyne	None	None	3, LR	Serpentine swales in chaparral		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Polygonum marinense</i>	Marin knotweed	None	None	3	grasslands	Coastal salt marshes and brackish marshes. 0-10m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Ranunculus lobbii</i>	Lobb's aquatic buttercup	None	None	4, LR	Vernal pools, ditches, and ponds in grassland and woodland	Vernal pools	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Rhynchospora californica</i>	California beaked rush	None	None	1B.1	Bogs and fens, marshes and swamps, lower montane coniferous forest, meadows and seeps.	Freshwater seeps and open marshy areas. 45-1000m.	<b>Moderate.</b> Program activities may occur in suitable or occupied habitat.
<i>Sidalcea hickmanii</i> ssp. <i>Napensis</i>	Napa checkerbloom	None	None	1B.1	Serpentine chaparral.		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Sidalcea hickmanii</i> ssp. <i>Viridis</i>	Marin checkerbloom	None	None	1B.3	Serpentine chaparral.		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Sidalcea oregana</i> ssp. <i>Hydrophila</i>	Marsh checkerbloom	None	None	1B.2	Meadows and seeps, riparian forest.	Wet soil of streambanks, meadows. 545-2300m.	<b>Moderate.</b> Program activities may occur in suitable or occupied habitat.
<i>Streptanthus barbiger</i>	Bearded jewelflower	None	None	4, LR	Serpentine chaparral.		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Streptanthus brachiatus</i> ssp. <i>Brachiatus</i>	Socrates Mine jewel-flower	None	None	1B.2	Chaparral, cypress forest, on serpentine		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Streptanthus brewerii</i> var. <i>hesperides</i>	Green jewel-flower	None	None	1B.2	Chaparral (openings), cismontane woodland (serpentinite, rocky)		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Streptanthus morrisonii</i> ssp. <i>Elatus</i>	Three peaks jewel-flower	None	None	1B.2	Serpentine chaparral		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Streptanthus morrisonii</i> ssp. <i>Kruckebergii</i>	Kruckeberg's jewel-flower	None	None	1B.3	Cismontane woodland on serpentine		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Symphotrichum lentum</i> [= <i>Aster lentus</i> ]	Suisin Marsh aster	None	None	1B.2	Marshes and swamps (brackish and freshwater).	Most often seen along sloughs with Phragmites, Scirpus, blackberry, Typha, etc. 0-3m.	<b>Moderate.</b> Program activities may occur in suitable or occupied habitat.
<i>Thelypodium brachycarpum</i>	Short-podded thelypodium	None	None	4, LR	Open flat serpentine seeps in chaparral		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Trichostema rubisepalum</i>	Hernandez bluecurls	None	None	4, LR	Grassy flats in chaparral, foothill woodland, and yellow pine forest		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Trichostema ruygtii</i>	Napa bluecurls	None	None	1B.2	Cismontane woodland, chaparral, valley and foothill grassland, vernal pools, lower montane coniferous forest.	Often in open, sunny areas. Also has been found in vernal pools. 30-590m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

**Table D-1. Special Status Plant Species Known to Occur in the Vicinity of the Project Area**

Scientific Name	Common name	Federal listing status	Calif listing status	Rare Plant Rank	General Habitat	Micro Habitat	Potenital to occur in areas affected by Program Activities
<i>Trifolium amoenum</i>	showy rancheria clover	FE	None	1B.1	Valley and foothill grassland, coastal bluff scrub.	Sometimes on serpentine soil, open sunny sites, swales. Most recently sited on roadside and eroding cliff face. 5-560m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Trifolium depauperatum</i> var. <i>hydrophilum</i>	Saline clover	None	None	1B.2	Marshes and swamps, valley and foothill grassland, vernal pools.	Mesic, alkaline sites. 0-300m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Triteleia lugens</i>	Dark-mouthed triteleia	None	None	4, LR	Broadleafed upland forest, chaparral		<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Viburnum ellipticum</i>	Oval-leaved viburnum	None	None	2	montane coniferous forest	215-1400m.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Zigadenus micranthus</i> var. <i>fontanus</i>	Marsh zigadenus	None	None	4	Vernally mesic areas in chaparral, cismontane woodland, lower montane coniferous forest, meadows and seeps, marshes and swamps		<b>Moderate.</b> Program activities may occur in suitable or occupied habitat.

\* List of Abbreviations for Federal and State Species Status follow below

FC = Federal candidate for listing

FE = Federal endangered

FP = State fully protected species

FPT = Federal proposed: threatened

SSC = State species of special concern

FSC = Federal species of concern (per NOAA or USFWS website)

SCE = State candidate: endangered

SE = State endangered

SSC = State species of special concern

ST = State threatened List 1A plants are presumed extinct in California.

1B = plants are considered rare, threatened, or endangered in California and elsewhere.

2 = plants are rare, threatened, or endangered in California, but more common elsewhere.

3 = plants about which more information is needed to determine their status.

4 = plants of limited distribution.

LR = Locally rare as identified in the Napa County BDR (Napa County 2005).

Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<b>INVERTEBRATES</b>							
<i>Branchinecta conservatio</i>	Conservancy fairy shrimp	FE	None	None	Endemic to the grasslands of the Central Valley, Central Coast Mtns, and South Coast Mtns, in astatic rain-filled pools.	Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Branchinecta lynchi</i>	vernal pool fairy shrimp	FT	None	None	Endemic to Marin, Napa, & Sonoma cos. Found in low elev, low gradient streams where riparian cover is moderate to heavy.	Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Desmocerus californicus dimorphus</i>	valley elderberry longhorn beetle	FT	None	None	Occurs only in the central valley of California, in association with blue elderberry ( <i>Sambucus mexicana</i> ).	Prefers to lay eggs in elderberries 2-8 inches in diameter; some preference shown for "stressed" elderberries.	<b>Low.</b> Species distribution in Napa County is limited to two occurrences in the southeastern portion of the County near Lake Curry. Species is not present in streams that are the main focus of program activities.
<i>Speyeria zerene myrtleae</i>	Myrtle's silverspot	FE	None	None	Restricted to the foggy, coastal dunes/hills of the Point Reyes peninsula; extirpated from coastal San Mateo County.	Larval foodplant thought to be <i>Viola adunca</i> .	<b>No Potential.</b> No documented occurrences in the County. Program activities would not occur in habitat that supports the species.
<i>Speyeria callippe callippe</i>	callippe silverspot butterfly	FE	None	None	Restricted to the northern coastal scrub of the San Francisco peninsula.	Hostplant is <i>Viola pedunculata</i> . Most adults found on E-facing slopes; males congregate on hilltops in search of females.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Syncaris pacifica</i>	California freshwater shrimp	FE	SE	None		Shallow pools away from main streamflow. winter: undercut banks w/exposed roots. Summer: leafy branches touching water.	<b>Moderate.</b> BMP BIO 7 would avoid potential impacts to occupied and suitable habitat in the Napa River, Huichica and Garnett Creeks. Potential for occurrence outside these known locations is low.
<b>FISH</b>							
<i>Acipenser medirostris</i>	green sturgeon	FT	None	SSC	These are the most marine species of sturgeon. Abundance increases northward of Point Conception. Spawns in the Sacramento, Klamath, & Trinity Rivers.	Spawns at temps between 8-14 C. Preferred spawning substrate is large cobble, but can range from clean sand to bedrock.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Eucyclogobius newberryi</i>	tidewater goby	FE	None	SSC	Brackish water habitats along the Calif coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of the Smith River.	Found in shallow lagoons and lower stream reaches, they need fairly still but not stagnant water & high oxygen levels.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Hypomesus transpacificus</i>	Delta smelt	FT	SE	SSC	Sacramento-San Joaquin Delta. Seasonally in Suisun Bay, Carquinez Strait & San Pablo Bay.	Seldom found at salinities > 10 ppt. Most often at salinities < 2ppt.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lampetra tridentata</i>	Pacific lamprey	FSC	None	None	Found in Pacific Coast streams north of San Luis Obispo Co., however regular runs in Santa Clara River. Size of runs is declining.	Swift-current gravel bottomed areas for spawning with water temps between 12-18 C. Ammonoetes need soft sand or mud.	<b>Moderate.</b> Species is known to occur in streams within the program area, but is not common in channels that are the focus of program activities.

**Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area**

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potenital to occur in areas affected by Program Activities
<i>Mylopharodon conocephalus</i>	Hardhead	None	None	SSC	Low to mid-elevation streams in the Sacramento-San Joaquin drainage. Also present in the Russian River.	Clear, deep pools with sand-gravel-boulder bottoms & slow water velocity. Not found where exotic centrarchids predominate.	<b>Moderate.</b> Species is known to occur in streams within the program area, but is not common in channels that are the focus of program activities.
<i>Oncorhynchus kisutch</i>	coho salmon - central California coast ESU	FE	SE	None	Federal listing = pops between Punta Gorda & San Lorenzo River. State listing = pops south of Punta Gorda.	Require beds of loose, silt-free, coarse gravel for spawning. Also need cover, cool water & sufficient dissolved oxygen.	<b>No Potential.</b> Streams in the program area do not support the species.
<i>Oncorhynchus mykiss irideus</i>	steelhead - Central California Coast DPS	FT	None	None	From Russian River, south to Soquel Cr & to, but not including, Pajaro River. Also San Francisco & San Pablo Bay basins.		<b>High.</b> Species has the potential to occur in streams that area commonly the focus of program activities.
<i>Oncorhynchus tshawytscha</i>	chinook salmon - Central Valley spring-run ESU	FT	FT	None	Adult nos. depend on pool depth & volume, amount of cover, & proximity to gravel. Water temps >27 C is lethal to adults	Federal listing refers to pops spawning in Sacramento River & tributaries.	<b>No Potential.</b> Streams in the program area do not support winter-run chinook salmon.
<i>Oncorhynchus tshawytscha</i>	chinook salmon - Sacramento River winter-run ESU	FE	SE	None	Sacramento River below Keswick Dam. Spawns in the Sacramento River but not in tributary streams.	Requires clean, cold water over gravel beds with water temperatures between 6 & 14 C for spawning.	<b>No Potential.</b> Streams in the program area do not spring-run chinook salmon
<i>Oncorhynchus tshawytscha</i>	chinook salmon - Central Valley fall / late fall-run ESU	None	None	SSC	Populations spawning in the Sacramento & San Joaquin rivers and their tributaries.		<b>Moderate.</b> Species is known to occur in the mainstem Napa River.

Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Pogonichthys macrolepidotus</i>	Sacramento splittail	None	None	None	Endemic to the lakes and rivers of the Central Valley, but now confined to the Delta, Suisun Bay & associated marshes.	Slow moving river sections, dead end sloughs. Requires flooded vegetation for spawning & foraging for young.	<b>No Potential.</b> Streams in the program area do not support the species.
<i>Spirinchus thaleichthys</i>	Longfin smelt	None	ST	None	Euryhaline, nektonic & anadromous. Found in open waters of estuaries, mostly in middle or bottom of water column.	Prefer salinities of 15-30 ppt, but can be found in completely freshwater to almost pure seawater.	<b>No Potential.</b> Streams in the program area do not support the species.
<b>AMPHIBIANS AND REPTILES</b>							
<i>Actinemys marmorata</i>	Western pond turtle	None	None	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams & irrigation ditches with aquatic vegetation below 6000 ft elevation.	Need basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 km from water for egg-laying.	<b>High.</b> Several streams in the program area provide suitable habitat.
<i>Ambystoma californiense</i>	California tiger salamander	FT	ST	SSC	Central Valley DPS federally listed as threatened. Santa Barbara & Sonoma counties DPS federally listed as endangered.	Need underground refuges, especially ground squirrel burrows & vernal pools or other seasonal water sources for breeding	<b>No Potential.</b> Program area is not within species current range.
<i>Rana boylei</i>	foothill yellow-legged frog	None	None	SSC	Partly-shaded, shallow streams & riffles with a rocky substrate in a variety of habitats.	Need at least some cobble-sized substrate for egg-laying. Need at least 15 weeks to attain metamorphosis.	<b>Moderate.</b> Select streams in the program area provide suitable habitat; maintenance does not commonly occur in preferred habitat.

Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Rana draytonii</i>	California red-legged frog	FT	None	SSC	Lowlands & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. must have access to estivation habitat.	<b>Low.</b> Select streams in the program area provide suitable habitat, but species is not likely widespread in the program area. No documented occurrences on the Napa Valley floor (i.e., where maintenance activities commonly take place). Large populations of bullfrogs ( <i>Rana catesbeiana</i> ) in many channels greatly diminishes the ability of these drainages to support breeding of CRLF.
<i>Scaphiopus hammondi</i>	Western spadefoot	None	None	SSC	Temporary desert rainpools that last a least 7 days, with water temps > 15 C & with subterranean refuge sites close by.	An insect food base especially termites must be available.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Thamnophis gigas</i>	giant garter snake	FT	ST		Prefers freshwater marsh and low gradient streams. Has adapted to drainage canals & irrigation ditches.	This is the most aquatic of the garter snakes in California.	<b>No Potential.</b> Program area is not within species current range.
<b>BIRDS</b>							
<i>Accipiter cooperii</i>	Cooper's hawk	None	None	WL	Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms on river flood-plains; also, live oaks.	Moderate. Species is a year-round resident in County, but uncommon nester (Napa County 2005).
<i>Accipiter striatus</i>	sharp-shinned hawk	None	None	WL	Ponderosa pine, black oak, riparian deciduous, mixed conifer & Jeffrey pine habitats. Prefers riparian areas.	North-facing slopes, with plucking perches are critical requirements. Nests usually within 275 ft of water.	Moderate. Species is a common winter resident; breeding activity recently documented in County (Napa County 2005).

**Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area**

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potenital to occur in areas affected by Program Activities
<i>Agelaius tricolor</i>	tricolored blackbird	None	None	SSC	Highly colonial species, most numerous in Central Valley & vicinity. Largely endemic to California.	Requires open water, protected nesting substrate, & foraging area with insect prey within a few km of the colony. Nests in dense colonies in emergent marsh vegetation, such as tules and cattails, or upland sites with blackberries, nettles, thistles, and grainfields. Habitat must be large enough to support 50 pairs.	<b>Low.</b> Program activities not likely to occur in suitable nesting habitat.
<i>Ammodramus savannarum</i>	grasshopper sparrow	None	None	SSC	Dense grasslands on rolling hills, lowland plains, in valleys & on hillsides on lower mountain slopes.	Favors native grasslands with a mix of grasses, forbs & scattered shrubs. Loosely colonial when nesting.	Low. Suitable habitat is not likely to be impacted by program activities.
<i>Amphispiza belli belli</i>	Bell's sage sparrow	None	None	WL	Nests in chaparral dominated by fairly dense stands of chamise. Found in coastal sage scrub in south of range.	Nest located on the ground beneath a shrub or in a shrub 6-18 inches above ground. Territories about 50 yds apart.	Low. Suitable habitat is not likely to be impacted by program activities.
<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	Low. Suitable habitat is not likely to be impacted by program activities.

**Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area**

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Aquila chrysaetos</i>	golden eagle	None	None	FP, WL	Rolling foothills, mountain areas, sage-juniper flats, & desert.	Cliff-walled canyons provide nesting habitat in most parts of range; also, large trees in open areas.	Low. Suitable habitat is not likely to be impacted by program activities.
<i>Ardea herodias</i>	great blue heron (rookery)	None	None	LR	Colonial nester in tall trees, cliffsides, and sequestered spots on marshes.	Rookery sites in close proximity to foraging areas: marshes, lake margins, tide-flats, rivers and streams, wet meadows.	Moderate. Rookery sites may occur in program area.
<i>Asio flammeus</i>	short-eared owl	None	None	SSC	Found in swamp lands, both fresh and salt; lowland meadows; irrigated alfalfa fields.	Tule patches/tall grass needed for nesting/daytime seclusion. Nests on dry ground in depression concealed in vegetation.	Low. Suitable habitat is not likely to be impacted by program activities.
<i>Athene cunicularia</i>	burrowing owl	None	None	SSC	Open, dry annual or perennial grasslands, deserts & scrublands characterized by low-growing vegetation.	Subterranean nester, dependent upon burrowing mammals, most notably, the California ground squirrel.	Low. Limited nesting within County (Napa County 2005).
<i>Buteo swainsoni</i>	Swainson's hawk	None	ST	None	Breeds in grasslands with scattered trees, juniper-sage flats, riparian areas, savannahs, & agricultural or ranch lands with groves or lines of trees.	Requires adjacent suitable foraging areas such as grasslands, or alfalfa or grain fields supporting rodent populations.	Low. Limited nesting habitat within County (Napa County 2005).
<i>Charadrius alexandrinus nivosus</i>	western snowy plover	FT	None	SSC	Sandy beaches, salt pond levees & shores of large alkali lakes.	Needs sandy, gravelly or friable soils for nesting.	No Potential. Suitable habitat does not occur in program area.

**Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area**

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potenital to occur in areas affected by Program Activities
<i>Circus cyaneus</i>	Northern harrier	None	None	SSC	Coastal salt & fresh-water marsh. Nest & forage in grasslands, from salt grass in desert sink to mountain cienagas.	Nests on ground in shrubby vegetation, usually at marsh edge; nest built of a large mound of sticks in wet areas.	<b>Low.</b> Suitable habitat is not likely to be impacted by program activities.
<i>Cypseloides niger</i>	black swift	None	None	SSC	Coastal belt of Santa Cruz & Monterey co; central & southern Sierra Nevada; San Bernardino & San Jacinto mountains.	Breeds in small colonies on cliffs behind or adjacent to waterfalls in deep canyons and sea-bluffs above the surf.	<b>No Potential.</b> Suitable habitat does not occur in program area.
<i>Dendroica petechia</i>	Yellow warbler	None	None	SSC	Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores, & alders for nesting & foraging.	Also nests in montane shrubbery in open conifer forests.	Moderate. Species may nest in areas affected by program activities.
<i>Elanus leucurus</i>	White-tailed kite	None	None	FP	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Low. Suitable habitat is not likely to be impacted by program activities.
<i>Eremophila alpestris actia</i>	California horned lark	None	None	WL	Coastal regions, chiefly from Sonoma Co. to San Diego Co. Also main part of San Joaquin Valley & east to foothills.	Short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, alkali flats.	Low. breeding records confined to Huichica Creek and Stanly Ranch (Napa County 2005).
<i>Falco peregrinus anatum</i>	American peregrine falcon	Delisted	Delisted	FP	Near wetlands, lakes, rivers, or other water; on cliffs, banks, dunes, mounds; also, human-made structures.	Nest consists of a scrape or a depression or ledge in an open site.	Low. Suitable habitat is not likely to be impacted by program activities.

Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Geothlypis trichas sinuosa</i>	saltmarsh common yellowthroat	None	None	SSC	Resident of the San Francisco Bay region, in fresh and salt water marshes.	Requires thick, continuous cover down to water surface for foraging; tall grasses, tule patches, willows for nesting.	Low. Suitable habitat is not likely to be impacted by program activities.
<i>Icteria virens</i>	Yellow-breasted chat	None	None	SSC	Summer resident; inhabits riparian thickets of willow & other brushy tangles near watercourses.	Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 ft of ground.	Moderate. Species may nest in areas affected by program activities.
<i>Haliaeetus leucocephalus</i>	bald eagle	Delisted	SE		Nests and roosts in coniferous forests within 1 mile of a lake, reservoir, stream, or the ocean.		Low. Suitable habitat is not likely to be impacted by program activities. Nests at Lake Berryessa and Lake Hennessy (Napa County 2005).
<i>Laterallus jamaicensis coturniculus</i>	California black rail	None	ST	FP	Inhabits freshwater marshes, wet meadows & shallow margins of saltwater marshes bordering larger bays.	Needs water depths of about 1 inch that does not fluctuate during the year & dense vegetation for nesting habitat.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Pelecanus occidentalis californicus</i>	California brown pelican	Delisted	Delisted	FP	Colonial nester on coastal islands just outside the surf line.	Nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. Roosts communally.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Progne subis</i>	Purple martin	None	None	SSC	Rolling foothills and valley margins with scattered oaks & river bottomlands or marshes next to deciduous woodland.	Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	<b>Low.</b> Species may nest in areas affected by program activities, but is not common in riparian areas that are the focus of maintenance activities.

**Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area**

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Melospiza melodia samuelis</i>	San Pablo song sparrow	None	None	SSC	Resident of salt marshes along the north side of San Francisco and San Pablo bays.	Inhabits tidal sloughs in the Salicornia marshes; nests in Grindelia bordering slough channels.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Rallus longirostris obsoletus</i>	California clapper rail	FE	SE	FP	Salt-water & brackish marshes traversed by tidal sloughs in the vicinity of San Francisco Bay.	Associated with abundant growths of pickleweed, but feeds away from cover on invertebrates from mud-bottomed sloughs.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Sternula antillarum browni</i>	California least tern	FE	SE	FP	Nests along the coast from San Francisco Bay south to northern Baja California.	Colonial breeder on bare or sparsely vegetated, flat substrates: sand beaches, alkali flats, land fills, or paved areas.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Strix occidentalis caurina</i>	Northern spotted owl	FT	None	SSC	Dense old-growth or mature forests dominated by conifers with topped trees or oaks available for nesting crevices		No Potential. Known only in the Huichica Creek Wildlife Area (Napa County 2005). Program activities would not occur in habitat that supports the species.
<i>Xanthocephalus xanthocephalus</i>	Yellow-headed blackbird	None	None	SSC	Nests in freshwater emergent wetlands with dense vegetation & deep water. Often along borders of lakes or ponds.	Nests only where large insects such as Odonata are abundant, nesting timed with maximum emergence of aquatic insects.	No Potential. Rare summer resident at Huichica Creek Wildlife Area (Napa County 2005). Program activities would not occur in habitat that supports the species.
<b>MAMMALS</b>							

**Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area**

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Antrozous pallidus</i>	pallid bat	None	None	SSC	Deserts, grasslands, shrublands, woodlands & forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Bassariscus astutus</i>	ringtail cat	None	None	FP	Inhabit brushy and wooded areas along watercourses in foothill and lower montane canyons; den sites in rocky areas or in hollows in trees.		Low. Preferred habitat is not likely to be impacted by program activities. Species is uncommon in th County (Napa County 2005).
<i>Corynorhinus townsendii</i>	Townsend's big-eared bat	None	None	SSC	Throughout California in a wide variety of habitats. Most common in mesic sites.	Roosts in the open, hanging from walls & ceilings. Roosting sites limiting. extremely sensitive to human disturbance.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Eumops perotis californicus</i>	greater western mastiff bat	None	None	SSC	Many open, semi-arid to arid habitats, including conifer & deciduous woodlands, coastal scrub, grasslands, chaparral etc	Roosts in crevices in cliff faces, high buildings, trees & tunnels.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Lasiurus blossevillii</i>	Western red bat	None	None	SSC	Roosts primarily in trees, 2-40 ft above ground, from sea level up through mixed conifer forests.	Prefers habitat edges & mosaics with trees that are protected from above & open below with open areas for foraging.	<b>Moderate.</b> Select streams in the program area provide suitable habitat.
<i>Reithrodontomys raviventris</i>	salt-marsh harvest mouse	FE	SE	FP	Only in the saline emergent wetlands of San Francisco Bay and its tributaries.	Pickleweed is primary habitat. Do not burrow, build loosely organized nests. Require higher areas for flood escape.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.

**Table D-2. Special Status Animal Species Known to Occur in the Vicinity of the Project Area**

Scientific name	Common name	Federal listing status*	Calif listing status*	Other Status	General Habitat	Micro Habitat	Potential to occur in areas affected by Program Activities
<i>Sorex ornatus sinuosus</i>	Suisun shrew	None	None	SSC	Tidal marshes of the northern shores of San Pablo and Suisun bays.	Require dense low-lying cover and driftweed and other litter above the mean hightide line for nesting and foraging.	<b>No Potential.</b> Program activities would not occur in habitat that supports the species.
<i>Taxidea taxus</i>	American badger	None	None	SSC	Occupy a diversity of habitats. The principal requirements seem to be sufficient food, friable soils, and relatively open, uncultivated ground. Grasslands, savannas, and mountain meadows near timberline are preferred.		<b>Low.</b> Preferred habitat is not likely to be impacted by program activities. Species distribution in program area is not well known.
<p><b>* List of Abbreviations for Federal and State Species Status follow below:</b>            FC = Federal candidate for listing            FE = Federal endangered            FP = State fully protected species            FPT = Federal proposed: threatened            FT = Federal threatened            SSC = State species of special concern            FSC = Federal species of concern (per NOAA or USFWS website)            SCE = State candidate: endangered            SE = State endangered            SSC = State species of special concern            ST = State threatened</p>							

# Appendix E

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## **CULTURAL SENSITIVITY MAPS FOR THE PROJECT AREA**



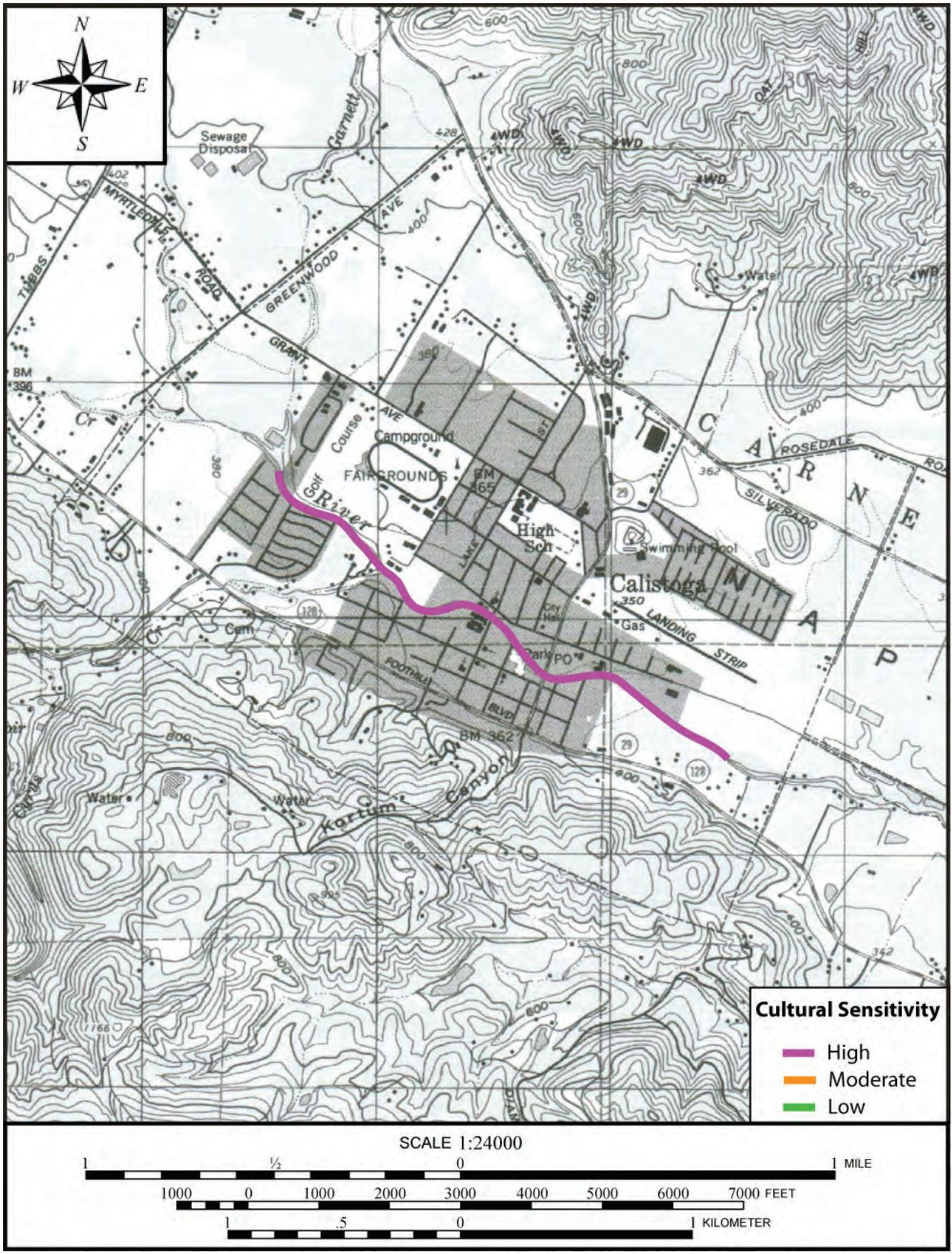


Figure E-1  
Cultural Resource Sensitivity: Calistoga Area

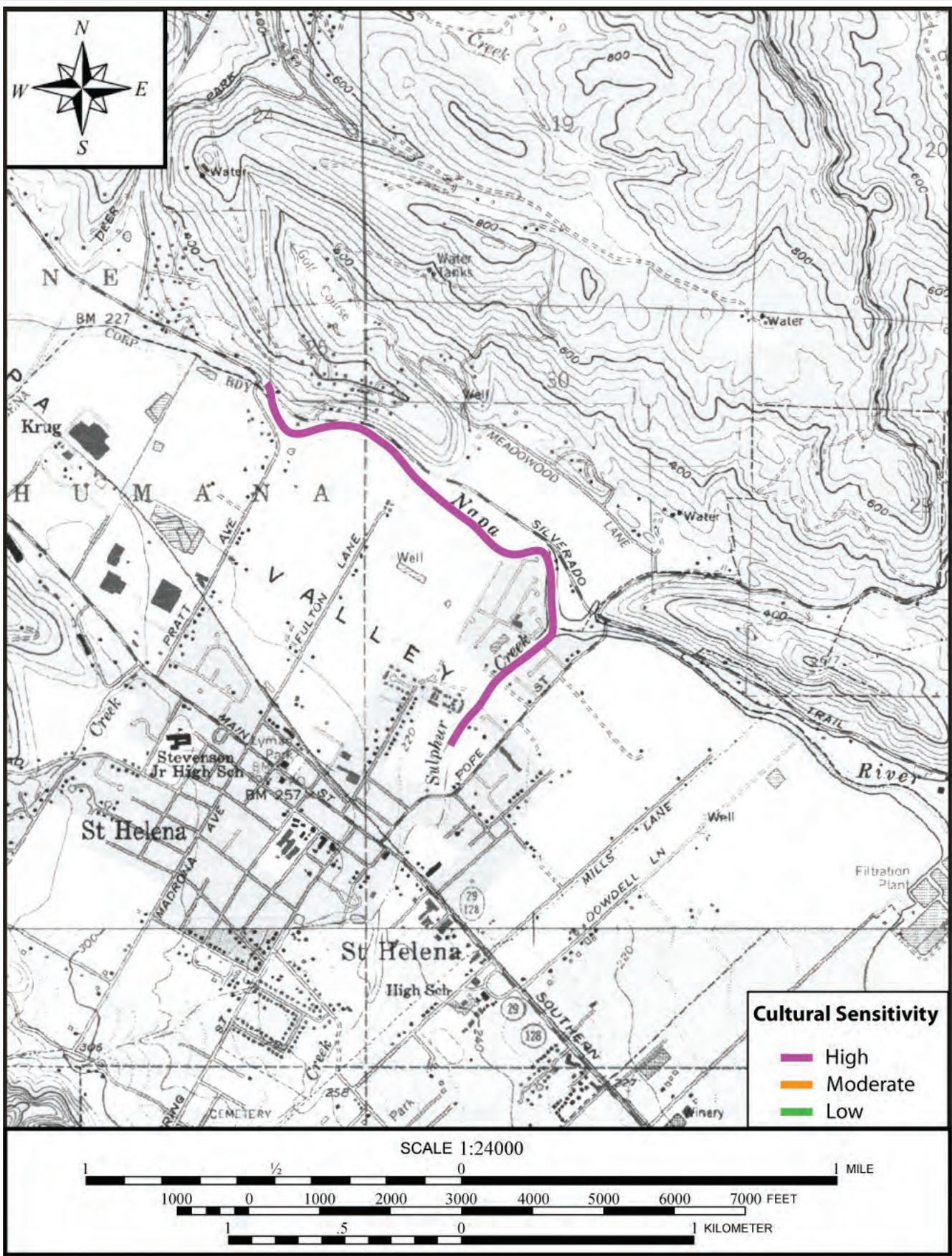


Figure E-2  
Cultural Resource Sensitivity: St. Helena Area



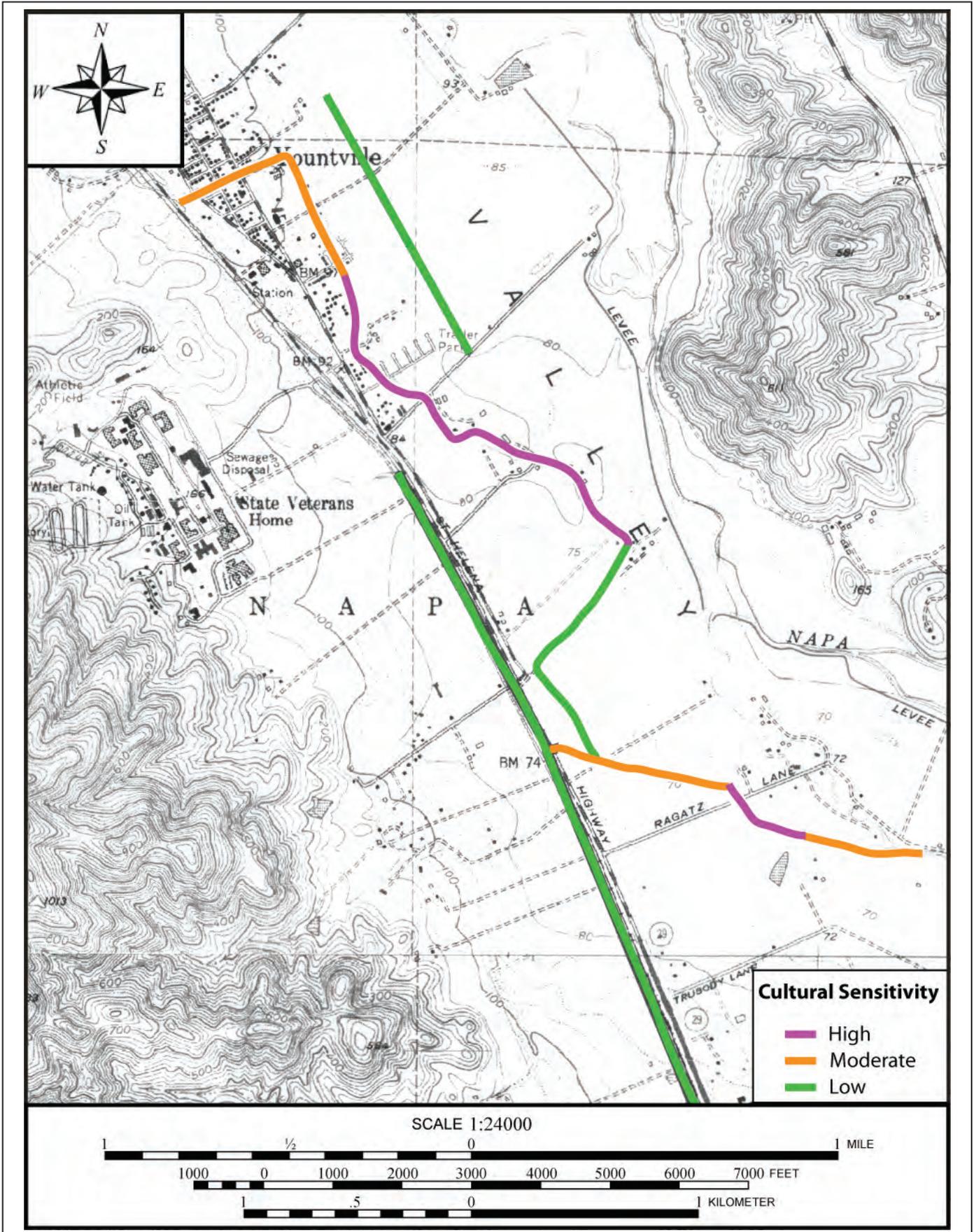


Figure E-4  
Cultural Resource Sensitivity: Yountville Area

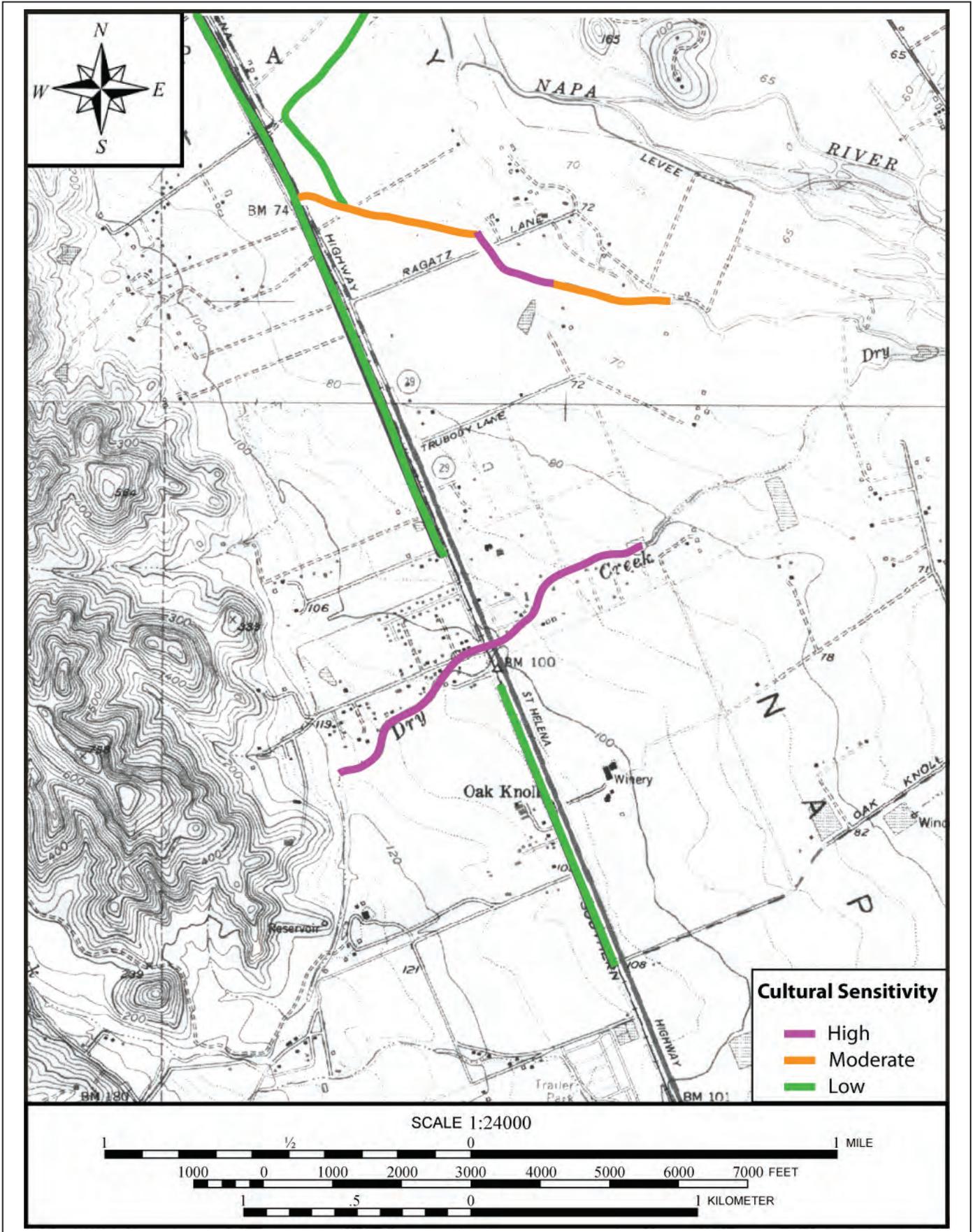


Figure E-5  
Cultural Resource Sensitivity: Oak Knoll Area



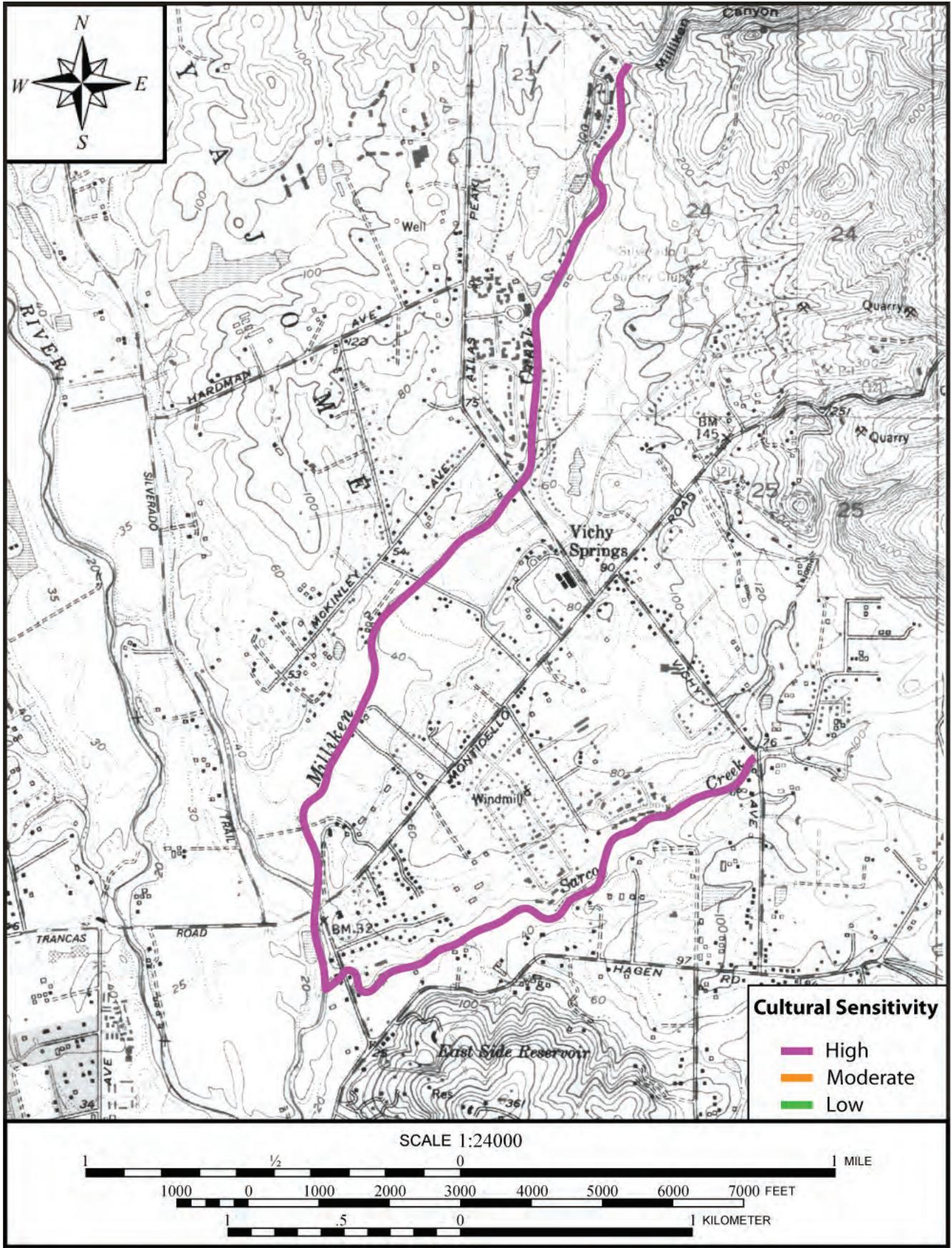


Figure E-7  
Cultural Resource Sensitivity: Milliken-Sarco Area

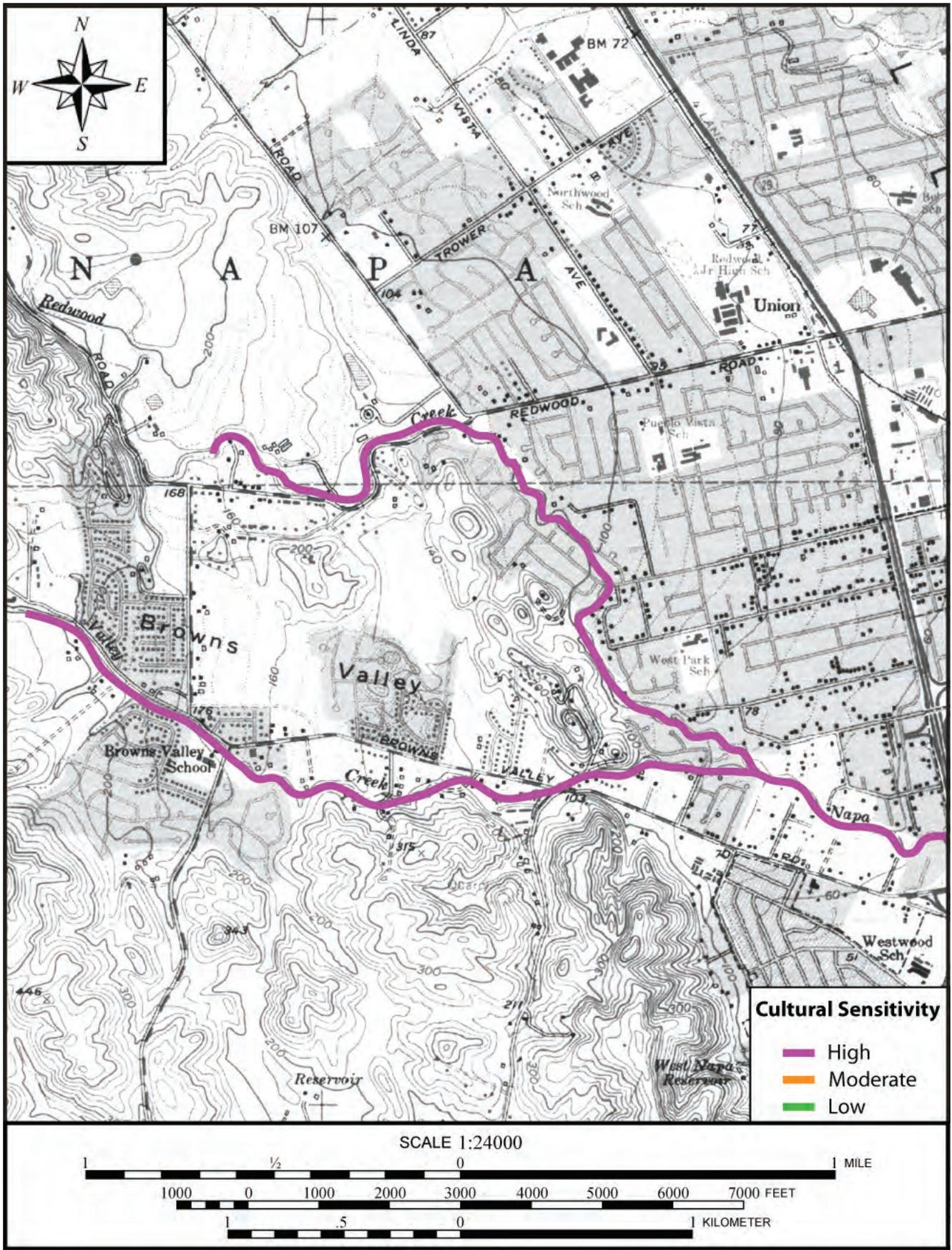


Figure E-8  
Cultural Resource Sensitivity: Browns Valley Area

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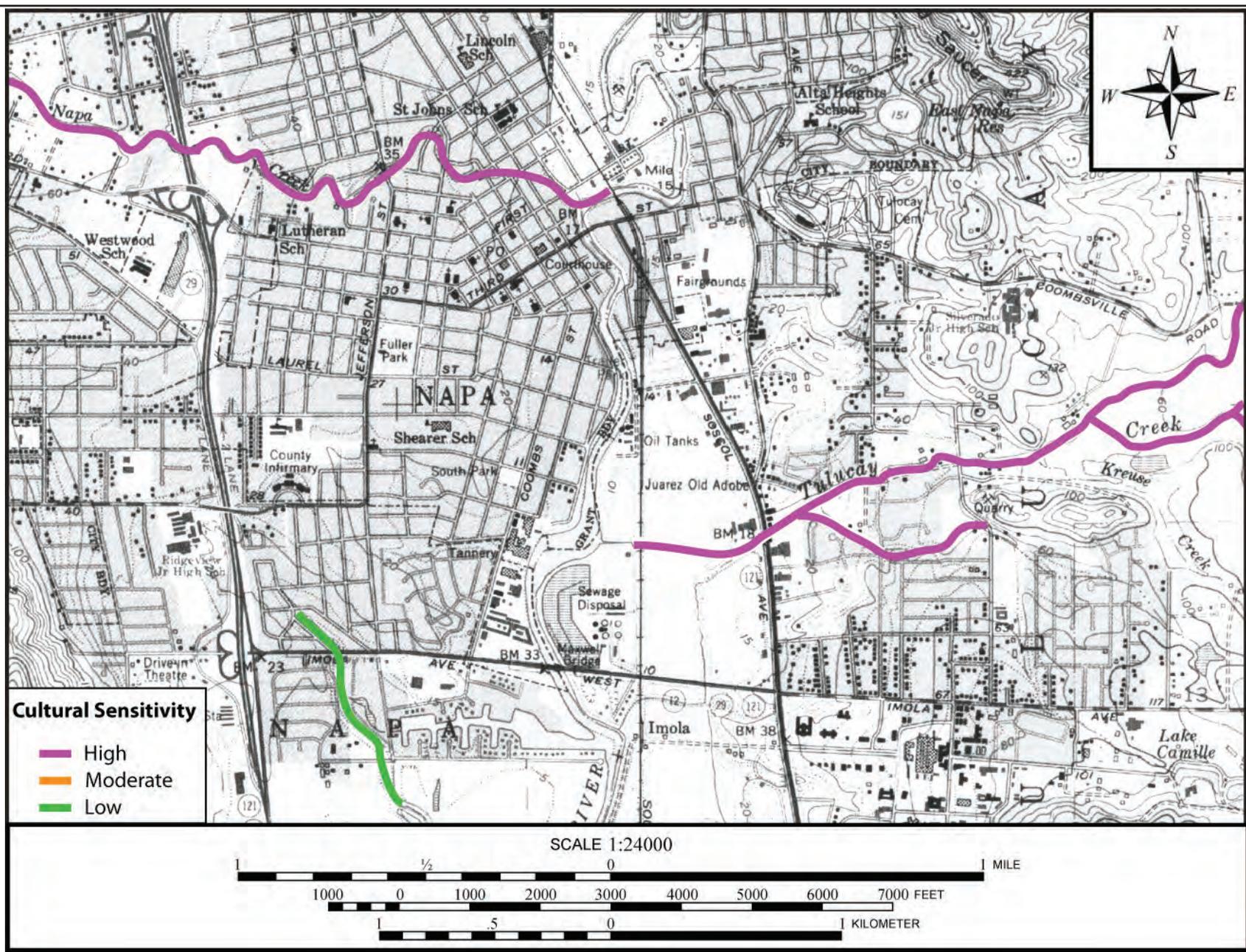


Figure E-9  
Cultural Resource Sensitivity: Central Napa Area



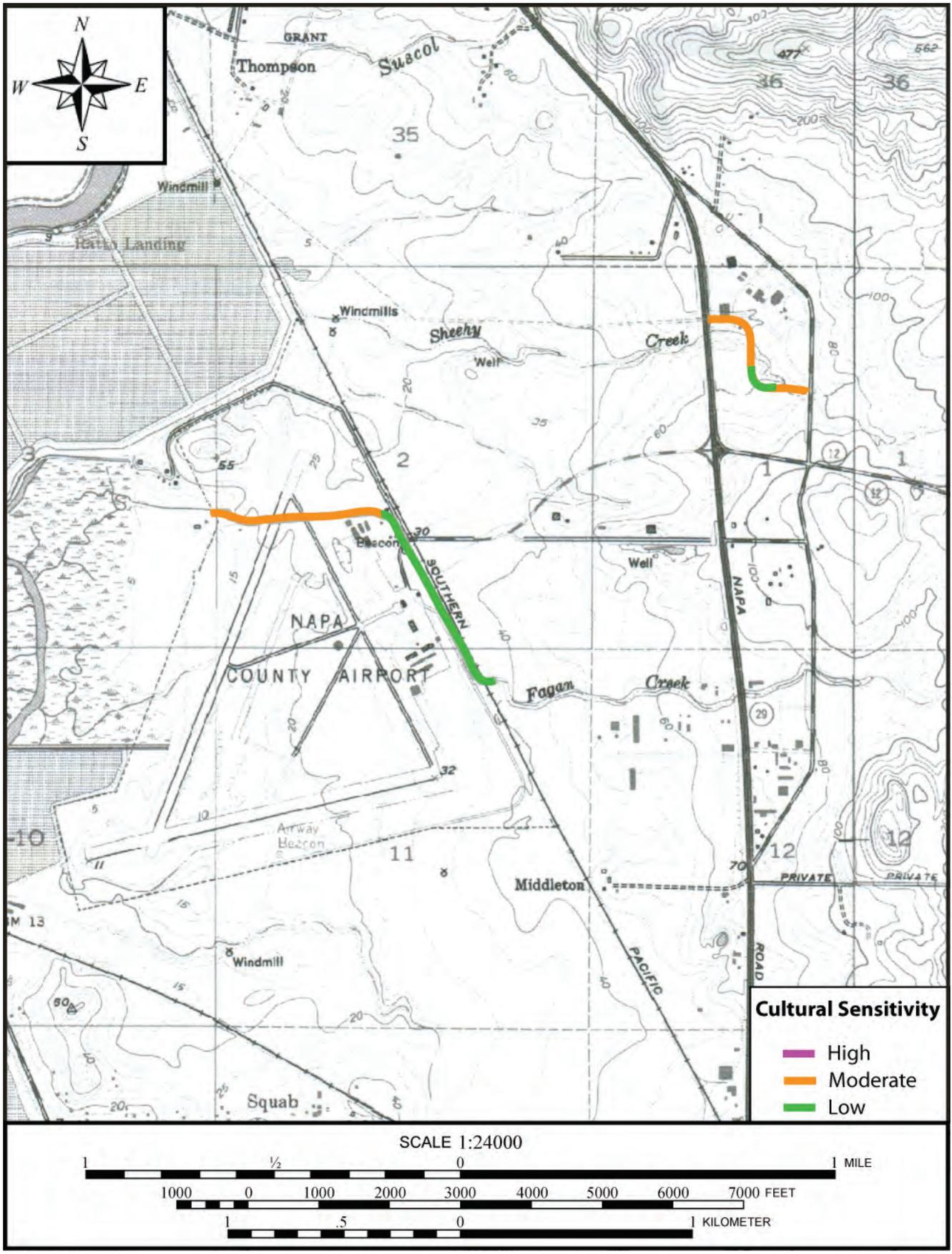


Figure E-10  
Cultural Resource Sensitivity: Airport Area