Napa County Flood Control and Water Conservation District

Napa County Stream Maintenance Program

Initial Study/Mitigated Negative Declaration

February 2019

Horizon WATER and ENVIRONMENT

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Acronyms and Abbreviations

A

A	attainment
AB	Assembly Bill
asl	above sea level

B

BAAQMD	Bay Area Air Quality Management District
BDR	Napa County Baseline Data Report
BMP	best management practice

C

CalEEMod	California Emissions Estimator Model
CAL FIRE	California Department of Forestry and Fire Protection
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CAP	Clean Air Plan
CARB	California Air Resources Board
CBC	California Building Standards Code
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund Act)
CESA	California Endangered Species Act
CFD	Napa County Community Facilities District
CGS	California Geological Survey
CIP	capital improvement project
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNPS	California Native Plant Society
CO	carbon monoxide
CO_2e	carbon dioxide equivalents
CRHR	California Register of Historical Resources
CRLF	California red-legged frog
CWA	Clean Water Act
CY	cubic yards

D

dB	decibel
dBA	A-weighted decibel
DPS	Distinct Population Segment

E

EIA	Energy Information Administration

EO	Executive Order
ESA	Endangered Species Act

F

F&G	California Fish and Game Code
FMMP	Farmland Mapping and Monitoring Program
FR	Federal Register
ft	feet
FYLF	foothill yellow-legged frog

G

GHG	greenhouse gas
Guidance	Guidance for Valley Land-use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA

H

HCP	habitat conservation plan
Hz	Hertz

I

in/sec	inches per second
IS/MND	Initial Study/Mitigated Negative Declaration

L

lb	pound
L_{dn}	day-night sound level
L_{eq}	equivalent sound level
L_{max}	maximum sound level
L_{min}	minimum sound level
lf	linear feet
LOS	level of service
LWD	large woody debris

M

MAD	Napa County Mosquito Abatement District
MBTA	Migratory Bird Treaty Act
MLD	Most Likely Descendent
MT	metric tons
MT CO_2e	metric tons of carbon dioxide equivalents

N

N	non-attainment
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NHPA	National Historic Preservation Act

NHTSA	National Highway Traffic Safety Administration
NMFS	National Marine Fisheries Service
NO_2	nitrogen dioxide
NOAA	National Oceanic and Atmospheric Administration
NO_X	oxides of nitrogen
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NWIC	Northwest Information Center

O

O_3	ozone
OHWM	ordinary high water mark
OSHA	Occupational Safety and Health Administration

P

$PM_{2.5}$	particulate matter of aerodynamic radius of 2.5 micrometers or less
PM_{10}	particulate matter of aerodynamic radius of 10 micrometers or less
ppm	parts per million
PPV	peak particle velocity
Proposed Project	Stream Maintenance Program
PST	Pacific Standard Time
Pub. Res. Code	Public Resources Code

R

RCD	Napa County Resource Conservation District
RCRA	Resource Conservation and Recovery Act of 1976
REM	Roentgen equivalent man
RMA	Routine Maintenance Agreement
ROG	reactive organic gases
RPS	Renewables Portfolio Standard
RWQCB	regional water quality control board

S

SARA	Superfund Amendment and Reauthorization Act
SB	Senate Bill
SFBAAB	San Francisco Bay Area Air Basin
SFBRWQCB	San Francisco Bay Regional Water Quality Control Board
SO_2	sulfur dioxide
SR	State Route
SMP	Stream Maintenance Program
State Water Board	State Water Resources Control Board
SWPPP	stormwater pollution prevention plan
SVP	Society of Vertebrate Paleontology

T

TCR	Tribal Cultural Resource
TMDL	Total Maximum Daily Load
tpy	tons per year

TWA	time-weighted average

U

U	unclassified
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

V

VdB	Vibration velocity in decibels

W

WDR	Waste Discharge Requirement
WPT	western pond turtle

Symbols

°F	degrees Fahrenheit
$\mu g/m^3$	micrograms per cubic meter

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Chapter 1
INTRODUCTION

The Napa County Flood Control and Water Conservation District (District) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of the proposed updated 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 SMP has been developed by the District to provide clear and consistent guidance for the management of streams and channels under the District's authority, other publicly-owned channels, as well as privately-owned streams upon request.

The SMP and SMP Manual (Manual) was originally developed by the District in 2012. The California Department of Fish and Wildlife (CDFW) issued a 10-year approval and San Francisco Regional Water Quality Control Board (RWQCB) issued a 5-year approval to conduct maintenance activities as described in the 2012 Manual. The Manual has been updated (2019) to include additional District maintenance responsibilities, revised maintenance approaches, maintenance activities conducted by both the Napa County Resource Conservation District (RCD) and the County Public Works Department's Roads Division (County Roads Division) in partnership with the District, and maintenance of the Napa River/Napa Creek Flood Protection Project (Flood Protection Project). The Manual has also been updated to include maintenance of two Napa River restoration projects on private property including the Rutherford Reach and the Oakville to Oak Knoll Reach.

The updated Manual provides the organizational framework to oversee routine stream and channel maintenance activities. More details regarding the Manual and the currently proposed updates are provided in Chapter 2, *Project Description*. The Manual and IS/MND are intended to be complementary 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 § 15150 and included as Appendix A.

1.2 Intent and Scope of this Document

This IS/MND has been prepared in accordance with CEQA, under which the Proposed Project is evaluated at a project level (CEQA Guidelines § 15378). The District's Board of Directors, as the Lead Agency under CEQA, will consider the Proposed Project's potential environmental impacts when considering whether to approve the project. This IS/MND is an informational document to be used in the planning and decision-making process for the Proposed Project and does not recommend approval or denial of the Proposed Project.

This IS/MND describes the Proposed Project; its environmental setting, including existing conditions and regulatory setting, as necessary; and the potential environmental impacts of the Proposed Project on or with regard to the following topics:

- *Aesthetics*
- *Agricultural/Forestry Resources*
- *Air Quality*
- *Biological Resources*
- *Cultural Resources*
- *Energy*
- *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*
- *Tribal Cultural Resources*
- *Transportation and Traffic*
- *Utilities and Service Systems*
- *Wildfire*

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. CEQA Guidelines § 15073 and § 15105(b) require that the lead agency designate a period during the IS/MND process when the public and other agencies can provide comments on the potential impacts of the Proposed Project. Accordingly, the District is now circulating this document for a 30-day public and agency review period.

All comments received before 5:00 p.m. from the date identified for closure of the public comment period in the Notice of Intent will be considered by the District.

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

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Napa County Flood Control and Water Conservation District
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Napa, CA 94559
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1.4 Organization of this Document

This IS/MND contains the following components:

Chapter 1, *Introduction*, provides a brief description of the intent and scope of this IS/MND, the public involvement process under CEQA, and the organization of and terminology used in this IS/MND.

Chapter 2, *Project Description*, describes the Proposed Project, including its 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*, presents the environmental checklist used to assess the Proposed Project's potential environmental effects, which is based on the model provided in Appendix G of the CEQA Guidelines. This chapter also includes a brief environmental setting description for each resource topic and identifies the Proposed Project's anticipated environmental impacts, as well as any mitigation measures that would be required to reduce potentially significant impacts to a less-than-significant level.

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

The following appendices provide documentation in support of this IS/MND:

Appendix A. *Napa County Stream Maintenance Manual*
Appendix B. *Air Quality and Greenhouse Gas Estimates*
Appendix C. *U.S. Fish and Wildlife Service List of Federal Endangered and Threatened Species*
Appendix D. *National Marine Fisheries Service West Coast Region California Species List*
Appendix E. *California Natural Diversity Database (CNDDB) List of Plant and Animal Species Known to Occur in the Project Area*
Appendix F. *California Native Plant Society's Inventory of Rare and Listed Plant Query for Napa County*
Appendix G. *Special-Status Plant, Animal and Fish Species with Potential to Occur in the Project Vicinity*
Appendix H. *Correspondence with Native American Tribes Pursuant to AB 52*

1.5 Impact Terminology

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

- A finding of *no impact* is made when the analysis concludes that the Proposed Project would not affect the particular environmental resource or issue.
- An impact is considered *less than significant* if the analysis concludes that no substantial adverse change in the environment would result and that no mitigation is needed.
- An impact is considered *less than significant with mitigation* if the analysis concludes that no substantial adverse change in the environment would result with the implementation of the mitigation measures described.
- An impact is considered *significant or potentially significant* if the analysis concludes that a substantial effect on the environment could result.
- Mitigation refers to specific measures or activities that would be adopted by the lead agency to avoid, minimize, rectify, reduce, eliminate, or compensate for an otherwise significant impact.
- A cumulative impact refers to one that can result when a change in the environment would result from the incremental impacts of a project along with other related past, present, or reasonably foreseeable future projects. Significant cumulative impacts might result from impacts that are individually minor but collectively significant. The cumulative impact analysis in this IS/MND focuses on whether the Proposed Project's incremental contribution to significant cumulative impacts caused by the project in combination with past, present, or probable future projects is cumulatively considerable.
- Because the term "significant" has a specific usage in evaluating the impacts under CEQA, it is used to describe only the significance of impacts and is not used in other contexts within this document. Synonyms such as "substantial" are used when not discussing the significance of an environmental impact.

Chapter 2
PROJECT DESCRIPTION

2.1 Project Overview

2.1.1 Project Objectives

The SMP has been designed to achieve the following objectives:

- Manage channel debris, erosion, sediment, and vegetation for flood hazard reduction and resource protection throughout the District, and County-owned and other public agency-owned channel reaches, but particularly within the Napa River and Green Valley Creek and their tributaries;
- Provide informed and consistent guidance to administer maintenance of the District's approximate 13 miles of flood control channels and easements, County-owned and other public-agency owned channel reaches, streams affected by Napa County Resource Conservation District's (Napa County RCD's) road maintenance activities;
- 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 key Napa River tributaries Sulphur Creek, Canon Creek, Beard Ditch, and York Creek. Figure 2-3 depicts the Yountville region including key Napa River tributaries Beard Ditch, Hopper Creek, Yountville Outfall and Collector, Dry Creek, and the Salvador Collector (Solano Ditch). Figure 2-4 shows the Napa River tributaries maintained in the City of Napa region and Napa County Airport region including key Napa River tributaries Sheehy and Fagan creeks. Cities within the Project Area which contain District-owned or easement-maintained channels include: Calistoga, Napa, St. Helena, and Yountville. Figure 2-5 shows the Napa River tributaries maintained in the City of American Canyon region including American Canyon Creek, Newell Creek, Walsh Creek, and Rio del Mar. In the southeastern portion of the County, tributaries to Green Valley Creek, which drains to Suisun Bay, are maintained by the District though maintenance in these areas is conducted infrequently.

Also shown on the Figure 2-1 and 2-3 maps are two completed restoration projects (Rutherford and Oakville to Oak Knoll reaches along the Napa River), and dredged material rehandling sites (at Edgerly Island and Imola Avenue) maintained by the District.

The following subsections describe channel ownership types and the various types of project sites that would be maintained under the SMP including dredged material rehandling sites, Napa County RCD's road maintenance projects, the Rutherford and Oakville to Oak Knoll restoration projects, roads within Napa County Public Works Department's Road Division (County Roads Division or County) jurisdiction, and Napa River/Napa Creek Flood Protection Project (Flood Protection Project) features. This chapter then summarizes routine maintenance activities that would be conducted under the SMP followed by an overview of the SMP's implementation timeframe, and avoidance and minimization measures that would be implemented by the District.

2.1.3 Channel Ownership Types

As noted above, the SMP operates in channels owned by various parties, not just the District. Where the District conducts maintenance, but does not own the channel, then they have maintenance arrangements or easements with other parties to facilitate the maintenance work. These ownership-maintenance arrangements are described below and shown in Figures 2-1 through 2-5. The maps in Figures 2-1 through 2-5 show different channel ownership status by color.

District-Owned Channels/Easements Maintained (Red Channels): The District maintains 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. A few of these channels were designed and built to convey a specific design discharge (i.e. the 100-year flood event), but most have no known specific discharge design. Most of these flood control channels were constructed with a trapezoidal cross-section with earthen banks and streambeds. 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 are owned by an entity other than the District. District owned channels are surveyed annually for their maintenance condition. An annual maintenance workplan is developed based on the annual survey to identify and prioritize maintenance activities.

County-Owned Channels/Easements Maintained (Green Channels): These channels (4.2 miles) 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, Sandra-Kathleen Ditch, and West Pueblo Ditch and Fagan Creek near the Napa County Airport (Figure 2-4). 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 (shown in red). The District surveys 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 miles) are similar to the above, but owned by other public entities such as towns, cities or school districts, for whom the District provides consultations and offers maintenance support upon request. Examples include a section of lower Salvador Creek, portions of the Salvador Creek Tributary, and a small reach of Camille Creek owned by the City of Napa, and Hopper Creek owned by the Town of Yountville (Figure 2-4). For example, the District and the Town of Yountville have established an agreement that allows the District to conduct specific maintenance activities (e.g., sediment management, debris removal, and planting) within Hopper Creek. 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, generally within urban areas where the District surveys conditions to identify potential maintenance needs. If a maintenance need is identified, the property owner is contacted and permission is requested prior to the District conducting any maintenance. Examples include portions of the Napa River and Sulphur Creek in northern Napa County (Figure 2-2), Hopper and Dry creeks in the Yountville region (Figure 2-3), and Browns Valley, Redwood Creek, and some portions of Tulocay Creek in the City of Napa region (Figure 2-4). The Rutherford and Oakville to Oak Knoll restoration reaches of the Napa River are included in this category (Figures 2-3 and 2-4) but are shown in yellow and dark blue. Maintenance activities are generally limited to vegetation and large woody debris (LWD) management, invasive species eradication support, trash removal, and consultations on erosion and bank stabilization. The District's Banks Stabilization Cost Share Program, established in 2010, is available to support biotechnical bank repairs (using vegetation) on private property. The District maintains streambanks in the Rutherford and Oakville to Oak Knoll reaches of the Napa River as part of the maintenance agreements for those two restoration projects (described further in Section 2.1.5 below). The District typically would not conduct sediment removal or hardscaped bank stabilization activities in these privately-owned streams. However, District support is available for such maintenance activities, if it is warranted, and if the owner obtains all required regulatory permits.

Other Streams – Maintenance upon Request: The remaining creeks in Napa County, shown as thin blue lines in the maps of Figure 2-1 through 2-5, are privately-owned creeks where District supported maintenance may occur only following a specific owner request for support and District evaluation and confirmation that the request is suitable. Maintenance work in these channels may typically involve clearing debris or vegetation management to address a flow obstruction or erosion concern. Similar to the privately-owned streams described above, the District's Bank Stabilization Cost Share Program is available to support biotechnical bank repairs on private property.

2.1.4 Dredged Material Rehandling Sites

The District plans to obtain permits for dredge spoil storage operations at the Edgerly Island and Imola Avenue dredged material rehandling sites under a separate process outside of the SMP. In the meantime, the SMP is intended to cover ongoing maintenance activities at these two sites.

Edgerly Island. The Edgerly Island dredged material rehandling site is located approximately 3.5 miles northwest of the City of American Canyon and bordered by the Napa River to the east and Mud Slough to the west (Figure 2-4). The District purchased the 39-acre property in 1981 for placement of dredged material from the Napa River. The site was modified in 2004 and has capacity to receive approximately 300,000 cubic yards (CY) of material. The District conducts routine disking of the land surface, controls invasive plants, maintains flow gates, and manages ditch drainage on the property. The District also owns the 45-acre parcel adjacent to the west. This site is maintained as a wetland mitigation site. Maintenance conducted on the 45-acre parcel are minimal and primarily include maintaining tide gates. Prior to receiving any sediment spoils in the future, the District will need to obtain a Waste Discharge Requirements (WDR) from the San Francisco Bay Regional Water Quality Control Board.

Imola Avenue. The Imola Avenue dredged material rehandling site is an excavated earthen basin located in the City of Napa on the east bank of the Napa River at the previous location of the Napa Sanitation District's wastewater treatment plant (Figure 2-4). This site is owned by the District and has the capacity to receive approximately 50,000 CY of material dredged from the Napa River. Maintenance activities conducted on this property include annual disking, mowing the basin levee, and maintaining drainage outfall structures. This site was last utilized for sediment disposal in 2017 pursuant to a separate WDR.

2.1.5 Restoration Projects

Napa River Restoration: Rutherford Reach Maintenance (Dark Blue). The District, in consultation with the Rutherford Landowner Advisory Committee, conducts restorative activities for properties in the Rutherford Reach Benefit Zone Assessment District, which was established to collect fees and fund maintenance activities within 41 parcels located on both sides of the Rutherford Reach of the Napa River (4.5 miles of the river located south of St. Helena, from Zinfandel Lane to Oakville Cross Road) as part of the Napa River Rutherford Reach Restoration Project. The District maintains features constructed as part of the Restoration Project that collectively result in more stable streambanks for the benefit of the property owners. Maintenance activities include vegetation management, large woody debris realignment and/or relocation, debris/large trash removal, biotechnical bank stabilization, controlling non-native invasive plants and Pierce's disease host plants, maintaining the function of in-stream habitat enhancement structures, and annual surveys and reporting. These activities are described in more detail throughout the Manual (Appendix A).

Napa River Restoration: Oakville to Oak Knoll Reach Maintenance (Yellow). Similar to the Rutherford Reach, the Oakville to Oak Knoll Reach restoration project is also maintained by the District. As of 2016, the District established the Napa County Flood Control and Water Conservation District Community Facilities District No. 2014-01 pursuant to the Mello-Roos

Community Facilities Act of 1982 to levy a special tax to finance the cost of maintenance services within the Oakville to Oak Knoll Reach of the Napa River. As of 2016, the Community Facilities District (CFD) is funded by special taxes on 40 parcels within the Oakville to Oak Knoll Reach Restoration Project (83 acres of riparian restoration along 9 miles of river from Oakville Cross Road to Oak Knoll Avenue). Annual maintenance activities include monitoring, including annual surveys, vegetation management, downed tree and debris management, and biotechnical bank stabilization projects. Maintenance goals are to minimize bank erosion, maintain functioning of constructed in-stream habitat enhancement structures, and controlling non-native invasive plants and Pierce's disease host plants. These activities are described in more detail throughout the Manual (Appendix A).

2.1.6 Resource Conservation District Maintenance Projects

Formed in 1945, the Napa County RCD is a special district organized under Division 9 of the California Public Resources Code that works with private landowners and government agencies to identify natural resource management needs and support local land managers to implement conservation solutions. The District works closely with the Napa County RCD to protect streams and watershed resources in the County. The Napa County RCD assists landowners with maintenance of privately-owned unpaved roads throughout the County to prevent impacts on water quality and stream hydrology due to erosion and increased road runoff. Specific maintenance activities covered under this SMP include installing or replacing stream crossings (ford crossings, armored fill crossings, culverts), decommissioning stream crossings, installing cross-road drains (deep water bars), and converting unused roads to recreational trails. The location of such projects depend on landowner interest and the condition of the existing road. As such, for the purposes of the SMP, routine maintenance activities may occur anywhere throughout the Napa River watershed and Putah Creek watershed, and upper portion of the Suisun Creek Watershed in Napa County. Typically, the Napa County RCD supports private property owners along a maximum of 5 miles of roads per year.

2.1.7 Napa County Roads Maintenance Activities

The County Roads Division is responsible for road maintenance within the County unincorporated area. Where roads and streams intersect such as at creek crossings and culverts, which are shown in Figure 2-6, maintenance activities include clearing sediment and debris from concrete-lined channels and around structures, vegetation management, herbicide application, downed tree removal, replacement plantings, culvert replacement, biotechnical bank stabilization, minor bridge maintenance, and repair or in-kind replacement of drainage structures (e.g., storm drain outfalls). Routine bridge maintenance activities involve minor repair or replacement of existing bridge abutments, embankments, and existing riprap fortifications. As part of the SMP, the District may support the above-described maintenance activities on behalf of the County at stream crossings or where stream management is required and regulatory notifications have occurred in accordance with the District's permit conditions.

2.1.8 Napa River/Napa Creek Flood Protection Project

As described in the SMP and noted above, the District is responsible for maintaining some features of the Flood Protection Project which includes about 6.7 miles of the Napa River and two-thirds of a mile along Napa Creek. The project is intended to reconnect the Napa River to its floodplain, create wetlands throughout the area, maintain fish and wildlife habitat, and retain natural characteristics of the Napa River. Completed project features include creation of marshplain and floodplain terraces; two bypass culverts along Napa Creek; construction of levees, dikes and floodwalls; biotechnical bank stabilization; two new railroad bridges; utility relocations; maintenance roads; recreational trails; and flood closure gates. The locations of project features subject to ongoing maintenance are shown in Figure 2-7. Maintenance activities associated with the Flood Protection Project that are consistent with activities currently conducted by the District would be conducted under the SMP. Such activities include clearing debris and obstructions from improved channels and floodways; monitoring and removing sediment; vegetation management and erosion protection on levees, dikes and berms; inspection and maintenance of two underground box culvert bypasses along Napa Creek; and repair of riprap and planted rock slope protection along Napa River and Napa Creek. In addition, storm drainage facilities that require inspection and maintenance under the U.S. Army Corps of Engineers (USACE) *Final Operations, Maintenance, Repair, Replacement, and Rehabilitation Manual for the Napa River/Napa Creek Flood Protection Project* (Appendix M of the SMP Manual [Appendix A of this IS/MND]) include drainage channels, flapgates, drainage inlets and outlets.

Specific vegetation management activities associated with the Flood Protection Project include monitoring and replanting vegetation on the marshplain terrace, removing invasive vegetation and debris in the southern portion of the project area (between Imola Avenue and the Highway 29 crossing), maintaining vegetation at the dry bypass inlet and outlet, and monitoring grazing activities in the southern portion of the Flood Protection Project. As noted previously, maintenance activities associated with the Flood Protection Project and that are consistent with maintenance activities currently conducted by the District would be conducted through the SMP. These activities are described in more detail in the USACE-authorized O&M Manual, which is incorporated by reference in the SMP Manual.

2.1.9 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 framework and will reflect a prescriptive approach designed to preserve natural resources. 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.

As described previously, the District has maintenance responsibilities for flood control channels that the District owns in fee title, as well as other channels for which the District has a maintenance agreement or easement. The District is also responsible for operating and maintaining elements of the Flood Protection Project that are consistent with activities currently being conducted by the District. The location and ownership type for District maintained channels are presented in Figures 2-1 through 2-5. In addition, on behalf of the County Roads Division, the District is responsible for conducting maintenance where County roads and streams intersect (i.e. at road creek crossings and culverts). Besides routine and prescriptive channel maintenance, the District also provides discretionary maintenance in other channels, maintains instream facilities for their proper functioning, and responds to public requests for maintenance activities at other stream and channel locations. Maintenance activities that may be conducted by the District in areas for which other municipalities, such as the City of American Canyon and the Town of Yountville, are responsible for maintaining are also included in the SMP.

Stream maintenance activities performed by the District for its municipal partners are subject to the permit conditions that govern the District's Stream Maintenance Program. The inclusion in this Manual of stream reaches that the District may conduct maintenance activities in on behalf of its municipal partners does not confer permit coverage to the partnering municipality for activities that they undertake independently, rather only those activities that the District oversees and includes in permit notification documents.

2.2 Maintenance Activities

The SMP includes the following primary activities: vegetation management, including vegetation and tree maintenance, and downed tree management; erosion protection, bank stabilization and managed streambank retreat; and sediment and debris removal. These core maintenance activities occur mainly in District-owned, Napa County-owned, or other publicly owned engineered flood control channels (shown as red, green and purple channels in Figures 2-1 through 2-5). Maintenance activities also occur on privately-owned streams throughout Napa County, including the Rutherford and Oakville to Oak Knoll reaches of the Napa River (shown as orange, dark blue and yellow, respectively, in Figures 2-1 through 2-5). In addition to these core activities, the SMP also involves other regular maintenance activities and habitat enhancement projects to provide compensatory mitigation pursuant to

regulatory permit conditions. These maintenance activities are summarized below and described in more detail in Chapters 5-12 of the Manual.

2.2.1 Vegetation and Tree Management

Vegetation management generally refers to the trimming, pruning, mowing, and removal of flow-constricting vegetation, or vegetation creating excess instream roughness within the flood control channels and other constructed facilities. Specific maintenance activities presented in the Manual include invasive plant management (Chapter 5), tree and vegetation maintenance (including planting of new trees and shrubs along District-maintained channels) (Chapter 6), and downed tree management (Chapter 7). Vegetation management activities are conducted to maintain flow conveyance capacity, reduce vegetation directed flow that causes bank erosion, establish a canopy of riparian trees, and control invasive vegetation. Management methods typically include hand removal, mechanical removal, and herbicide applications, with heavy equipment used on occasion. Vegetation management and removal activities are relatively consistent from year to year, though locations change depending on recent growth and blockages. Activities are performed year-round in a manner to prevent loss of habitat and erosion, and do not include clear cutting or wholesale removal of vegetation.

Herbicide application for controlling annual herbaceous weeds is conducted during species-specific treatment windows as described in Chapter 5 of the Manual. The District uses an average of 25 gallons of herbicide (with active ingredient glyhphosate) on an average of 30 acres in a given year. 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 other invasive plants) and direct application using a paintbrush on stumps of trees that have been cut during maintenance.

2.2.2 Erosion Protection/Bank Stabilization and Managed Streambank Retreat

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, five to ten bank stabilization projects are conducted annually, with most projects covering approximately 100 to 500 linear feet (lf). Bank repairs involving hardening of engineered channels are limited to 200 lf, whereas repairs of natural channels are limited to 100 lf. Bank stabilization activities for an individual project beyond 1,000 feet are considered beyond routine and outside of the program, which is limited to conducting 2,500 lf of streambank stabilization projects in a given year.

Bank stabilization activities are generally conducted between June 15th and October 31st 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. Limited prescriptive biotechnical designs are included in the Manual. More involved projects are subject to individual project permits.

Managed streambank retreat is a passive restoration approach where a landowner removes vineyards within a buffer area along the river channel and installs an alternative agricultural crop that can thrive in a riparian buffer zone or restores the area with native riparian and upland plant species. Within the managed streambank retreat zone, landowners are agreeing to allow the river to naturally expand with the understanding that the District will implement maintenance actions to stabilize the stream bank before it reaches the defined managed retreat line. The District will collaborate with landowners to manage these areas in a manner that meets the riparian enhancement objectives and is consistent with the landowner's land management regime. Typical maintenance actions will include the planting of native riparian and upland species, invasive and Pierce's disease plant management, biotechnical bank stabilization, grading the upper bank to form a stable slope, and erosion control measures.

Currently, landowners within the District's Community Facilities District boundary can participate in the managed bank retreat technique. The overall goal of managed streambank retreat is to create a more expansive riparian corridor along the Napa River and its tributaries to improve conditions for terrestrial species and to better support long-term habitat sustainability. Further discussion of this maintenance concept is provided in Chapter 8 of the Manual, *Streambank Protection and Stabilization*.

2.2.3 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 15th to October 31st 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. The District implements up to ten sediment removal projects immediately after a wet winter, and then may go a year or two without needing to conduct any sediment removal projects.

The District typically implements small-scale, localized sediment removal activities in channel segments roughly 250-500 feet long, and in the City of American Canyon such activities are typically 100-200 feet long. At sites within the County Roads Division's jurisdiction, localized debris and sediment removal is confined to areas within and around existing culverts and flood control channels (up to 200 CY). On average, 100 to 500 CY of sediment is removed from up to ten sites per year. 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. A sediment removal project may include

vegetation management as well, such as when cattails are removed and the District removes sediment accumulation below the cattails in the rooting zone. In general, the District does not undertake large reach-scale sediment removal projects. The Maintenance Program does not include large sediment removal projects that are not routine as described in this Manual.

2.2.4 Sediment and Debris Disposal

Removed sediment and debris is taken to appropriate disposal sites based on the quality and conditions of the collected sediment and debris. For projects involving sediment removal, the District will test the sediment to be removed to determine the suitability for disposal or reuse based on its chemical qualities (as specified in the Sediment Sampling and Analysis Guidelines; Appendix K of the Manual). In general, sediment disposal sites can be characterized into five categories based on potential reuse or disposal opportunities. These categories include (1) on-site reuse, (2) other wetland, channel, or floodplain restoration reuse, (3) upland agricultural or commercial reuse (dry), (4) landfill disposal, and (5) hazardous waste disposal.

2.2.5 Maintenance Activities Compared by Adjacent Land Use Type

The frequency and intensity of maintenance activities are influenced by adjacent land uses. In developed or urbanized areas, the full suite of maintenance activity types (vegetation management, bank stabilization, and sediment/debris removal) may be implemented to protect life and property from potential flood damage. The majority of urbanized areas and residences are clustered in the valley floor where the land is flat. This is also where much of the sediment transported from upstream tributary areas deposits in stream channels and reduces channel conveyance capacity.

Key concerns for stream maintenance adjacent to vineyards or other farmed lands are loss of valuable agricultural property due to bank erosion often caused by downed trees or other channel stabilization issues. As such, downed tree management and bank stabilization are the most frequent maintenance activities implemented adjacent to agricultural property.

In open space areas such as County parks, land preserves, and upper tributary areas, the land is allowed to moderate itself naturally and maintenance activities are less frequently conducted. If a downed tree is blocking public access, blocking a culvert, or threatening adjacent private property, the District will address the tree following its downed tree management protocols (see Chapter 7 of the Manual.)

2.2.6 Other Maintenance Activities

In addition to the 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, maintaining bridge support structures, and managing beaver activities. Some of these facilities were constructed under the Flood Protection Project.

The frequency and location of other 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 other maintenance activities can be conducted anywhere in the District's maintenance jurisdiction.

2.2.7 Activities Not Covered

Activities not covered under the District's routine SMP include:

- Capital improvement projects (CIPs),
- Redesign or reshaping of channels, 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 14-1 in Chapter 14 of the Manual (Appendix A), which begins each year with a program-wide stream reconnaissance and assessment in early spring. The stream assessment then informs the development of that year's workplan, which is generally developed later in the spring. Project descriptions, impact calculations of maintenance activities and mitigation projects are then developed with additional project planning and refinement occurring in June. The relevant regulatory agencies are notified of the year's projects in late spring and provided information on project locations, activities, surveys, sediment testing and disposal (if necessary) and any other key issues. Projects are then implemented during the summer season with follow-up annual reporting activities occurring in the fall.

The District administers and oversees the maintenance program throughout all steps of the work cycle, and has appointed a stream maintenance manager to supervise and guide the program. A key responsibility for the Manager is to provide communication and coordination between District and the relevant regulatory agencies throughout all steps of the work cycle. The stream maintenance manager is also responsible for coordinating identified maintenance needs with the partnering municipalities, Napa County RCD, and the County Roads Division. Data management is required throughout the maintenance work cycle. 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

Maintenance activities primarily occur during the dry season when rain and flows are minimal. Maintenance activities occurring on any creek (excluding Dry Creek, Walsh Creek, and the Napa River) will generally take place between June 15 and October 15, with the exception of debris removal work and some invasive plant management work that could occur outside of the work window. In-channel, ground-disturbing activities on any creek (i.e., tree removal, mechanized vegetation management, bank stabilization and sediment removal) will only be conducted between June 15 and October 31. Similarly, all maintenance activities on Dry Creek, Walsh Creek, and the Napa River will only occur during the June 15 – October 31 work window due to special-status species restrictions. 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 (except when wheeled or tracked equipment is necessary) in streams that do not support salmonids. In salmonid supporting streams, no vegetation removal would occur beyond December 31 or when the first significant rainfall (i.e., greater than 0.5 inches), whichever occurs first.

Modification and removal of large wood, such as downed trees, is generally conducted during the dry season unless there is imminent flood danger. Tree removal will not occur between February 1 and August 31 unless a survey is completed to ensure that no nesting birds are present.

Herbicide application would only occur during dry climate conditions, between generally 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 avoid any unnecessary stream interventions, but to favor hand maintenance over mechanized equipment when such interventions are warranted.

Tree and vegetation maintenance refers to the selective trimming, thinning, and removal of trees and vegetation that increase flood risk. or are a flood hazard. Both tree and vegetation maintenance techniques include hand removal using hand-held tools and equipment, mechanical removal using heavier equipment, and herbicide application. The District use hand-held tools to prune trees and vegetation to maintain flow capacity. At times, impacts to channel banks and stream beds can be minimized through the use of larger equipment for tree removal, including track mowers, winches, rubber-tracked skid steer equipped with a flail mower, or excavators or cranes staged outside the riparian area. Herbicides are generally applied to targeted plants or tree stumps using targeted spot spraying or hand painting of cut stumps. Tree debris from pruning is chipped and either used onsite by landowners for

mulching or hauled to the Napa Recycling and Waste Service Center for use and resale by their composting program.

The District conducts the majority of downed tree maintenance using hand tools and equipment. However, on occasion heavy equipment including backhoes, rubber-tracked excavators, or cranes may be used to relocate or remove trees within portion of the channel. Additionally, tree rigging techniques are employed to facilitate the re-orienting of downed trees or removal of sections from the channel. Removed trees are chipped for mulch and either left onsite or taken to the Napa Recycling and Waste Service Center for composting.

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, which incorporates live vegetation with other natural elements (e.g., wood, biodegradable erosion control products, rock) to provide structural stability to 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.). The majority of the work would take place from the top of bank zone and care is taken to minimize the area of disturbance. Overgrown vegetation at bank failure sites will only be removed to the extent necessary to repair the bank.

Equipment used for sediment and debris 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. If mechanized sediment removal is necessary, 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 within the staging area) and prepared for off-site hauling and disposal.

Drop-inlet culverts and road-crossing culverts require clearing, repair or replacement throughout the County. Drop-inlet culvert maintenance includes clearing of sediment and debris. Such work is conducted using hand tools or a vacuum truck may be used to remove sediment from smaller culverts. Installing a new drop-inlet culvert may be necessary when existing drainage ditches and routing systems are not adequate. Repair or replacement of existing culverts would occur within the same footprint as the original culvert. Culvert replacement work typically involves excavation, removal of the culvert, installation of the new culvert, and backfilling and compacting of soil. Culvert repair typically involves sealing voids/cracks within concrete surfaces with pressurized grout.

Detention basins are located throughout the City of American and are intended to improve the quality of urban runoff from impervious surfaces. Routine maintenance of detention basins includes removing dead cattails, bulrush, and other decomposing vegetation where vegetation has visibly clogged outlet pipe openings and removing accumulated sediment. Vegetation and sediment removal work is primarily conducted using hand tools but, depending on the size of the basin, heaver mechanized equipment is used (e.g., backhoes or excavators with a flail mower attached).

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 maintenance program's goals and compliance with permit conditions, these databases are 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 receive necessary information on maintenance activities (based on the permit requirements and the description of activities in the Manual). Information saved in the database also provides insight into future Manual updates.

2.3.5 Annual Reporting

After the conclusion of the SMP maintenance season (after October 31), the District develops and submits a summary report to the appropriate regulatory agencies by January 31 of the following year. This report includes 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.

Per the Aquatic Pesticide Application Plan (Appendix G of the Manual), the District must prepare and submit an annual report to the Regional Water Quality Control Board (RWQCB) by March 1 documenting whether discharge of aquatic herbicides, their residues, or their degradation by-products occurred. The annual report contains information including compliance with the *Statewide General NPDES Permit for Residual Aquatic Pesticide Discharges to Waters of the U.S. from Algae and Aquatic Weed Control Applications* (WQO 2013-0002-DWQ; General Permit No. CAG990005), summary of aquatic herbicide application events, summary of monitoring data, and identification of BMPs and their effectiveness in meeting permit requirements.

Reporting of maintenance activities completed associated with the Rutherford and Oakville to Oak Knoll Restoration Projects is performed independently from the SMP Annual Report.

Reporting Requirements for Napa River/Napa Creek Flood Protection Project

The semi-annual reporting requirements for the Napa River/Napa Creek Flood Protection Project are as outlined in the Manual (see O&M Manual). The District is required to submit additional monitoring reports for the Flood Protection Project including:

- **Annual Vegetation and Revegetation Reports.** The District must submit an annual vegetation report to relevant resource agencies and an annual revegetation report to be submitted to the USACE (SPN) District Engineer. The annual vegetation report documents the health of existing vegetation, any observed damage to vegetation, description of naturally recruited native plants, description and quantity of plants to be installed, and photos taken at the time of the inspection. The revegetation report should focus on all revegetation sites and address all significant events that occurred during the prior year, a checklist for all inspections, photographs depicting observed conditions and any identified damage, and a summary of overall vegetation conditions for the reporting period.
- **Comprehensive Vegetation Monitoring Studies.** For the Flowage Easement Area, the District is required to conduct comprehensive vegetation monitoring studies every 5 years. These studies follow the format and procedures in the USACE study and compare conditions of sites as described in the Project's 1999 Final EIS-EIR and other subsequent documents. Inspections are conducted in the spring between March and May. Vegetation monitoring studies include presence/absence of survey results, an overview of vegetative cover, percent cover of woody species, a visual count of naturally recruited vegetation, and measurements of water salinity along transects.

2.3.6 Five Year Program Review

Every 5 years, the District and the relevant regulatory agencies review the SMP for its overall effectiveness. The District compiles 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. The 2019 Manual revision process was conducted as part of the 2019 5-year program review process.

Through the 5-year program review process, the District's Program Manager will coordinate discussions and meetings with relevant regulatory agency staff to review the last 5-year program period and discuss any key updates or revisions planned for the next 5-year program period. Program changes or updates made at the 5-year review may require additional CEQA review. Manual revisions may also require an updating of permit terms, which occurs through a collaborative process between the District and the relevant permitting agencies.

2.4 Programmatic Avoidance and Minimization Measures

Chapter 4 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. As the initial step, Maintenance Principles provide programmatic guidance to assess if maintenance is necessary, and if necessary, conducted in such a way to reduce impacts. From this basis, more targeted impact avoidance and minimization measures are then applied (second-stage) when the annual maintenance workplan is developed, prior to any maintenance work being done, in order to further refine the approach. Finally, 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
- Minimize mechanized maintenance, where possible favor hand maintenance
- Non-routine large scale maintenance is outside of SMP
- Understand and monitor the river system and identify hydraulic constrictions/ limitations
- Protect and enhance physical processes, landforms, riparian habitat and ecology
- Manage stream resources for long-term sustainability and resiliency

As planning principles, 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 ongoing need for repeat maintenance activities at a particular site or reach.

2.4.2 Impact Avoidance and Minimization Measures

The SMP's BMPs in **Table 2-2** 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 2-2 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 other activities. A summary of key avoidance and minimization measures included in the BMP table is provided below.

Work Windows. Channel 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, maintenance activities primarily 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 developed a channel roughness and capacity assessment protocol to help guide the annual stream assessment process by identifying which streams require maintenance and prioritizing needed work. The assessment protocol involves a field-based evaluation 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 developed capacity criteria for individual reaches to guide if and when sediment removal activities are necessary.

Biological Surveys. Maintenance activities are 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 3 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 Pacific 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, 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. If suitable California freshwater shrimp habitat is present then such habitat will be avoided during implementation of routine maintenance activities.

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:

- Herbicides are used on a site by site basis and only when necessary, such as when hand and mechanical methods are unsuccessful
- 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 in the 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.
- District staff and contractors are trained annually on proper herbicide handling and use. Staff are trained by a District or County staff with a current CDPR Qualified Applicator Certificate (QAC). The District contracts all herbicide work out to contractors with QAC and Private Applicator Certification (PAC) on staff. Contractors and staff with the QAC are required to complete 20 hours of continuing education every 2 years to stay licensed.

Cultural Resource Survey. Some 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), and Assembly Bill 52. For maintenance that requires ground-disturbance and affects soils beyond the channel design (e.g., bank stabilization, culvert replacement), a cultural resources investigation will be conducted by a qualified professional archaeologist and approval from federal and state authorities, as appropriate, prior to performing the maintenance activity. Specific impact avoidance and minimization measures will be applied based on the cultural sensitivity of the project site as indicated in the Cultural Sensitivity Maps (Appendix E) in the SMP Manual. During construction, the District will retain a qualified archaeologist to be present onsite during any ground disturbing activities within highly sensitive cultural areas, and a cultural resources specialist will evaluate sites involving disturbance/excavation of soil to determine their potential for affecting significant cultural resources.

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 will be implemented. 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 Wildlife (CDFW), RWQCB, 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 2-1. Permit and Regulatory Requirements Applicable to the SMP

Regulatory Agency	Law/Regulation	Purpose	Permit/Authorization Type
U.S. Army Corps of Engineers – San Francisco District	Clean Water Act (CWA) Section 404	Regulates placement of dredged and fill materials into waters of the United States and below the ordinary high water mark (OHWM.	Regional General Permit
	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 or Regional 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 Municipal General Permit – Phase II - 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 Wildlife – Bay Delta Region	Fish and Game Code (F&G Code) Section 1600	Applies to activities that will substantially modify a river, steam or lake. The Agreement includes reasonable conditions necessary to protect those resources.	Routine maintenance activities are covered under a Routine Maintenance Agreement (RMA)

Regulatory Agency	Law/Regulation	Purpose	Permit/Authorization Type
	California Endangered Species Act (CESA) (F&G Code Section 2081[b])	Regulates project activities that may affect state threatened or endangered species.	CESA compliance: Consistency determination with USFWS/NMFS Biological Opinions
U.S. Fish and Wildlife Services (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	National Historic Preservation Act of 1966 (NHPA) Section 106	USACE must consult with SHPO if historic properties may be affected by the project.	In most cases, Programmatic Agreements or Memorandum of Agreement are prepared.
Local Tribes	Assembly Bill 52	District must consult California Native American tribes that are traditionally and culturally affiliated with the geographic area of the proposed project if requested by the tribe.	If necessary, Memoranda of Understanding with the tribes to outline protocols for consultation on the program or projects.
California Department of Transportation	California Vehicle Code	District must obtain a transportation permit prior to operating oversized or excessive load vehicles on State roadways.	Transportation Permit (if necessary)
	State Highways Code Section 671.5	District must obtain an encroachment permit for work or traffic control that encroaches onto the State right-of-way.	Encroachment Permit (if necessary)

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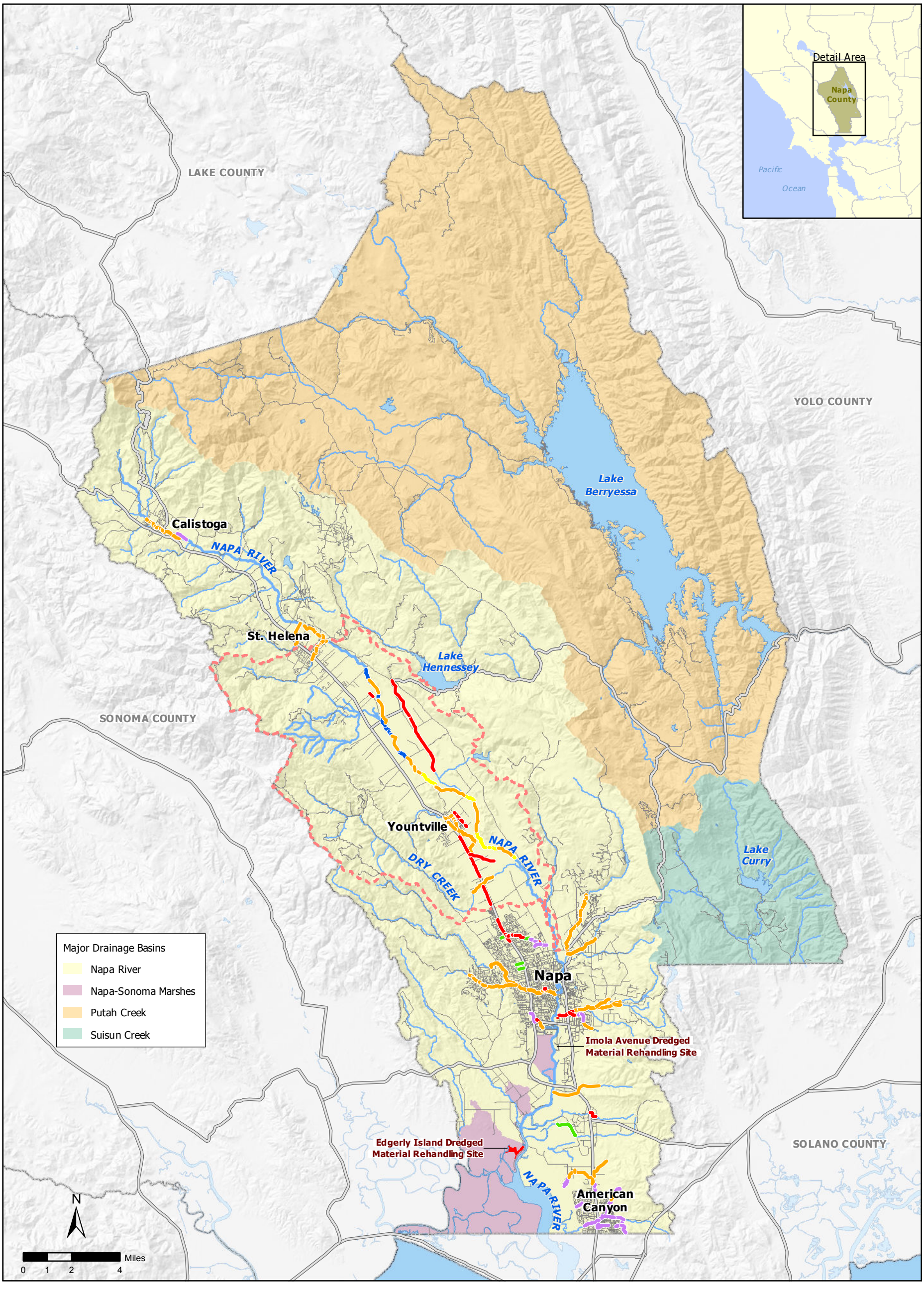

Figure 2-1

- Flood Control District Owned or Easement (surveyed annually and maintained)
- County Owned or Easement (surveyed annually and maintained by agreement)
- Other Public Owned Easement (surveyed annually and maintained by agreement)
- Private Owned: FCD surveyed annually and maintained as needed
- Rutherford Reach Restoration Project
- Oakville to Oak Knoll Restoration Project
- Napa River
- Streams where maintenance may occur
- Water Body
- Community Facilities District Boundary
- Highway
- Roads and Streets
- County Lines

Napa County
Stream Maintenance Program Area
and Maintenance Reaches

Source: Napa County Flood Control & Water Conservation District, 2010; Napa County GIS, 2010. USGS

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Miles

Horizon WATER and ENVIRONMENT

- Flood Control District Owned or Easement (surveyed annually, maintained)
- County Owned or Easement (surveyed annually, maintained by agreement)
- Other Public Owned Easement (surveyed annually, maintained by agreement)
- Private Owned: FCD surveyed annually, maintained as needed
- Rutherford Reach Restoration Project
- Oakville to Oak Knoll Restoration Project
- Napa River
- Streams where maintenance may occur
- Community Facilities District Boundary

Figure 2-2

Napa County Stream Maintenance Program
Calistoga-St. Helena Region

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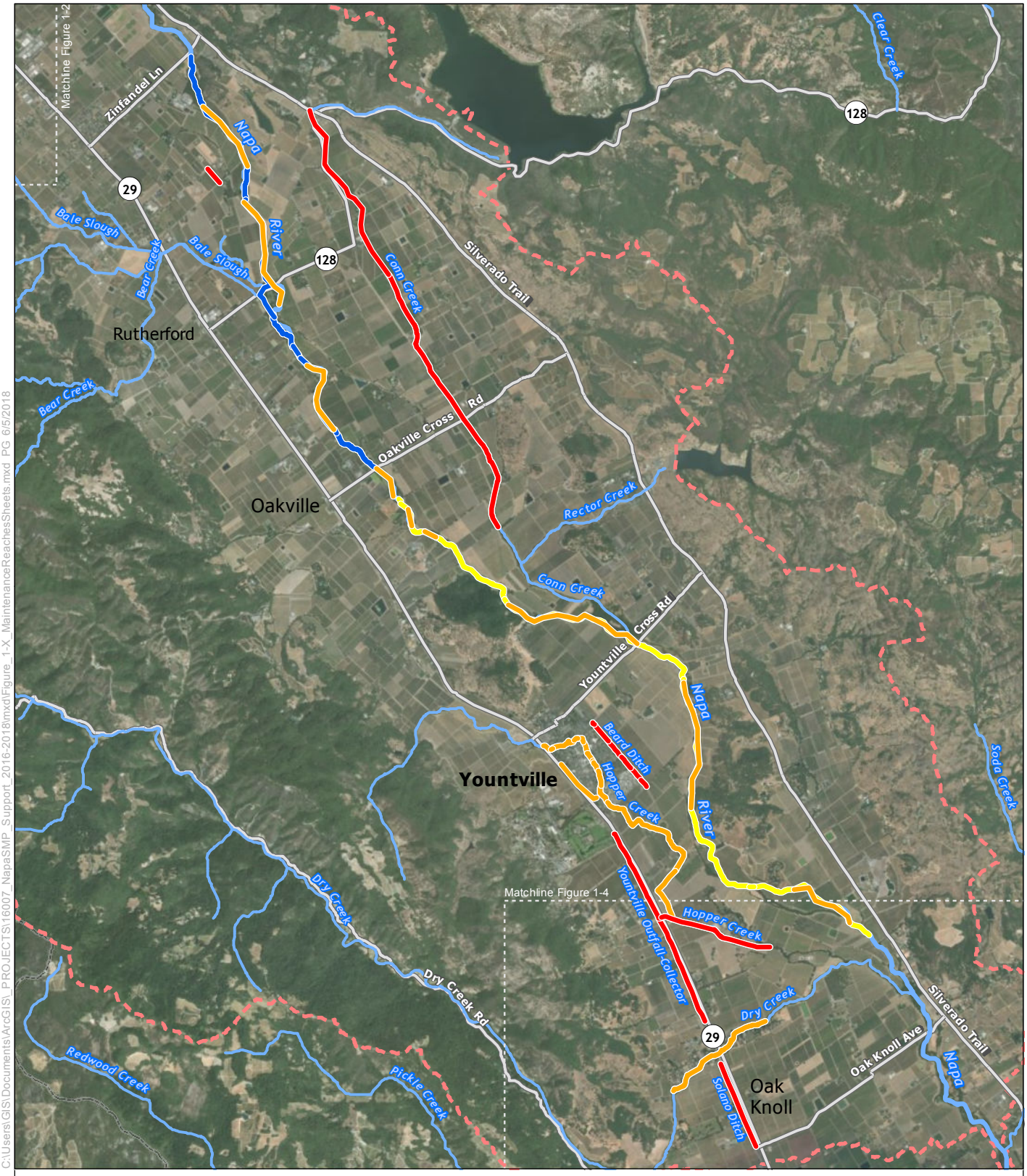

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Horizon WATER and ENVIRONMENT

- Flood Control District Owned or Easement (surveyed annually, maintained)
- County Owned or Easement (surveyed annually, maintained by agreement)
- Other Public Owned Easement (surveyed annually, maintained by agreement)
- Private Owned: FCD surveyed annually, maintained as needed
- Rutherford Reach Restoration Project
- Oakville to Oak Knoll Restoration Project
- Napa River
- Streams where maintenance may occur
- Community Facilities District Boundary
- Roads and Highways

Figure 2-3

Napa County Stream Maintenance Program
Rutherford-Yountville-Oak Knoll Region

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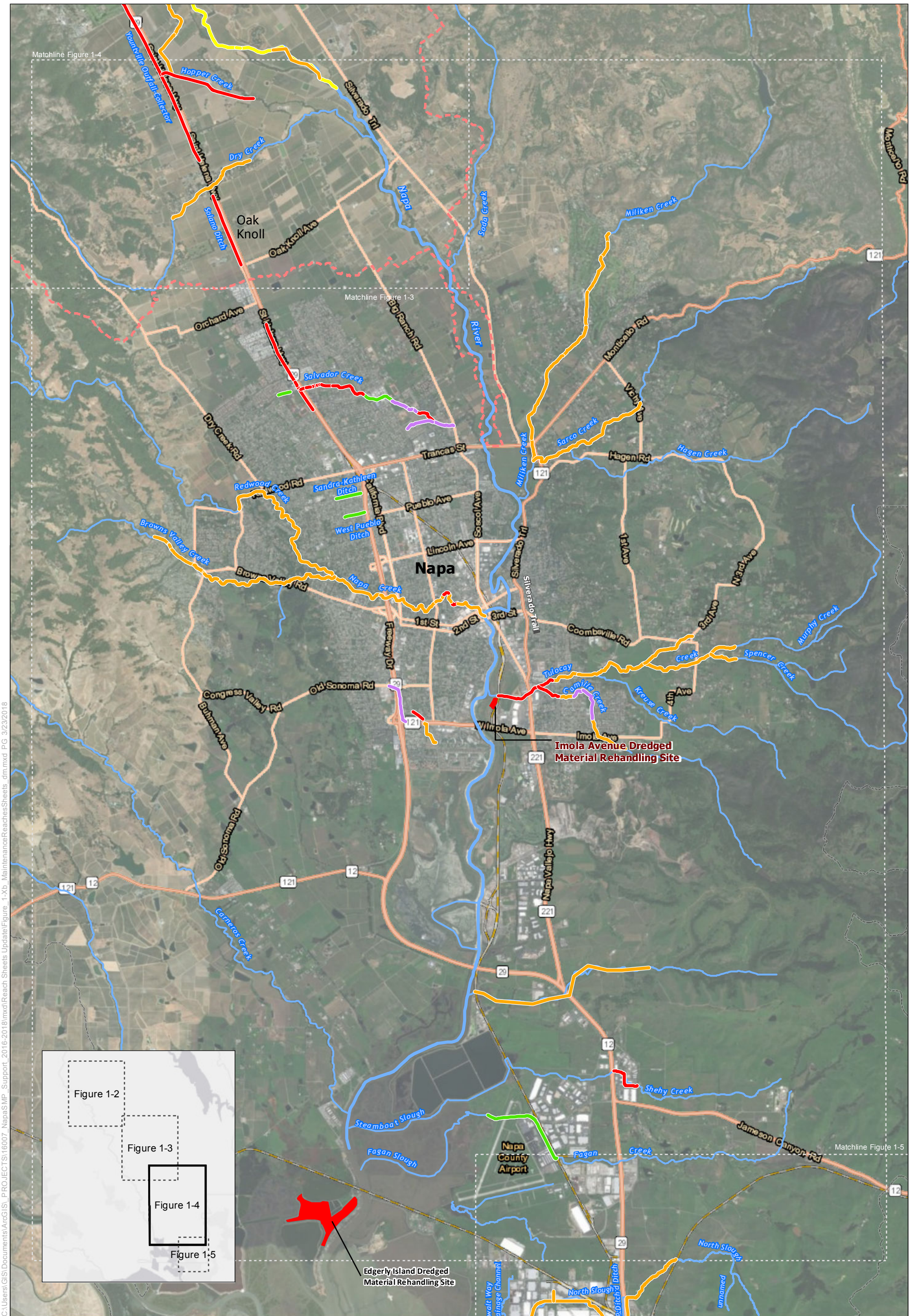
Matchline Figure 1-4
Matchline Figure 1-3
Matchline Figure 1-5
Yountville Outfall Collector
Hopper Creek
Dry Creek
Solano Ditch
Oak Knoll
Oak Knoll Ave
Orchard Ave
Silverado Trl
Napa
Soda Creek
Miliken Creek
Monticello Rd
Big Ranch Rd
River
Salvador Creek
Dry Creek Rd
Trancas St
Sarco Creek
Hagen Rd
Hagen Creek
Redwood Rd
Sandra-Kathleen Ditch
California Blvd
Pueblo Ave
West Pueblo Ditch
Soscol Ave
Browns Valley Creek
Lincoln Ave
Napa
Napa Creek
1st St
2nd St
3rd St
Freeway Dr
Coombsville Rd
Murphy Creek
Spencer Creek
Tulocay
Camille Creek
Kreuse Creek
Congress Valley Rd
Old Sonoma Rd
Buhman Ave
Wilmola Ave
Imola Ave
Imola Avenue Dredged Material Rehandling Site
Napa Vallejo Hwy
Carneros Creek
Figure 1-2
Figure 1-3
Figure 1-4
Figure 1-5
Steamboat Slough
Fagan Slough
Napa County Airport
Fagan Creek
Shehy Creek
Jameson Canyon Rd
North Slough
North Slough Ditch
Edgerly Island Dredged Material Rehandling Site
N
0
0.9
1.8
Miles
Horizon WATER and ENVIRONMENT
Flood Control District Owned or Easement (surveyed annually, maintained)
County Owned or Easement (surveyed annually, maintained by agreement)
Other Public Owned Easement (surveyed annually, maintained by agreement)
Private Owned: FCD surveyed annually, maintained as needed
Rutherford Reach Restoration Project
Oakville to Oak Knoll Restoration Project
Napa River
Streams where maintenance may occur
Community Facilities District Boundary
Figure 2-4
Napa County Stream Maintenance Program
Napa Region
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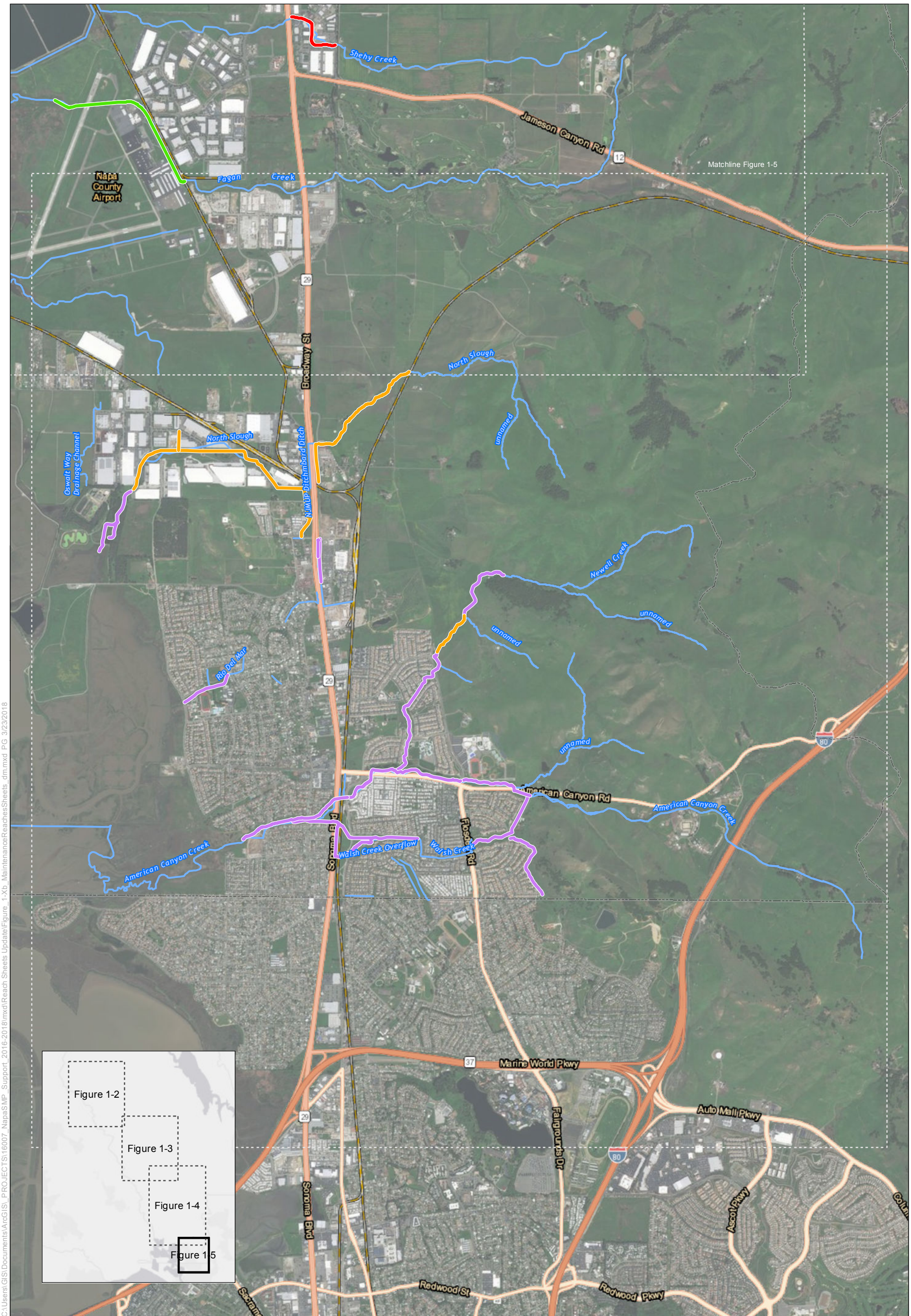

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Miles

Horizon WATER and ENVIRONMENT

- Flood Control District Owned or Easement (surveyed annually, maintained)
- County Owned or Easement (surveyed annually, maintained by agreement)
- Other Public Owned Easement (surveyed annually, maintained by agreement)
- Private Owned: FCD surveyed annually, maintained as needed
- Rutherford Reach Restoration Project
- Oakville to Oak Knoll Restoration Project
- Napa River
- Streams where maintenance may occur
- Community Facilities District Boundary

Figure 2-5

Napa County Stream Maintenance Program
American Canyon Region

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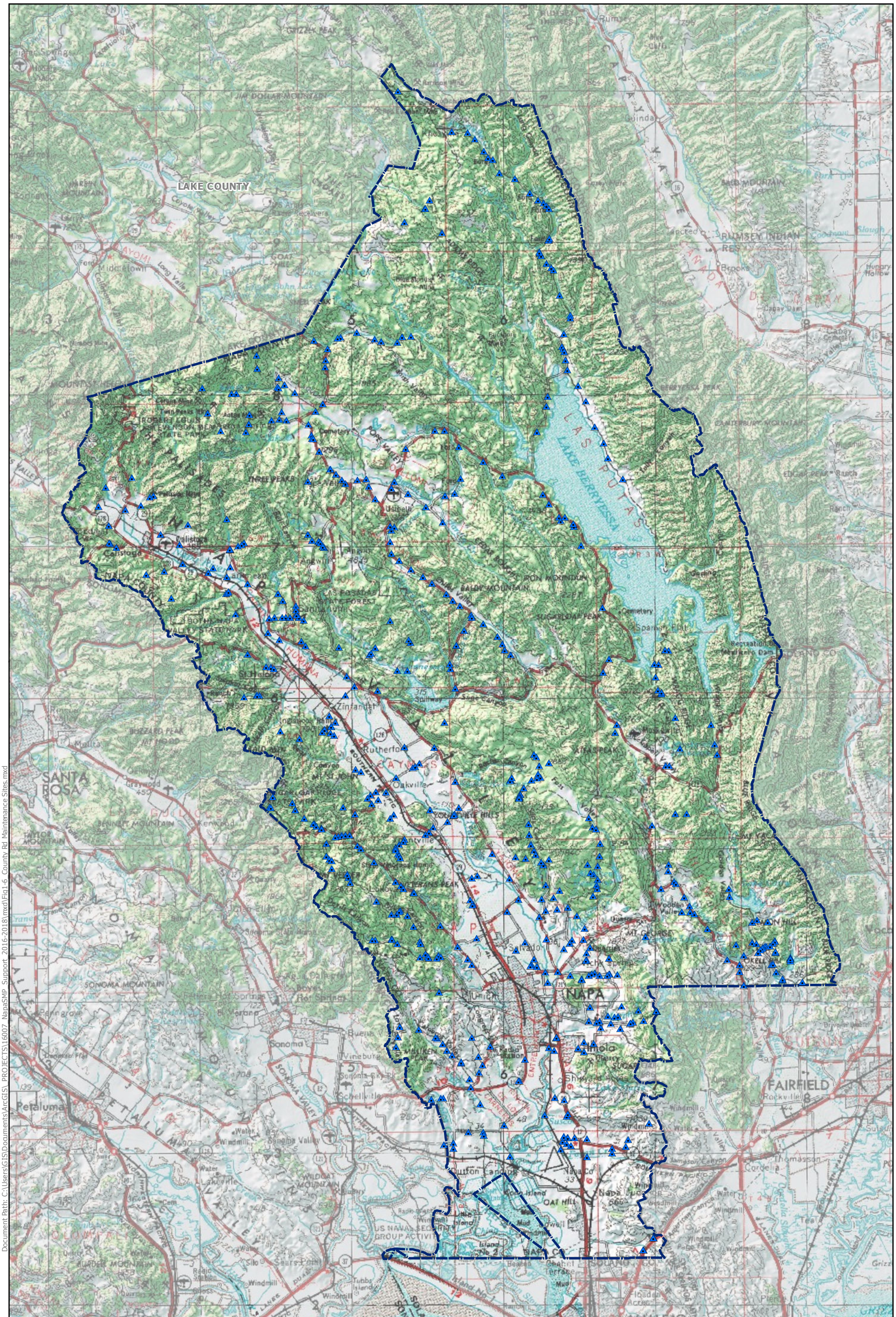

Horizon WATER and ENVIRONMENT

Figure 2-6
Napa County Road Department's Maintenance Sites

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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
General Maintenance Practices		
GEN-1	Work Windows	▪ 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. ▪ All ground-disturbing maintenance activities (i.e., bank stabilization, and sediment removal) occurring in the channel will take place between June 15 and October 31. ▪ Hand pruning and hand removal of vegetation will occur year round, except when: - Wheeled or tracked equipment needs to access the site by crossing a creek, ponded area, or secondary channel; or - 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. ▪ Removal of standing trees will not occur between February 1 and August 31 to avoid impacts on nesting birds, except after implementation of Measure BIO-1. ▪ 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. ▪ Herbicide applications will generally 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: - Local rainfall greater than 0.5 inches is forecasted within a 24-hour period from planned application events; or

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		- When salmonids begin upmigrating and spawning, as determined by a qualified biologist (typically in November/December)
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	▪ 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. ▪ 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. ▪ Erosion control measures will be installed according to manufacturer's specifications. ▪ Appropriate measures include, but are not limited to, the following: - Silt Fences - Straw Bale Barriers - Brush or Rock Filters - Storm Drain Inlet Protection - Sediment Traps - Sediment Basins - Erosion Control Blankets and Mats - Soil Stabilization (i.e. Tackified straw with seed, jute or geotextile blankets, broad cast and hydro-seeding, etc.) ▪ All temporary construction-related erosion control methods (e.g., silt fences) shall be removed at the completion of the project. 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 www.basmaa.com):

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		- SC-3. Sediment Basins - SC-4. Straw or Sand Bag Barriers - SC-5. Sediment Traps - SC-6. Silt Fences - SS-1. Erosion Control Blankets, Mats, and Geotextiles - VR-1. Brush or Rock Filters - VR-4b. Temporary Outlet Protection - VR-4b. Storm Drain Inlet Protection - WD-1. Earth Dike - WD-1. Slope Drain - WD-3. Temporary Drains and Swales
GEN-4	Dust Management Controls	The District will implement the Bay Area Air Quality Management District's (BAAQMD) Basic Dust Control Measures (www.baaqmd.gov) at maintenance sites less than four acres in size. Current measures stipulated by the BAAQMD Guidelines include the following: 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. 2. All haul trucks transporting soil, sand, or other loose material off-site shall be covered. 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. 4. All vehicle speeds on unpaved roads shall be limited to 15 mph. 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. 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

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		measure Title 13, Section 2485 of California Code of Regulations [CCR]). Clear signage shall be provided for construction workers at all access points. 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. 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.
GEN-5	Staging and Stockpiling of Materials	▪ 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. ▪ 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. ▪ 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. ▪ 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.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		▪ 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.
GEN-6	Stream Access	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: 1. Temporary access points will be constructed as close to the work area as possible to minimize equipment transport. 2. In considering channel access routes, slopes of greater than 20 percent will be avoided, if possible. 3. Disturbed areas will be revegetated or filled with compacted soil, seeded, and stabilized with erosion control fabric immediately to prevent future erosion. 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.
GEN-7	In-Channel Minor Sediment Removal	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.
GEN-8	On-Site Hazardous Materials Management	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. 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. 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.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		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. 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 system or surface water. 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.
GEN-9	Existing Hazardous Materials	1. For any proposed ground disturbing activities, the District will conduct a search for existing known contaminated sites on the SWRCB's GeoTracker website (http://www.geotracker.waterboards.ca.gov) upon selection of project location. 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 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 *Spill Prevention and Response Plan* (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.
GEN-10	Spill Prevention and Response	The District will prevent the accidental release of chemicals, fuels, lubricants, and non-storm drainage water into channels following these measures: 1. New District field personnel will be appropriately trained in spill prevention, hazardous material control, and cleanup of accidental spills. 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 *Spill Prevention and Response Plan* (forthcoming).

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		3. Field personnel will ensure that hazardous materials are properly handled and natural resources are protected by all reasonable means. 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. 5. District staff will routinely inspect the work site to verify that spill prevention and response measures are properly implemented and maintained. *Spill Response Measures:* 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.
GEN-11	Fire Prevention	1. All earthmoving and portable equipment with internal combustion engines will be equipped with spark arrestors. 2. During the high fire danger period (April 1–December 1), work crews will: a) Have appropriate fire suppression equipment available at the work site. b) Keep flammable materials, including flammable vegetation slash, at least 10 feet away from any equipment that could produce a spark, fire, or flame. 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).
GEN-12	Vehicle and Equipment Maintenance	1. All vehicles and equipment will be kept clean. Excessive build-up of oil and grease will be prevented. 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.

BMP Number	BMP Title	BMP Description
		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. 4. No heavy equipment will operate in a live stream (see Dewatering BMPs). 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). 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. 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. 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. 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.
GEN-13	Vehicle and Equipment Fueling	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).

BMP Number	BMP Title	BMP Description
		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. 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.
Dewatering		
GEN-14	Dewatering Measures	1. When work in flowing streams is unavoidable, streamflow will be diverted around the work area with use of a temporary dam or bypass according to the measures below. 2. Prior to dewatering, consult with a fisheries biologist and schedule work to into account the life cycles of salmon, steelhead, and other special-status aquatic species such as freshwater shrimp and California red-legged frog. Identify seasonal work restrictions or limited procedures to protect aquatic species 3. 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. 4. The area to be dewatered will encompass the minimum area necessary to perform the maintenance activity. 5. The period of dewatering will extend only for the minimum amount of time needed to perform the maintenance activity. 6. 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. 7. In reaches that contain deep pools, the District will maintain these pools, as is practical, by constructing temporary fencing surrounding the pool and avoiding 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.

BMP Number	BMP Title	BMP Description
		8. If California freshwater shrimp may be present in the area to be dewatered, such as deep pools with overhanging vegetation, dewatering shall not occur without approval from USFWS and CDFW. Pool dewatering where California freshwater shrimp may be present shall only occur if Incidental Take Permit (ITP) is secured from CDFW. Construction: 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. 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. 3. Coffer dams will be installed both upstream and downstream not more than 100 feet from the extent of the work areas. 4. Instream cofferdams will only be built from materials such as sandbags, clean gravel, or rubber 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. 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. Pipes will be designed to minimize turbidity and the potential to wash contaminants into the stream 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. Implementation: 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.

BMP Number	BMP Title	BMP Description
		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. 3. Downstream flows adequate to prevent fish or vertebrate stranding will be maintained at all times during dewatering activities. 4. Diverted and stored water will be protected from maintenance activity-related pollutants, such as soils or equipment lubricants or fuels. 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. 6. If used, temporary pump discharge pipes and hoses will be designed to minimize turbidity and the potential to wash contaminants into the stream. A filtration/settling system will be included to reduce downstream turbidity (e.g. filter fabric, turbidity curtain, etc.). The selection of an appropriate system is based on the rate of discharge. If feasible, water that is pumped into a pipe should discharge onto the top of bank into a densely vegetated area. 7. 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 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. Deconstruction: 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. 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.

BMP Number	BMP Title	BMP Description
		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.
GEN-15	Relocation of Aquatic Species for Dewatering	As identified above, before a work area is dewatered, fish and other aquatic vertebrates will be captured and relocated to avoid injury and mortality and minimize disturbance. If handling or relocation of California freshwater shrimp or any other CESA-listed species is required, the District shall obtain an Incidental Take Permit from CDFW prior to handling the species. The following guidelines will apply for handling of all other aquatic species. • 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. • 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 CDFW scientific collecting permit and is experienced with capture and handling protocols for fish and aquatic vertebrates. Complex stream habitat may require the use of electrofishing equipment, whereas in outlet pools, vertebrates may be captured by 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 as approved by USFWS, NMFS, and CDFW, and by properly trained personnel following the NMFS Guidelines dated June 2000. • 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. • 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.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		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. • Handling of aquatic vertebrates will be minimized. When handling is necessary, personnel will wet hands or nets before touching them. • 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. • If fish are abundant, capture will cease periodically to allow release and minimize the time fish spend in holding containers. • Fish will not be anesthetized or measured. However, they will be visually identified to species level, and year classes will be estimated and recorded. • Reports on fish relocation activities will be submitted to CDFW and NMFS in a timely fashion. • If mortality during relocation exceeds 5%, relocation will cease and CDFW and NMFS will be contacted immediately or as soon as feasible. • 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.
GEN-16	Pump/Generator Operations and Maintenance	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. 1. Pumps and generators will be maintained according to manufacturers' specifications to regulate flows to prevent dryback or washout conditions.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		2. Pumps will be operated and monitored to prevent low water conditions, which could pump muddy bottom water, or high water conditions, which creates ponding. 3. Pump intakes will be screened to prevent 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.
GEN -17	Testing and Disposal of Sediment	For projects involving sediment removal, and as specified in the Sediment Sampling and Analysis Guidelines (Stream Maintenance Manual Appendix K), the District will test the sediment to be removed to determine the suitability for disposal or reuse based on its chemical qualities. The test results and proposed disposal or reuse locations will be submitted to the RWQCB for review and approval. As specified in the Sediment Sampling and Analysis Guidelines, samples will be analyzed according to the *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines* (RWQCB 2000), as appropriate for the proposed disposal or reuse site. The results will be compared against federal and state environmental screening levels (ESLs) for protection of human health, groundwater quality, and terrestrial receptors. If hazardous levels of contaminants (as defined by federal and state regulations) are present, the material will be taken to a permitted hazardous waste facility. The waste discharge requirements included in the discharge orders issued by the RWQCB dictate the degree of sediment sampling and testing required to obtain approval for sediment disposal or reuse. This mitigation measure incorporates these requirements by reference to ensure adequate protection of water quality.
Public Safety		
GEN-18	Planning for Pedestrians, Traffic Flow, and Safety Measures	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.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		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. 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. 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. 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.
GEN-19	Public Safety Measures	The District will implement public safety measures during maintenance as follows: 1. If necessary, construction signs will be posted at job sites warning the public of construction work and to exercise caution. 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. 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. 4. Fencing, either the orange safety type or chain link will be installed above repair sites on bank stabilization projects. 5. When necessary, District or contracted staff will provide traffic control and site security.
GEN-20	Minimize Noise Disturbances to Residential Areas	The District will implement maintenance practices that minimize disturbances to residential areas surrounding work sites. 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.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		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. 3. Powered equipment (vehicles, heavy equipment, and hand equipment such as chainsaws) will be equipped with adequate mufflers. 4. Excessive idling of vehicles will be prohibited beyond 5 minutes.
GEN-21	Work Site Housekeeping	▪ 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. ▪ 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. ▪ 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.

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.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
Tree Pruning		
VEG-1	Routine Pruning Measures	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. 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 ensure the safety of the tree climbers.
Non-Native and Invasive Plant Removal		
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 Napa River Watershed Invasive Plant Management: Arundo Management and Riparian Enhancement Plan developed in 2015 and the Napa County Flood Control and Water Conservation District Aquatic Pesticide Application Plan (Appendix G). 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).
Herbicide Application		
VEG-4	Standard Herbicide Use Requirements	▪ 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. ▪ 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. ▪ Herbicide application in upland areas will not be made within 48 hours of predicted rainfall. ▪ The lowest recommended rate to achieve project objectives of both herbicides and surfactants will be utilized to achieve desired control.

BMP Number	BMP Title	BMP Description
		▪ 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. ▪ 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.
Site Restoration		
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 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	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). 1. The seed mix will consist of California native grasses (e.g., *Hordeum brachyantherum ssp. californicum*, *Elymus glaucus* , *Bromus carinatus*, *Danthonia californica, and Melica californica*). 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. 3. Locally native wildflower and/or shrub seeds may also be included in the seed mix. 4. Temporary earthen access roads will be seeded when site and horticultural conditions are suitable.
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.

BMP Number	BMP Title	BMP Description
RESTOR-4	Bank Protection Plantings	1. New trees will have an average spacing of 10-12 feet and shrubs an average spacing of 6-8 feet. 2. Pole plantings shall be collected on site and installed wherever possible depending on soil and water conditions.
RESTOR-5	Site Maintenance	Follow-up maintenance will be performed on sites that have been seeded and planted. 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. 2. Irrigation will be implemented as needed throughout the establishment period. The District may maintain or repair bank stabilization projects that are less than 2 years old that are damaged by winter flows. 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.

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	1. For activities occurring between February 1 and August 31, 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. 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

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
		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. 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 Francisco common yellowthroat non-breeding season (i.e., August 16–March 14). 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. 5. All protective buffer zones will be maintained until the nest becomes inactive, as determined by a qualified biologist. 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.
BIO-2	Avoid and Minimize Impacts to Special-Status Invertebrate Species	1. A District qualified biologist will conduct a desk top audit of the CNDDB, 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. 2. If the District Biologist determines that a special-status invertebrate could occur in the activity area, then a habitat suitability assessment at the maintenance site will be conducted. 3. If the District determines that known occurrences have been documented and suitable habitat is present for California freshwater shrimp at the maintenance site, then the District would avoid working in areas where habitat is present.
BIO-3	Protection of Sensitive Fauna Species from Herbicide Use	Only following the guidelines and in accordance with federal and state regulations; approved herbicides and adjuvants may be applied in habitat areas for sensitive wildlife species (including salmonids, California red-legged frog, California freshwater shrimp) only if applications occur in accordance with federal and state regulations.

BMP Number	BMP Title	BMP Description
		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 (600 feet) by air or 40 yards (120 feet) 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 implemented: • 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). ▪ 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 would adequately protect against fish kills, and prescribe measures to ensure adequate protection of biological resources.
BIO-4	Applicator Training	District staff that handle and apply herbicides will be trained annually on proper herbicide handling and use. Staff will be trained by a District or County staff with a pesticide applicator certificate obtained from the State Department of Pesticide Regulation. Training will include review of the BMPs included in the District's Aquatic Pesticide Application Plan (Appendix G), with particular focus on target and non-target plants, environmental impact avoidance measures, and herbicide label requirements. The District will ensure that applicators are properly trained in handling and use of herbicides, have a current Qualified Applicator Certificate (QAC), or Qualified Applicator License (QAL). A QAC/QAL must complete 20 hours of continuing education every 2 years to stay licensed, and therefore are up-to-date on the latest techniques for pest control.
BIO-5	Herbicide Application Planning and Coordination	When a site is selected for application of herbicides, adjacent and downstream water users (farmers and agencies with water rights diversions) will be notified to ensure their water supply is not impacted during the aquatic herbicide treatment period. The District will post an annual work plan on the District website.

Table 2-2. Stream Maintenance Best Management Practices

BMP Number	BMP Title	BMP Description
BIO-6	Avoid and Minimize Impacts to Special-Status Plant Species and Sensitive Natural Vegetation Communities	If there are known occurrences of special status plant species near the project site 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: 1. A desktop audit of the CNDDB, 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. 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. 3. Surveys will be conducted during the appropriate time of the year to adequately identify plants. 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: a. Flag or otherwise delineate in the field the special status plant populations and/or sensitive natural community to be protected; 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 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). c. Time construction or other activities during dormant and/or non-critical life cycle period; d. Store removed sediment off site; and e. Limit the operation of maintenance equipment to established roads whenever possible. 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

BMP Number	BMP Title	BMP Description
		botanist has surveyed the area and determined the locations of special status plant species present. Per BMP BIO-3, approved herbicides may only be used once site-specific control methods have been developed. 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. 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.
BIO-7	Protection of Special-Status Amphibian and Reptile Species	1. A District qualified biologist will conduct a desk audit of the CNDDB, 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. 2. 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. 3. If foothill yellow-legged frog (FYLF) has potential to occur in the activity area, a qualified biologist will conduct at least three (3) additional surveys during FYLF breeding season (typically March 30 to June 15) using a survey methodology approved by CDFW prior to the start of maintenance activities. All survey results will be submitted to CDFW prior to the start of maintenance activities. 4. If no special status amphibian or reptile is found within the activity area during a pre-activity survey, the work may proceed. 5. 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:

BMP Number	BMP Title	BMP Description
		A. For minor maintenance activities and for vegetation removal activities that will take less than 1 day, the qualified biologist shall conduct a special status species survey on the morning of and prior to the scheduled work. B. If no special status species is found, the work may proceed. C. If FYLF or evidence of their presence is found, work shall stop and the District shall obtain a CESA ITP from CDFW prior to conducting in-water maintenance activities. D. If eggs or tadpoles of a special status species (with the exception of FYLF) 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. E. 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. F. If adults or juveniles of a special status species (with the exception of FYLF) are found, one of the following three procedures will be implemented: 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 CDFW approval, depending on the listing status of the species in question), and work may proceed. 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.

BMP Number	BMP Title	BMP Description
		iii. If, in the opinion of the qualified biologist, adverse effects to the individual cannot be avoided by the previous two options, work will be halted and alternative approaches such as suspending the project or modifying the techniques used will be evaluated. 6. 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. A. If eggs or tadpoles of a special status species (with the exception of FYLF) are found, a buffer will be established around the location of the eggs/tadpole 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 larvae have metamorphosed. B. 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. C. If adults or juveniles of a special status species (with the exception of FYLF) are found, the individual will be captured and relocated by a qualified biologist (with USFWS and/or CDFW approval, depending on the listing status of the species in question), and work may proceed.
BIO-8	Protection of Bat Colonies	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. 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.

BMP Number	BMP Title	BMP Description
		3. If an active bat maternity colony is present then the qualified biologist will make the following determinations: a. The work can proceed without unduly disturbing the bat colony. 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. c. Work cannot proceed without unduly disturbing the bat colony; thus, the work will be postponed until after July 31. 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 or exclusion activities.
BIO-9	Protection of dusky-footed woodrats	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. 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.

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	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 and would affect native soils beyond the as-built design of a channel or other flood control facility. Based on the location of such projects, BMPs CUL -2 through CUL-4 shall be implemented as follows:

		• High Sensitivity: BMP CUL-2 and CUL-3 • Moderate Sensitivity: BMP CUL-2 • Low Sensitivity: *BMPs CUL-2 through CUL- 4 not required* • Unknown Sensitivity: BMP CUL-4 BMPs CUL-5 and CUL-6 are applicable to all ground-disturbing projects, no matter the sensitivity level of the project location.
CUL-2	Field Inventory for High or Moderately Sensitive Areas	The District will review the assessor's parcel data maintained by the Napa County Department of Planning, Building, and Environmental Services to determine if there is information about previous cultural resources studies or sites within a project area. If the County's Department of Planning, Building, and Environmental Services data indicate that a project area has not yet been surveyed for cultural resources, the District will contact the California Historical Resources System/Northwest Information Center (CHRIS/NWIC) to determine if any cultural resources studies have been conducted or if cultural sites have been previously recorded within the road maintenance area. If the CHRIS/NWIC data indicate that the project area has previously been surveyed and no cultural resources have been identified, the District can go forward with the project with no additional studies. If the CHRIS/NWIC data indicate that the project area has not been previously studied, or has been studied and cultural resources are present, a cultural resources specialist will conduct a field inventory of the project area 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 to the District in an appropriate report format and include any necessary maps, figures, and correspondence with interested parties. A summary table indicating 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 onsite to avoid significant impacts 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 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. Work in areas where remains or artifacts are found will be restricted or stopped until proper protocols are met. 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. 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.

		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. 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. 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. 6. When avoidance is not practical (e.g., maintenance activities cannot be deferred or they must 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 (rstradford@spd.usace.army.mil). 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, if the resource is a Native American site, and a proposal for curation of cultural materials recovered from a non-Native American grave context. 7. The recovery effort will be detailed in a report prepared by the archaeologist in accordance with current archaeological standards. Any non-Native American grave artifacts will be placed with an appropriate repository. 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).

		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. 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.) 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 48 hours to consult and provide recommendations for the treatment or disposition, with proper dignity, of the human remains and grave goods. 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. 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.

Chapter 3
ENVIRONMENTAL CHECKLIST

1.	**Project Title**	Napa County Stream Maintenance Program
2.	**Lead Agency Name and Address**	Napa County Flood Control and Water Conservation District 804 First Street Napa, CA 94559
3.	**Contact Person, Phone Number and Email**	Richard Thomasser, P.G. Watershed and Flood Control Operations Manager (707) 259-8600 Richard.Thomasser@countyofnapa.org
4.	**Project Location and APN**	Countywide
5.	**Property Owner(s)**	Varied
6.	**General Plan Designation**	Multiple
7.	**Zoning**	Multiple
8.	**Description of Project**	See Chapter 2, *Project Description.*
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

This chapter of the Initial Study/Mitigated Negative Declaration (IS/MND) assesses the environmental impacts of the Napa County Flood Control and Water Control District's (District's) Napa County Stream Maintenance Program (Proposed Project). The environmental impact analysis is based on the environmental checklist provided in Appendix C of Napa County's Local Procedures for Implementing the California Environmental Quality Act (Napa County 2015) as well as Appendix G of the California Environmental Quality Act

(CEQA) Guidelines. The environmental resources and potential environmental impacts of the SMP are described in the individual subsections below. Each section (3.1 through 3.21) provides a brief overview of regulations and regulatory agencies and describes the existing environmental conditions for that resource topic to help the reader understand the conditions that could be affected by the Proposed Project. In addition, each section includes a discussion of the rationale used to determine the significance level of the Proposed Project's environmental impact for each checklist question. For environmental impacts that have the potential to be significant, mitigation measures are identified that would reduce the severity of the impacts to a less-than-significant level.

Note 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/MND. These documents are available for review at the Napa County Planning Division office. Where available, updated sources were used to describe environmental setting information as needed.

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

Determination

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.

Richard Thomasser — February 7, 2019

Signature — Date

Name: Richard Thomasser, Watershed and Flood Control Operations Manager
Napa County Flood Control and Water Conservation District

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?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d. Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	☐	☐	☐	☒

3.1.1 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 3 of the Stream Maintenance Manual (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 a Viewshed Protection Program, which contains polices 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 while the majority of the channels in the City of American Canyon are publicly-owned. 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.

3.1.2 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.

Much of 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. It is possible that some maintenance sites along County roads or RCD-maintained sites along private roads could be located at higher elevations in the watershed where such activities may be visible from scenic viewpoints.

However, 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 occur on an as-needed basis, and typically include the removal of debris jams, accumulated sediment at culverts, and the clearance of vegetation to remove significant flow obstructions. As necessary, culvert repair or replacement and bank stabilization activities also occur at roadside crossings. 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 Best Management Practices (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-21: 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 3 of the 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 and Tree 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 that are fallen, pose 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.

Other Maintenance Activities – 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.

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-21: 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, vegetation used for biotechnical bank repairs and replanting efforts conducted as part of the SMP's compensatory mitigation (per regulatory permit conditions) 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. Similarly, stabilization and repair of eroding banks would reduce sediment loss and in-channel buildup. 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 three 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. Vegetated biotechnical bank repairs and restoration efforts conducted as part of the SMP's compensatory mitigation (per regulatory permit conditions) 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 channels. 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.

3.2 Agriculture and Forestry Resources[1]

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
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?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Pub. Res. Code section 12220(g)), timberland (as defined by Pub. Res. Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
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?	☐	☐	☐	☒
e. Involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to nonagricultural use?	☐	☐	☐	☒

[1] "Forest land" is defined by the State as "land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits." (Public Resources Code Section 12220(g)) The Napa County General Plan anticipates and does not preclude conversion of some "forest land" to agricultural use, and the program-level EIR for the 2008 General Plan Update analyzed the impacts of up to 12,500 acres of vineyard development between 2005 and 2030, with the assumption that some of this development would occur on "forest land." In that analysis specifically, and in the County's view generally, the conversion of forest land to agricultural use would constitute a potentially significant impact only if there were resulting significant impacts to sensitive species, biodiversity, wildlife movement, sensitive biotic communities listed by the California Department of Fish and Game, water quality, or other environmental resources addressed in this checklist.

3.2.1 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 2017, the total value of agricultural production was $757 million. This total value is up 2.5 % from 2010, with agriculture (especially that of wine and grape production) remaining the County's top industry. (Napa County 2018)

Napa County is a renowned grape-growing and wine-making region, which as of 2017, boasts 16 separate designated American Viticultural Areas [AVAs] for vineyards. The greatest amount of vineyard acreage is devoted to the production of red varieties of wine grapes (Napa County 2018).

As of 2017, the County consists of the following agricultural land uses:

Table 3-1. Napa County Agricultural Land Uses

Land Use Category	Total Acres
Prime Farmland	30,619
Farmland of Statewide Importance	9,593
Unique Farmland	16,803
Farmland of Local Importance	18,326
Grazing Land	179,202

Source: CA Dept. of Conservation 2016a

Consistent with the County's dedication to agricultural land preservation, there has been an increase of 149 acres in important farmland acreage from 2014-2016 (CA. Dept. of Conservation 2016a). According to the California Department of Conservation, there are currently 73,956 acres of agricultural lands in Napa County under a Williamson Act Contract (CA. Dept. of Conservation 2016b). 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)

3.2.2 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 District, storm drainage facilities and streams at County road crossings. These maintained channels are used exclusively for flood control, water conveyance and storm drainage; and are not actively used for agriculture.

The primary activities proposed under the SMP include vegetation management, erosion protection and bank stabilization, and sediment and debris removal. These activities 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 would occur near urban settings or on channels along transportation corridors (including County or privately-owned roads), 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?	☐	☐	☒	☐
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e. Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

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* (2017a). 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	Concentration	State Standards Attainment Status[1]	Federal Standards Attainment Status[2]
Ozone	1-hour	0.09 ppm	N	See footnote 3
	8-hour	0.070 ppm	N	N
Carbon Monoxide	1-hour	20 ppm	A	
		35 ppm		A
	8-hour	9.0 ppm	A	A[4]
Nitrogen Dioxide	1-hour	0.18 ppm	A	
		0.100 ppm[6]		U
	Annual arithmetic mean	0.030 ppm	A	
		0.053 ppm		A
Sulfur Dioxide (SO_2)	1-hour	0.25 ppm	A	
		0.075 ppm		A
	24-hour	0.04 ppm	A	
		0.14 ppm		A
	Annual arithmetic mean	0.030 ppm		A
Particulate Matter (PM_{10})	24-hour	50 µg/m^3	N	
		150 µg/m^3		U
	Annual arithmetic mean	20 µg/m^3	N	
Fine Particulate Matter ($PM_{2.5}$)	24-hour	35 µg/m^3		N (Moderate)[7]
	Annual arithmetic mean	12 µg/m^3	N	U/A
Sulfates	24-hour	25 µg/m^3	A	
Lead[8]	30-day average	1.5 µg/m^3	A	
Hydrogen Sulfide	1-hour	0.03 ppm	U	
Vinyl Chloride[8] (chloroethene)	24-hour	0.010 ppm	U	
Visibility Reducing Particles	8 hour (10:00 to 18:00 PST)	See footnote 5	U	

A – attainment ppm – parts per million

N – non-attainment μg/m^3 – micrograms per cubic meter
U – unclassified

Notes:

1. California standards for ozone, carbon monoxide, sulfur dioxide (1-hour and 24-hour), nitrogen dioxide, suspended particulate matter - PM_{10}, and visibility-reducing particles are values that are not to be exceeded. The standards for sulfates, 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_{10} annual standard), then some measurements may be excluded. In particular, measurements that are excluded include those that the California Air Resources Board (CARB) determines would occur less than once per year on average.
2. National standards shown are the "primary standards" designed to protect public health. National air quality standards are set by USEPA at levels determined to be protective of public health with an adequate margin of safety. National standards other than for ozone, particulates, and those based on annual averages are not to be exceeded more than once per 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 parts per billion) or less. The 24-hour PM_{10} standard is attained when the 3-year average of the 99th percentile of monitored concentrations is less than 150 μg/m^3. The 24-hour $PM_{2.5}$ standard is attained when the 3-year average of 98th percentiles is less than 35 μg/m^3. 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_{10} is met if the 3-year average falls below the standard at every site. The annual $PM_{2.5}$ standard is met by spatially averaging annual averages across officially designated clusters of sites and then determining if the 3-year average of these annual averages falls below the standard.
3. The national 1-hour ozone standard was revoked by USEPA on June 15, 2005. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 ppm to 0.070 ppm. An area meets the standard if the fourth-highest maximum daily 8-hour ozone concentration per year, averaged over three years, is equal to or less than 0.070 ppm. This table provides the attainment statuses for the 2015 standard of 0.070 ppm.
4. In April 1998, the Bay Area was redesignated to attainment for the national 8-hour carbon monoxide standard.
5. Statewide Visibility-Reducing Particle Standard (except Lake Tahoe Air Basin): Particles in sufficient amount to produce an extinction coefficient of 0.23 per kilometer when the relative humidity is less than 70 percent. This standard is intended to limit the frequency and severity of visibility impairment due to regional haze and is equivalent to a 10-mile nominal visual range.
6. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average of nitrogen dioxide at each monitoring station within an area must not exceed 0.100 ppm (effective January 22, 2010).
7. On January 9, 2013, USEPA issued a final rule to determine that the Bay Area attains the 24-hour $PM_{2.5}$ national standard.
8. CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure below which there are no adverse health effects determined.

Source: CARB 2017, USEPA 2018a, USEPA 2018b, BAAQMD 2018, BAAQMD 2017b

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 (NOx)	54	10
Particulate Matter (PM_{10})	82	15
Particulate Matter ($PM_{2.5}$)	54	10
PM_{10}/$PM_{2.5}$ (fugitive dust)	None	
Local Carbon Monoxide (CO)	9.0 ppm (8-hour average), 20.0 ppm (1-hour average)	
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 2017a

3.3.1 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.

3.3.2 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 ($PM_{2.5}$ and PM_{10}) and other contaminants associated with motor vehicle operation, including carbon monoxide and ozone precursors (reactive organic gases [ROG] and NOx). 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 93 workdays (June 15 through October 15). As shown in Table 3-4, in a typical year the SMP would generate a maximum of 500 trips per year covering an average of 10,940 miles. On average, the maximum duration of any SMP

activity is approximately 3 days. The maximum number of vehicle trips likely to result from a maintenance event is 12 round trips per day (for further discussion of vehicle trip generation, refer to Section 3.16 *Traffic and Transportation*).

In a typical year, annual off-road equipment use would occur for a maximum of 60 days per year, including 50 days from use of a chipper and the remaining days split between an excavator/backhoe and a dump truck (Napa County Flood Control and Water Conservation District 2011, Gordon pers. comm.) The District uses an average of 25 gallons of herbicide (with active ingredient glyphosate) on an average of 30 acres in a given year. The District uses the following herbicide products: glyphosate (trade name: Roundup® and Rodeo®) for control of invasive and exotic plants, and imazapyr (trade names: Arsenal®, Chopper®, and Stalker®) is infrequently used throughout the watershed.

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	280	12	3,360	2 light-duty pickups; 1 heavy-duty pick up
Contractor	220	34	7,480	1 heavy-duty pickup truck; 1 tractor
Total	*500*	*46*	*10,840*	*n/a*

Sources: Napa County Flood Control and Water Conservation District 2011, Gordon, pers.comm.

In addition to activities discussed above, in some years, as part of the SMP, the District would perform sediment and debris removal activities. These activities may involve: 10 trips for staff in a pick-up truck, 20 dump truck hauling trips, and about 20 days with an excavator and dozer working on-site. Projects could be anywhere within the County but typical/average round trip would be about 24 miles. The largest annual emissions would occur in years where sediment and debris removal work take place in addition to the activities from Table 3-4. This is the scenario modeled for air quality emissions discussed below.

Estimated 2019 and 2029 maximum daily and annual emissions of criteria air pollutants were modeled using CalEEMod 2016.3.2 and are 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 2019 and 2029, fleet vehicle turnover during this period would result in lower emissions of criteria air pollutants in 2029. 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_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
2019				
Vehicles/Equipment	1.5	16.3	0.7	0.7
Pesticide Use	0.8	-	-	-
Total	*2.3*	*16.3*	*0.7*	*0.7*
2029				
Vehicles/Equipment	0.9	8.5	0.4	0.3
Pesticide Use	0.8	-	-	-
Total	*1.7*	*8.5*	*0.4*	*0.3*
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 Horizon in 2018 (refer to Appendix B).

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

Source	ROG	NOx	PM_{10} (Exhaust)	$PM_{2.5}$ (Exhaust)
2019				
Vehicles/Equipment	0.02	0.2	0.01	0.01
Pesticide Use	0.15	-	-	-
Total	*0.17*	*0.2*	*0.01*	*0.01*
2029				
Vehicles/Equipment	0.01	0.1	0.004	0.004
Pesticide Use	0.15	-	-	-
Total	*0.16*	*0.1*	*0.004*	*0.004*
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 Horizon in 2018 (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. No mitigation is required.

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 3.21, *Mandatory Findings of Significance*). This impact would be less than significant and no mitigation is required.

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 near individual sensitive receptors 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. No mitigation is required.

e. Create Objectionable Odors — *Less than Significant*

Sediment removal and diesel used for operating maintenance equipment have 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 up to 10 sediment removal projects annually (100-500 cubic yards per year), and the District does not undertake large reach-scale (i.e., limited to no greater than 1,500 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. No mitigation is required.

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 CDFW or USFWS?	☐	☒	☐	☐
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 CDFW or USFWS?	☐	☐	☒	☐
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, and coastal wetland, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☒	☐
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?	☐	☐	☒	☐
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted habitat conservation plan (HCP); natural community conservation plan (NCCP); or other approved local, regional, or state HCP?	☐	☐	☐	☒

3.4.1 Setting

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

Aquatic Features

Aquatic features in Napa County are highly diverse in type and function. The streams that form the drainage network within the County are the primary aquatic features relevant to Project activities. To a lesser extent, freshwater wetlands and ephemeral or intermittent drainages, 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 pools are 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 features 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* species, water plantain (*Alisma triviale*), 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 features in the Project Area include Coast Range newt (*Taricha torosa torosa*), Pacific treefrog (*Pseudacris* [=*Hyla*] *sierra* [=*regilla*]), California red-legged frog (*Rana draytonii*), foothill yellow-legged frog (*Rana boylii*), and California toads (*Anaxyrus* [=*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 the 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 (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 of spawning adults and juvenile Chinook salmon in the Napa River 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 (Napa County Flood Control and Water Conservation District 2011).

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 *Wolfia* 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 [*Spatula 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 frog, California toad, and garter snake (*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 (*Lontra 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, craneflies, and snails—that provide an important food source for other species.

Brackish Wetlands

Brackish wetlands in the program area include the 45-ac mitigation site adjacent to the Edgerly Island Facility, the diked tidal marsh on the Edgerly Island facility, and brackish emergent wetlands in the Flood Protection Project area. Vegetation in the mitigation site is dominated by ruderal species in the ecotone between wetland areas and upland area, with some pockets of native plants such as coyotebrush (*Baccharis pilularis*). Wetter areas of the site include species such as pickleweed and various hydrophytic graminoids. Based on communication with the USACE and because the Edgerly Island wetlands are within an isolated and enclosed basin controlled by a structure, the wetlands were found to not be federally jurisdictional under the Clean Water Act. Vegetation community composition in the diked brackish marsh on the Edgerly Island site generally follows the topographic gradients. The lowest vegetated portions of the site are dominated by saltmarsh sandspurry (*Spergularia marina*); and non-native brassbuttons (*Cotula coronopifolia*) is also present. As elevation increases the diked marsh community includes non-native species such as fat hen (*Atriplex prostrata*) and rabbitsfoot grass (*Polypogon monspeliensis*). The upper extents of the diked marsh habitat are dominated by perennial ryegrass (*Festuca perennis*) and salt grass (*Distichlis spicata*).

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*) (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 (*Symphoricarpos albus*), California blackberry (*Rubus ursinus*), and wild grape (*Vitus 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 Sierran tree frog (*Pseudacris* [=Hyla]sierra [was *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 (*Oreothlypis 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.

Oak Woodlands

Oak woodlands are common in the County, covering more than 167,000 ac or 33 percent of land in the County (Jones & Stokes and EDAW 2005). Most of these woodlands are mixed oak with multiple dominant oak species such as coast live oak, interior live oak (*Quercus wislizeni*), blue oak (*Q. douglasii*), and California black oak (*Q. kelloggii*) (Jones & Stokes and EDAW 2005). Other oak woodlands include evergreen oak woodlands (dominated by coast live oak and interior live oak) and deciduous oak woodlands (dominated by blue oak or valley oak) (Jones & Stokes and EDAW 2005). The understory in these woodlands often contains annual or perennial grass species, poison oak (*Toxicodendron diversilobum*), hairy honeysuckle (*Lonicera hispidula*), and rigid hedge nettle (*Stachys ajugoides*) (Jones & Stokes and EDAW 2005).

Oak woodlands provide valuable food resources and habitat for wildlife. Acorns and oak-feeding insects provide food for many bird and wildlife species (Jones & Stokes and EDAW

2005). Birds such as ash-throated flycatcher (*Myiarchus cinerascens*), Hutton's vireo (*Vireo huttoni*), orange-crowned warbler, lark sparrow (*Chondestes grammacus*), Bullock's oriole (*Icterus bullockii*), Lawrence's goldfinch (*Carduelis lawrencei*) and lesser goldfinch (*Carduelis psaltria*) are found in oak woodlands (Jones & Stokes and EDAW 2005). Mammals which may be found in these habitats include northern raccoon (Procyon lotor), striped skunk (Mephitis mephitis), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), Columbian black-tailed deer (*Odocoileus hemionus columbianus*), and mountain lion (*Puma concolor*) (Jones & Stokes and EDAW 2005).

Non-native Annual Grassland

Annual grassland covers approximate 10 percent of the County (Jones & Stokes and EDAW 2005). Dominant species in this habitat include non-native annuals such as wild oat (Avena spp.), brome (*Bromus* spp.), wild barley (*Hordeum* spp.), Italian ryegrass (*Festuca perrenis*), medusa head (*Elymus caput-medusae*) and annual fescue (*Festuca* spp.) (Jones & Stokes and EDAW 2005). Forbs which may be present include miniature lupine (*Lupinus bicolor*), Douglas's lupine (*Lupinus nanus*), California poppy (*Eschscholzia californica*), clover (*Trifolium* spp.), filaree (*Erodium* spp.), birdsfoot trefoil (*Lotus corniculatus*), evening snow (*Linanthus dichotomus*), purple owl's-clover (*Castilleja densiflora*), valley tassels (*Castilleja attenuata*), blow wives (*Achyrachaena mollis*), buttercup (*Ranunculus* spp.), star thistle (*Centaurium* sp.), and smooth cat's-ear (*Hypochaeris glabra*) (Jones & Stokes and EDAW 2005).

Many wildlife species use grasslands for breeding or other habitat. Bird species known to breed in annual grasslands include western bluebird (*Sialia mexicana*), loggerhead shrike (*Lanius ludovicianus*), California horned lark (*Eremophila alpestris actia*), Savannah sparrow (*Passerculus sandwichensis*), Say's phoebe (*Sayornis saya*) and western meadowlark (*Sturnella neglecta*) (Jones & Stokes and EDAW 2005). Species such as golden eagle (*Aquila chrysaetos*), northern harrier (*Circus hudsonius*), American kestrel (*Falco sparverius*), white-tailed kite, and red-tailed hawk (*Buteo jamaicensis*) use annual grasslands as foraging habitat (Jones & Stokes and EDAW 2005).

3.4.2 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 with Mitigation Incorporated*

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 Wildlife (CDFW)[2], and local experts as documented in the Napa County BDR (Napa County

[2] Includes California Rare Plant Rank (CRPR) listed species.

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).
- National Oceanic and Atmospheric Administration (NOAA): National Marine Fisheries (NMFS) West Coast Region California Species List (Appendix D)
- California Natural Diversity Database (CNDDB) Database Query for Napa County (Appendix E)
- California Native Plant Society's Inventory of Rare and Listed Plant Query for Napa County (Appendix F)
- 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:

- **None:** the SMP area is outside of species' range, record is possibly or presumed extirpated, or lacks suitable habitat capable of supporting the species.
- **Not Expected:** marginal to poor quality habitat is present in the SMP area or isolated from the nearest extant occurrence record(s), and/or the species is not known to occur in the area.
- **Possible:** suitable habitat is present in the SMP area that could support the species as it is within the species range and/or near an occurrence record.
- **Present:** the species was either observed directly or its presence was confirmed by field investigations or previous studies in the SMP area.

CNDDB occurrence records of special-status plant species and wildlife species are respectively shown on Figures 3-1 and 3-2. Critical Habitat for federally listed (threatened or endangered) species is depicted on Figure 3-3. Figures 3-1 through 3-3 are presented at the end of this chapter. 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 G-1 in Appendix G lists the special-status plant species known to occur in the vicinity of the SMP Project Area. The vast majority of plant species listed in Table G-1 are associated with habitats that would not be affected by Project activities including 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 "possible" but relatively low potential to occur in areas affected by Project activities. Plant species associated with salt/brackish marsh (namely at Edgerly Island and the Imola Avenue

Dredged Material Rehandling Site), freshwater marsh, and riparian habitat are considered to have "possible" and 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 G-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-2: Minimize the Area of Disturbance
BMP GEN-5: Staging and Stockpiling of Materials
BMP GEN-6: Stream Access
BMP RESTOR-2: Seeding

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

By implementing BMP BIO-6, 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 G-2 in Appendix G lists the special-status invertebrate species known to occur in the vicinity of the Project Area. Most invertebrate species listed in Table G-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 "possible" but 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 "present" and high 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.

The District intends 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 G-3 in Appendix G lists the special-status fish species known to occur in the vicinity of the Project Area. Many fish species listed in Table G-3 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
BMP GEN-2: Minimize the Area of Disturbance
BMP GEN-3: Erosion and Sediment Control Measures
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 RESTOR-1: Restore Channel Features

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 G-2 in Appendix G lists the special-status amphibian and reptile species known to occur in the vicinity of the Project Area. These species include California giant salamander (CGS) (*Dicamptodon ensatus*), California red-legged frog (CRLF) (*Rana draytonii*), foothill yellow-legged frog (FYLF) (*Rana boylii*), and western pond turtle (WPT) (*Actinemys* [=*Emys*] *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, where present, 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-7: *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-7, implementing several other BMPs would avoid and/or minimize impacts. These measures include:

BMP GEN-1: Work Windows
BMP GEN-2: Minimize the Area of Disturbance
BMP GEN-3: Erosion and Sediment Control Measures
BMP GEN-7: In-Channel Minor Sediment Removal
BMP GEN-10: Spill Prevention and Response
BMP BIO-3: Protection of Sensitive Fauna Species from Herbicide Use

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

Even with implementation of BMPs, maintenance activities in aquatic habitats have the potential to affect small numbers of CRLFs. Most such impacts would be temporary (e.g., temporary reduction in habitat quality or indirect disturbance of individuals from vegetation management or sediment removal); however, maintenance activities may result in the injury or mortality of individuals due to worker foot traffic and equipment use. Seasonal movements of frogs may be temporarily affected during maintenance activities because of disturbance. Substrate vibrations may cause individuals to move out of refugia, exposing them to a greater risk of predation or desiccation; such vibrations may also interfere with predator detection, causing a decrease in time spent foraging. In addition, California red-legged frogs may be crushed in their burrows or trapped and suffocated by the passage of heavy equipment. Petrochemicals, hydraulic fluids, and solvents that are spilled or leaked from maintenance vehicles or equipment may kill individuals. Furthermore, maintenance activities requiring dewatering (which occurs infrequently) would temporarily reduce aquatic habitat for California red-legged frogs. Dewatering could also temporarily expose individuals to predators and may cause frogs to move to find new habitats, which may be inhabited already by other frogs, thus increasing competition. In limited circumstances, maintenance activities could require relocation of individual CRLF. Therefore, the potential for stress, injury, or

mortality to individual CRLF during maintenance activities cannot be completely avoided or minimized. Implementation of **Mitigation Measure MM BIO-1** would ensure that impacts to CRLF are reduced to a less-than-significant level through habitat compensation.

Mitigation Measure BIO-1: Create California Red-legged Frog Aquatic Habitat.

The District will compensate for impacts on the California red-legged frog resulting from the Program maintenance activities by preserving (by means of an open space easement, conservation easement, or other similar instrument) and managing (through a habitat mitigation and monitoring plan [HMMP] to be developed upon approval of the site by USFWS and an endowment to ensure the perpetual management of the mitigation site) conservation lands that will provide habitat for the California red-legged frog of equal or greater value compared to the habitat being affected by Program activities.

The District may utilize the California Red-legged Frog Preserve established by the City of American Canyon to meet this mitigation requirement as this Preserve was created for the purpose of offsetting SMP impacts to California red-legged frogs within American Canyon.

By implementing these measures and MM BIO-1, 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 with mitigation.

Impacts to Special-status Bird Species

Table G-2 in Appendix G 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-shined hawk and cooper's hawk (*Accipiter striatus* and *A. cooperii,* respectively). There is also the potential for heron and egret rookeries to occur in the Project Area. Project activities are not anticipated to occur in or affect northern spotted owl (*Strix occidentalis caurina*) habitat.

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 or reduced fitness, 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 1- August 31). 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
BMP GEN-2: Minimize the Area of Disturbance
BMP RESTOR-2: Seeding
BMP RESTOR-3: Planting Material

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. No mitigation is required.

Impacts to Special-status Mammal Species

Table G-2 in Appendix G lists the special-status mammal species known to occur in the vicinity of the Project Area. Special-status mammals listed in Table G-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 pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), western mastiff bat (*Eumops perotis californicus*), and western red bat (*Lasiurus blossevillii*) are listed as a species of special concern by CDFW[3]. Project activities are not anticipated in salt marsh habitat within the Napa-Sonoma Marshes, where pickleweed is present, in the southern portion of the Project area; therefore, impacts to suitable habitat for salt-marsh harvest mouse (*Reithrodontomys raviventris*), a federally and state endangered species and a fully protected species, are not anticipated. The SMP includes BMPs to protect sensitive mammal species associated with riparian habitat. Prior to commencing maintenance, the District would implement BMP BIO-8 which includes measures to protect bat colonies and BMP BIO-9, which minimizes potential impacts to dusky-footed woodrats. Several other BMPs would also provide surrogate protection for other mammal species. By implementing these measures, impacts to mammal species and their habitat would be avoided or sufficiently minimized such that significant adverse impacts are not likely to occur. Therefore, this impact would be less than significant and no further mitigation is required.

a. 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 vegetation. The District also minimizes impacts to modified, semi-natural and natural

[3] 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).

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-2: Minimize the Area of Disturbance
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 these BMPs in place, the SMP would have a less than significant or potentially beneficial impact to sensitive natural communities including riparian habitat. No mitigation is required.

b. 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 the 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.

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 wetland functions and values. Potential adverse effects are anticipated to be temporary (less than one year). 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. No mitigation is required.

c. 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. but affected areas would be minimal and only occur at focused locations per BMPs GEN-2 (*Minimize the Area of Disturbance*) and GEN-6 (*Stream Access*).

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
BMP GEN-2: Minimize the Area of Disturbance
BMP GEN-6: Stream Access
BMP GEN-7: In-Channel Minor Sediment Removal
BMP GEN-14: Dewatering
BMP GEN-15: Relocation of Aquatic Species for Dewatering
BMP RESTOR-2: Restore Channel Features

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

d. 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, BMP BIO-6 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 Project would not conflict with any of the restrictions described in the County municipal code; therefore, there would be 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 Project would not conflict with any of the conservation strategies described in the Voluntary Oak Woodland Management Plan; therefore, there would be no impact.

e. Conflict With the Provisions of an Adopted HCP, Natural Community Conservation Plan (NCCP) — *No Impact*

The only Habitat Conservation Plan (HCP) adopted 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. No adopted Natural Community Conservation Plans (NCCP) occur in Napa County. Proposed SMP activities are not anticipated to occur in the HCP coverage area, and Project activities would not conflict with the provisions of this HCP. Therefore, there would be 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?	☐	☐	☒	☐
b. Cause a substantial adverse change in the significance of an archaeological resource as defined in Section 15064.5?	☐	☐	☒	☐
c. Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☐	☒	☐
d. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

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.

3.5.1 Ethnographic Setting

Prehistoric Native American Context

Archaeological records show that the Napa region has a long history of occupation by Native Americans. Research indicates that the Napa Valley was certainly well-inhabited by 3,000 B.C., and possibly as far back as 5,000 B.C. Evidence from Lake Berryessa suggests an even older date of 6,000 B.C. However, use of Napa Valley and the surrounding mountains likely occurred much earlier, as archaeological sites from adjacent Sonoma and Lake counties point to occupation dating to 10,000 B.C., and possibly earlier (Moratto 2004). In Napa Valley, remnants of ancient occupation may be buried under the alluvium that has accumulated at the valley edges and on the valley floor. The earliest cultural remains suggest that people were transient or seasonal visitors to the region. As various populations moved through the area and the region became more populated, indigenous groups began to settle for longer periods of time. By 500 B.C., populations had become mostly sedentary and large villages were established in the valley (Bennyhoff 1977).

Ethnographic Context

The Project Area was primarily inhabited by the Wappo and Patwin tribal groups prior to and at the time of colonization. These tribes shared similar lifestyles, technologies, subsistence strategies, and settlement patterns. The Wappo were the primary occupants within the

county (Sawyer 1978). They held the entirety of the Napa Valley from just north of present-day Napa, north to beyond the county line to Cobb Mountain in Lake County. Within Napa County, the western limits of their territory, during ethnographic times, roughly corresponded to the current County boundary along the ridge of the Mayacmas Mountains. To the east, their lands extended to the area around Angwin and included Chiles Valley. The Patwin inhabited the southern reaches of Napa County, from Napa to Suisun Bay, and all lands east of the Wappo territory, including the valley where modern-day Lake Berryessa stands, and beyond into the Sacramento Valley (Johnson 1978). The very northeastern portions of Napa County, including Pope Valley and much of the Putah Creek headwaters, were in Lake Miwok territory (Callaghan 1978).

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 (Kyle et al. 2002).

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 varietals 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, and 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.

3.5.2 Existing Conditions

Cultural Resources

A records search of the Project Area and maintenance reaches was conducted at the Northwest Information Center (NWIC) of the California Historical Resources Information System at Sonoma State University in January 2017 (NWIC File No. 12-0886) and March 2018 (NWIC File No. 17-2023). The purpose of the record search was to provide baseline information about the number of recorded cultural resources within the Project Area in order to ascertain the general sensitivity of the region for cultural resources. The NWIC information has largely been derived from study results filed at the Information Center, and is not necessarily a comprehensive reflection of all cultural resources work conducted in the county. Data were also accumulated from historic-period maps and literature for Napa County. It is important to note that a vast majority of the waterways and roads included in the Project Area have not been completely surveyed for archaeological resources.

The record search revealed that 895 Native American archaeological resources, 240 historic-period archaeological resources, and 121 multicomponent (containing both Native American and historic-period materials) resources have been recorded in the Project Area. Not surprisingly, these resources are recorded throughout the entirety of the Project Area. The NWIC noted that Native American sites are dense throughout Napa Valley and tend to cluster on mid-slope terraces and trending ridgelines; in areas at the interface between the foothills and low-lying terrain; and in areas near intermittent and perennial watercourses, wetlands, and areas marginal to the San Francisco Bay. All of Napa Valley, the eastern slopes of the Mayacamas Mountains, and the western slopes of the Vaca Ranges, Chiles Valley, and the San Francisco Bay margins and its associated wetlands were identified as having a high potential for unrecorded Native American resources. Other locations with a high potential for Native American sites are the Putah Creek watershed, including what is now Lake Berryessa, Pope Valley, Capell Valley, Snell Valley, Big Basin, Mysterious Valley, Wooden Valley, and Cherry Valley.

Similarly, historic-period sites have been recorded throughout the Project Area. These resources date back to Spanish mission expansion in the early 1800s, and largely relate to early ranching and farming efforts. The Napa River and Valley have been used as a travel corridor for people and goods alike throughout the historic period. With much of the early homesteading and industry beginning near or along the Napa River and its associated tributaries, along with farming in the smaller valleys throughout Napa County, there is a high potential for unrecorded historic-period archaeological resources to be within the Project Area.

Eight bridges within the Project Area, have been determined eligible for listing on the National Register of Historic Places; seven are under County jurisdiction, and one is on State Route 29 (California Department of Transportation 2018a, b). Based on the information gathered from the records search, a series of maps were developed which indicate the cultural sensitivity of routinely maintained channels (see Appendix E of the Manual).

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 2010) 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

Sensitivity Level	Definition
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 2010

As used in the table above, the term significant refers to paleontological resources that fulfill one or more of the following criteria (SVP 2010):

- 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 2010).

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 would not be impacted by the Project's stream maintenance activities.

3.5.3 Discussion of Checklist Responses

a, b. Adverse Change 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. Maintenance projects located in areas with designated sensitivity (high, moderate, low as shown in the maps of Manual Appendix E) each have a recommended BMP treatment set (BMPs CUL-2 through CUL-4), which is detailed in Table 2-2. 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). Furthermore, potentially significant resources discovered during construction would be addressed under BMP CUL-6 *Discovery of Cultural Remains or Historic Artifacts*. Therefore, effects on historical or archaeological resources would be less than significant. No mitigation is required.

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

SMP activities generally take place in three types of channels: earthen and engineered, modified, and natural streams. In general, channels which have been modified from their natural condition including engineered channels 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-6 *Discovery of Cultural Remains or Historic 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-6 *Discovery of Cultural Remains or Historic 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 Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
Would the Project:				
a. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

3.6.1 Regulatory Setting

This section describes the federal, state, and local regulations related to energy resources. Section 3.8, *Greenhouse Gas Emissions*, contains additional discussions of GHG-related regulations that may also be relevant to energy resources.

At the federal level, the United States Environmental Protection Agency (USEPA) and the National Highway Traffic Safety Administration (NHTSA) have developed regulations to improve the efficiency of cars, and light-, medium-, and heavy-duty vehicles. These regulations are discussed in greater detail in Section 3.8.

Energy resource-related regulations, policies, and plans at the state level, require the regular analysis of energy data and developing recommendations to reduce statewide energy use, and setting requirements on the use of renewable energy sources. Senate Bill (SB) 1389, passed in 2002, requires the California Energy Commission (CEC) to prepare an *Integrated Energy Policy Report* for the governor and legislature every 2 years (CEC 2019a). The report analyzes data and provides policy recommendations on trends and issues concerning electricity and natural gas, transportation, energy efficiency, renewable energy, and public interest energy research (CEC 2019a). The 2018 *Integrated Energy Policy Report Update* includes policy recommendations such as addressing the vulnerability of California's energy infrastructure to extreme events related to climate change, including sea-level rise and coastal flooding (CEC 2018a).

In addition, since 2002, California has established a Renewables Portfolio Standard (RPS) program, through multiple senate bills (SB 1078, SB 107, SB X1-2, SB 350, SB 100) and executive orders (S-14-08, B-55-18), that requires increasingly higher targets of electricity retail sales be served by eligible renewable resources. The established eligible renewable source targets include 20 percent of electricity retail sales by 2010, 33 percent of electricity retail sales by 2020, 50 percent by 2030, and 100 percent zero-carbon electricity for the state and statewide carbon neutrality by 2045 (CEC 2019b, CEC 2019c).

Section 3.8, Greenhouse Gas Emissions, provides additional details on California's *2017 Climate Change Scoping Plan*, which details the state's strategy for achieving the state's GHG targets, including energy-related goals and policies. It contains measures and actions that

may pertain to the proposed Project relating to vehicle efficiency and transitioning to alternatively powered vehicles (CARB 2017).

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. Napa County has prepared a *Revised Draft Climate Action Plan* (Napa County 2018) that contains GHG and energy-related strategies and measures.

3.6.2 Environmental Setting

Energy Resources and Consumption

California has extensive energy resources, including an abundant supply of crude oil, high production of conventional hydroelectric power, and leads the nation in electricity generation from renewable resources (solar, geothermal, and biomass resources) (U.S. Energy Information Administration (EIA) 2019). California has the second highest total energy consumption in the United States but one of the lowest energy consumption rates per capita (48th in 2016) due to its mild climate and energy efficiency programs (EIA 2019). A comparison of California's energy consuming end-use sectors indicates that the transportation sector is the greatest energy consumer, by approximately two to three times compared to the other end-use sectors (Industrial, Commercial, and Residential, which are listed in order of greatest to least consumption) (EIA 2019). California is the largest consumer of motor gasoline and jet fuel in the United States (EIA 2019).

In Napa County, data collected for the Revised Draft Climate Action Plan indicates that communitywide sources in the unincorporated county in 2014 had a different pattern than that exhibited statewide. The largest sources of GHG emissions (and presumably energy use) were from building energy use (31 percent), followed by on-road vehicles (26 percent), solid waste (17 percent), and off-road vehicles (9 percent). (Napa County 2018).

3.6.3 Discussion of Checklist Responses

a, b. Result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources during project construction or operation or Conflict with or obstruct a state or local plan for renewable energy or energy efficiency — *Less than Significant*

The proposed Project's maintenance activities would require the consumption of energy (fossil fuels) for construction equipment, worker vehicles, and truck trips. The proposed Project would not involve any activities that would require electricity-based energy use. The consumption of energy for the project's equipment and vehicles would be minimized by leaving some removed vegetation onsite as mulch and by minimizing vehicle idling (BMP GEN-4). Table 3-8 shows the estimated annual fuel use from construction equipment, worker vehicles, and truck trips. The calculations used to develop these estimates are presented in Appendix B.

Table 3-8. Project Fossil Fuel Use

Source Type	Diesel Fuel Use (gallons)	Gasoline Fuel Use (gallons)
Off-road Construction Equipment[1]	22,688	
Worker Vehicles[2]		673
Hauling Vehicles[3]	87	

[1] Fuel use for off-road construction equipment was estimated using a fuel use factor from CARB's off-road in-use engine emissions model of 0.347 pound of diesel per horsepower-hour and diesel fuel density of 7.37 pounds per gallon.

[2] Fuel use for construction worker vehicles was estimated using fuel use estimates from EMFAC with an estimated rate of 21.7 gallons per mile.

[3] Fuel use for hauling vehicles was estimated using fuel use estimates from EMFAC with an estimated rate of 5.5 gallons per mile.

The energy consumption during maintenance work is necessary for flood hazard reduction and resource protection. These activities would not cause wasteful, inefficient, and unnecessary consumption of energy or cause a substantial increase in energy demand and the need for additional energy resources. Although no mitigation measures are necessary to reduce this impact to a less-than-significant level, implementation of BMP GEN-4 would reduce the proposed Project's effect by requiring minimization of idling times and requiring that all equipment be maintained and tuned properly. As a result, the District's SMP would not result in wasteful, inefficient, or unnecessary consumption of energy.

In addition, the District's activities would not conflict with any of the goals, policies, or implementation actions identified in the applicable energy plans, such as the 2018 *Integrated Energy Policy Report Update,* Napa County's General Plan, and Napa County's *Revised Draft Climate Action Plan,* because the proposed Project would not create any future energy demands and would be completed as efficiently as possible. Thus, the Proposed Project would not conflict with any plans relating to renewable energy or energy efficiency. Therefore, this impact is considered less than significant. No mitigation is required.

3.7 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:				
i. 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.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
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?	☐	☐	☒	☐
d. Be located on expansive soil creating substantial risks to life or property? Expansive soil is defined as soil having an expansive index greater than 20, as determined in accordance with ASTM (American Society of Testing and Materials) D 4829.	☐	☐	☒	☐
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒

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.

3.7.1 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 physiology 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 and 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 2043 is 72% (USGS 2016). Similar smaller earthquakes (between magnitudes 6.0 and 6.7) have an 90% chance of occurrence by 2043 (USGS 2016). 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).

3.7.2 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 erosion and bank stabilization. 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 are required to comply with provisions of the CBC.

Adherence to applicable CBC standards, as well as municipal and Napa 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 avoid steep slopes for construction activities requiring in-channel access, would be implemented. This BMP would minimize the potential for land-sliding induced by SMP activities. Therefore, this impact is less than significant. 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 repair and replacement. 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 could also 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 Best Management Practices (BMP) are included as standard operating procedures for SMP activities to minimize the potential for erosion and sedimentation from

proposed maintenance activities. Descriptions of these BMPs 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: Restore Channel Features
BMP RESTOR-2: Seeding

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. 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.

3.8 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 Bay Area Air Quality Management District or the California Air Resources Board which may have a significant impact on the environment?	☐	☐	☒	☐
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 gases?	☐	☐	☒	☐

3.8.1 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, USEPA and the National Highway Traffic Safety Administration (NHTSA) 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, USEPA and the NHTSA announced standards to reduce GHG emissions and improve fuel efficiency for heavy-duty trucks and buses. In August 2016, USEPA and the NHTSA jointly finalized Phase 2 Heavy-Duty National Program standards to reduce GHG emissions and improve fuel efficiency of medium- and heavy-duty vehicles for model year 2018 and beyond (USEPA 2017). However, in April 2017, the USEPA stated it may adjust the later years of the 2017-2025 standards, and thus the increased mileage standard requirements may be subject to change (Center for Climate and Energy Solutions 2018).

In recent years, California has enacted a number of policies and plans to address GHG emissions and climate change. In 2006, the California State Legislature enacted Assembly Bill (AB) 32, the Global Warming Solutions Act, which set the overall goals for reducing California's GHG emissions to 1990 levels by 2020. Senate Bill (SB) 32 codified an overall goal for reducing California's GHG emissions to 40 percent below 1990 levels by 2030. Executive Orders (EOs) S-3-05 and B-16-2012 further extend this goal to 80 percent below 1990 levels by 2050. CARB has completed rulemaking to implement several GHG emission reduction regulations and continues to investigate the feasibility of implementing additional GHG emission reduction regulations. These include the low carbon fuel standard, which reduces GHG emissions associated with fuel usage, and the renewable portfolio standard, which requires electricity suppliers to increase the amount of electricity generated from renewable sources to 33 percent by 2020 and 50 percent by 2030. The CBC (Title 24) governs

construction of buildings in California. Parts 6 and 11 of Title 24 are relevant for energy use and green building standards, which reduce the amount of indirect GHG emissions associated with buildings.

CARB approved the First Update to the AB 32 Scoping Plan on May 22, 2014 (CARB 2014). This update defines climate change priorities for the next 5 years and also sets the groundwork to reach long-term goals set forth in EOs S-3-05 and B-16-2012. The update also highlights California's progress toward meeting the near-term 2020 GHG emission reduction goals and evaluates how to align the State's longer term GHG reduction strategies with other state policy priorities for water, waste, natural resources, clean energy, transportation, and land use. CARB is updating the Scoping Plan to reflect progress since 2005, additional reduction measures, and plans for reductions beyond 2020. CARB released and adopted a 2017 Scoping Plan Update (CARB 2018a) to reflect the 2030 target set by Executive Order B-30-15 and codified by SB 32 (CARB 2017a, CARB 2017b, CARB 2018a).

California has adopted several vehicle emission reduction and fuel efficiency regulations that are similar and consistent with the federal USEPA and NHTSA regulations. These California vehicle regulations were granted under a waiver request by the USEPA and would not necessarily be affected by changes in the federal policies. The current federal administration has suggested revoking California's waiver, and if the waiver is revoked the California standards may be subject to change.

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 County is in the process of developing a Climate Action Plan (CAP) which is intended to quantify and reduce GHG emissions in unincorporated Napa County. Once adopted, the CAP will have implemented an "action item" from the 2008 Napa County General Plan.

The BAAQMD has an operational GHG threshold of 1,100 metric tons of carbon dioxide equivalents per year (MTCO2e/yr) (BAAQMD 2017). For the purposes of this analysis, emissions below the 1,100 metric tons CO2e/year level were considered to not have a significant cumulative impact on climate change from GHG emissions. Table 3-9 provides the BAAQMD's recommended significance criteria for analysis of GHG impacts, including cumulative impacts.

Table 3-9. 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 **OR** b) 1,100 metric tons (MT) of carbon dioxide equivalent (CO_2e) per year **OR** c) 4.6 MT CO_2e/service population (residents and employees) per year

Source: BAAQMD 2017

3.8.1 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 2018 by the California Energy Commission to be responsible for approximately 1 percent of the world's total GHG emissions (CEC 2018). California's total GHG emissions were estimated as 429 million metric tons of CO_2 equivalents in 2016 by CARB in its Greenhouse Gas Inventory Data (CARB 2018b).

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 County Revised Draft Climate Action Plan contains a baseline GHG emissions inventory stating that approximately 484,000 $MTCO_2e$ were emitted by communitywide sources in the unincorporated county in 2014 (Napa County 2018). The largest sources of emissions were from building energy use (31 percent), followed by on-road vehicles (26 percent), solid waste (17 percent), and off-road vehicles (9 percent).

3.8.2 Discussion of Checklist Responses

a, b. Generation of, or Conflicts With, Plans or Polices 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 93 workdays (June 15 through October 15), a maximum of 500 trips per year covering an average of 10,840 miles would be generated (refer to Table 3-4), and off-road equipment use occurs up to 60 days per year. In addition to activities discussed above, in some years, as part of the SMP, the District would perform sediment and debris removal activities. These activities may involve: 10 trips for staff in a pick-up truck, 20 dump truck hauling trips, and about 20 days with an excavator and dozer working on site. Projects could be anywhere within the County but typical/average round trip would be about 24 miles. The largest annual emissions would occur in years where sediment and debris removal work take place in addition to the activities from Table 3-4. This is the scenario modeled for greenhouse gas emissions discussed below.

An overview of estimated 2019 and 2029 maximum daily and annual emissions of GHGs is presented in Table 3-10. 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 2019 and 2029, California Air Resources Board's Low Carbon Fuel Standard is expected to reduce CO_2e emissions from vehicles. For additional information on how emissions were estimated refer to Appendix B.

Table 3-10. CO_2e Emissions Estimates (pounds per day)

Source	Daily (pounds per day)		Annual (tons per year)	
	2019	2029	2019	2029
Vehicles/Equipment	1,887	1,797	33.4	31.1
Total	*1,887*	*1,797*	*33.4*	*31.1*
BAAQMD Threshold [1]	None		1,100	

Note: See Table 3-3 for BAAQMD CEQA Thresholds of Significance for criteria air pollutants.
Source: Data compiled by Horizon in 2018(refer to Appendix B).

Table 3-10 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. No mitigation is required.

3.9 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
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, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f. For a project within the vicinity of a private airstrip, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
h. Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wild-land fires?	☐	☐	☒	☐

3.9.1 Setting

The following section describes the environmental setting and impact analysis regarding hazards and hazardous materials. For detailed discussion about potential wildland fire hazards in Napa County, see Section 3.20, *Wildfire*.

Contaminated Sites

There are 94 known and monitored sites throughout Napa County where hazardous substances have contaminated the soil or groundwater (State Water Resources Control Board 2018). 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: www.envirostor.dtsc.ca.gov and the SWRCB's GeoTracker database accessible online at: geotracker.waterboards.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 Airport located in Angwin east of St. Helena.

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 surveillance (assessment of populations and pathogens), biological controls (mosquito fish, bacteria, and natural predators), 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 may also be employed to reduce the habitat and wind protected cover that is created by plants for both adult and immature vectors. This control methodology is carefully planned and coordinated with federal and state regulatory agencies when working in sensitive habitats or in proximity to threatened or endangered species to assure the minimization of any impact to protected species or habitats. This work is usually accomplished with hand tools or with heavy equipment, depending on the size of the project. Vegetation control can also be accomplished with the use of herbicides. These materials are used under strict guidelines to ensure they are applied properly to sites that will not impact other sensitive habitats. However, the MAD does not use herbicides in its program at this time. (Napa County Mosquito Abatement District 2017).

3.9.2 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

Various 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 2-2 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). Therefore, this impact would be less than significant. 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 would be less than significant. 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 (less than significant) 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. 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 publicly available on the California Department of Toxic Substances Control's EnviroStor website (www.envirostor.dtsc.ca.gov) and the SWRCB's GeoTracker website (https://geotracker.waterboards.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 would conduct a search for existing known contaminated sites on the SWRCB's GeoTracker website (www.geotracker.waterboards.ca.gov). The Geotracker search would 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 would contact the Regional Water Quality Control Board case manager identified in the database. The District would 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. 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.

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-18 *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 Section 3.17, *Transportation/Traffic*). 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*

Potential impacts regarding exposing people or structures to risk of wildland fires as a result of the Proposed Project is described in Section 3.20, *Wildfire*. As described in Section 3.20, proposed maintenance activities would not involve placement of people or habitable structures in areas without adequate fire protection nor would they 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. Implementation of 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,

would ensure this impact would reduce the risk of igniting a wildland fire. This impact would be less than significant. No mitigation is required.

3.10 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?	☐	☐	☒	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f. Otherwise substantially degrade water quality?	☐	☐	☒	☐
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?	☐	☐	☒	☐
h. Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☒	☐

	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?	☐	☐	☒	☐
j. Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

3.10.1 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 2 of the Manual and the Napa County BDR (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, where the majority of maintenance activities are conducted. Additionally, because, road maintenance activities can occur countywide in unincorporated areas (see Figure 2-6), the following sections also describe conditions for the Putah Creek and Suisun Creek watersheds.

Surface Water Hydrology and Quality

Napa River Watershed

The District's maintenance activities are primarily focused in the Napa River watershed, with some activities occurring in the Napa-Sonoma Marshes. 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 3 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 3 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, nutrients, 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 has developed a TMDL to address elevated nutrient concentrations and is requesting approval to delist the Napa River for nutrients (SFBRWQCB 2018). 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 (SFBRWQCB 2005). The Sediment TMDL Plan includes numeric targets for assessing the attainment of water quality standards (i.e., acceptable levels of fine sediment delivery to channels) related to inter-gravel streambed permeability and channel bed-scour values associated with successful salmonid spawning and likely salmonid survival to emergence (Stillwater Sciences 2013).

Putah Creek and Suisun Creek Watersheds

While the majority of maintenance activities occur within the Napa River Watershed, the County Roads Division is responsible for road maintenance within the County unincorporated area throughout the Putah Creek and Suisun Creek Watersheds. As described in Chapter 1, the District may support maintenance of culverts, vegetation, and other

drainage structures at stream crossings or where stream management is required in these watersheds.

The Putah Creek watershed is bounded by Howell Mountain and Atlas Peak to the west and the Blue Ridge and Vaca Mountains to the east, and spans four counties, including Napa County, Lake County, Solano County and Yolo County, and eventually empties into the Sacramento River. Putah Creek enters Napa County at the confluence with Hunting Creek east of Middletown. In Napa County, the creek merges with Butts Creek just before it empties into Lake Berryessa, which is formed by the Monticello Dam and has a capacity of 1,602,000 acre-feet of water. Downstream of Monticello Dam, Putah Creek leaves Napa County and becomes the boundary between Yolo and Solano Counties. (NCPCWG 2004; SRWP 2010; NCWICC 2018)

The Putah Creek watershed supports a variety of natural communities, including serpentine chaparral, grasslands, oak savanna, oak and mixed oak/coniferous woodlands, riparian, freshwater lake, and cliff habitats. A total of 230,872 acres of land in Napa County drain into Lake Berryessa at the mid-point in the watershed. Most of the lands in the Napa County Putah Creek drainage are brushlands, rangelands, and include lands used in the past for quicksilver and gold mining. A small percentage of land is used for irrigated agriculture, predominantly wine grapes. As a result of historical mining, Putah Creek and Lake Berryessa have been listed as impaired for excessive mercury on the 303(d) list, and health advisories have been issued recommending limited consumption of fish from Lake Berryessa. James Creek, which feeds into Pope Creek in the northwestern portion of the watershed is also listed for nickel. (NCPCWG 2004; CVRWQCB 2018; NCWICC 2018)

The Suisun Creek watershed encompasses 53 square miles in Napa and Solano counties and is separated from the Napa Valley by Mt. George in the west and bounded by the Vaca Mountains in the east. The watershed consists of steep, mountainous terrain and several large valleys and contains the upper reaches of Suisun Creek (which eventually empties into Suisun Marsh and Suisun Bay) and several of its tributaries including Wooden Valley and Gordon Valley Creeks. Land use in the watershed includes cattle grazing and irrigated agriculture consisting of winegrapes, fruit and nut orchards and row crops. A small amount of urban development occurs along Suisun Creek from Rockville Road to Interstate 80. (CSPA, CLSI 2011; NCWICC 2018)

Suisun Creek has one major on-stream dam, which forms Lake Curry near the top of the watershed, and represents the upper extent of anadromy for steelhead. There are approximately 11.5 miles of stream between Lake Curry and the tidally influenced estuarine portion of Suisun Creek, which flows into Suisun Marsh. Wooden Valley Creek is also known to support a steelhead population (CSPA, CLSI 2011). Suisun Creek is listed on the 303(d) list and is impaired for dissolved oxygen and water temperature.

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 20- to 30-foot decline over the past 15 years. Seasonal groundwater elevations in generally fluctuate from 10 to 40 feet (Luhdorff & Scalmanini 2018).

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).

3.10.2 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, culvert replacement, 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 2-2 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 hydroseeded, and erosion control blankets and coir logs would be 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.

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 would be less than significant. 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 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. 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). 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, handling, storage and disposal 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 would be less than significant. No mitigation is required.

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

As described above, Putah Creek and Lake Berryessa have been placed on the 303(d) list of "impaired" water bodies for metals (mercury), and Suisan Creek for nutrients (dissolved oxygen) and water temperature. The proposed stream maintenance activities would not affect or contribute to metals contamination in Putah Creek or Lake Berryessa, nor would they affect or contribute to nutrient levels or temperature changes. Stream maintenance activities occurring near these waterbodies would consist of routine maintenance at road creek crossings and culverts (see Figure 2-6 for locations). Activities include clearing sediment and debris from concrete-lined channels and around structures, vegetation management, herbicide application, downed tree removal, replacement plantings, culvert replacement, biotechnical bank stabilization, and repair or in-kind replacement of drainage structures. Implementation of the above-mentioned BMPs (GEN-1, VEG-4, BIO-3) would avoid and minimize potential adverse effects on water quality while conducting these activities. Once maintenance activities are completed, overall impacts on water quality would be beneficial (less than significant). No mitigation is required.

The Napa River has also been placed on the 303(d) 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. The Regional Board has proposed delisting the Napa River for nutrients, and the Project would likewise have no impact related to nutrients. However, proposed maintenance activities could affect sediment transport and implementation of the Napa River 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 would stabilize actively eroding streambanks, reduce local flow velocities, reduce inputs of fine sediments to the channel, and control channel incision. Additionally, the Napa County RCD's road maintenance projects (described in Chapter 11 of the Manual) would effectively reduce sediment transport from existing unpaved roads and directly meet the Napa River Sediment TMDL's performance standard for reducing road-related sediment delivery to channels. 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 (less than significant). No mitigation is required.

As described in Chapter 2 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) by using biotechnical treatments for bank repair projects which filter storm runoff and improve water quality. Additionally, maintenance activities include 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 (less than significant). 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. 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 (less than significant). No mitigation is required.

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 crossings where roads and streams intersect. 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 (less than significant). No mitigation is required.

Changes in Drainage Patterns and Increased Flood Hazards

As described in the Manual, the purpose of the SMP is to maintain flood control channels, manage debris and vegetation to protect resources, and prevent against stream and bank erosion. The SMP does not include large scale redesign or reshaping of channels, capital improvement projects, or emergency activities. 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 prevent and reduce the potential for flooding and resulting damage caused by floods. As described in Chapter 14 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 (less than significant). 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.

3.11 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?	☐	☐	☒	☐
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

3.11.1 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 District, County, other public entities (such as the City of Napa, Town of Yountville, or City of American Canyon), or are privately-owned, but remain undeveloped and function as flood control and water conveyance facilities for the Project Area.

3.11.2 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, dredged material rehandling sites, restoration sites, private unpaved roads, and County road maintenance sites. 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 3.16, *Recreation* and Section 3.17, *Transportation/Traffic*. 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-18: Planning for Pedestrians, Traffic Flow, and Safety Measures
BMP GEN-19: 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 channel 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 are not anticipated to 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.

3.12 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒

3.12.1 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 three 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)

3.12.2 Discussion of Checklist Responses

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

None of the mines described above are located within the boundaries of District, County, or other publicly or privately-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 would be tested to determine the suitability for disposal or reuse. Any reused sediment would have the potential to offset demand for mineral resources such as aggregate. However, the total volume of potentially reused material under the SMP in any given year would be small (100-500 cubic yards), and would not represent an appreciable fraction of the total aggregate resources used annually in the County.

There would be no impact.

3.13 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?	☐	☐	☒	☐
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☐	☒
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
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 site to excessive noise levels?	☐	☐	☒	☐
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?	☐	☐	☒	☐

3.13.1 Setting

Overview of Noise Concepts and Terminology

Noise

In the CEQA context, noise can be defined as unwanted sound. Sound is characterized by various parameters, including 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 spectrum, so noise measurements are weighted more heavily for frequencies to which humans are sensitive, creating the A-weighted decibel (dBA) scale.

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.

- **Decibel (dB)** is a measure of sound on a logarithmic scale that 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 a given measurement period.
- **Minimum sound level (L_{min})** is the minimum sound level measured during a given measurement period.
- **Equivalent sound level (L_{eq})** is the equivalent steady-state sound level that, in a given period, would contain the same acoustical energy as a time-varying sound level during that same period.
- **Percentile-exceeded sound level (L_{xx})** is the sound level exceeded during *x* percent of a given measurement period. For example, L_{10} is the sound level exceeded 10 percent of the measurement period.
- **Day-night sound 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. (typical sleeping hours). This weighting adjustment reflects the elevated sensitivity of individuals to ambient sound during nighttime hours.
- **Community noise equivalent level (CNEL)** is the energy average of the A-weighted sound levels during a 24-hour period, with 5 dB added to the A-weighted sound levels between 7:00 p.m. and 10:00 p.m. and 10 dB added to the A-weighted sound levels between 10:00 p.m. and 7:00 a.m.

In general, human sound perception is such that a change in sound level of 3 dB is barely 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 3-11 presents example noise levels for common noise sources, the levels are measured adjacent to the source.

Table 3-11. Examples of Common Noise Levels

Common Outdoor Activities	Noise Level (dBA)
Jet flyover at 1,000 feet	110
Gas lawnmower at 3 feet	100
Diesel truck at 50 feet traveling 50 miles per hour	90
Noisy urban area, daytime	80
Gas lawnmower at 100 feet, commercial area	70
Heavy traffic at 300 feet	60
Quiet urban area, daytime	50
Quiet urban area, nighttime	40
Quiet suburban area, nighttime	30
Quiet rural area, nighttime	20

Source: Caltrans 2009

Vibration

Ground-borne vibration propagates from the source through the ground to adjacent buildings by surface waves. Vibration may be composed of a single pulse, a series of pulses, or a continuous oscillatory motion. The frequency of a vibrating object describes how rapidly it is oscillating, measured in Hertz (Hz). Most environmental vibrations consist of a composite, or "spectrum," of many frequencies. The normal frequency range of most ground-borne vibrations that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz. Vibration information for this analysis has been described in terms of the peak particle velocity (PPV), measured in inches per second, or of the vibration level measured with respect to root-mean-square vibration velocity in decibels (VdB), with a reference quantity of 1 micro-inch per second.

Vibration energy dissipates as it travels through the ground, causing the vibration amplitude to decrease with distance away from the source. High-frequency vibrations reduce much more rapidly than do those characterized by low frequencies, so that in a far-field zone distant from a source, the vibrations with lower frequency amplitudes tend to dominate. Soil properties also affect the propagation of vibration. When ground-borne vibration interacts with a building, a ground-to-foundation coupling loss usually results but the vibration also can be amplified by the structural resonances of the walls and floors. Vibration in buildings is typically perceived as rattling of windows, shaking of loose items, or the motion of building surfaces. In some cases, the vibration of building surfaces also can be radiated as sound and heard as a low-frequency rumbling noise, known as ground-borne noise.

Ground-borne vibration is generally limited to areas within a few hundred feet of certain types of industrial operations and construction/demolition activities, such as pile driving. Road vehicles rarely create enough ground-borne vibration amplitude to be perceptible to humans unless the receiver is in immediate proximity to the source or the road surface is poorly maintained and has potholes or bumps. Human sensitivity to vibration varies by frequency and by receiver. Generally, people are more sensitive to low-frequency vibration. Human annoyance also is related to the number and duration of events; the more events or the greater the duration, the more annoying it becomes.

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 3-12. 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 3-12. Napa County Noise Limits for Construction Activities

Time Period	Residential	Commercial	Industrial
Day (7 am- 7pm)	75 dBA	80 dBA	85 dBA
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 3-13 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 3-13. Incorporated Area Noise Ordinance Standards

Jurisdiction	Noise Criteria
American Canyon	Construction is limited to the same hours and noise levels as the County; see Table 3-12. Emergency work is exempted. (*American Municipal Code Section 8.12.080 – Specific types of noise prohibited*)
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. (*Calistoga Municipal Code Section 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 (*Napa Municipal Code Section 8.08.025-Noise-Construction Activity)*.
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. (*St. Helena Municipal Code Section 8.24.10 Unnecessary noises generally*)

Jurisdiction	Noise Criteria
Yountville	Town, State, Federal, and public utility projects and activities, for maintenance, repair, or construction projects are exempt from the Town's noise standards (*Yountville Municipal Code Section 8.04.040 Exemptions to Noise Regulations*).

Existing Conditions

Noise conditions in the Project Area vary greatly based on local land uses. The Napa BDR and the Napa County General Plan identify major noise sources in the County, which include 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_{dn} (along Interstate 80) to a low of 54 L_{dn} (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.

Sensitive receptors within the Project Area include schools, hospitals and residential areas.

3.13.2 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 would vary depending on site conditions and maintenance 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 3-14. 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 3-15.

Table 3-15. 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 ten days per year (Thomasser, 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-20 *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 feet 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.

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.

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 would implement all identified measures described in BMP GEN-20 to minimize effects on sensitive receptors within the Project Area. As such, this impact would be less than significant. 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 maintenance activities is eight days; therefore, activities would not expose nearby residences to excessive noise levels over a long period of time. District personnel currently use standard ear protection when operating loud equipment (Napa County Flood Control and Water Conservation District 2011). Such safety equipment is sufficient protection for District

personnel when temporarily working in the vicinity of an airport or airstrip. For these reasons, this impact regarding noise levels in the vicinity of an airstrip or airport land use area would be less than significant impact. No mitigation is required.

3.14 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)?	☐	☐	☐	☒
b. Displace a substantial number of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
c. Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

3.14.1 Setting

As shown in Figures 2-1 through 2-5, District, Napa County, and other publicly or privately-owned or easement-maintained channels are located throughout Napa County and within the cities of American Canyon, Calistoga, Napa, St. Helena, and the town of Yountville. As of 2017, the population in Napa County (including all cities and towns) is approximately 140,973 (U.S. Census Bureau 2017). While there may be existing residences adjacent to channels and streams, none are located within the boundaries of maintenance activities.

3.14.2 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. The SMP is focused on maintenance of existing facilities, mainly channels, streams, roads and storm drainage facilities. 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.

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, roads or within other areas where maintenance would occur. As such, the SMP would not displace any existing housing units or persons. There would be no impact.

3.15 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, 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 public services:				
i. Fire protection?	☐	☐	☒	☐
ii. Police protection?	☐	☐	☒	☐
iii. Schools?	☐	☐	☐	☒
iv. Parks?	☐	☐	☐	☒
v. Other public facilities?	☐	☐	☐	☒

3.15.1 Setting

As previously discussed, District, County, or other publicly or privately-owned or easement-maintained channels are located throughout Napa County and within the cities of American Canyon, Calistoga, Napa, St. Helena, and the town of Yountville. Law enforcement, public safety, recreation, and education services in the 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 (Napa County 2005) and the Napa County website. In general, law enforcement in the Project Area is provided by the County sheriff and four local police departments; fire protection is provided by six fire departments (county and local); there are six emergency medical service providers and 33 medical facilities in the County; and the County is served by six school districts with a total of 55 elementary, middle and high schools. Existing facilities may be located in proximity to SMP channels and streams; however, none are located within the channels or boundaries of maintenance activities.

3.15.2 Discussion of Checklist Responses

a(i-ii). 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 3.14, *Population and Housing*) 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 would be maintained and complete road closures are not anticipated during maintenance activities. As described in BMP GEN-18 *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 3.17 *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-18. This impact is less than significant. No mitigation is required.

a(iii)-(v). Effects on Schools, Parks, and Other Public 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 Avenue and Jefferson Street. 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 SMP would have limited to no additional impact on other government services or facilities, or provision/availability of schools, parks, or other public government services. Therefore, the Proposed Project would have no impact on these resources.

3.16 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?	☐	☐	☐	☒
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☐	☐	☒	☐

3.16.1 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.

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 Wildlife, and public fishing and hunting activities are allowed. Two state-owned parks are located at the north end of 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 publicly 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 3-16. Existing City and Town Parks

Area	Number of Parks	Total Acres
American Canyon	18	67.3
Calistoga	7	14.19
City of Napa	54	800
St. Helena	8	25.58
Yountville	11	11.03

Sources: City of American Canyon 2012, City of Calistoga 2003, City of Napa 2018, St. Helena 2016, Town of Yountville 2018.

3.16.2 Discussion of Checklist Responses

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

As noted in Section 3.14 *Population and Housing*, 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.

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. The majority of 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, trails along Beard Ditch and Hopper Creek in Yountville, and Newell Open Space Preserve and trail and community parks in the vicinity of American Canyon Creek in American Canyon.

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-18 *Planning for Pedestrians, Traffic Flow and Safety Measures* and GEN-19 *Public Safety Measures* (see Table 2-2), 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. No mitigation is required.

3.17 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
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?	☐	☐	☐	☒
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e. Result in inadequate emergency access?	☐	☐	☒	☐
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?	☐	☐	☒	☐
g. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☒	☐

3.17.1 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.

3.17.2 Setting

The Napa 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 in Table 3-17.

Table 3-17. 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[1]	2	Rural[2]	2,600	5,300	8,600	13,800	22,300
	2	Urban[3]	1,000	1,900	11,200	15,400	16,300
	4	Rural[2]	17,500	28,600	40,800	52,400	58,600
	4	Urban[3]	1,500	4,100	26,000	32,700	34,500
	6	Urban[3]	2,275	6,500	40,300	49,200	51,800
Collector[1]	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:

1. All two-lane roads are assumed to be undivided. Four-and six-lane roads are assumed to be divided.
2. Rural roads are assumed as uninterrupted flow highways.
3. 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 3-18. 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
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 Transit – provides an integrated network of public transit services serving communities within the Napa Valley and linking the Valley along major commute corridors to Solano and Sonoma counties, the Vallejo Ferry, Capital Corridor rail, and Bay Area Rapid Transit (BART) in the East Bay.
- Taxi Scrip – a lifeline service within the city limits of Napa to supplement the regular Vine bus system for seniors and/or persons with disabilities that have evening trips after the bus goes out of service, or on a day when the rider may not feel well enough to take the bus.
- American Canyon Transit – on-demand, door-to-door, transit with fixed route service in American Canyon.
- Yountville Trolley – on-demand, door-to-door, transit with fixed route service between Yountville Park and the Yountville Veteran's Home.
- St. Helena Shuttle – on-demand, door-to-door, transit with fixed route service in St. Helena.
- Calistoga Shuttle – on-demand, door-to-door, transit service within specific areas of Calistoga.
- Vine Go Paratransit – paratransit service providing origin to destination service for persons with disabilities in the cities of Calistoga, St. Helena, Napa, American Canyon, the Town of Yountville.

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.

3.17.3 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 maintenance 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-18 *Planning for Pedestrians, Traffic Flow, and Safety Measures,* two-way traffic on public roadways would 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 would also be provided to safely guide travelers during maintenance activities. BMP GEN-18 also stipulates that temporary lane closures 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. No mitigation is required.

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 500 trips would be made annually by both District personnel and contractors to conduct SMP-related work in the Project Area (Gordon, pers. comm.). Although some proposed activities would be conducted year-round, the majority of work would be conducted over approximately 93 workdays (June 15 through October 15). Even if all trips were condensed over this peak work period, the maximum number of trips in the Project Area (5.4 trips per day) would not have a noticeable effect on LOS on regional and local access routes. However, work would not be conducted continually; rather maintenance activities would be conducted 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 contractors, each of which arrives separately using a single truck or tractor. Even if each of the three County trucks and up to four 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 (7 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. 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 use of specialized heavy equipment such as excavators and backhoes would be minimal. On average, this type of equipment would be used 3-10 days per year(Thomasser, pers. comm.) Even if equipment was used on 10 separate days, thus requiring 20 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 and Sediment and Debris Removal Activities

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. Additionally, 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 and debris management activities would result in approximately 100 to 500 cubic yards (CY) of material removed per year. This range of estimated annual sediment and debris removal volume is based on past records. Actual removal volumes for a particular year would be dependent upon a combination of factors including rainfall and erosion conditions and the extent of maintenance activities in recent years.

Based on the maximum of 500 CY of estimated annual excavated sediment and debris material, approximately 75 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 0.94 truck trips per day, or slightly less than 5 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.

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 2-2, BMP GEN-18 *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-19 *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. No mitigation is required.

e. Inadequate Emergency Access — *Less than Significant*

As described above and in Section 3.15, *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-18, 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 County, municipal, or 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 BMPs GEN-5 and GEN-18. 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 County, municipal, or District rights-of-way, or on privately-owned land where public access is not permitted. However, SMP activities occurring within public streets could temporarily 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-18 would ensure that bus routes are maintained to the extent practicable. If transit routes need to be temporarily detoured, affected transit authorities would 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 and GEN-19, 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 would ensure that effects on transit systems would be accounted for and that service would not be significantly disrupted. Signage and traffic controls would be adequate to alert transit passengers and bicycle and pedestrian traffic to revised routes and hazards during maintenance activities. Therefore, the Project's temporary impact regarding conflicts with alternative transportation policies would be less than significant. No mitigation is required.

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
Would the Project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Pub. Res. Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a. Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resource Code Section 5020.l(k), or	☐	☐	☒	☐
b. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resource Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1. the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

3.18.1 Setting

As discussed in Section 3.5, *Cultural Resources*, the Project Area is in the traditional ancestral territory of the Wappo, Patwin, and Lake Miwok. No tribes with a traditional and cultural affiliation to the Project Area have requested consultation with the District on department projects pursuant to Pub. Res. Code § 21080.3.1. However, in the spirit of Pub. Res. Code § 21080.3.1, the District notified local tribes who were identified by the NAHC as having a traditional and cultural association with the Project Area about the Project via letters dated March 30, 2018. The District did not receive any tribal requests for consultation on the Program. Table 3-19 lists all those contacted and summarizes the results of the consultation.

All correspondence between the Native American Heritage Commission, Native American Tribes, and the District is provided in Appendix G.

Table 3-19. Native American Correspondence

Tribe	Name	Address	Notification Letter Mailed	Letter Receipt Date
Mishewal-Wappo Tribe of Alexander Valley	Scott Gabaldon, Chairperson	2275 Silk Road Windsor, CA 95492	03/30/2018	No response
Yocha Dehe Wintun Nation	Anthony Roberts, Chairperson	P.O. Box 18 Brooks, CA 95606	03/30/2018	04/02/2018
Middletown Rancheria	Jose Simon III, Chairperson	P.O. Box 1035 Middletown, CA 95461	03/30/2018	04/03/2018
Cortina Indian Rancheria of Wintun Indians	Charlie Wright, Chairperson	P.O. Box 1630 Williams, CA 95987	03/30/2018	No response

The NAHC letter, dated March 28, 2018, stated that sacred sites[4] were identified in the Aetna Springs, Kenwood, Rutherford, Yountville, and Napa USGS 7.5-minute topographic quadrangles, although the specific locations of these resources were not provided and they may not be in areas addressed by the Program. Nonetheless, the NAHC recommended that the Mishewal-Wappo Tribe of Alexander Valley be contacted for additional information about these resources. As previously noted, the Mishewal-Wappo Tribe of Alexander Valley did not respond to the District's Program notification letter.

3.18.2 Discussion of Checklist Responses

a, b. Cause a Substantial Adverse Change to Tribal Cultural Resources Listed, or Eligible for Listing in the California Register of Historical Resources or a Local Register of Historical Resources, or Determined by the Lead Agency to Be Significant—*Less than Significant*

No TCRs that are listed or eligible for listing in the CRHR or a local register of historical resources have been identified specifically within the Project Area, but sacred sites generally within the Aetna Springs, Kenwood, Rutherford, Yountville, and Napa USGS 7.5-minute topographic quadrangles have been listed with the NAHC. As a result, there is the potential for a maintenance activity to disturb a TCR and have a significant impact. However, BMP CUL-1, *Review Cultural Sensitivity Maps,* would alert the District to the potential for the presence of the TCR should a project be within one of the five listed USGS topographic maps, and further implementation of BMPs CUL-2 *Field Inventory for High or Moderately Sensitive Areas;* CUL-3, *Construction Monitoring for Highly Sensitive Cultural Areas*; and CUL-4 *Review of*

[4] Though not called TCRs, sacred sites are places of cultural value submitted to the NAHC by tribes who ascribe cultural importance to those locations. "Sacred places" are included in the definition of a TCR under Pub. Res. Code § 21074.1(a), and are considered synonymous with the NAHC's "sacred sites." Note that the NAHC sacred lands/sites files were begun decades before the implementation of Pub. Res. Code § 21074.1(a).

Projects with Native Soil, as appropriate, would ensure that potential impacts to TCRs would be less than significant.

It is also possible that Native American archaeological remains or Native American human remains that could be determined to be TCRs could be discovered during construction. If such resources are identified, the protocols under BMP CUL-6, *Discovery of Cultural Remains or Historic or Paleontological Artifacts*, would be implemented and would result in a less-than-significant impact with regard to TCRs. As a result, this impact would be less than significant. No mitigation is required.

3.19 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?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c. Require or result in the construction of new storm water drainage facilities or an expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☐	☒
d. Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e. Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
f. Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	☐	☐	☒	☐
g. Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☒	☐

3.19.1 Setting

Water Supply, Wastewater Disposal, and Sanitary Sewers

Unincorporated areas of Napa 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 polices 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 the Project is focused on maintenance of existing flood control channels, storm drainage infrastructure and other appurtenant facilities. As such, these public utilities are not discussed in this setting section.

Solid Waste Disposal

Regulations

The California Integrated Waste Management Act of 1989 (Public Resources Code, Division 30) requires all California cities and counties to implement programs to reduce, recycle, and compost wastes by at least 50 percent by 2000 (Public Resources Code Section 41780). The State, acting through the California Integrated Waste Management Board (now California Department of Resources Recycling and Recovery [CalRecycle]) determines compliance with this mandate based on jurisdiction's per-capita disposal rates.

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

- 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 waste disposal firms serving 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 Chapters 9 and 10 of the Manual, the District maintains two dredge material rehandling sites in association with the U.S. Army Corps of Engineers (USACE): the Imola Avenue and Edgerly Island dredged material rehandling sites. The District plans to obtain permits for dredge spoil storage operations at both sites under a separate process outside of the Project. 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. The Edgerly Island dredged material rehandling site has the capacity to receive a total of 300,000 cubic yards of sediment, while the Imola Avenue dredged material rehandling site has a total capacity to accept 50,000 cubic yards.

Napa County is served by five solid waste service providers and two joint power agencies/authorities (Napa County 2008). Trash debris removed from District channels is taken to one of two places depending on the nature of the debris. Non-hazardous material is

taken to the Napa County Corporation Yard at 933 Water Street in the city of Napa, while large bulky items and hazardous materials are taken to the Napa County Waste Transfer Station at 889 Devlin Road in American Canyon. Debris from City of American Canyon channels may be delivered to the transfer station in American Canyon or another nearby permitted landfill. Items brought to the Devlin Road Facility are first assessed for recycling, reuse, or composting before being sent to the Potrero Hills Landfill for disposal (Napa Recycling and Waste Services 2013).

Potrero Hills Landfill, located in Solano County, approximately 2 miles southeast of Suisun City, accepts residual, nonhazardous solid wastes. It also houses a materials processing center where materials are diverted from landfilling through composting, wood recycling, concrete and asphalt rubble crushing and screening, metal salvage recovery, and other recycling services (Solano County 2009). The landfill is permitted to accept up to 4,330 tons of waste per day and has 13,872,000 cubic yards of remaining capacity (CalRecycle 2018).

3.19.2 Discussion of Checklist Responses

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

The primary activities proposed under the SMP include vegetation management, erosion protection and bank stabilization, and sediment and debris removal. The Proposed Project does not include any uses, features, or facilities that would generate wastewater. Furthermore, it would not increase or alter the distribution of the local population in the Project Area such that the need or demand for wastewater treatment would be altered (see also Section 3.14, *Population and Housing)*. Consequently, there would be no impact related to wastewater facilities.

Similarly, other than in-kind repair or replacement of stormwater drainage facilities, the District would not substantially modify existing stormwater drainage facilities. Under the SMP, only minimal new areas of impervious surface would be installed at bank stabilization sites, culvert repair/replacement sites, and in areas where access road maintenance is needed. The main focus of the Proposed Project is to maintain flood conveyance and hydraulic capacity; all proposed maintenance activities would be conducted to restore channel capacities to original designs. As such, there would be no impact associated with stormwater generation or treatment facilities.

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, *Vehicle and Equipment Maintenance* (Chapter 2, Table 2-2), 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, *Dust Management Controls,* 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 8 of the Manual). Newly planted vegetation may require irrigation until the plants become 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. No mitigation would be required.

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

The proposed maintenance activities would generate up to 500 cubic yards of sediment and debris for disposal annually.

Although sediment removal activities alone would generate a maximum of 500 cubic yards of sediment per year, the District would test the sediment to be removed to determine the suitability for disposal or reuse based on its chemical qualities as specified in the Sediment Sampling and Analysis Guidelines (Appendix K of the Manual). If suitable for reuse, the District may re-use the sediment on-site; at another wetland, channel or restoration site; or reuse it at an upland agricultural or commercial As described in Chapter 9 of the Manual. If not suitable for reuse, the sediment may require landfill disposal or hazardous waste disposal.

Though less preferential, if not suitable for reuse, sediment may also be sent to the Potrero Hills Landfill. As described above in the setting section, this landfill has 13,872,000 cubic yards of remaining capacity. As such, an annual maximum volume of 500 cubic yards of soil requiring disposal at this facility would not represent a significant portion of available landfill capacity.

Removed debris may include trash and other items which may be impairing hydraulic conditions. Such items would require off-site disposal at the Devlin Road Transfer Station. While the volume of trash collected varies year to year, only a portion of the debris is likely to be sent to the landfill since the Transfer Station prioritizes reuse, recycling and composting of incoming material. Nonetheless, the Potrero Hills Landfill has sufficient capacity to accept additional debris collected by the District.

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.

3.20 Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

3.20.1 Setting

The Office of the State Fire Marshal and the California Department of Forestry and Fire Protection (CAL FIRE) administer state policies regarding wildland fire safety. County staff and contractors must comply with applicable requirements in the Public Resources Code (Pub. Res. Code) during maintenance activities at any sites with forest-, brush-, or grass-covered land. Additionally, Napa County has established a Fire Hazard Abatement Ordinance, while both the County General Plan and Operational Area Hazard Mitigation Plan contain goals and policies to protect Napa County from wildfires. This section presents the environmental setting and impact analysis of the potential for wildfires resulting from the proposed SMP.

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. Hills on the east and west side of Napa Valley influence both wildland fire behavior and the suppression capability of firefighters and their equipment. Southerly winds originating from the San Francisco Bay Wind and occasional north winds during the dry season can also influence the spread of wildfire,

potentially carrying burning embers to adjacent exposed areas (Napa County 2013). 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 (CAL FIRE 2007).

Wildland/urban interface fire are among the most significant hazards and have the highest potential to impact the County. Such fires refer to the condition where highly flammable native vegetation meets high value structures. When fires ignite, wildfire control can become secondary to protecting lives and property due to the number of structures that may exist within a fire perimeter, potentially allowing wildfires to spread unchecked, threatening and destroying more houses and natural resources. (Napa County 2013)

Fire hazard severity is determined by the relationship between fuel classification, topographic slope, and critical fire weather frequency. Napa County's fire hazard areas generally fall into the "medium fuel" category, with vegetation consisting of round wood 1/3 to 3 inches in diameter. Critical fire weather conditions occur in periods of relative low humidity, high heat and high winds. The Napa area typically has critical fire weather from two to seven days annually. Fuel, slope, and weather conditions combine to give Napa urban wildland interface areas an overall "high" hazard rating based on the Federal Emergency Management Agency's Urban Wildland Interface Code. (Napa County 2013)

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. Recent large fire activity in Napa County includes the Butts Fire of 2014 and the Wragg Fire of 2015, both of which started under "normal" summertime conditions and rapidly grew to major incidents. The Butts Fire consumed 4,300 acres and destroyed two residences while the Wragg Fire consumed 8,051 acres and destroyed two buildings (CAL FIRE 2017). Fires have become increasingly destructive and have resulted in more fatalities over the last three years, with the Valley Fire of 2015, and the Atlas and Tubbs Fires of 2017. The Valley Fire consumed 76,067 acres in Lake, Napa and Sonoma Counties, burned 1,955 structures and resulted in four deaths. The Atlas Fire consumed 51,624 acres in Napa and Solano Counties, burned 783 structures and resulted in 6 deaths. Finally, the Tubbs Fire consumed 36,807 acres, burned 5,636 structures, and resulted in 22 deaths (CAL FIRE 2019).

The majority of SMP maintenance activities are conducted in the Napa River watershed, specifically on tributaries to the Napa River, located on the valley floor (Figures 2-2 through 2-5). However, routine maintenance activities can be applied anywhere in the County.

3.20.2 Discussion of Checklist Responses

a. Substantially Impair an Adopted Emergency Response Plan or Emergency Evacuation Plan — *Less than Significant*

As described in Section 3.9, *Hazards and Hazardous Materials,* road closures may be necessary during proposed maintenance activities. If road closures or traffic generated by maintenance activities were to interfere with emergency response measures such that response times were extended, a significant impact would result. Implementation of BMP GEN-18 *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. With implementation of this BMP, this impact would be less than significant. No mitigation is required.

b, d. Exacerbate Wildfire risks, and Thereby Expose Project Occupants to Pollutant Concentrations from a Wildfire / Expose People or Structures to Risks (e.g. flooding or landslides) — *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. SMP activities such as downed tree management, erosion protection, bank stabilization and managed streambank retreat would also minimize downstream flooding or landslides in the event of a wildfire in the vicinity of the Proposed Project.

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. No mitigation is required.

c. Require the Installation or Maintenance of Associated Infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may Exacerbate Fire Risk — *Less than Significant*

As described previously, the proposed SMP maintenance activities would largely be conducted within channel corridors which are situated at lower elevations in the watershed in the valley floor, where there is low to moderate fire risk. Due to their location in or adjacent to water courses, it is unlikely that stream maintenance activities would exacerbate fire risks.

Maintenance activities such as excavation of sediment from channels and bank repair activities may require temporary site access for staging of equipment and vehicles; however, this would take place on existing access roads adjacent to channels. Flood control channels maintained by the District typically have at least one access road running along the top-of-bank on one side of the channel. Where feasible, mechanized sediment removal is conducted using an excavator from the top-of-bank access road. As such, proposed maintenance activities would not require the installation of new maintenance roads. The Project would, however, involve maintenance of existing roads including privately-owned unpaved roads throughout the County for the purposes of preventing erosion-related impacts on water quality and road runoff. The Project also involves as-needed repair of asphalt pavement on channel access roads. Implementation of BMPs GEN-11 Fire Prevention and GEN-12 Vehicle and Equipment Maintenance would ensure that equipment used during road maintenance

activities are equipped with spark arrestors and that all equipment and vehicles are checked for leaking oil and fluids. By complying with such BMPs, road maintenance activities would not exacerbate fire risks. Lastly, the Proposed Project would not require installation or maintenance of other infrastructure that could exacerbate fire risks including fuel breaks, emergency water sources, power lines, or other utilities. Therefore, with the above-mentioned BMPs implemented, this impact would be less than significant. No mitigation would be required.

3.21 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, 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?	☐	☒	☐	☐
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.)	☐	☒	☐	☐
c. Does the Project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

3.21.1 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 3.20, 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. 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 3-20. The projections approach was utilized by reviewing the current General Plans of the County. Refer to Table 3-21 for a summary of projections contained in planning documents within Napa County. Table 3-22 provides projected population growth in the county between 2020 and 2040. Table 3-23 provides projected housing growth in the county between 2010 and 2040. In addition, the Napa County General Plan, Draft Environmental Impact Report (Napa County 2007) and Napa County BDR (Napa County 2005) were used in considering potential cumulative impacts and the Proposed Project's contribution to any cumulative significant impacts.

Table 3-20. 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 completed.	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 completed.	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 3-21. Planning Documents Considered in the Cumulative Analysis

Document	Summary
Napa County General Plan (Napa County 2008)	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. Environmental sustainability includes: Produce resources locally to minimize energy loss and transport costs; Efficiently use resources such as water, land, and energy; Use primarily renewable resources such as solar energy and recycled water; and Preserve habitat and species diversity
City of American Canyon General Plan (City of American Canyon 2006)	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 also contains a 2015-2023 Housing Element. The General Plan outlines three basic functional roles of the City: 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); Be a center of employment for regional as well as local residents; and 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.
City of Calistoga 2003 General Plan (City of Calistoga 2003)	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 2014 Housing Element Update (as mandated by Government Code Section 65588 the Housing Element must be updated every five years) and a 2015 Land Use Element Update. 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.
City of Napa General Plan Policy Document (City of Napa 1998)	This General Plan Policy Document was first adopted in 1998 and amended in 2015 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:

Document	Summary
	Containing growth within the rural urban limit 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 A growth monitoring program to prevent excessive residential or commercial growth Environmental protection Encourage new development and redevelopment that enhance connections between the built and natural environments Focus on the Napa River as a natural corridor and recreational spine connecting neighborhoods and downtown Promote an open space frame that includes views of the natural environment, including agriculture, the hills, water courses and wetlands Support an accessible array of protected natural amenities both within and beyond the confines of the City Flood control Maintain flood management to allow for river-oriented flood management
City of St. Helena General Plan Update 2035 (City of St. Helena 2017)	This General Plan describes the desired vision for St. Helena in the year 2035. 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: Environmental stewardship Through a combination of conservation and infrastructure improvements, water and wastewater treatment will be available to meet community needs Green buildings and infrastructure, renewable energy installations and waste reduction will increase energy saving Riparian corridors of the Napa River, Sulpher Creek and York Creek will be restored as critical assets Additional and improved parks, protected hillsides, agriculture, trees, locally grown food and community gardens will contribute to the sustainable community Note that the City recently released the Draft General Plan Update 2040 in October 2018.
Yountville General Plan (Town of Yountville 2003)	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. Note that the Town recently published an updated General Plan in October 2018.

Table 3-22. Projected Napa County Populationand Housing Growth 2020-2040

Jurisdiction	Population		
	2020	2030	2040
American Canyon	21,500	23,700	26,200
Calistoga	5,300	5,500	5,600
Napa	80,700	85,100	90,300
St. Helena	6,000	6,100	6,300
Yountville	3,100	3,400	3,800
Unincorporated	27,600	29,300	31,500
Napa County Total	***140,300***	***153,100***	***163,700***

Source: ABAG 2013.

Table 3-23. Projected Napa County Housing Growth 2010 – 2040

Jurisdiction	Housing		Projected Annual Housing Growth (%)
	2010	2040	
American Canyon	5,980	7,890	0.9
Calistoga	2,320	2,370	0.1
Napa	30,150	33,410	0.3
St. Helena	2,780	2,830	0.1
Yountville	1,250	1,280	0.1
Unincorporated	12,280	13,020	0.2
Napa County Total	***54,760***	***60,800***	**0.3**

Source: County of Napa 2014

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 3-24 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 3-24. 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 and Fine Particulate Matter ($PM_{2.5}$); particulate matter (PM_{10}) is 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. *Further analysis provided below.*
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 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.	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 Proposed Project would not make a considerable contribution to cumulative impacts related to biological resources. *Further analysis provided below.*
Cultural Resources	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.	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. *Further analysis provided below.*
Energy	None identified	No analysis required.
Geology and Soils	None identified.	No analysis required.
Greenhouse Gas Emissions	Anthropogenic emissions of GHGs are widely accepted in the scientific community as contributing to global warming. This impact is considered cumulatively significant.	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

Resource Topic	Cumulatively Significant Impacts	Proposed Project's Contribution
		Project would not make a considerable contribution to cumulative impacts related to GHG emissions. *Further analysis provided below.*
Hazards and Hazardous Materials	None identified.	No analysis required.
Hydrology and Water Quality	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. 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.	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. *Further analysis provided below.*
Land Use and Planning	None identified.	No analysis required.
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. *Further analysis provided below.*
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

Resource Topic	Cumulatively Significant Impacts	Proposed Project's Contribution
		emergency access from traffic generation. *Further analysis provided below.*
Utilities and Service Systems	None identified.	No analysis required.
Wildfire	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 3-22, 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 3.3, *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 required.

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

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 G-1 in Appendix G);
- Two special-status invertebrate species (Valley elderberry longhorn beetle and California freshwater shrimp);
- Four special-status fish species (steelhead, green sturgeon, delta smelt, and longfin smelt);
- Four special-status amphibian and reptile species (California red-legged frog, California giant salamander, foothill yellow-legged frog, and western pond turtle).
- Several special-status bird species (refer to Table G-2 in Appendix G); and
- Five special-status mammal species (western red bat, pallid bat, Townsend's big-eared bat, western mastiff bat, and salt-marsh harvest mouse).

These species have the potential to be impacted by a variety of stream maintenance activities including vegetation management, sediment removal, debris removal, bank stabilization, culvert replacement, or other maintenance activities. It is the District's intent to avoid all

impacts to special-status species to the greatest extent feasible. The District would implement the following BMPs to avoid or minimize impacts to special-status species:

BMP GEN-1 Work Windows
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 Measures
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-6 Avoid and Minimize Impacts to Special-Status Plant Species and Sensitive Natural Vegetation Communities
BMP BIO-7 Protection of Special-Status Amphibian and Reptile Species
BMP BIO-8 Protection of Bat Colonies
BMP BIO-9 Protection of dusky-footed woodrats
BMP RESTOR-1 Restore Channel Features
BMP RESTOR-2 Seeding
BMP RESTOR-3 Planting Material

The District would also implement Mitigation Measure BIO-1(Create California RSed-legged frog Aquatic Habitat) to provide compensatory mitigation for the Project's impacts to California red-legged frogs.

Sensitive Natural Communities

Temporary impacts to sensitive natural communities would likely to occur through maintenance activities including vegetation management, sediment removal, debris removal, bank stabilization or other maintenance (permanent impacts are not anticipated). As 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-2 Minimize the Area of Disturbance
BMP GEN-5 Staging and Stockpiling of Materials
BMP GEN-6 Stream Access
BMP BIO-6 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 and Mitigation Measure BIO-1 the Proposed Project would not make a considerable contribution to potential cumulative impacts related to biological resources. This impact would be less than significant with mitigation incorporated.

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 required.

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 3.8, *Greenhouse Gas Emissions*, 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 required.

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 3.10, *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-7 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 required.

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

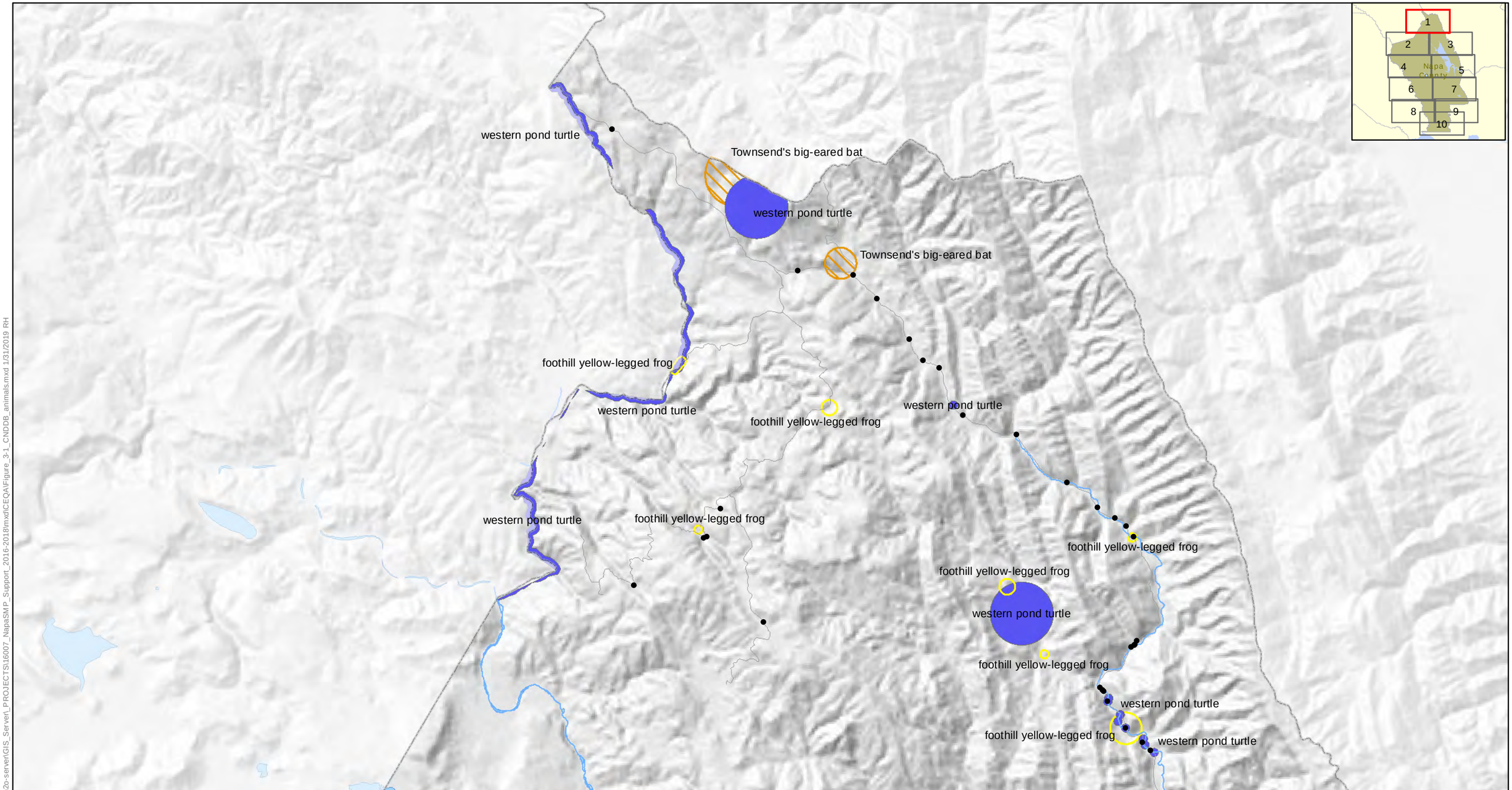
SMP activities involve vehicle use that would contribute to traffic-related noise. However, Section 3.17, *Transportation/Traffic,* determined that the temporary added volume of traffic generated on Project Area roadways would be very small relative to roadway capacity and existing traffic volumes. Based 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 required.

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 3.17, *Transportation/Traffic,* the volume of traffic generated on roadways throughout Napa County 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 required.

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

Please refer to the impact discussions presented in Sections 3.1 through 3.20. The Project would not have potential for substantial direct or indirect adverse effects on human beings. Impacts would be less than significant. No mitigation is required.



Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- Townsend's big-eared bat
- foothill yellow-legged frog
- western pond turtle
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 1 of 10

Napa County
Stream Maintenance Program

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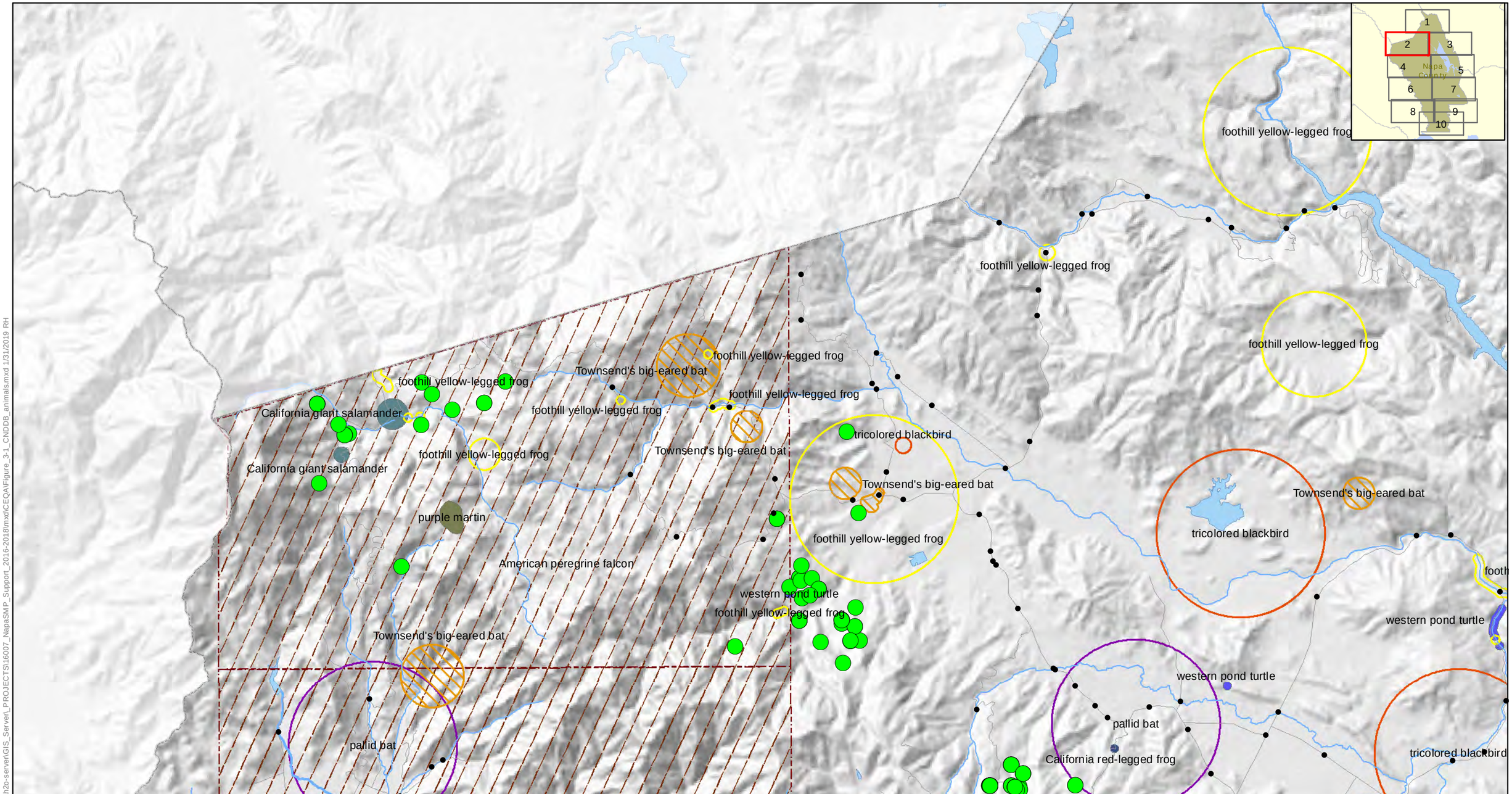

Basebap Sources:

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Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- American peregrine falcon
- California giant salamander
- California red-legged frog
- Townsend's big-eared bat
- foothill yellow-legged frog
- pallid bat
- purple martin
- tricolored blackbird
- western pond turtle
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 2 of 10

Napa County
Stream Maintenance Program

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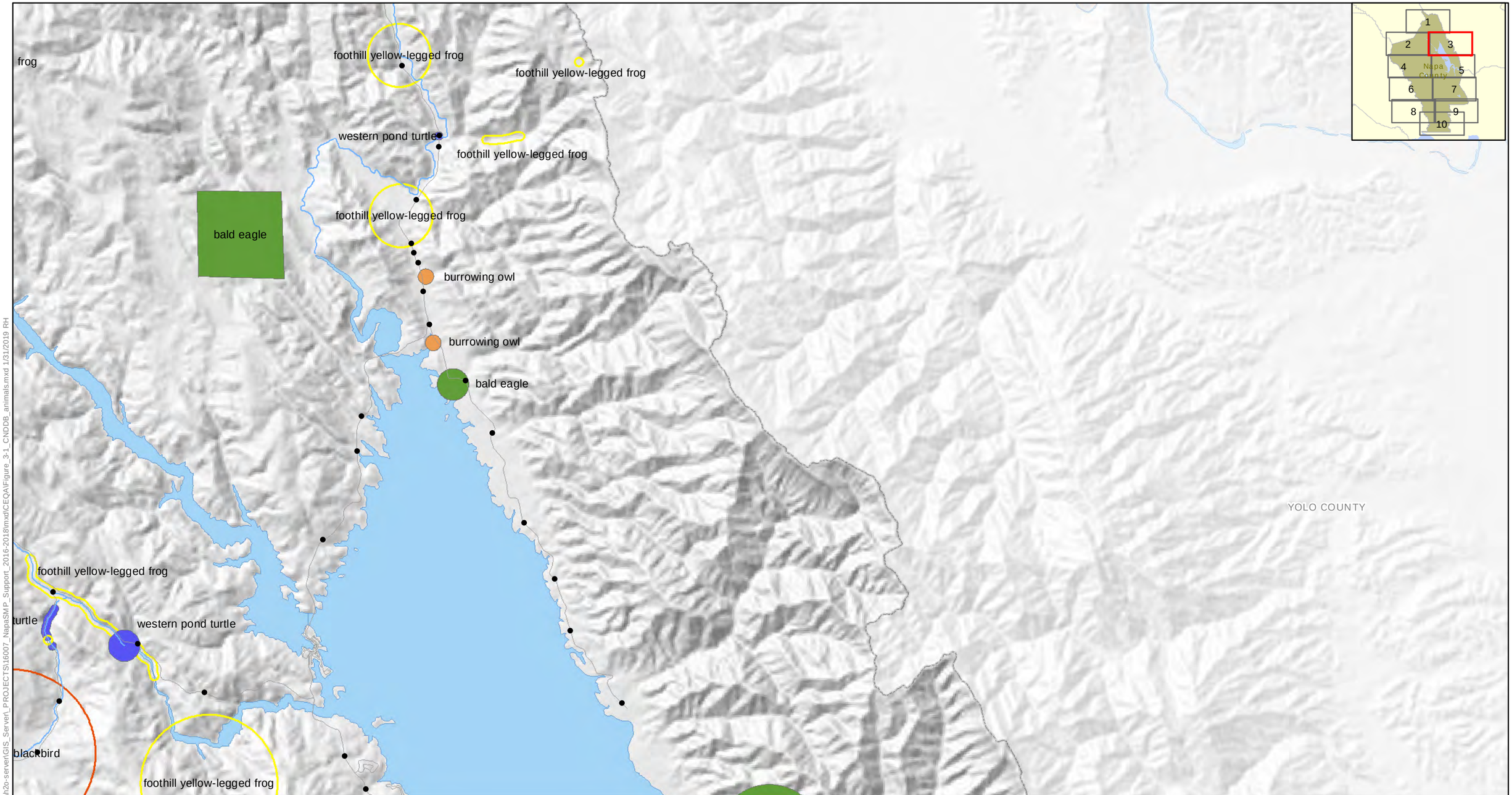

Basebap Sources:

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Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- bald eagle
- burrowing owl
- foothill yellow-legged frog
- tricolored blackbird
- western pond turtle
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 3 of 10

Napa County
Stream Maintenance Program

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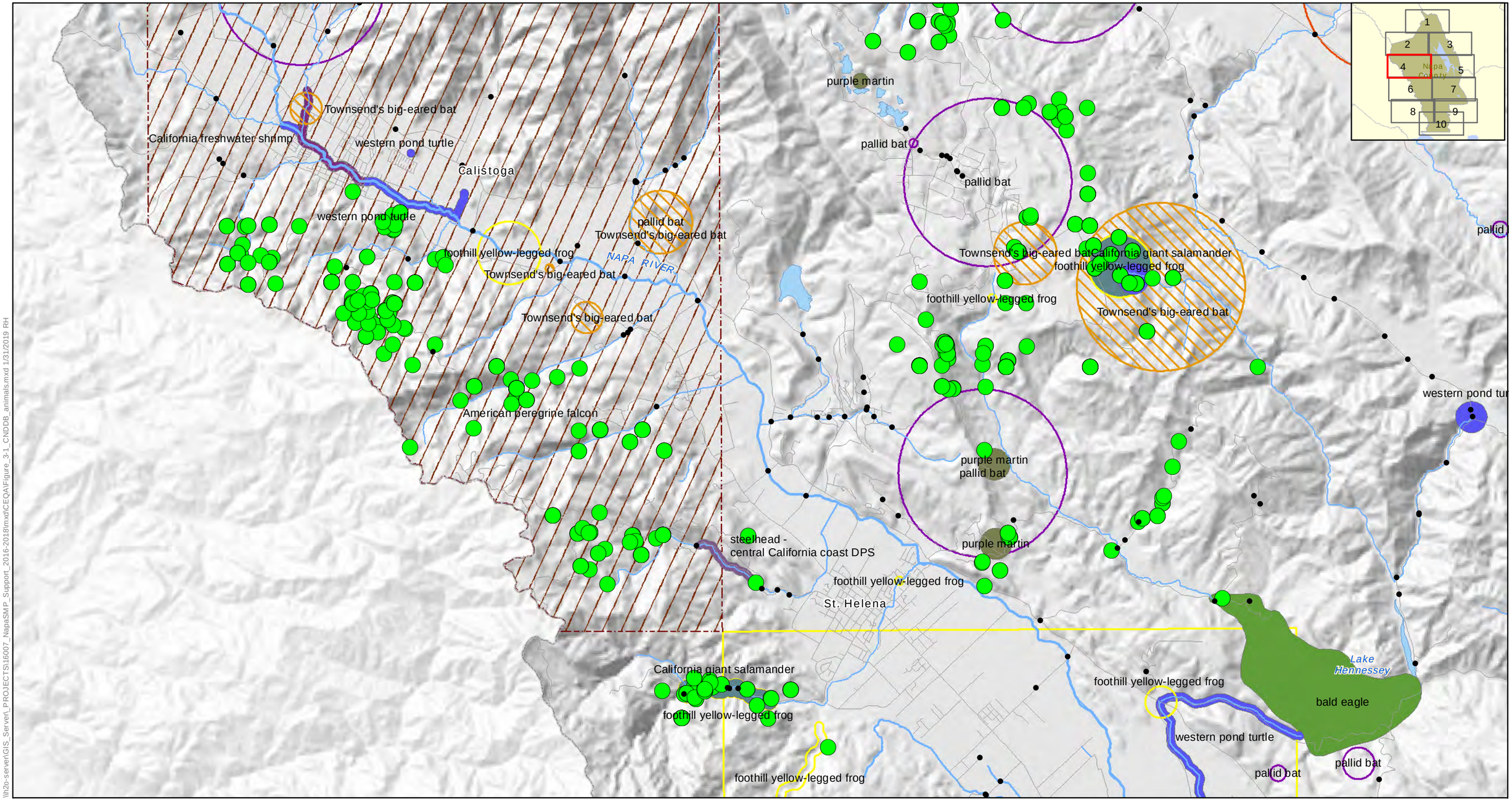

Basebap Sources:

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Miles

Horizon
WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- American peregrine falcon
- California freshwater shrimp
- California giant salamander
- Townsend's big-eared bat
- bald eagle
- foothill yellow-legged frog
- pallid bat
- purple martin
- steelhead - central California coast DPS
- tricolored blackbird
- western pond turtle
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 4 of 10

Napa County
Stream Maintenance Program

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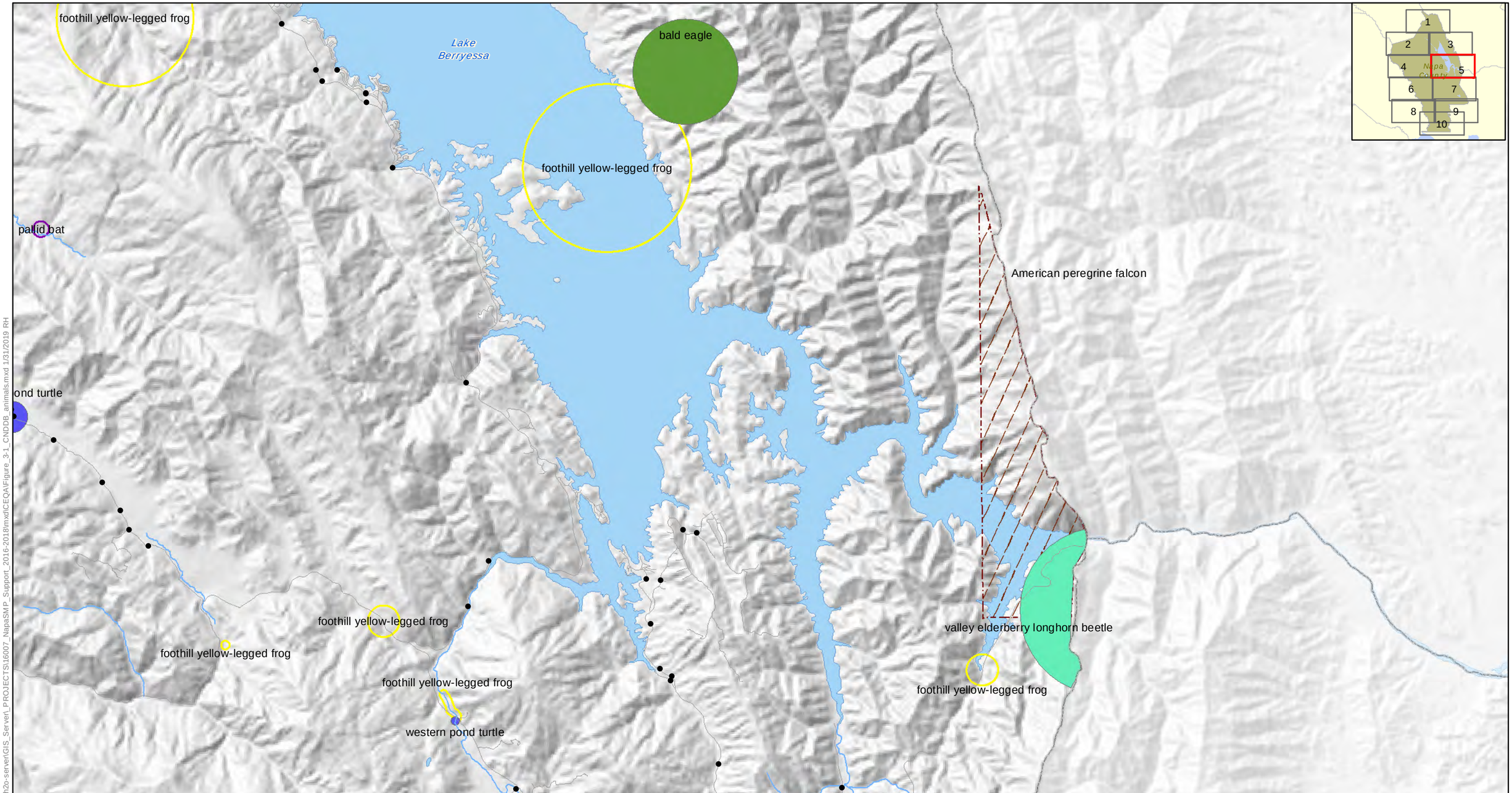

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- American peregrine falcon
- bald eagle
- foothill yellow-legged frog
- pallid bat
- valley elderberry longhorn beetle
- western pond turtle
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 5 of 10

Napa County
Stream Maintenance Program

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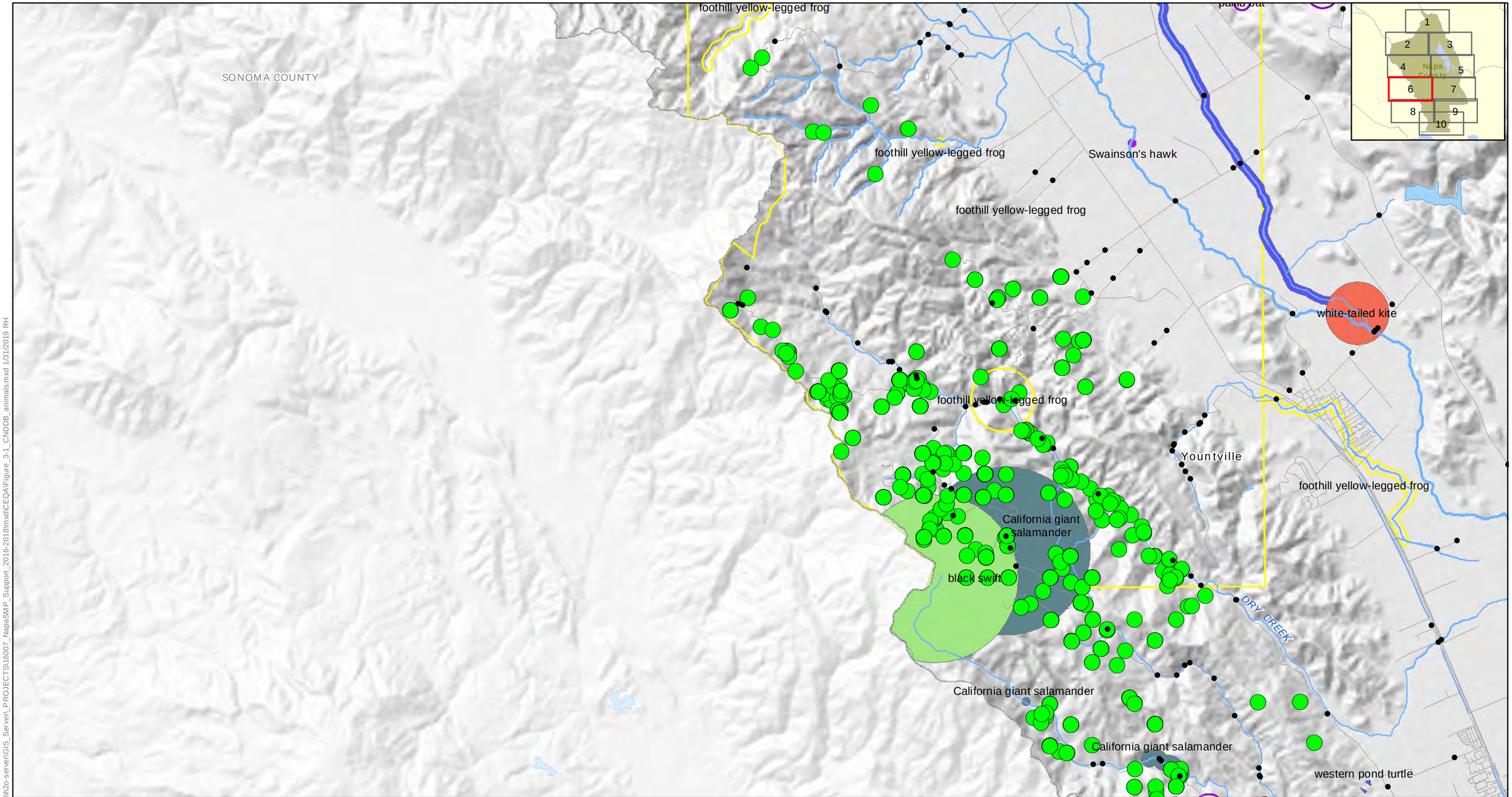

Basebap Sources:

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Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- California giant salamander
- Swainson's hawk
- black swift
- foothill yellow-legged frog
- pallid bat
- western pond turtle
- white-tailed kite
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 6 of 10

Napa County
Stream Maintenance Program

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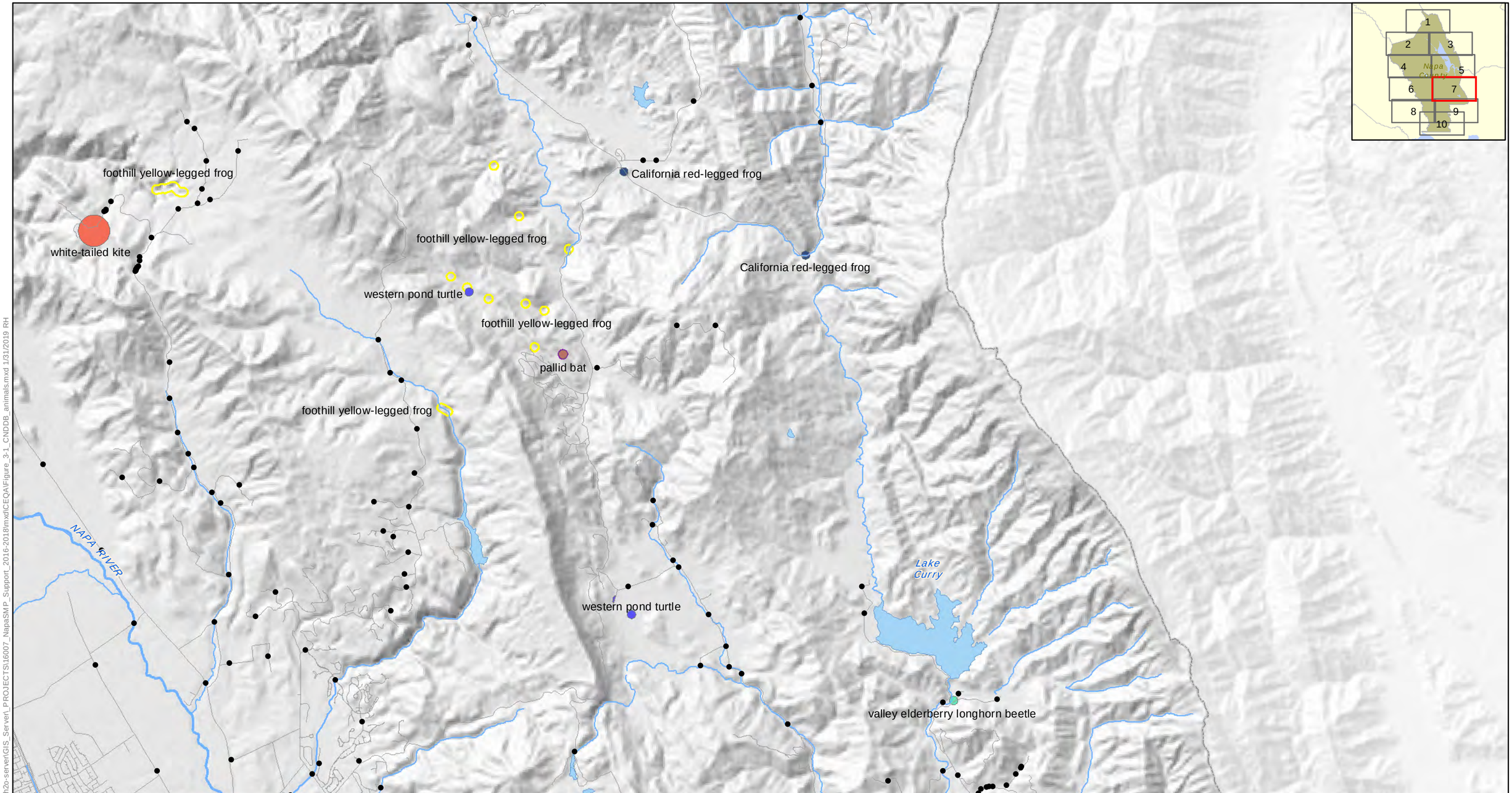

Basebap Sources:

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Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- California red-legged frog
- foothill yellow-legged frog
- pallid bat
- valley elderberry longhorn beetle
- western pond turtle
- western red bat
- white-tailed kite
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 7 of 10

Napa County
Stream Maintenance Program

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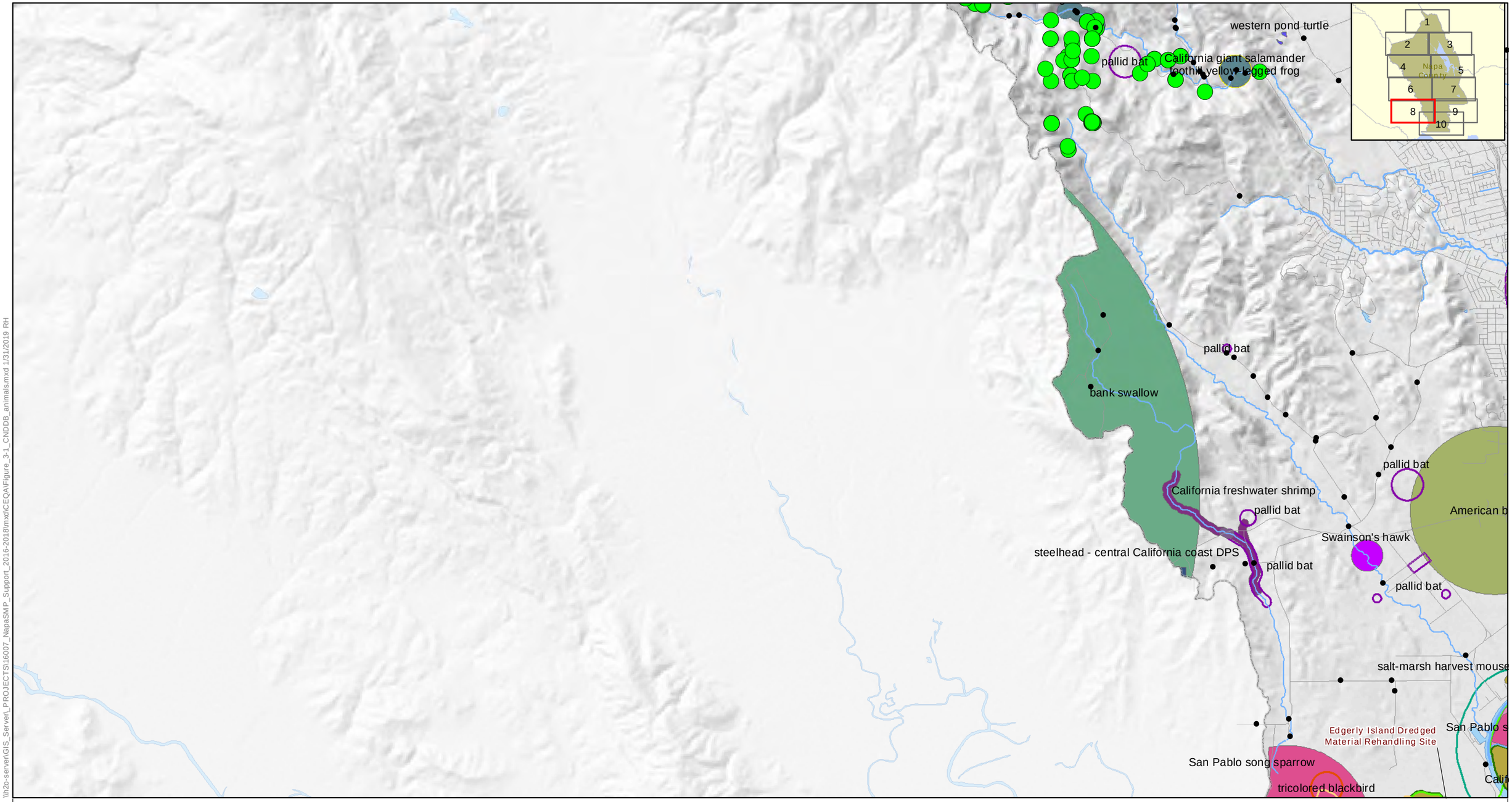

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- American badger
- California Ridgway's rail
- California black rail
- California freshwater shrimp
- California giant salamander
- California red-legged frog
- San Pablo song sparrow
- Swainson's hawk
- bank swallow
- foothill yellow-legged frog
- longfin smelt
- pallid bat
- salt-marsh harvest mouse
- saltmarsh common yellowthroat
- steelhead - central California coast DPS
- tricolored blackbird
- western pond turtle
- western snowy plover
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 8 of 10

Napa County
Stream Maintenance Program

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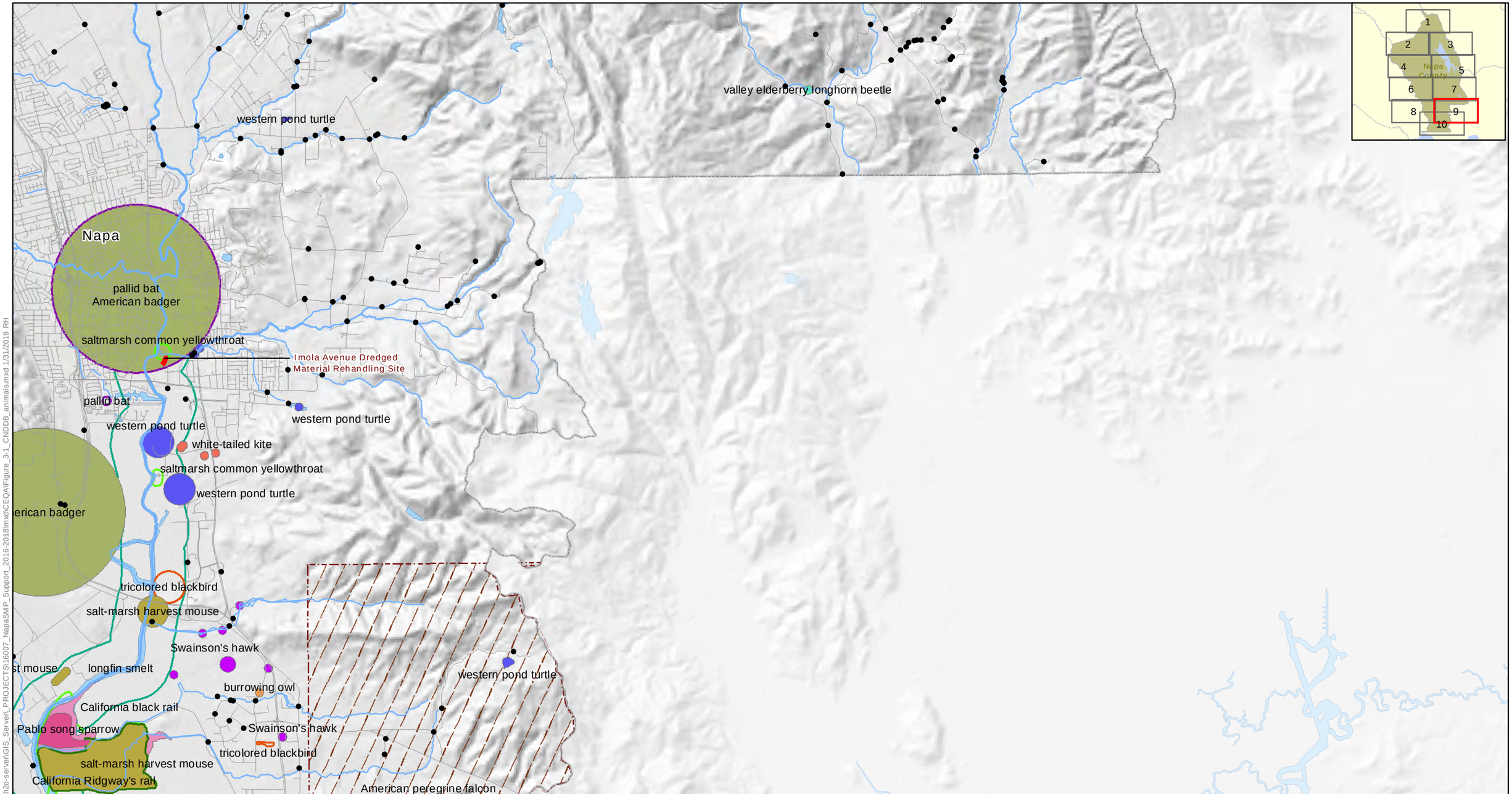

Basebap Sources:

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Miles

Horizon
WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- American badger
- American peregrine falcon
- California Ridgway's rail
- California black rail
- San Pablo song sparrow
- Swainson's hawk
- burrowing owl
- longfin smelt
- pallid bat
- salt-marsh harvest mouse
- saltmarsh common yellowthroat
- tricolored blackbird
- valley elderberry longhorn beetle
- western pond turtle
- white-tailed kite
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 9 of 10

Napa County
Stream Maintenance Program

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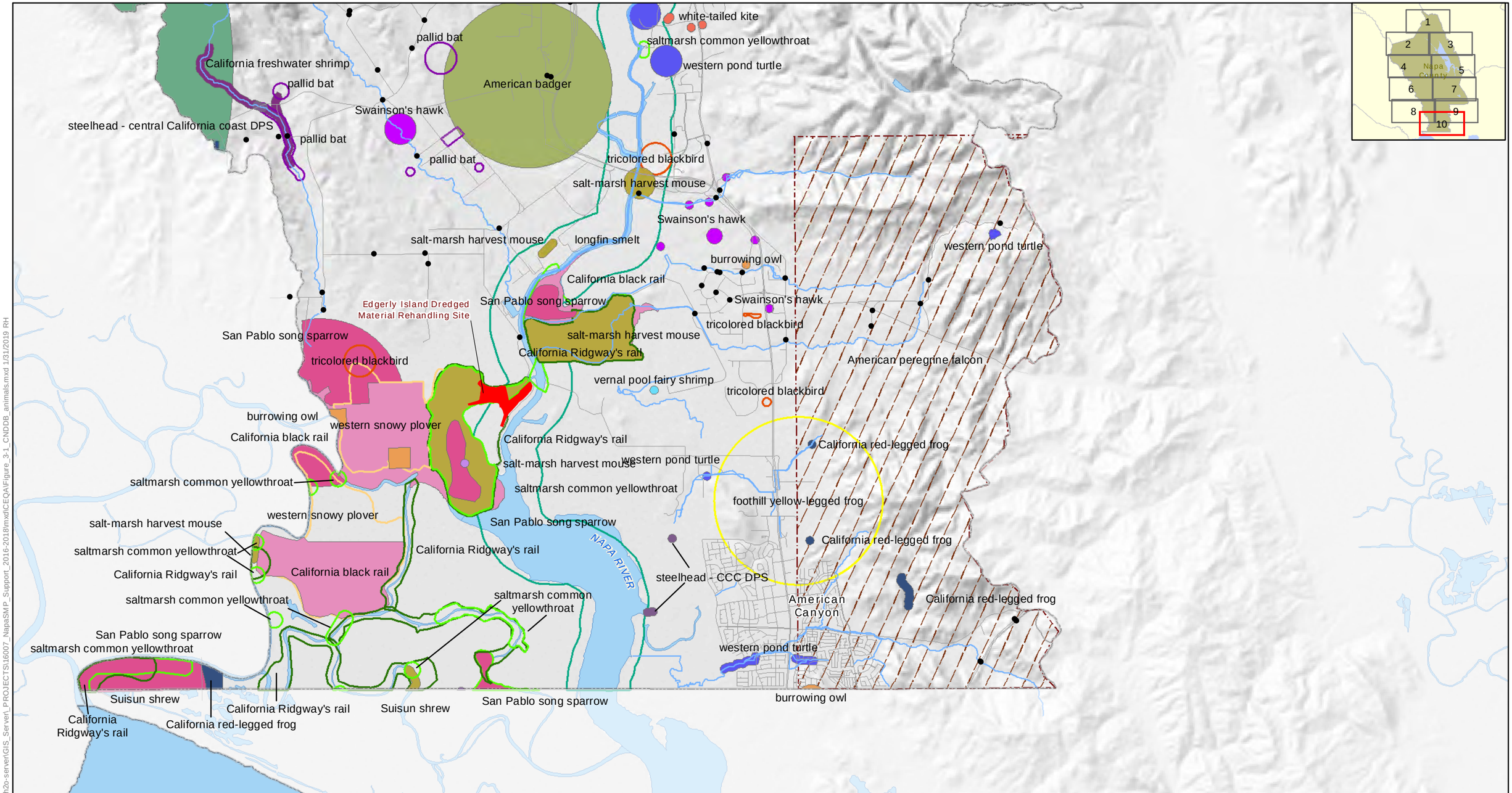

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Special-status Animals

- Dredge Disposal Sites
- Napa River
- Other streams where maintenance may occur
- Road Maintenance Sites
- County Lines
- Roads and Streets
- American badger
- American peregrine falcon
- California Ridgway's rail
- California black rail
- California freshwater shrimp
- California red-legged frog
- San Pablo song sparrow
- Suisun shrew
- Swainson's hawk
- bank swallow
- burrowing owl
- foothill yellow-legged frog
- longfin smelt
- northern harrier
- pallid bat
- salt-marsh harvest mouse
- saltmarsh common yellowthroat
- steelhead - central California coast DPS
- tricolored blackbird
- vernal pool fairy shrimp
- western pond turtle
- western snowy plover
- white-tailed kite
- Northern Spotted Owl

Figure 3-1
CNDDB Occurrences of Special-status Animals
Sheet 10 of 10

Napa County
Stream Maintenance Program

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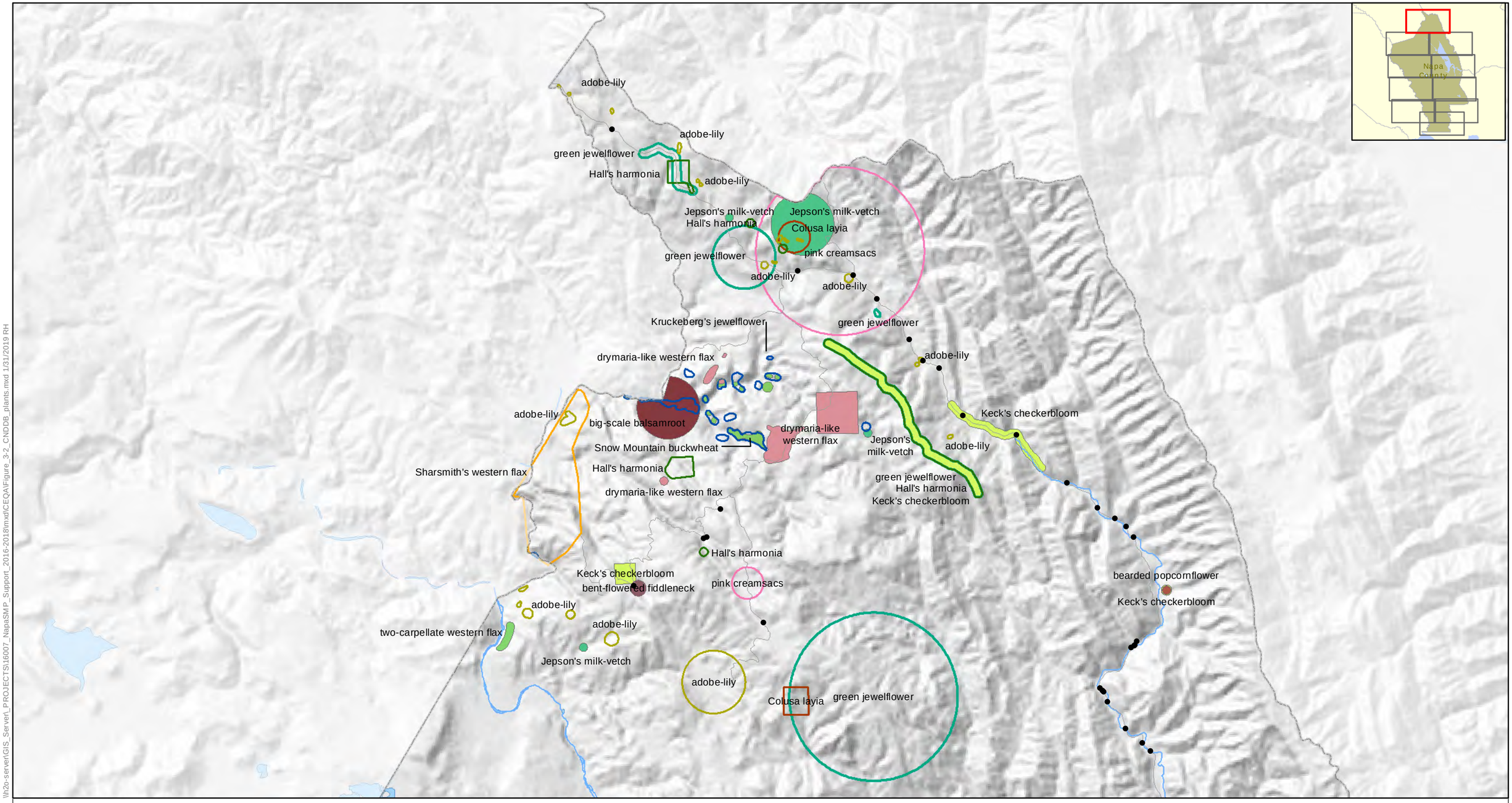

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Special-status Plants

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets
- Colusa layia
- Hall's harmonia
- Jepson's milk-vetch
- Keck's checkerbloom
- Kruckeberg's jewelflower
- Sharsmith's western flax
- Snow Mountain buckwheat
- adobe-lily
- bearded popcornflower
- bent-flowered fiddleneck
- big-scale balsamroot
- drymaria-like western flax
- green jewelflower
- pink creamsacs
- two-carpellate western flax

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 1 of 10

Napa County
Stream Maintenance Program

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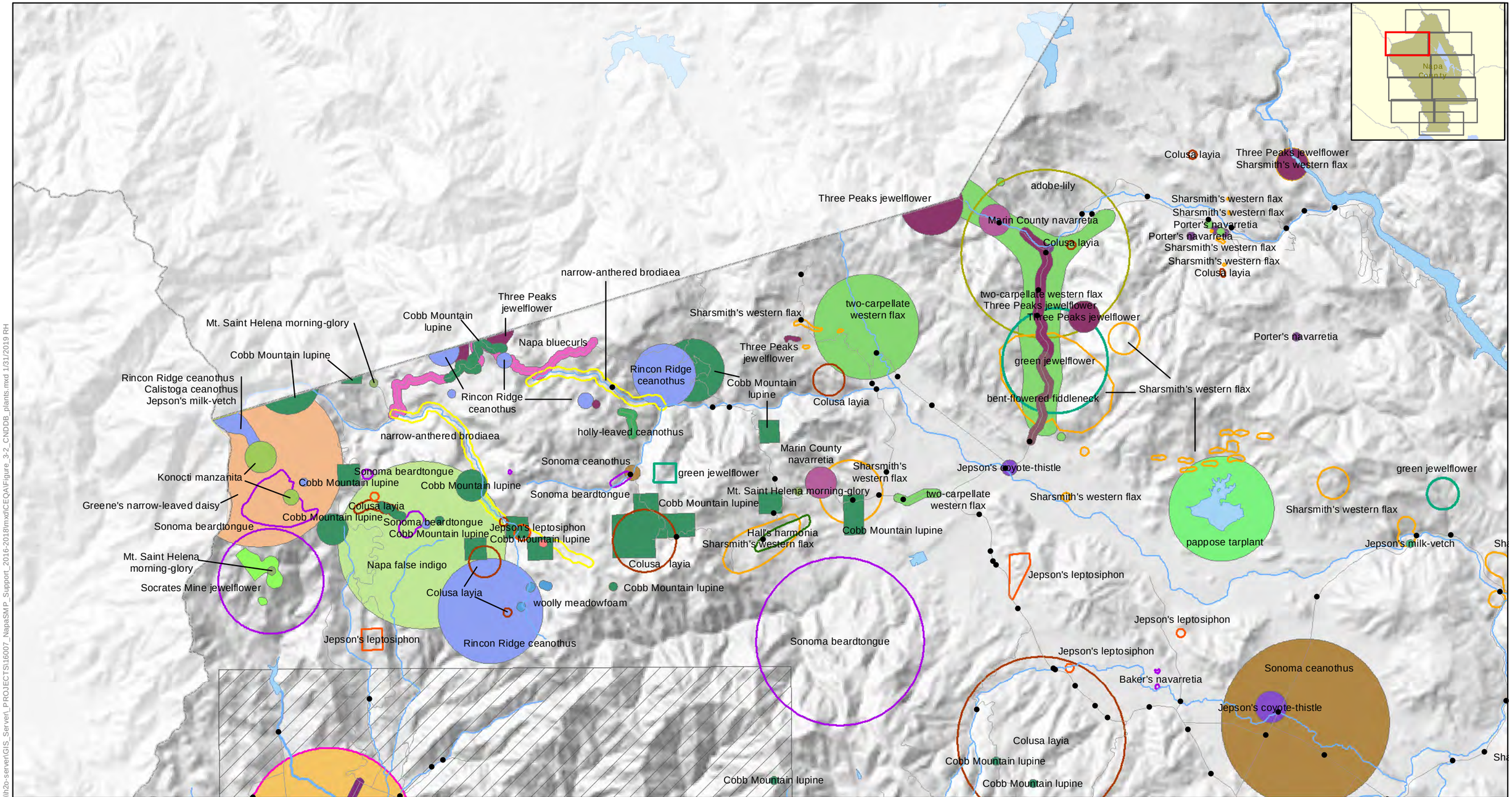

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets

Special-status Plants

- Baker's navarretia
- Burke's goldfields
- California alkali grass
- Calistoga ceanothus
- Calistoga popcornflower
- Cobb Mountain lupine
- Colusa layia
- Greene's narrow-leaved daisy
- Hall's harmonia
- Jepson's coyote-thistle
- Jepson's leptosiphon
- Jepson's milk-vetch
- Konocti manzanita
- Marin County navarretia
- Mt. Saint Helena morning-glory
- Napa bluecurls
- Napa false indigo
- Porter's navarretia
- Rincon Ridge ceanothus
- Santa Lucia dwarf rush
- Sharsmith's western flax
- Socrates Mine jewelflower
- Sonoma beardtongue
- Sonoma ceanothus
- Three Peaks jewelflower
- adobe-lily
- bent-flowered fiddleneck
- green jewelflower
- holly-leaved ceanothus
- narrow-anthered brodiaea
- pappose tarplant
- saline clover
- two-carpellate western flax
- woolly meadowfoam

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 2 of 10

Napa County
Stream Maintenance Program

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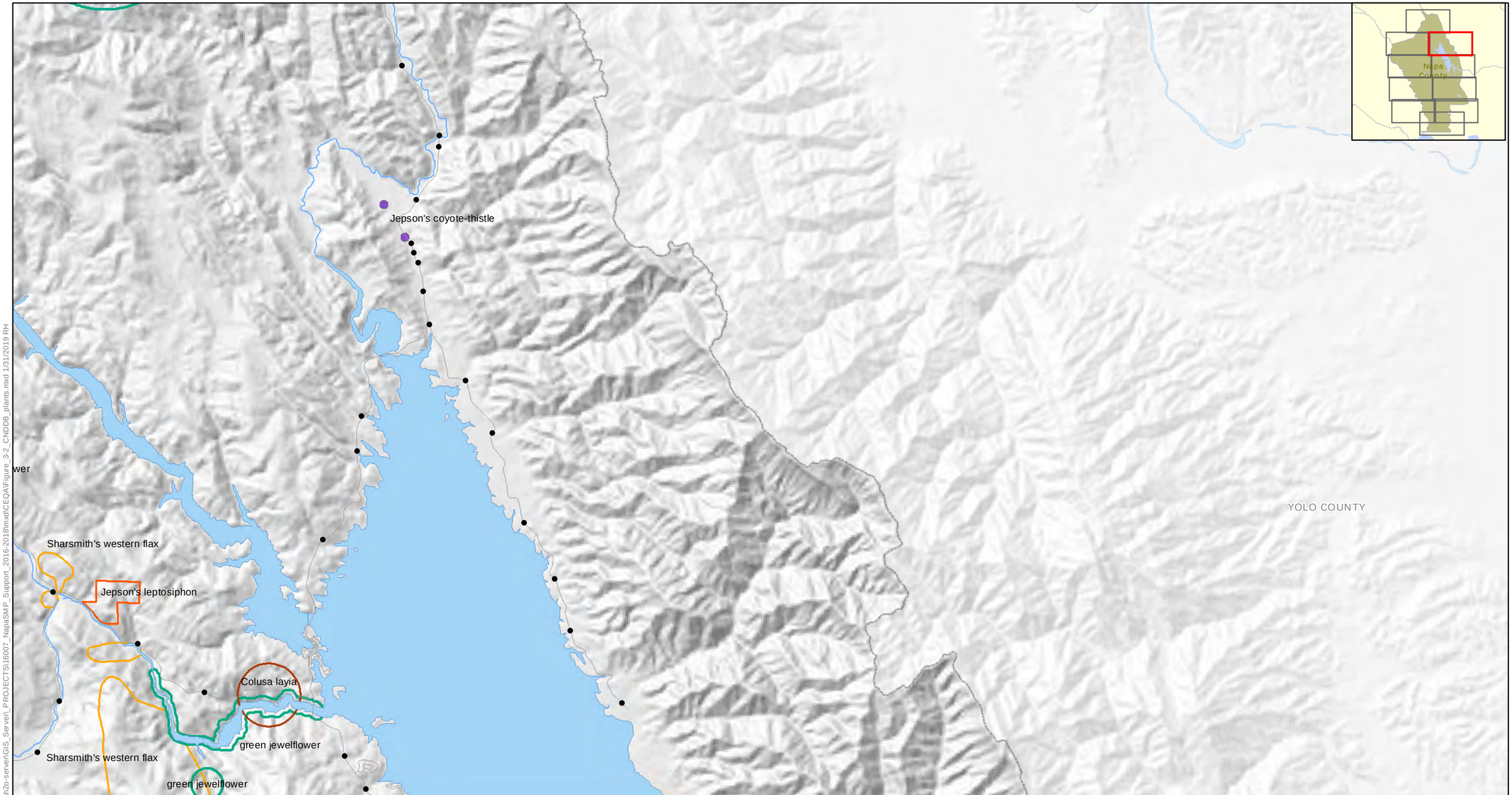

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Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

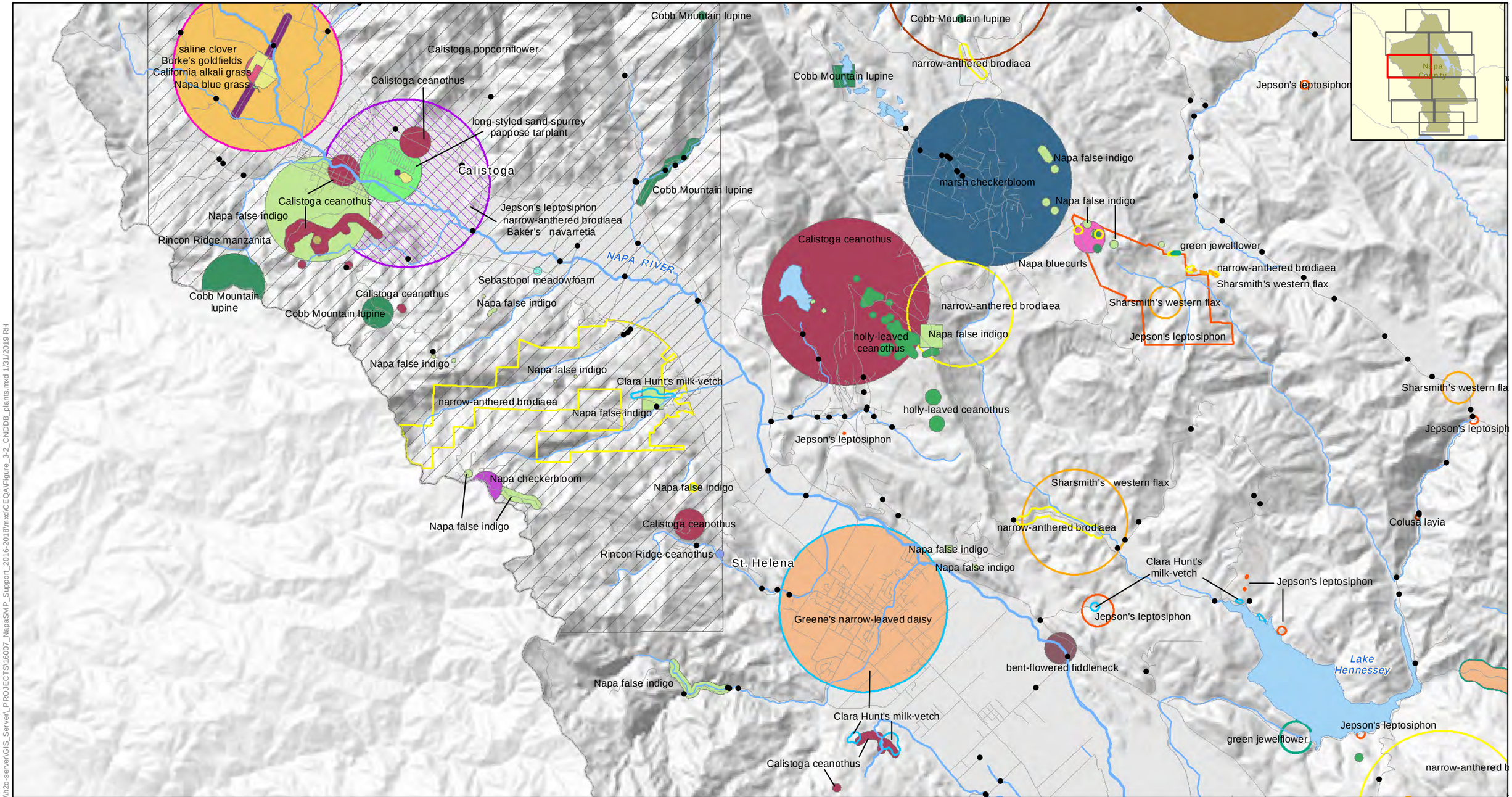
Napa River
Other streams where maintenance may occur
Dredge Disposal Sites
Road Maintenance Sites
County Lines
Roads and Streets

Special-status Plants

Colusa layia
Jepson's coyote-thistle
Jepson's leptosiphon
Sharsmith's western flax
green jewelflower

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 3 of 10

Napa County
Stream Maintenance Program



Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets

Special-status Plants

- Baker's navarretia
- Burke's goldfields
- California alkali grass
- Calistoga ceanothus
- Calistoga popcornflower
- Clara Hunt's milk-vetch
- Cobb Mountain lupine
- Colusa layia
- Greene's narrow-leaved daisy
- Jepson's leptosiphon
- Napa blue grass
- Napa bluecurls
- Napa checkerbloom
- Napa false indigo
- Rincon Ridge ceanothus
- Rincon Ridge manzanita
- Sebastopol meadowfoam
- Sharsmith's western flax
- Sonoma ceanothus
- bent-flowered fiddleneck
- green jewelflower
- holly-leaved ceanothus
- long-styled sand-spurrey
- marsh checkerbloom
- narrow-anthered brodiaea
- pappose tarplant
- saline clover

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 4 of 10

Napa County
Stream Maintenance Program

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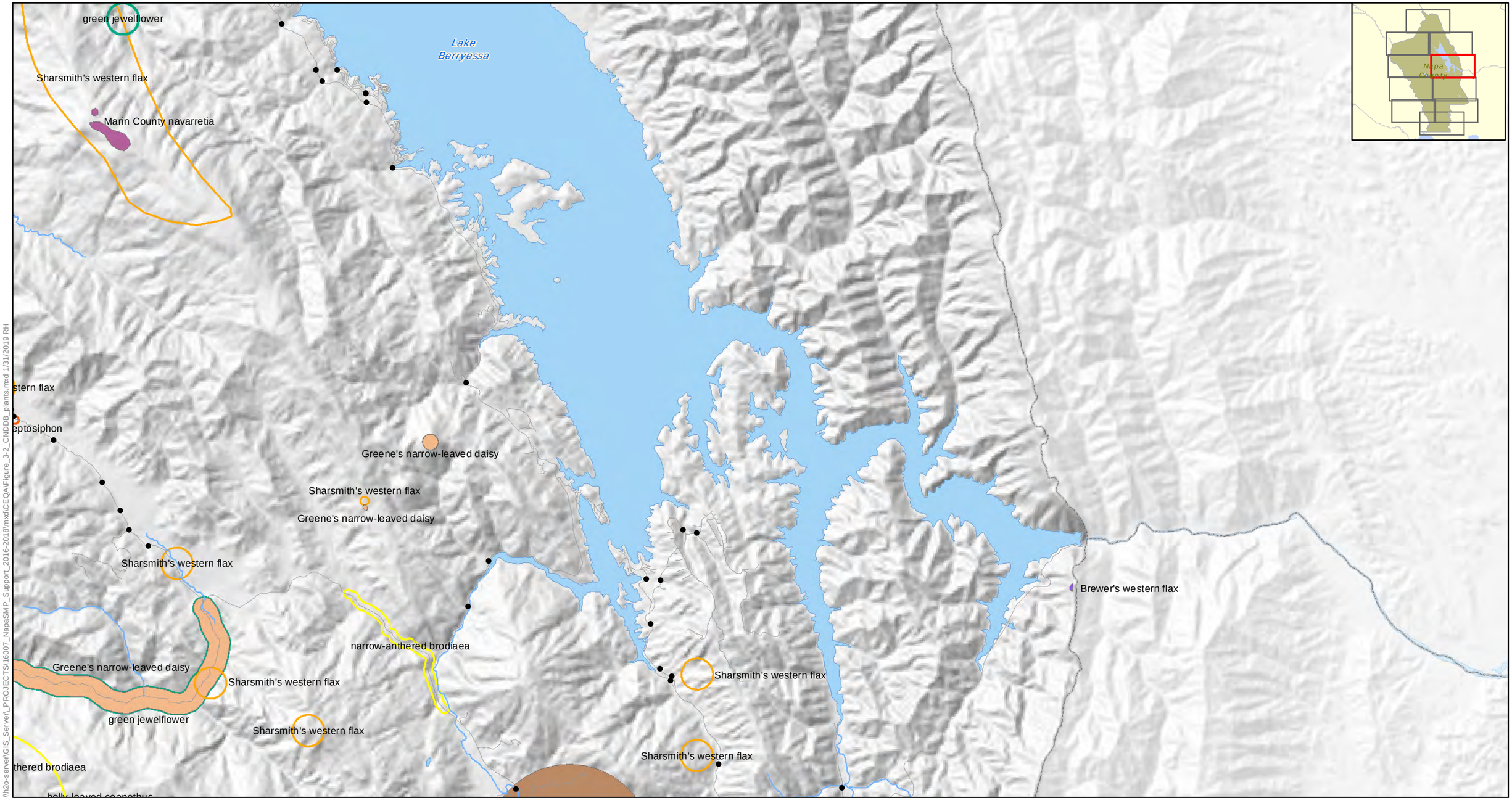

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Special-status Plants

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets
- Brewer's western flax
- Greene's narrow-leaved daisy
- Jepson's leptosiphon
- Marin County navarretia
- Sharsmith's western flax
- green jewelflower
- narrow-anthered brodiaea
- serpentine cryptantha

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 5 of 10

Napa County
Stream Maintenance Program

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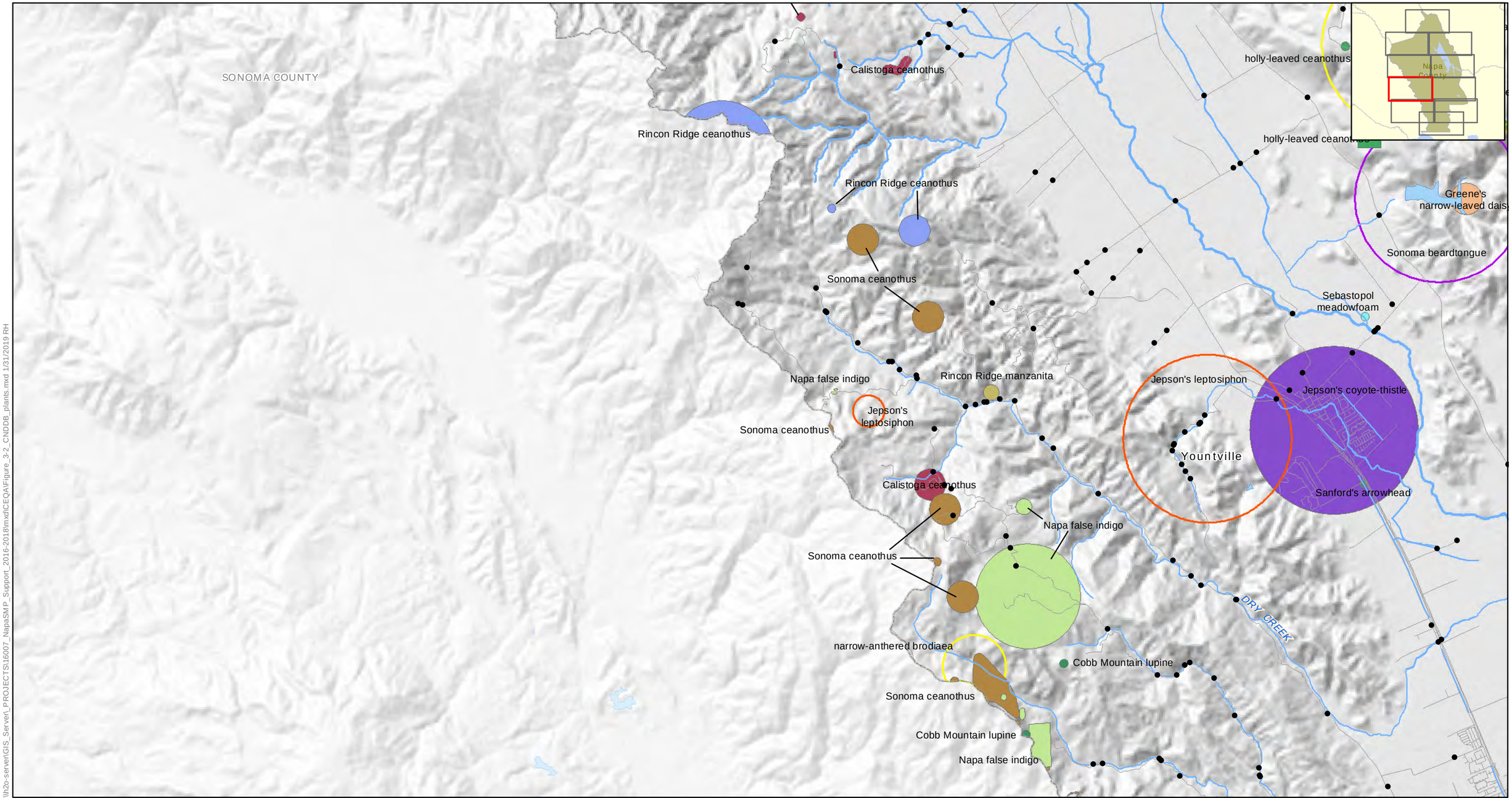

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Special-status Plants

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets
- Calistoga ceanothus
- Cobb Mountain lupine
- Greene's narrow-leaved daisy
- Jepson's coyote-thistle
- Jepson's leptosiphon
- Napa false indigo
- Rincon Ridge ceanothus
- Rincon Ridge manzanita
- Sanford's arrowhead
- Sebastopol meadowfoam
- Sharsmith's western flax
- Sonoma beardtongue
- Sonoma ceanothus
- holly-leaved ceanothus
- narrow-anthered brodiaea

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 6 of 10

Napa County
Stream Maintenance Program

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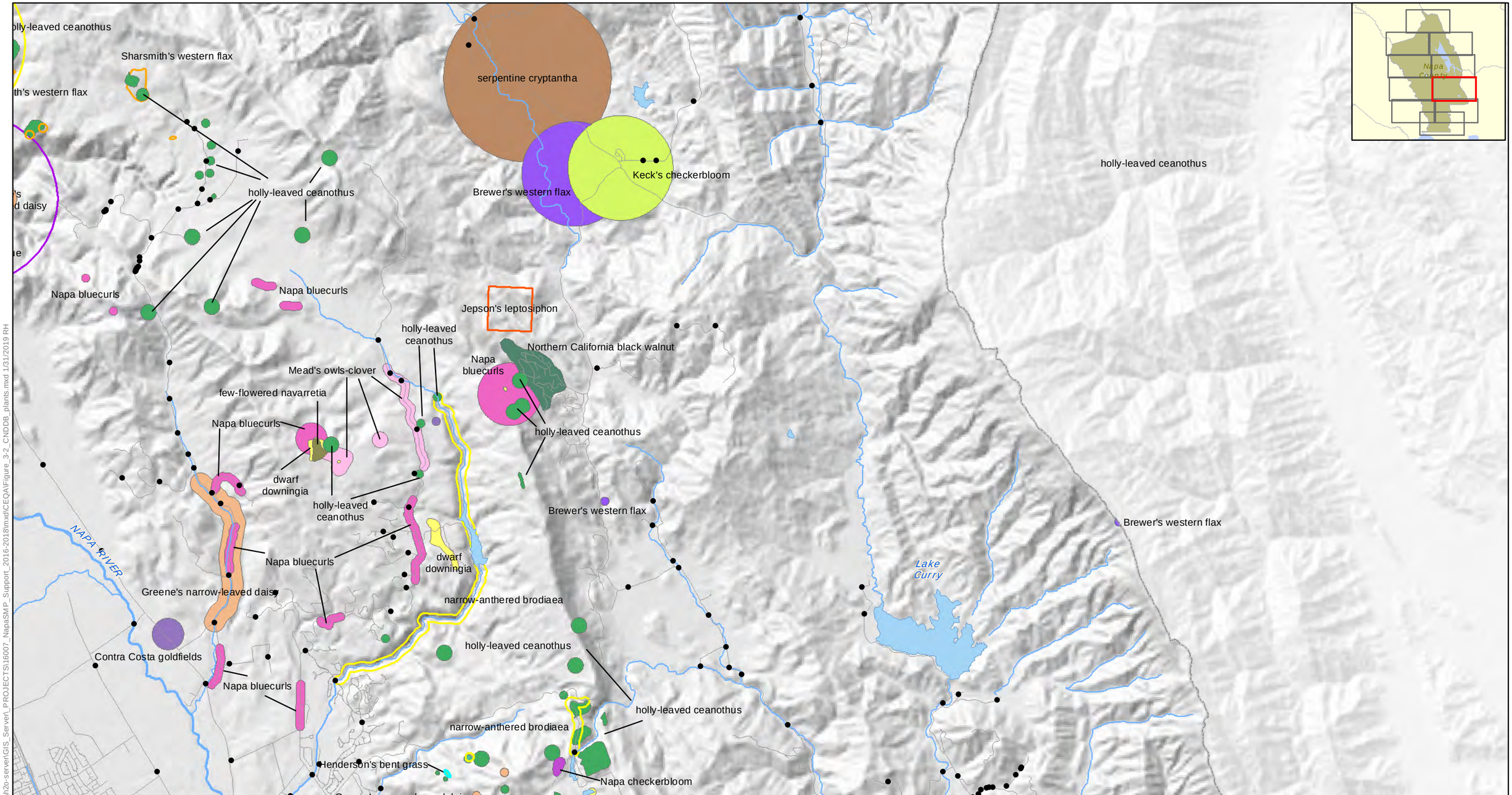

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Basebap Sources:

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Miles

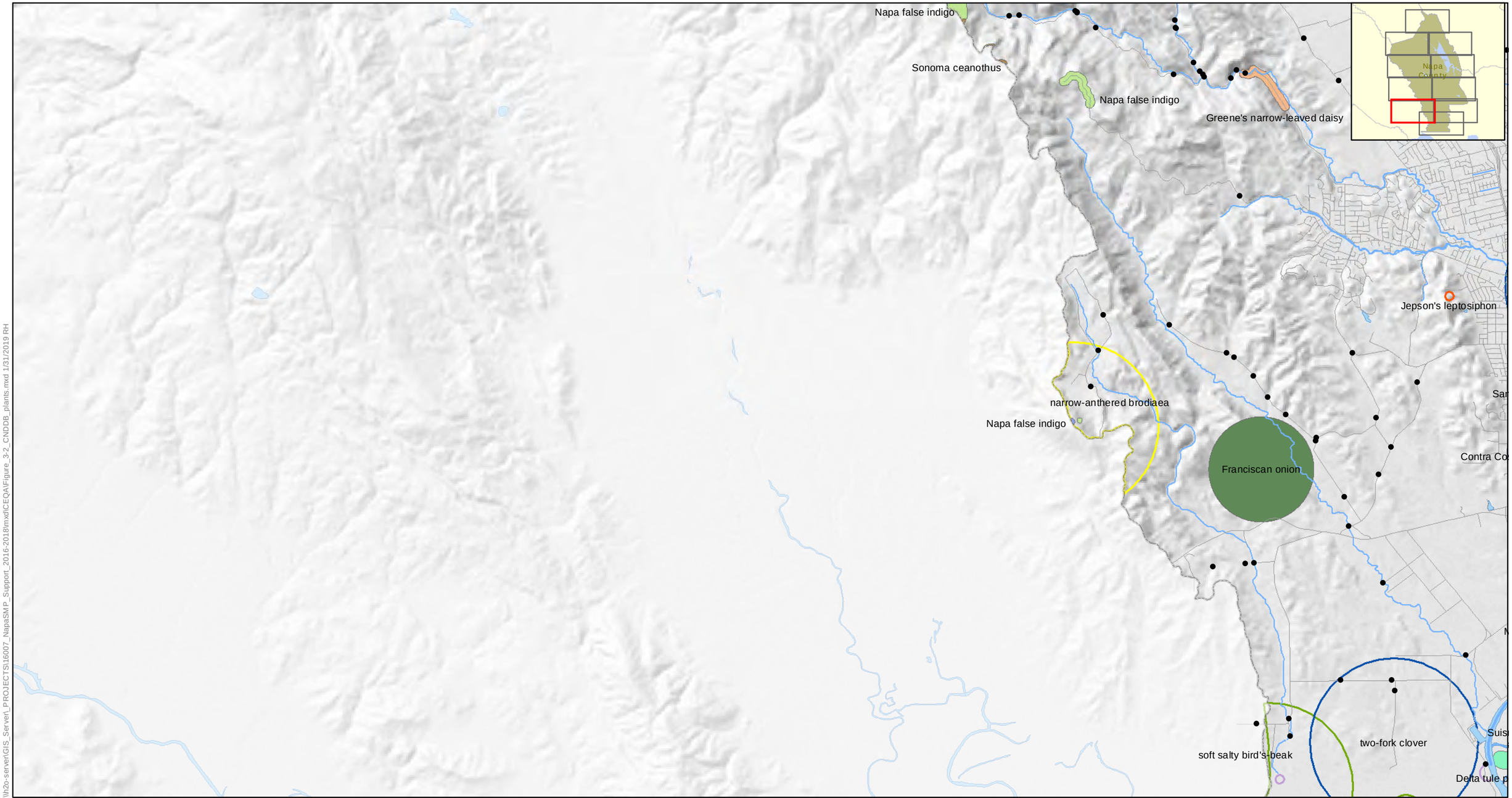
Horizon WATER and ENVIRONMENT

Special-status Plants

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets
- Brewer's western flax
- California beaked-rush
- Contra Costa goldfields
- Greene's narrow-leaved daisy
- Henderson's bent grass
- Jepson's leptosiphon
- Keck's checkerbloom
- Mead's owls-clover
- Napa bluecurls
- Napa checkerbloom
- Northern California black walnut
- Sharsmith's western flax
- Sonoma beardtongue
- dwarf downingia
- few-flowered navarretia
- holly-leaved ceanothus
- narrow-anthered brodiaea
- serpentine cryptantha

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 7 of 10

Napa County
Stream Maintenance Program



Basebap Sources:

N

0 0.25 0.5 1
Miles

Horizon WATER and ENVIRONMENT

Special-status Plants

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets
- Contra Costa goldfields
- Delta tule pea
- Franciscan onion
- Greene's narrow-leaved daisy
- Jepson's leptosiphon
- Napa false indigo
- Rincon Ridge ceanothus
- Sonoma ceanothus
- Suisun Marsh aster
- narrow-anthered brodiaea
- soft salty bird's-beak
- two-fork clover

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 8 of 10

Napa County
Stream Maintenance Program

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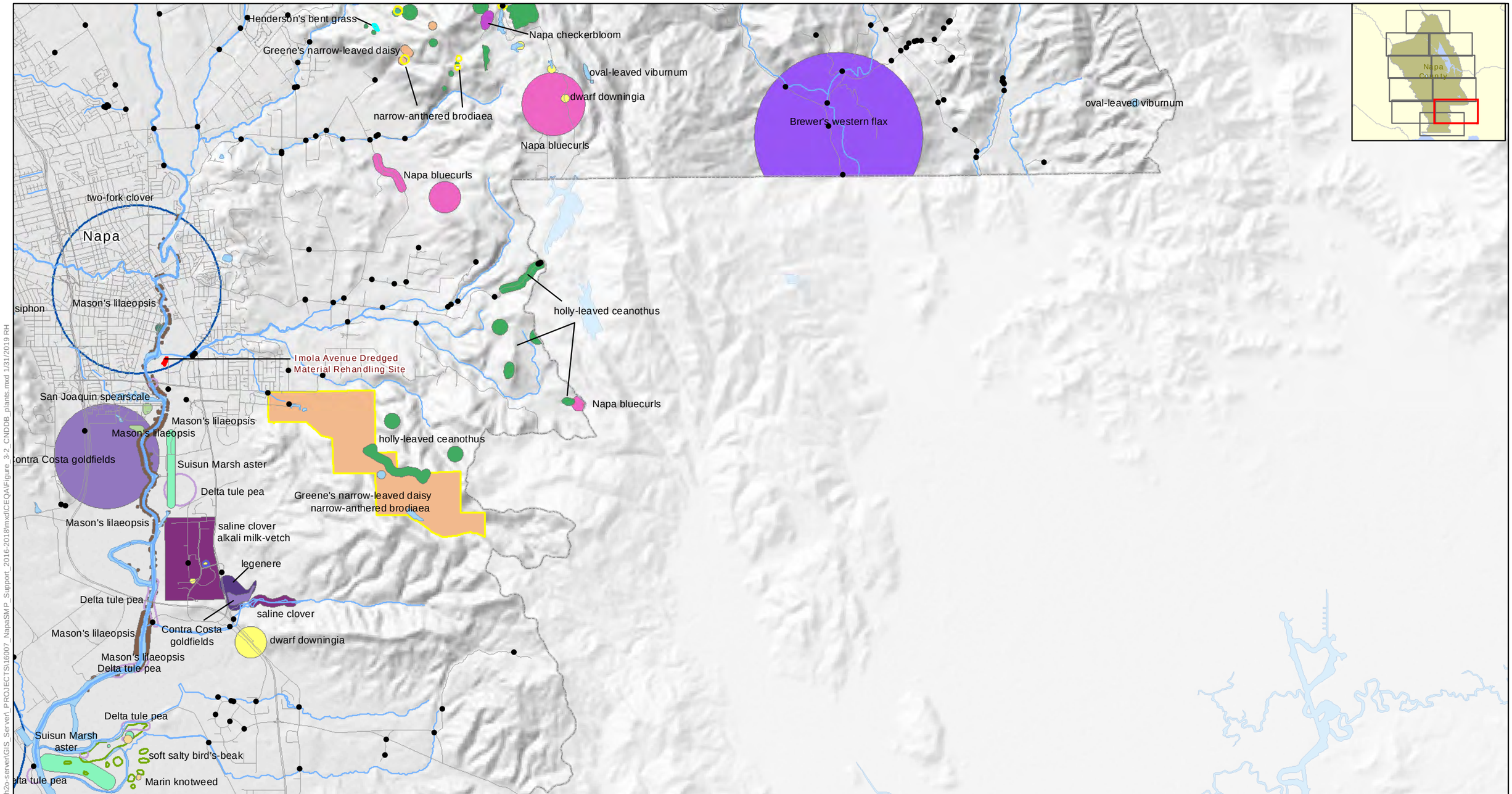

Basebap Sources:

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Horizon
WATER and ENVIRONMENT

Special-status Plants

- Napa River
- Other streams where maintenance may occur
- Dredge Disposal Sites
- Road Maintenance Sites
- County Lines
- Roads and Streets
- Brewer's western flax
- California beaked-rush
- Contra Costa goldfields
- Delta tule pea
- Greene's narrow-leaved daisy
- Henderson's bent grass
- Marin knotweed
- Mason's lilaeopsis
- Napa bluecurls
- Napa checkerbloom
- Northern California black walnut
- San Joaquin spearscale
- Suisun Marsh aster
- alkali milk-vetch
- dwarf downingia
- holly-leaved ceanothus
- legenere
- narrow-anthered brodiaea
- oval-leaved viburnum
- saline clover
- soft salty bird's-beak
- two-fork clover

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 9 of 10

Napa County
Stream Maintenance Program

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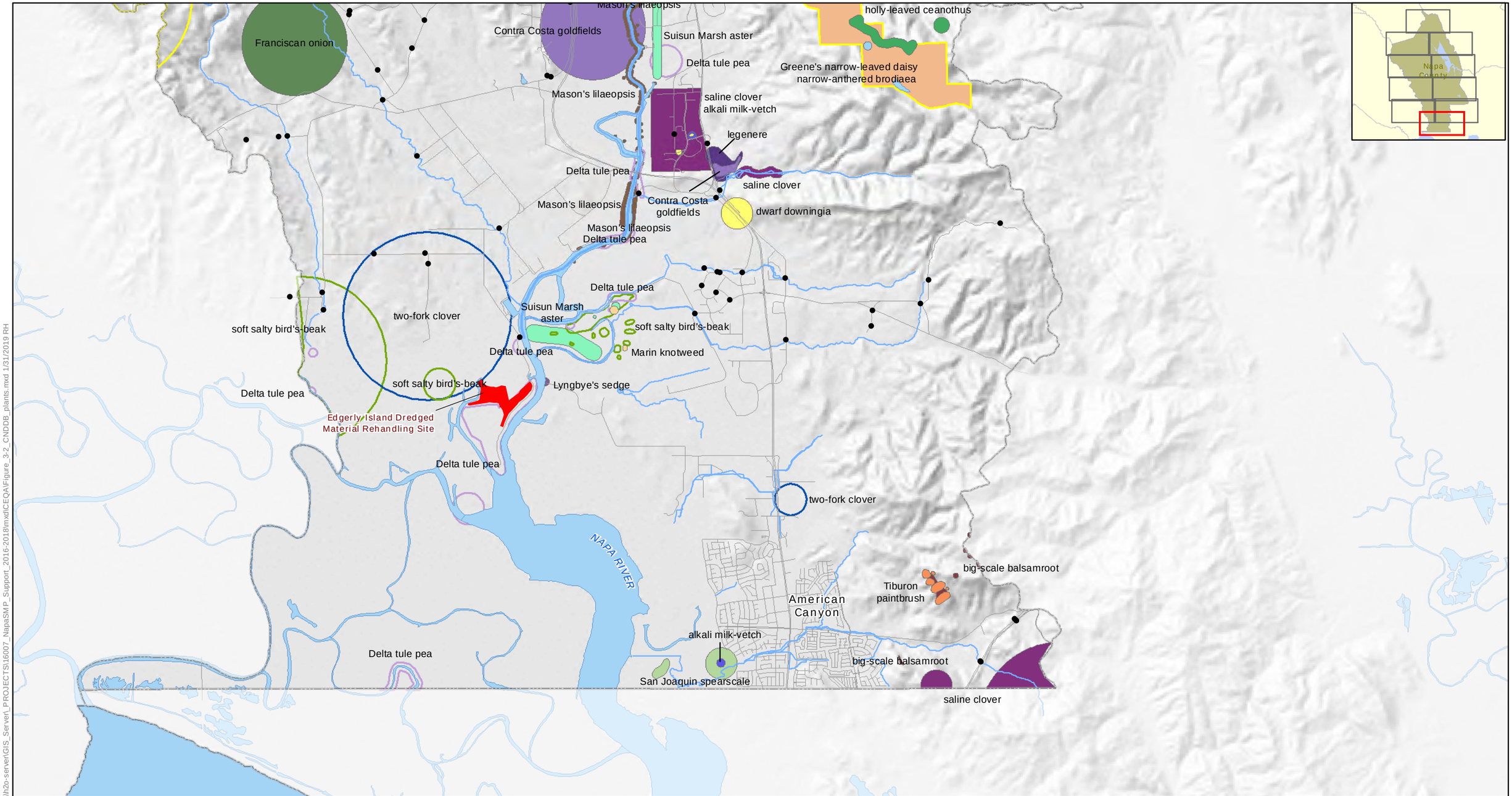

Basebap Sources:

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Miles

Horizon WATER and ENVIRONMENT

Napa River
Other streams where maintenance may occur
Dredge Disposal Sites
Road Maintenance Sites
County Lines
Roads and Streets

Special-status Plants

Contra Costa goldfields
Delta tule pea
Franciscan onion
Greene's narrow-leaved daisy
Lyngbye's sedge
Marin knotweed
Mason's lilaeopsis
San Joaquin spearscale
Suisun Marsh aster
Tiburon paintbrush
alkali milk-vetch
big-scale balsamroot
dwarf downingia
holly-leaved ceanothus
legenere
narrow-anthered brodiaea
oval-leaved viburnum
saline clover
soft salty bird's-beak
two-fork clover

Figure 3-2
CNDDB Occurrences of Special-status Plants
Sheet 10 of 10

Napa County
Stream Maintenance Program

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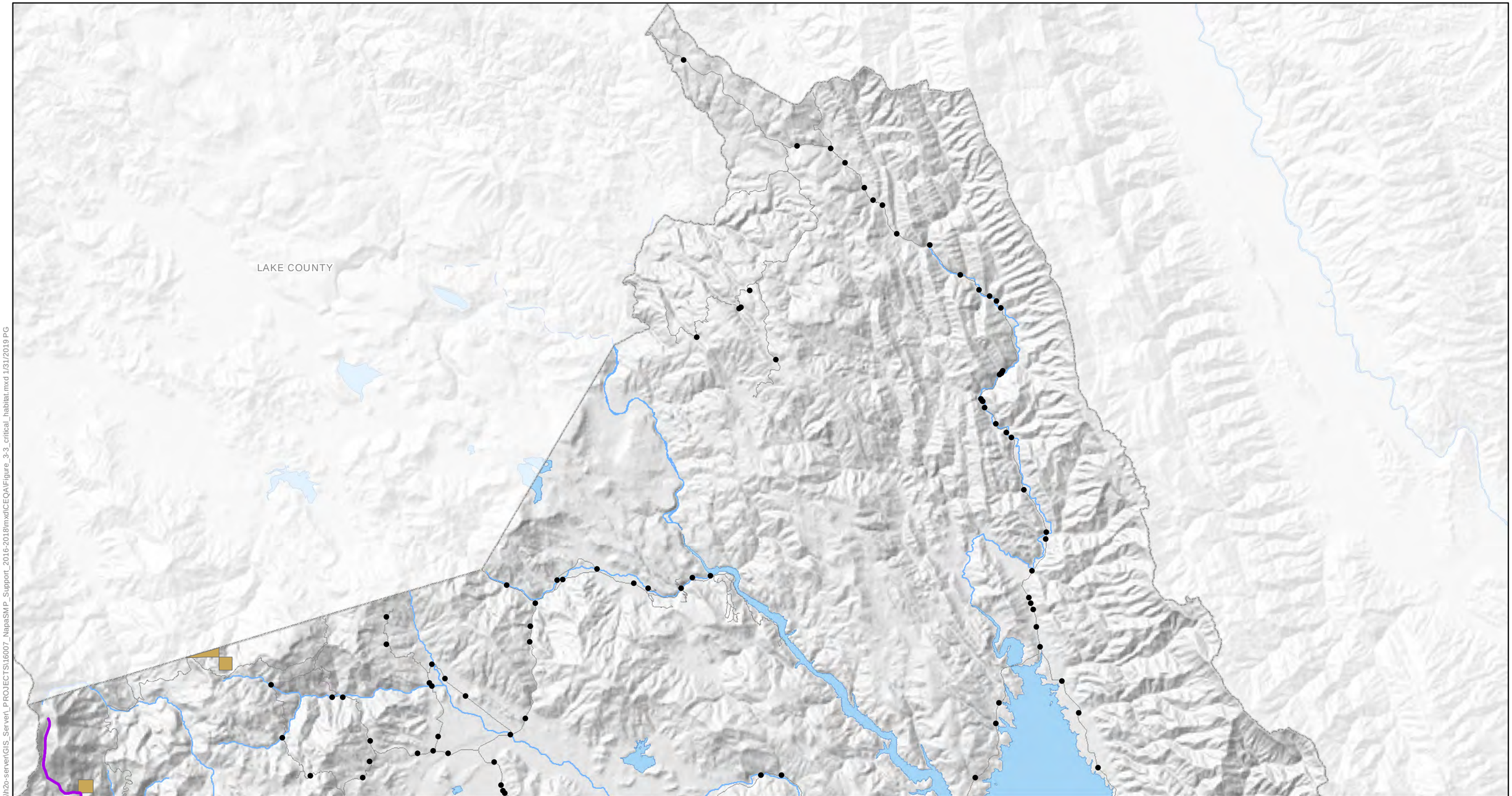

Basebap Sources:

N

0 0.5 1 2
Miles

Horizon
WATER and ENVIRONMENT

Critical Habitat

- Road Maintenance Sites
- County Lines
- Roads and Streets
- Napa River
- Other streams where maintenance may occur
- Steelhead
- Northern spotted owl

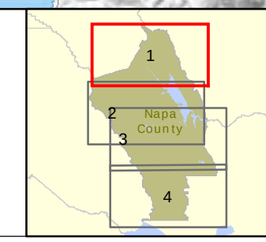

Figure 3-3
Critical Habitat
Sheet 1 of 4

Napa County
Stream Maintenance Program

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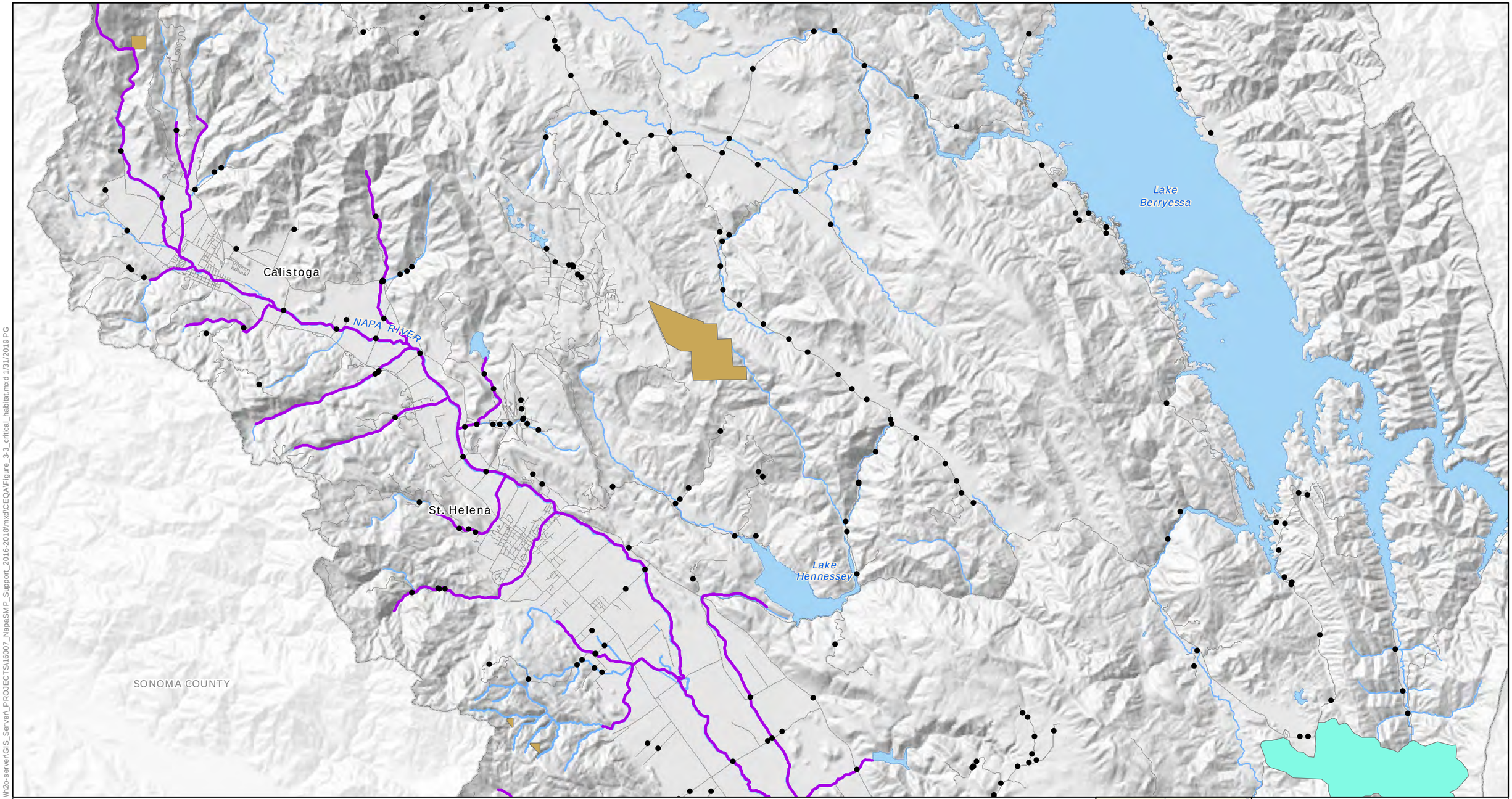

Basebap Sources:

N

0 0.5 1 2
Miles

Horizon WATER and ENVIRONMENT

Critical Habitat

- Road Maintenance Sites
- County Lines
- Roads and Streets
- Napa River
- Other streams where maintenance may occur
- Steelhead
- California red-legged frog
- Northern spotted owl

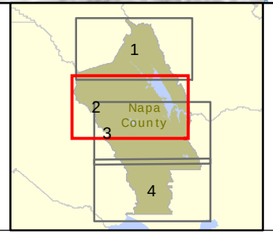

Figure 3-3
Critical Habitat
Sheet 2 of 4

Napa County
Stream Maintenance Program

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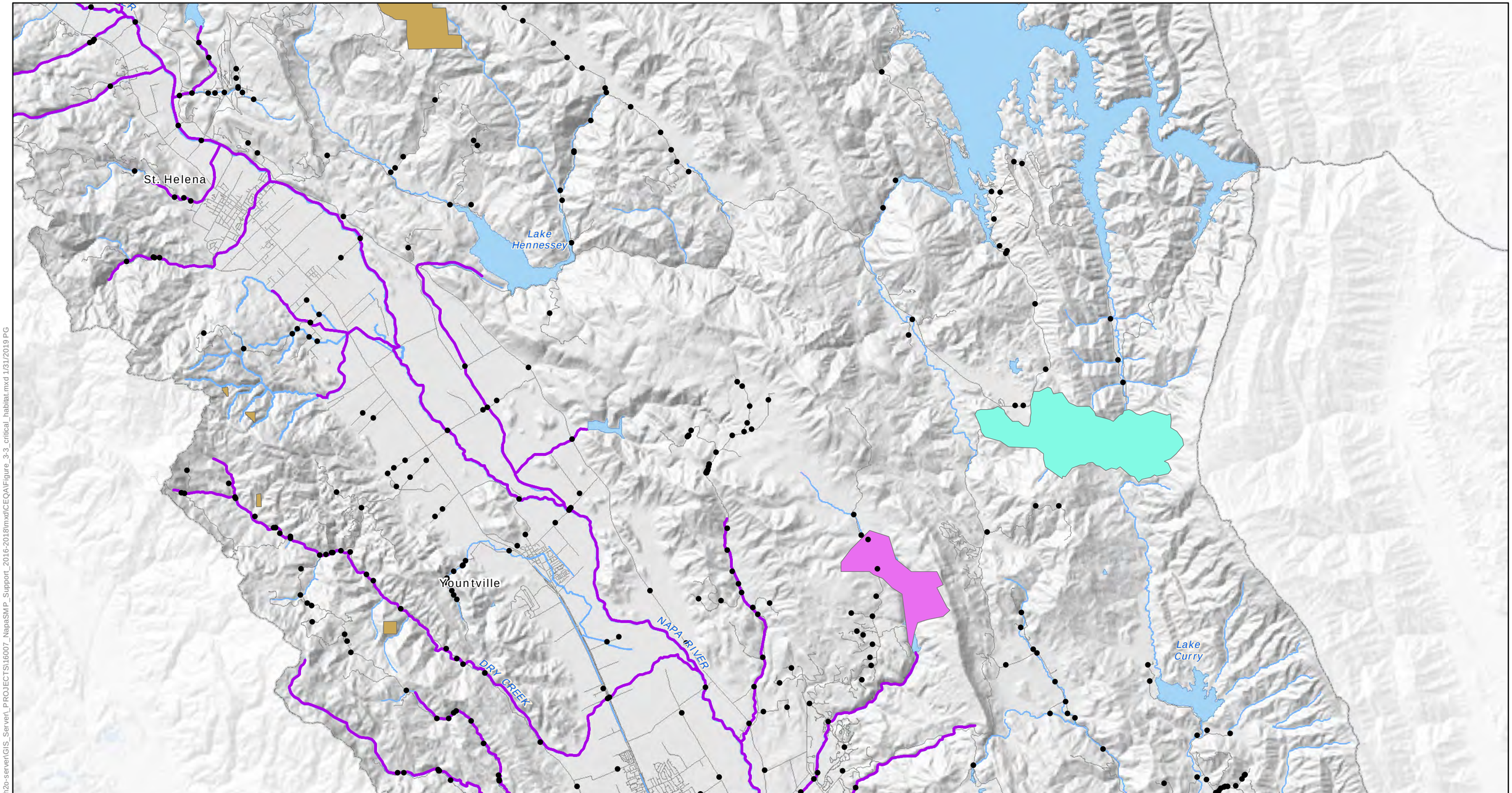

Basebap Sources:

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0 0.5 1 2
Miles

Horizon WATER and ENVIRONMENT

Critical Habitat

- Road Maintenance Sites
- County Lines
- Roads and Streets
- Napa River
- Other streams where maintenance may occur
- Steelhead
- California red-legged frog
- Contra Costa goldfields
- Northern spotted owl

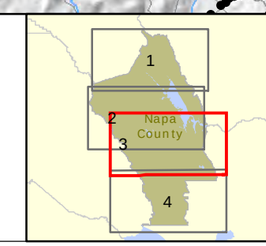

Figure 3-3
Critical Habitat
Sheet 3 of 4

Napa County
Stream Maintenance Program

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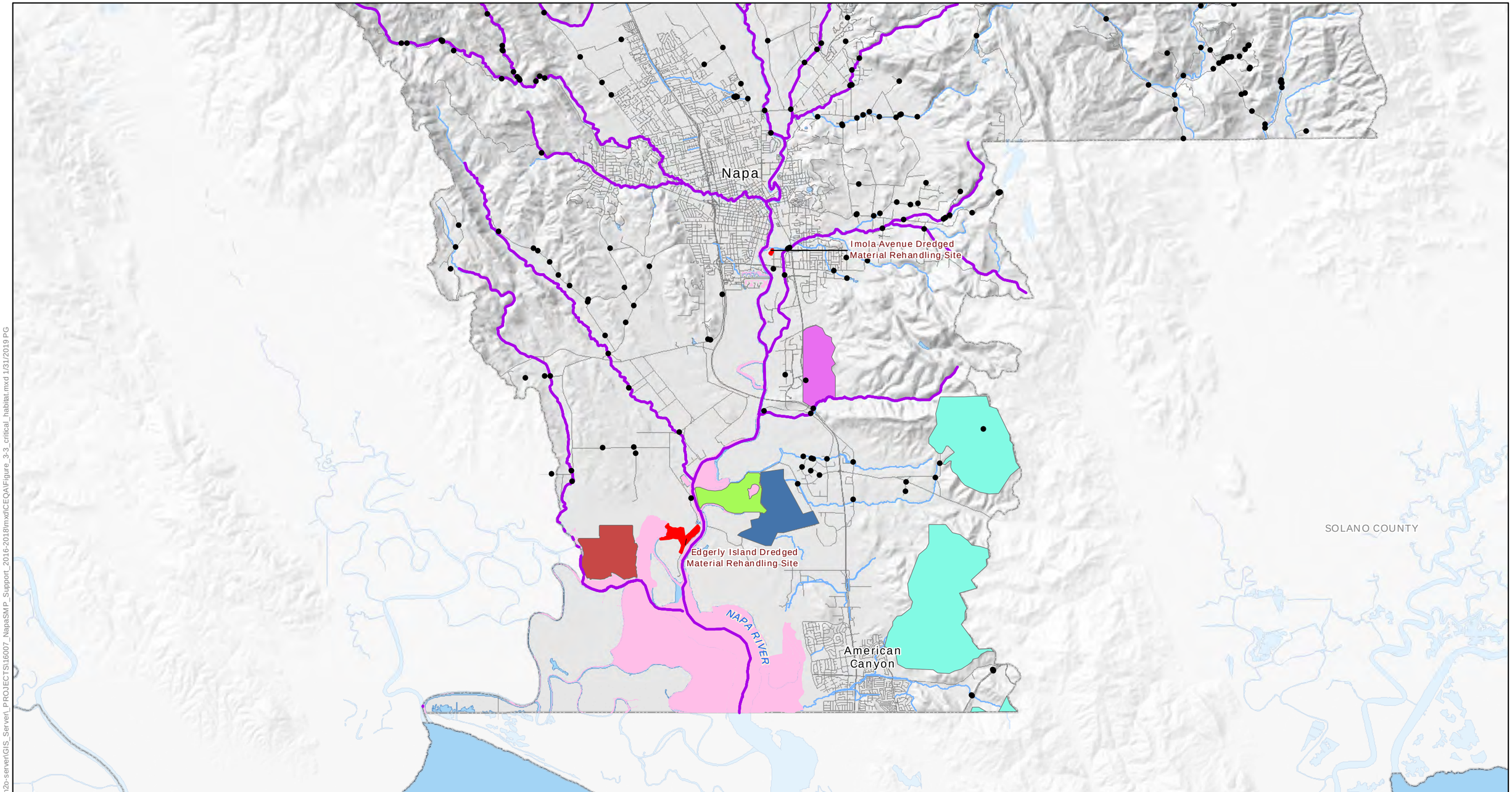

Basebap Sources:

N

0 0.5 1 2
Miles

Horizon
WATER and ENVIRONMENT

Critical Habitat

- Road Maintenance Sites
- Dredge Disposal Sites
- County Lines
- Roads and Streets
- Napa River
- Other streams where maintenance may occur
- Steelhead
- California red-legged frog
- Contra Costa goldfields
- Soft bird's-beak
- Vernal pool fairy shrimp
- Western snowy plover
- Green Sturgeon

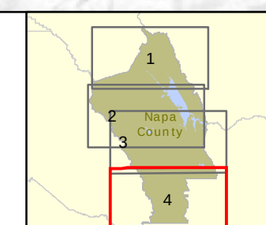

Figure 3-3
Critical Habitat
Sheet 4 of 4

Napa County
Stream Maintenance Program

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Chapter 4
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