Napa River
Rutherford Reach Restoration Project
Initial Study/Mitigated Negative Declaration

August 2008

ICF Jones & Stokes
an ICF International Company

Napa River Rutherford Reach Restoration Project

Initial Study/Mitigated Negative Declaration

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Chapter 1
Introduction

This document is an initial study evaluating the potential environmental effects of a restoration project proposed for the Rutherford Reach of the Napa River. The proposed project would restore and enhance natural channel and bank geomorphology, improve habitat quality, and decrease the risk of catastrophic flooding along 4.5 miles of the river between Zinfandel Lane and the Oakville Cross Road (Figure 1).

This document was prepared pursuant to the requirements of the California Environmental Quality Act (CEQA), which requires public agencies to analyze and disclose environmental impacts associated with projects they propose, permit, or fund. In addition to this introduction, which describes the background and need for the proposed project and summarizes the regulations that will govern project implementation, this initial study contains

- a description of the proposed project, including an overview of the anticipated construction process and project monitoring and maintenance requirements (Chapter 2);
- a brief overview of existing environmental conditions in the project area (Chapter 3);
- an environmental checklist based on the model provided in Appendix G of the state's CEQA Guidelines, which assesses the project's potential environmental effects (Chapter 4); and
- a list of the reference materials used in the preparation of this document (Chapter 5).

In addition, Appendix A contains the complete project planset (in Adobe PDF format on the included CD ROM), and Appendix B presents an overview of regulations and standards with which the project must comply.

Consistent with the model provided in the state's CEQA Guidelines, this initial study evaluates the proposed project's effects on the following resource topics.

- Aesthetics.
- Air quality.
- Cultural resources.
- Agricultural resources.
- Biological resources.
- Geology and soils.

- Hazards and hazardous materials.
- Land use planning.
- Noise.
- Public services.
- Transportation and traffic.
- Hydrology and water quality.
- Mineral resources.
- Population and housing.
- Recreation.
- Utilities and service systems.

Potentially significant impacts have been identified for three resource areas:

- Aesthetics (visual resources)—temporary impacts on local viewshed during construction;
- Air quality—dust generation and exhaust emissions during project construction and maintenance.
- Cultural resources—potential impacts on archaeological resources.

This initial study identifies mitigation measures that would avoid impacts, or reduce them below the level of significance, such that the proposed project would not result in significant adverse impacts on the environment. Over the long term, the project would benefit Napa River hydrology/hydraulic function, riparian and aquatic resources, and the species that depend on them.

Background and Need for Project

The Napa River winds through the heart of Napa Valley, draining a total of approximately 430 square miles of watershed into the northeastern end of San Pablo Bay. Historically, the Napa Valley supported extensive riparian forest and wetland habitats, which have been gradually converted over the last 200 years into a rural agricultural landscape with localized pockets of urban and suburban development.

Once a broad, shallow system with multiple channels, the Napa River is now confined to a single deeply incised channel controlled by berms constructed to protect neighboring homes and vineyards from flooding.[1] As a result, the mainstem channel is largely disconnected from remaining floodplain areas, and the present day Napa River system is neither geomorphically functional nor flood-safe. Moreover, the existing single-channel system lacks the geomorphic complexity needed to adequately support known populations of special-status species. These include fall-run Chinook salmon (*Oncorhynchus tshawytscha*; federally listed as a species of concern), which spawn and rear in the River; and Central California coast steelhead (*O. mykiss*; federally listed as threatened), which pass through the Rutherford Reach on their way to spawn in upstream

[1] Although these features are commonly referred to as levees, they were not constructed to U. S. Army Corps of Engineers standards nor have they been certified for flood protection by the Federal Emergency Management Agency (FEMA), and are more appropriately described as berms.

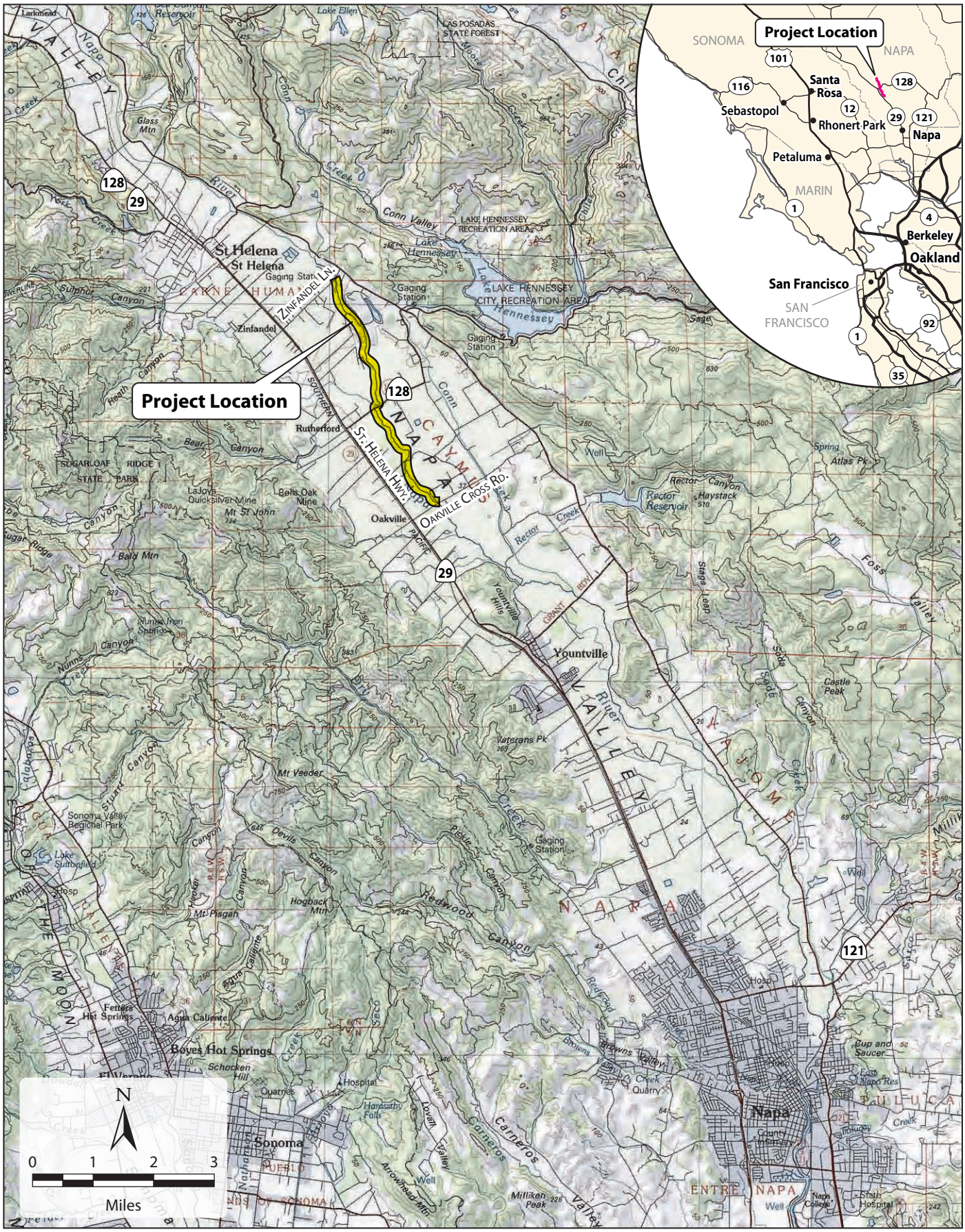

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Figure 1
Regional Location

tributaries. Chinook salmon and steelhead have both undergone significant population declines in recent decades, with channel incision, bank erosion, and resulting decreases in habitat connectivity and complexity believed to be the key factor limiting the size of Chinook salmon runs in the Napa River. Bank erosion also contributes fine sediment load to the reach, degrading the gravels Chinook salmon require for spawning habitat.

Degradation of the Napa River also has effects of concern for local landowners. Bank erosion and slumping have resulted in the loss of valuable vineyard land and damaged infrastructure such as roads and bridges. Economic implications include the direct costs for private efforts to prevent and repair flood damages, as well as indirect effects resulting from lost vineyard productivity and tax increases related to flood protection and response costs.

In 2002, concerned landowners initiated an effort to address problems with the Napa River channel. They created the Rutherford Dust Restoration Team (RDRT, pronounced “our dirt”) as a subcommittee of the long-standing Rutherford Dust Society, a non-profit association of vintners and grape growers in the Rutherford Appellation of the Napa Valley. Members of the Oakville Appellation (upstream of the Oakville Bridge) are also participating in this effort.

RDRT initiated the restoration planning process by retaining a consultant team to assess existing conditions in the Rutherford Reach of the Napa River and produce a conceptual plan for restoring this portion of the River. Following completion of the conceptual restoration plan, RDRT and the Napa County Resource Conservation District secured design funding from the Coastal Conservancy and the Napa County Flood Protection and Watershed Improvement Authority (“Measure A Flood Authority”). Project permitting will also be funded by the Coastal Conservancy and Measure A Flood Authority. Restoration construction will be funded through sales tax moneys administered by the Measure A Flood Authority and matching grant funds obtained by landowner efforts.

As described previously, the majority of the property along Rutherford Reach is privately owned and the project design was developed through extensive collaboration with these landowners. As of August 2008, 22 landowners have signed agreements with the County authorizing work to occur on their properties. The County is continuing discussions with the remaining landowners. Because work may occur on these properties in the foreseeable future, either implemented by the County or by the individual landowner, the project analyzed in this IS/MND includes restoration work proposed for the entire Rutherford Reach. However, no work will occur on private property until or unless it is authorized by the landowner.

Project Location

The project site is located in Napa County, California, just south of the City of Saint Helena, and is comprised of a 4.5-mile reach of the Napa River known as the Rutherford Reach. The Rutherford Reach extends from Zinfandel Lane, on

the north, to Oakville Cross Road on the south, and is bisected by the Rutherford Cross Road (Figure 1). The lands surrounding Rutherford Reach are comprised of highly productive vineyards that produce premier Napa Valley wines and include both the Rutherford and Oakville viticultural appellations.

Project Goals and Objectives

RDRT's goal is

> to work collaboratively with neighbors and agencies to stabilize river banks, reduce the impacts of flooding, protect and enhance fish and wildlife habitat, reduce Pierce's disease pressure on vineyards, and provide ongoing education about the river and its watershed.

Consistent with this vision, the goal of RDRT's proposed Napa River Rutherford Reach restoration project is to help the channel adjust to a more natural condition in equilibrium with its surroundings.

Specific project objectives include

- minimizing the need for ongoing channel stabilization and repair work by establishing a preventative maintenance program consistent with long-term objectives;
- reestablishing geomorphic and hydrologic processes to support a self-sustaining, continuous, and diverse native riparian corridor;
- rehabilitating natural river/floodplain interactions where possible within the new channel corridor;
- increasing and enhancing riverine, riparian, and floodplain habitat value and complexity, with a focus on supporting increased quality and quantity of habitat for Chinook salmon and California freshwater shrimp;
- working closely with landowners to address their interests with regard to adjacent farmland and property;
- where feasible, protecting existing high value riparian corridor habitat patches;
- rehabilitating the river in a way that facilitates permitting agency approval; and
- removing invasive nonnative vegetation and replanting with native vegetation that will not promote Pierce's disease in vineyards.

Required Permits and Approvals

In addition to CEQA, many other laws and policies have been adopted at the federal, state, and local levels to protect environmental resources and ensure that local agency projects are appropriately implemented. Table 1-1 summarizes the

principal laws, regulations, and policies with which the proposed project must comply. In addition to the requirements summarized in Table 1-1, the project must conform to the policies and standards established in the current (2008) Napa County General Plan, which is relevant to all resource topics analyzed under CEQA. More detailed information on regulatory requirements is given in Appendix B, and Chapter 3 includes a summary of key regulations for each resource topic.

Table 1-1. Compliance and Review Requirements Applicable to the Proposed Project

Resource Area	Compliance Requirements
Transportation/Traffic	■ California Department of Transportation encroachment permit process
Noise	■ Napa County Noise Ordinance
Air Quality	■ Federal Clean Air Act and Clean Air Act Amendments of 1990 ■ California Clean Air Act ■ Bay Area Air Quality Management District Clean Air Plan ■ San Francisco Bay Area Ozone Attainment Plan
Hydrology and Water Quality	■ Federal Clean Water Act ■ Porter-Cologne Water Quality Control Act ■ Napa County Floodplain Ordinance
Geology, Seismicity, and Soils	■ Napa County grading and construction permitting requirements
Biology	■ Federal and state Endangered Species Acts ■ Federal Migratory Bird Treaty Act ■ Federal Bald and Golden Eagle Protection Act ■ California Native Plant Protection Act ■ California Fish and Game Code
Hazards and Hazardous Materials	■ California Code of Regulations, Title 22 ■ California Hazardous Materials Release Response Plans and Inventory Act
Mineral Resources	■ Surface Mining and Reclamation Act
Aesthetics	■ Napa County Viewshed Protection Ordinance
Cultural and Paleontological Resources	■ National Historic Preservation Act ■ State Historic Preservation Office requirements ■ California Environmental Quality Act ■ California State codes

Public Involvement

Pursuant to Sections 15073.5 and 15105[b] of the state's CEQA Guidelines, the County is now circulating this document for a 30-day public and agency review. All comments received prior to 5:00 p.m. on Monday, September 22, 2008, will be considered.

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

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Chapter 2
Project Description

The proposed project would provide for geomorphic and habitat restoration along the entirety of the Rutherford Reach, which is the portion of the Napa River corridor between the Zinfandel Lane Bridge and the Oakville Cross Road. Because existing conditions—and hence, restoration needs—in the project area are variable, the Rutherford Reach has been divided into 9 subreaches for the purpose of restoration planning, as shown in Figure 2.

This chapter describes the proposed project in detail, including information on

- geomorphic changes in the Rutherford Reach since the 1940s, leading to the existing need for restoration;
- existing geomorphology and habitat in the Rutherford Reach and a reach-by-reach overview of the proposed restoration approach;
- the proposed restoration treatments;
- maintenance needs that are anticipated following restoration; and
- the environmental commitments (methods, techniques, and best practices) that will be incorporated into project construction and maintenance to minimize environmental effects.

Historic Changes in Napa River Geomorphology—the Key to Restoration Needs

Agriculture in the Napa Valley began in the mid-19th century, with a combination of grazing and crop production on the valley floor. For about the next hundred years, through the 1960s, the valley floor supported primarily orchards, vineyards, and field crops, with town centers remaining small. Since the 1960s, towns have grown, and vineyard production in particular has increased substantially; it is now the dominant use along the Rutherford Reach and in surrounding valley floor areas (Phillip Williams & Associates 2003).

The Napa River has been modified in various ways in response to changing land uses on the valley floor (Phillip Williams & Associates 2003). Some alterations—such as channel straightening, bank stabilization, and earthen berm construction—have focused on flood protection. Others—such as bar skimming

and gravel extraction—have focused on the River as an economic resource. In addition, agricultural and urban expansion have progressively encroached on the riparian corridor, removing riparian habitat and introducing nonnative plant and animal species.

As recently as the 1940s and 1950s, historic aerial photographs show the Napa River as a fairly natural multiple ("distributary") channel gravel-bed stream system. Inchannel morphology was complex, with point and mid-channel bars; pools; and wetlands. The active channels remained geomorphically and functionally connected with the adjacent floodplain and the River flooded on an annual basis (Phillip Williams & Associates 2003).

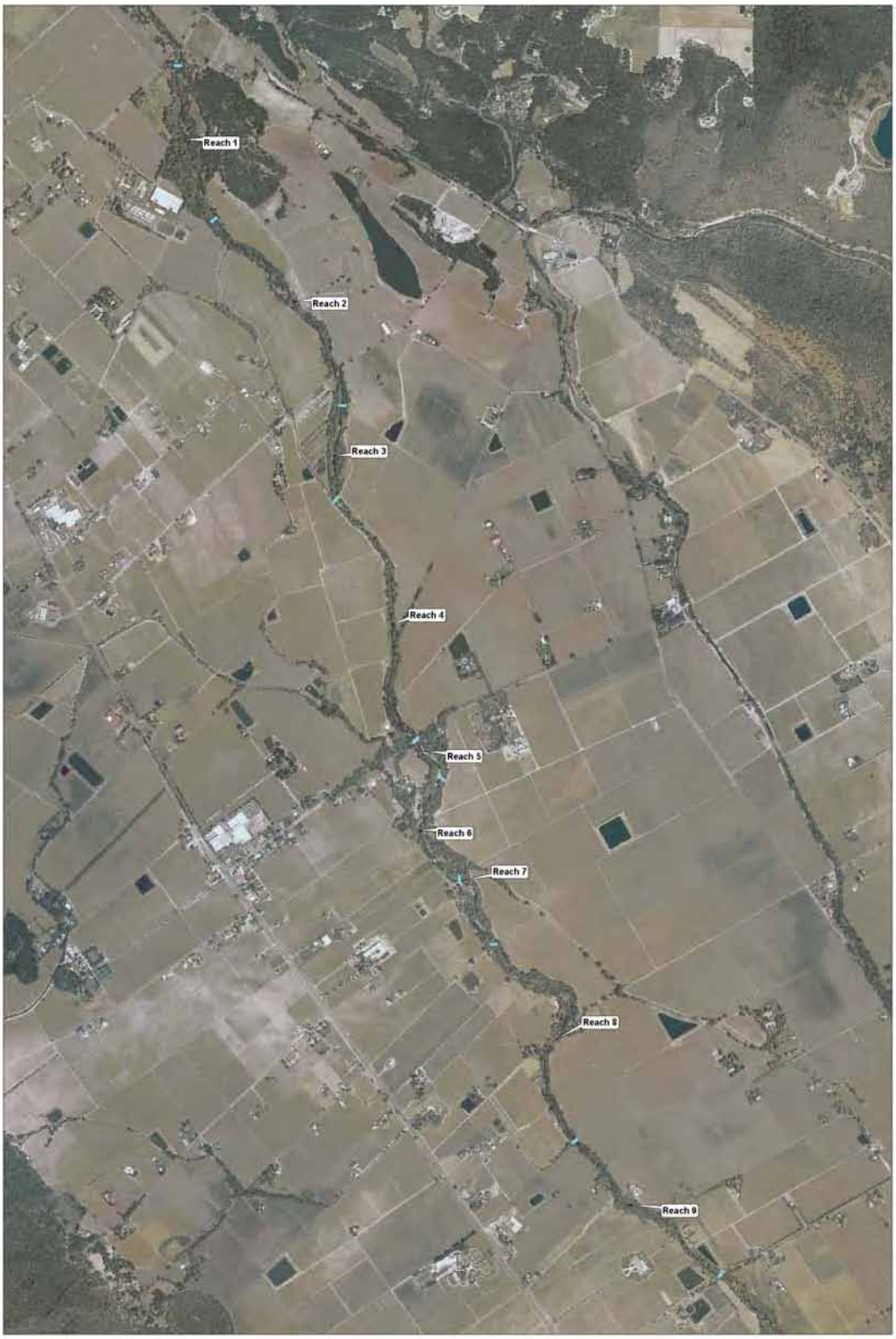
As a result of hydromodification in the upper parts of the watershed and agricultural development on the valley floor many of the River's distributary channels have been filled in and/or disconnected and much of the River is now a single-channel system. The active channel is deeply incised (as much as 10–15 feet in some locations) and is functionally disconnected from the floodplain. This is at least in part the result of levee construction—as earthen berms were built, floodflows were increasingly confined to a single "main" channel. Flood discharges and flow velocities in the main channel increased markedly, leading to progressive channel incision, disconnecting the channel from the floodplain, and further concentrating floodflows that previously would have spread out via a network of smaller, shallower channels and intervening floodplain areas.

In response to this situation, the proposed restoration strategy focuses on broadening the active River corridor by setting earthen berms back and restoring a multi-stage channel and terrace geomorphology—essentially allowing the River to return to a more naturally functional geomorphic condition. To this end, neighboring landowners have also agreed to set back agricultural land uses adjacent to the River in support of River restoration.

Habitat Conditions in the Project Area

Instream Habitat

Instream habitats in the Rutherford Reach of the Napa River consist primarily of long runs and glides, with fewer deep pools, and local riffles. Pools are typically deeper than 3 feet, with a maximum depth of approximately 8 feet. Various types of cover are present, including deep water, undercut banks, instream woody material, and overhead cover provided by low-growing riparian vegetation. Many locations support aquatic macrophytes that also provide cover for fish. The amount and type of cover found in pools varies; some pools offer only one or two types of cover, while others offer all of the types identified. In general, less cover and fewer cover types are present in runs and riffles than in pools. Cover in these habitats consists of undercut banks, overhead cover from riparian vegetation, and instream woody material (Jones & Stokes 2005a).



Jones & Stokes

Figure 2

Channel Subreaches

In general, substrate composition is finer in the downstream subreaches. As of September 2005, when initial field surveys were conducted for the proposed project, bars and riffles in Reaches 2 and 3 were typically composed of pebble and coarser materials, whereas bars and riffles in Reaches 4 through 9 were gravel-dominated (Jones & Stokes 2005a). A variety of types of bars was present, as summarized by reach in Table 2-1.

Table 2-1. Overview of Existing Bar Development in Rutherford Reach, Napa River, September 2005

Reach	Number of Bars	Bar Types
1	17	Lateral, lateral point
2	17	Lateral, lateral point, mid-channel
3	7	Lateral, lateral point, mid-channel
4	20	Lateral, mid-channel
5	5	Lateral, lateral point, high bar/terrace
6	24	Lateral, lateral point, mid-channel, high bar/terrace
7	17	Lateral, lateral point, mid-channel, high bar/terrace
8	32	Lateral, lateral point, mid-channel, high bar/terrace
9	16	Lateral, lateral point, mid-channel

Source: Jones & Stokes 2005a

Bar development in the project area is spatially variable and generally reflects the geomorphic and hydraulic channel characteristics (e.g., topwidth, degree of confinement, flow velocities) of each subreach. For example, the confined nature of the channel in Reaches 1, 2, 4, 8, and 9 prevents the formation of the point bar morphology found in many channels. However, although the lateral and mid-channel bars found in these confined reaches are ephemeral features that are mobilized in low-level storm events, these features do influence low-flow hydraulic conditions and provide some aquatic habitat complexity and diversity

Riparian Habitat

The width and species composition of the riparian corridor varies considerably throughout the project area, depending on channel width, bank steepness, and adjacent land uses. The riparian corridor is widest in Reach 1 (600–800 feet). The corridor in Reaches 3, 5, 6, and 7 is also relatively broad, ranging from 250 to 400 feet in width. Reaches 2, 4, 8, and 9, which are confined by earthen berms and adjacent land use, support narrow bands of riparian vegetation (150 feet or less) (Philip Williams & Associates 2003).

Dominant species along the River corridor in the project area include valley oak (*Quercus lobata*), coast live oak (*Q. agrifolia*), and California walnut (*Juglans*

californica). California bay (*Umbellularia californica*), blue elderberry (*Sambucus mexicana*), and California buckeye (*Aesculus californica*) are also found in the project area. Species generally considered typical of Coast Range riparian habitats—willows (*Salix* spp.), alders (*Alnus* spp.), and cottonwoods (*Populus* spp.)—are largely absent, although they occur in reaches that support low-level inset terrace benches. This is likely because the pattern of repeated incision, bank erosion, and bank failure that has led to the channel's present incised morphology has removed the typical proximal riparian habitat so that only the more distal xeric woodland/grassland communities remain (Jones & Stokes 2005a).

At present, Reaches 1, 2, 3, and 5 support the largest intact stands of mature overstory vegetation. Valley oak, coast live oak, and California walnut are the dominant species in these reaches. Reaches 3, 5, 6, and 7, where the wider channel permits development of bars and inset floodplain benches, support extensive stands of Fremont cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), yellow willow (*Salix lutea*), and sandbar willow (*Salix exigua*). Overstory vegetation is relatively sparse in Reach 4, consisting of small stands or individual valley and coast live oaks (Jones & Stokes 2005a).

In much of the project area, the riparian understory is dominated by nonnative species, including Himalayan blackberry (*Rubus discolor*), periwinkle (*Vinca major*), and wild hybrid grape (*Vitis* spp.). Other invasive nonnative species such as giant reed (*Arundo donax*) are also widespread throughout the project area. However, some parts of the project area support substantial patches of native understory species, particularly where local landowners have initiated invasive species removal and revegetation projects to control Pierce's disease.[1] In these reaches, it is not unusual to find areas dominated by native overstory and understory species. Native understory species in the project area include snowberry (*Symphoricarpos albus*), Santa Barbara sedge (*Carex barbarae*), creeping wild rye (*Leymus triticoides*), and California wild rose (*Rosa californica*) (Phillip Williams & Associates 2003).

Pierce's Disease Host Plants

Pierce's disease has caused significant damage to streamside vineyards in the Rutherford Reach (Pierce's Disease/Riparian Habitat Workgroup 2000). In the project area, as in the rest of the Napa Valley, the blue-green sharpshooter (*Graphocephala atropunctata*) is the most important vector of the bacterium that

[1] Pierce's disease is a lethal disease of grapevines. Diseased vines become non-productive, and may die within 1–2 years after infection. All commercial grape varieties can contract Pierce's disease, but some varieties such as Pinot Noir and Chardonnay are more susceptible than others. Cabernet Sauvignon, Sauvignon Blanc, Merlot, and Syrah are less susceptible, but still commonly contract Pierce's disease. White Riesling, Zinfandel, and Chenin Blanc are among the least susceptible

causes Pierce's disease, *Xyella fastidiosa*. When the blue-green sharpshooter feeds on infected plants, bacteria are ingested and become attached to its mouthparts. When the insect moves on to another plant to feed, the bacteria may be dislodged and injected into the plant. *Xyella fastidiosa* can reside in a variety of native and non-native plants, including a number that are common in riparian habitats (Pierce's Disease/Riparian Habitat Workgroup 2000). Host plants in the project area include California blackberry (*Rubus ursinus*), mugwort (*Artemisia douglasiana*), California grape (*Vitis californica*), stinging nettle *(Urtica dioica*), blue elderberry, mulefat (*Baccharis salicifolia*), periwinkle, Himalayan blackberry, and wild grape.

Restoration Approach by Reach

The following sections summarize existing geomorphology and habitat conditions in the nine project area reaches, and present the restoration approach proposed for each reach based on existing conditions and needs. Information on existing conditions is based on a technical memorandum prepared for RDRT's Technical Advisory Panel in fall 2005 (Jones & Stokes 2005a) and the *Napa River Rutherford Reach Restoration Project Basis of Design Report* (Jones & Stokes 2008), and represents a synthesis of previous studies, including work performed during preparation of the conceptual restoration plan, and additional field studies in support of restoration design. Table 2-2 presents a reach-by-reach overview of key issues and proposed restoration activities. Detailed descriptions of restoration treatments are provided in the section titled *Restoration Techniques*, which follows the discussion of Reach 9.

Reach 1

The upper end of Reach 1 is marked by the Zinfandel Lane Bridge. The bridge and the bedrock outcrop on its downstream side appear to provide grade control on the channel profile at the upper end of the project reach: above the bridge, channel gradients are fairly low, while below the bridge, in the upper portion of Reach 1, the channel is steep and deeply incised. The downstream portion of the reach has a lower gradient. Traces of a remnant secondary channel on the west bank can be observed approximately 10 feet above the main channel invert. Traces of a second similar channel are found on the east bank. Both of these remnant channels are disconnected from the main channel and are infrequently flooded by overland flow and/or overbank flow during larger flood events. Overall, inchannel habitat in Reach 1 is dominated by pools and flat water, with less than about 10% of channel area occupied by riffle habitat. In addition, the steep drop below the Zinfandel Lane Bridge is presently a substantial barrier to salmonid passage.

The upper portion of Reach 1 supports a narrow, oak-dominated riparian corridor. The lower portion of Reach 1 supports a broad, well-developed top-of-bank oak woodland inundated only by large flood events. Smaller inset terraces flooded by more frequent events support restricted growth of willows. Invasive

species include heavy growth of Himalayan blackberry on the west bank and periwinkle on the east.

As shown in Appendix A, the restoration approach proposed for Reach 1 would lay back both the east and west banks in selected areas to create low-level (1.5-year) terraces. Bench logs would be installed on the new terrace surfaces to increase roughness, encourage sediment deposition, and create planting pockets, and the terraces would be planted with appropriate riparian vegetation (see Table 2-3 for the proposed Rutherford Reach planting palette). Off-bench branch cover would be installed selectively along terrace edges to mimic the cover and hydraulic complexity created by natural windthrow logs, improving inchannel habitat.

Invasive species would be aggressively removed from both banks to enhance existing riparian habitat and increase the success of native plantings. Pierce's disease host plants would also be removed on both sides of the channel. These areas would be re-planted with suitable native species.

In addition, the remnant side channel on the west bank would be deepened and widened to increase its connectivity with the main channel, allowing it to engage and convey floodflows during more frequent (1.5-year) flood events. A new channel would provide additional flow to the re-engaged west bank side channel. A new setback levee and access road would be constructed along the west bank in the lower portion of the reach.

In addition to off-bench branch cover installed along newly created low-level terraces, channel complexity and fisheries habitat quality would be further increased by selective installation of spider log and toe log structures. The toe logs would serve to narrow and better define the low-flow channel while providing bank toe protection at higher flows. The spider log structures would narrow the low flow channel, create differential flow velocities, and promote bed material sorting.

Fish passage below the Zinfandel Lane Bridge would not be modified in this project. However, as discussed further in Chapter 3 (see analysis of cumulative impacts under *Mandatory Findings of Significance*), the U.S. Army Corps of Engineers is proposing a project to replace the existing steep drop with a series of fish-friendly riffles.

Reach 2

In Reach 2, the channel is incised and confined by earthen berms. Vegetated inset floodplain and terrace surfaces are nearly absent in this reach, except for one terrace along the west bank (at the adjacent valley ground level) located approximately mid-reach.

As shown in Appendix A, the restoration approach proposed for Reach 2 would include laying back both banks in selected areas to create new low-level terraces

Table 2-2. Overview of Key Issues and Proposed Restoration Activities by Reach

		Proposed Restoration Treatments									
Reach	**Key Issues**	**Channel Realignment**	**Terrace Cut and Slope**	**Channel Complexity Enhancement**	**Bank Stabilization**	**Fish Passage, Drops**	**Vegetation Removal**	**Native Revegetation**	**Reconnect Existing Side Channel**	**New Side Channel**	**New Setback Berm(s)**
1	Incision, bank instability, impeded fish passage, isolation of existing side channel, invasive exotic vegetation		+	+	+	+	+	+	+	+	+
2	Incision, channel confinement, simple inchannel morphology		+	+	+			+			+
3	Incision, channel confinement		+		+		+	+		+	
4	Incision, severe channel confinement, simple inchannel morphology, narrow riparian corridor		+	+	+			+			+
5	Substantial erosion on outside of large meander bend		+		+						
6	Bank erosion and instability, isolation of existing side channel	+	+		+			+	+		+
7	Incision, channel confinement		+	+				+			+
8	Incision, severe erosion on outside of large meander bend, simple inchannel morphology in downstream portion of reach	+	+	+	+		+	+			+
9	Incision, channel confinement, simple inchannel morphology		+	+	+			+			+

Table 2-3. Proposed Restoration Planting Palette, by Planting Zone

Planting Zone	Inundation Frequency	Groundwater Depth	Substrate	Planting Palette
Bank toe/bar	<1.5 year	<5 feet	Rock, gravel, sand	*Alnus rhombifolia* White alder *Salix laevigata* Red willow *Salix lasiolepis* Arroyo willow *Salix lutea* Yellow willow
Floodplain bench	1.5 year	10–15 feet	Silty clay loam	*Alnus rhombifolia* White alder *Carex barbarae* Santa Barbara sedge *Cornus glabrata* Brown dogwood *Fraxinus latifolia* Oregon ash *Leymus triticoides* Creeping wildrye *Populus fremontii* Fremont cottonwood *Salix laevigata* Red willow *Salix lasiolepis* Arroyo willow
Lower floodplain slope	1.5–5 years	15–22 feet	Silty clay loam	*Aesculus californica* California buckeye *Aristolochia californica* Pipevine *Calycanthus occidentalis* Western spicebush *Carex barbarae* Santa Barbara sedge *Heteromeles arbutifolia* Toyon *Leymus triticoides* Creeping wildrye *Populus fremontii* Fremont cottonwood *Rosa californica* California wild rose *Salix laevigata* Red willow *Symphoricarpos albus* Snowberry

Planting Zone	Inundation Frequency	Groundwater Depth	Substrate	Planting Palette
Upper floodplain slope	5–10 years	22–24 feet	Silty clay loam	*Aesculus californica* California buckeye *Aristolochia californica* Pipevine *Calycanthus occidentalis* Western spicebush *Carex barbarae* Santa Barbara sedge *Heteromeles arbutifolia* Toyon *Leymus triticoides* Creeping wildrye *Lonicerna hispidula* Honeysuckle *Quercus agrifolia* Coast live oak *Umbellularia californica* California bay
Floodplain terrace	>10 years	>24 feet	Consolidated silty clay loam, artificial fill	*Aesculus californica* California buckeye *Aristolochia californica* Pipevine *Bromus carinatus* California brome *Calycanthus occidentalis* Western spicebush *Carex barbarae* Santa Barbara sedge *Heteromeles arbutifolia* Toyon *Hordeum brachyantherum* Meadow barley *Leymus triticoides* Creeping wildrye *Lonicerna hispidula* Honeysuckle *Melica californica* California melic *Quercus agrifolia* Coast live oak *Quercus lobata* Valley oak *Rosa californica* California wild rose *Symphoricarpos albus* Snowberry *Umbellularia californica* California bay *Vulpia microstachys* Small fescue

that would support bench logs and native riparian plantings, as described for Reach 1.

Bank protection would be added to stabilize severely eroded and failing portions of the east bank at the lower end of the reach. This is expected to take the form of rock groins or baffles constructed perpendicular to the stream bank and planted with native willows. In addition to controlling bank erosion, the barriers would trap sediment and promote natural recruitment of riparian vegetation.

Channel complexity and fisheries habitat quality would be increased by installing spider log structures in the upstream portion of the reach. Rock placed to protect portions of the bank toe would also increase hydraulic complexity and provide instream and overhead cover.

A new earthen berm would be constructed on the west bank and tied into an existing berm at the upstream end of Reach 3. A new access road would be constructed immediately outside of the berm. The berm would be setback from the top of the streambank to create a vegetated buffer between the river and adjacent vineyards. Native plants would be planted between the top of the streambank and the toe of the new berm to create a vegetated buffer and increase bank stability.

Reach 3

In Reach 3, the channel is incised and confined by earthen berms, but supports more vegetated inset floodplain and terrace surfaces than Reaches 1 and 2. The top width of the channel is significantly wider than in Reaches 1 and 2.

As Appendix A shows, the restoration approach proposed for Reach 3 would preserve much of the existing channel morphology, taking advantage of the existing inset vegetated terraces. Channel complexity would be increased by installation of a rock grade-control riffle to break up existing flatwater habitat.

The existing earthen berm on the east bank would be replaced with a new earthen berms. The berm would be setback from the top of the streambank in selected areas to create a vegetated buffer between the river and adjacent vineyards. A new access road would be constructed along the outside of the new earthen berm. Native plants would be planted between the top of the streambank and the toe of the new berm to create a vegetated buffer and increase bank stability.

Reach 4

In Reach 4, the channel is strongly confined by existing earthen berms and as a result is narrow and deep by comparison with other reaches. The riparian corridor is similarly restricted, and the channel supports few inset floodplain or terrace surfaces.

As shown in Appendix A, the proposed restoration approach for Reach 4 would widen this confined channel segment substantially by laying back the steep west bank to create a new terrace at approximately the 1.5-year flood level. The new terrace would be stabilized by installing bench logs and planting appropriate native species (see Table 2-3). Undercut bank structures constructed of bank-parallel native logs would mimic the cover provided by naturally undercut banks. Selectively installed branch bundles would provide additional cover while increasing the sinuosity of the low-flow channel, creating downstream hydraulic complexity, and trapping sediment on their upstream sides.

In the upper portion of the reach, toe log structures and rock grade-control weirs would better define the low-flow channel while stabilizing the channel invert and breaking up existing flatwater habitat. The complexity and quality of inchannel habitats would be further increased by selective installation of spider log structures.

A new earthen berm and access road would be constructed on the east bank. Native plants would be planted at top of bank to create a vegetated buffer between the river and adjacent vineyards.

A new earthen berm would also be constructed on the west bank and would tie into an existing earthen berm at the downstream end of Reach 3. A new access road would be constructed along its outside edge. Native plant species would be added in the top-of-bank area, to create a vegetated buffer between the river and adjacent vineyards. Near the bottom of the reach, approximately 350 linear feet of sheet-pile floodwall would be installed to protect an existing corporation yard located immediately adjacent to the channel on the west bank. Rock toe protection would be used to armor and control the transitions between earthen levee surfaces and sheet pile.

Reach 5

Reach 5 is a short reach downstream of the Rutherford Cross Road Bridge. The channel is significantly wider here than in upstream reaches, supporting large bars and vegetated low-level terrace/floodplain surfaces. The west bank also has a high-level terrace that is subject to inundation only in very infrequent large events. An extensive meander bend at the upper end of Reach 5 is experiencing substantial bank erosion that threatens adjacent property.

Much of Reach 5 is fairly functional by comparison with the remainder of the Rutherford Reach. The principal restoration concern—and the focus of proposed restoration activities—in Reach 5 relates to the eroding meander bend at the upper end of the reach. As Appendix A shows, the floodway in this area would be widened by lowering the inset terrace surface on the inner (west) bank to approximately the 1-year level. The lowered and recontoured terrace bench and slope would be stabilized with bench logs and planted with native riparian species (see Table 2-3). This would allow floodwaters to spread out and decelerate during frequent smaller flood events, reducing turbulence and erosive potential, and relieving bank erosion on the outside of the bend. Biotechnical

bank protection would be installed at the toe of the outer bank to provide further insulation. In addition, the upper portion of the eroding east bank would be laid back to approximately a 3:1 slope and planted with native species. This would stabilize the slope, reducing the likelihood of slumping and caving and providing a broader floodway at higher (2-year and above) flood stages.

Reach 6

Bale Slough enters the River in Reach 6, providing coarse sediment supply to the channel. The main River channel is relatively wide in this reach and supports large bars and vegetated inset floodplain surfaces. A remnant side channel on the east bank conveys flood flows (<10-year flood recurrence interval) to Conn Creek .

As shown in Appendix A, the proposed restoration approach for Reach 6 would include placing toe log structures to control bank erosion and better define the low-flow channel. Inchannel habitat would be improved by installing spider log structures to increase hydraulic and habitat complexity.

The east bank would be laid back to create a mid-level terrace, and native understory plantings would be installed to stabilize the new terrace surface and augment existing riparian habitat. Existing mature riparian overstory would be preserved to the extent feasible.

Reach 7

Much of Reach 7 is confined by earthen berms on the east bank and is narrower than Reach 6, but this reach supports significant bars and vegetated inset floodplain surfaces in a limited wider section.

As shown in Appendix A, the proposed restoration approach for Reach 7 would largely preserve and improve on existing bar and terrace morphology, with some recontouring to increase flood conveyance capacity and add terrace surfaces where they are lacking. Native species (see Table 2-3) would be planted on new terrace surfaces. Toe log structures would be installed to protect selected bank toe areas. At the lower end of Reach 7, extending into the uppermost portion of Reach 8, inchannel complexity would be increased by installing a rock weir to create riffle habitat while armoring the channel invert.

New access roads would be constructed along most of the west bank and a portion of the east bank in Reach 7, with native species planted inside the road to create a vegetated buffer. Nonnative vegetation would be removed, but mature native species would be preserved in place.

Reach 8

Reach 8 is incised and generally narrows from upstream to downstream. The upper, wider portion of the reach offers significant point bars and vegetated inset floodplain surfaces. In approximately the middle of the reach, the channel makes two large bends. The upstream bend shows severe erosion, and the downstream bend is revetted, indicating earlier erosion problems. Erosion problems and steep banks continue in the downstream portion of the reach, with few inset floodplain or terrace surfaces.

As Appendix A shows, the proposed restoration approach for Reach 8 includes a variety of activities.

In the upper portion of the reach, immediately downstream of the channel complexity improvements described under *Reach 7* above, toe log structures would be installed to increase overall sinuosity and relieve erosion of a steeply incised, unstable segment of the west bank. Biotechnical stabilization would be installed on failing sections of the bank. Bank stabilization would also be applied to other steep, at-risk reaches on both sides of the main channel. Additional channel complexity features would be placed to break up flat-water habitat.

Both sides of the severely eroding upstream bend at mid-reach would be extensively recontoured. On the west (inner) meander bank, an inset terrace surface would be created at approximately the 500-cfs (<1-year) level. An additional bench would be excavated at the 1.5-year flood level, creating a multi-stage channel to increase overall flood conveyance capacity—particularly at low, frequent-recurrence stages—and reduce erosion of the steep east bank. Biotechnical stabilization (rock armoring supporting native willow plantings) would be installed on the east bank to protect the outer side of the meander and redirect flow somewhat, relieving erosion where it is presently most severe. Rock grade control would be added in the channel to control incision.

Immediately downstream of the meander, the disused concrete bridge abutments that are now contributing to large-scale bank erosion would be removed, the slope would be laid back to a stable 3:1 gradient, and biotechnical stabilization would be added. Further downstream, selected sections of the channel would be widened, with steep existing banks laid back to create low-level inset floodplain and terrace surfaces. This would allow floodwaters to spread out and dissipate across a broader flood corridor, reducing erosive potential and controlling channel incision in 1.5-year and larger events.

New access roads would be constructed in selected areas along the along the west and east banks in Reach 8. Appropriate native species (see Table 2-3) would be planted between the new roads and the top of the streambank to create a vegetated buffer.

Reach 9

In Reach 9, the channel is confined by earthen berms along the east bank, and is incised and relatively narrow. Few vegetated inset floodplain or terrace surfaces are found within the channel, except on two bends located about mid-reach.

The proposed restoration approach for Reach 9, shown in Appendix A, focuses on widening the floodway by laying back steep existing bank slopes to create inset terraces at approximately the 1.5-year flood level. Native species would be planted to stabilize the new terrace surfaces and improve riparian habitat. Inchannel habitat would also be improved by adding rock weirs and toe log structures in the lower portion of the reach. Mature native vegetation would be preserved in place, and biotechnical bank stabilization would be added where appropriate. New access roads would be constructed in selected areas along both banks. Native species would be planted at top of bank along the new roads to create vegetated buffers.

Restoration Techniques

The following sections describe the techniques proposed to for use in restoration of the Napa River, Rutherford Reach. All restoration activities would incorporate a suite of measures and practices to reduce the environmental effects of earthwork and other tasks. These are described separately in the next section, *Environmental Commitments*.

Berm Construction

New earthen berms would be constructed in areas where berms currently exist. The new berms would be set back from the top of the stream bank and designed to match the level of protection afforded by existing agricultural earthen berms. Berm crest heights would thus be similar to existing structures. Slopes on the River side would be 3:1 and planted with native shrubs and grasses. Slopes on the land side would be 8:1 to facilitate planting and maintenance of grape vines.

Equipment required to construct earthen berms would include graders, excavators, bulldozers, water trucks, and rollers. To the extent feasible, levee construction would reuse native site materials, but some use of imported materials may be needed to provide the appropriate engineering and hydrologic properties. If needed, import fill would be delivered to the work site in dump trucks. Any unused excavated materials would be offhauled in similar vehicles for reuse or appropriate disposal elsewhere.

Channel/Bank Reconfiguration

As identified above, channel and bank reconfiguration would focus primarily on creating new inset floodplain surfaces at approximately the 1.5-year flood elevation (typically about 10−15 feet above the existing low-flow channel invert) in order to widen the floodway that conveys frequently recurring flood events. Some benches, particularly those placed at the inside bend of channel meanders, would be excavated to elevations associated with lower stream flows (approximately 500 cfs). Inset floodplain benches would be designed on a site-specific basis, so the width and length of new terrace benches would vary depending on the overall channel width, adjacent land uses, and other factors. However, in general, inset benches are expected to range from 10 to 30 feet wide. Bench surfaces would slope very gently away from the river, with an approximate difference of 1 foot in elevation between the outer and inner terrace edges. Floodplain slopes would be contoured to a stable gradient, which is expected to be 3:1 in most places, but would be 2:1 in areas with significant land use constraints.

Some channel and bank reconfiguration activities might rely on hand labor. However, in many cases, particularly where the reconfiguration is more extensive, heavy equipment would be required. In these cases, equipment would include track-mounted or low-pressure excavators for the actual recontouring, as well as compaction equipment (most likely walk-behind vibratory compactors), and probably also haul trucks to deliver fill and remove excavated materials for reuse elsewhere in the Rutherford Reach or appropriate offsite disposal.

Bank Stabilization

Bank stabilization would rely on biotechnical strategies. The primary techniques for bank toe stabilization are expected to include rock armoring, toe log structures, and undercut bank structures. Bank surfaces would be stabilized using bench logs.

Rock armoring would be used where aggressive control of bed or bank erosion is needed, and would be constructed of native rock materials keyed into the bank and bed (Appendix A). Rock materials would be sized to be immobile except in the largest, infrequently recurring storm events, and would preferentially be placed like a gravity wall (unanchored), although in some cases, it may be necessary to use smaller rock materials and include cable strap anchoring. Native willows would be installed in the planting pockets between boulders, and would provide further stability as well as improving channel shading as they establish.

Toe log structures would be used to control bank toe erosion and bank undercutting, and could also shape and define the low-flow channel if selectively placed. Toe log structures would consist of 1–3 locally native tree trunks or untreated logs placed on a boulder footing along (parallel to) the bank toe and secured with boulder and cable anchors (Appendix A). The space behind the logs would be backfilled with native fill and planted with appropriate native species

(see Table 2-3). Toe log structures would be secured using boulder and cable anchors.

Undercut bank structures would consist of a locally native tree trunk or untreated log placed along (parallel to) the bank edge, above the bank toe, and secured with boulder anchors and cable straps. The bench surface above the log would be protected with erosion control fabric. Rock transitions would be used to prevent scour around the ends of the log. As shown in Appendix A, the inner (bank) side of the log would be supported on a boulder footing, and the outer side would be unsupported, creating an artificial overhang slightly above the level of the active channel invert. Undercut bank structures would be secured using boulder and cable anchors. This would offer inchannel cover and resting habitat for fish.

Bench logs are intended to trap sediment and foster riparian growth on terrace surfaces. Bench logs would consist of lengths of locally native woody material or untreated logs placed on terrace surfaces approximately transverse to the dominant flow direction (Appendix A). The ends of the log would be secured with boulder and cable anchors and native cuttings and container stock would be installed on the downstream side of the log.

Bank stabilization structures would be constructed using a combination of hand and mechanical techniques.

Inchannel Features

Several types of inchannel features would be constructed in the Rutherford Reach to break up existing flat-water habitat, improve water aeration, encourage and control localized sediment deposition, and diversify fish habitat. The principal types of structures proposed for use are rock weirs (grade-control structures), off-bench branch cover, branch bundles, and spider log structures.

Rock weirs/grade control structures would be constructed of native bedrock sized to resist transport and placed in the channel invert in a “V” or arc opening upstream. Space would be east between individual boulders to allow dispersed flow at low stages. The ends of the structure would be keyed into the bank toe, and native willow cuttings would be installed to reduce scour and stabilize the channel edge. In areas where the channel is significantly incised, boulders would be placed in the channel invert to construct grade control riffles. A riffle crest would be created using large (36-inch) boulders. The upstream side of the crest would be constructed with a 2:1 slope, transitioning to an 8:1 slope on the downstream side of the structure. Boulders placed along the sides of the structure would be keyed in to the bank toe, and native willow cuttings would be installed to reduce scour and stabilize the channel edge.

Off-bench branch cover is intended to mimic the hydraulic complexity and fish cover provided by natural windthrow trees. Off-bench branch cover would be constructed by keying the trunk of a locally native dead tree into a terrace bench, with the branches extending into the low-flow channel, angled slightly downstream (Appendix A). The trunk would be anchored with boulder and cable

anchors before overlying fill is placed. Locally native cuttings and container stock would be installed to stabilize the fill overlying and adjacent to the trunk.

Branch bundles are also intended to mimic natural windfall materials, but on a smaller scale than off-bench branch cover. Like off-bench branch cover, they would create hydraulic complexity and offer some fish cover. They would also serve to trap sediment and woody debris, contributing to bar growth. As the name implies, branch bundles would be constructed of bundled brush or small deadwood from locally native stock, placed on existing or newly created terrace surfaces with the branches extending into the low-flow channel and angled slightly downstream (Appendix A). Bundles would be approximately 3 feet long and would be anchored with boulder and cable anchors.

Spider log structures are designed to mimic naturally occurring debris jams in the active channel. They would be used to block off or narrow a portion of the channel at low flows, resulting in local velocity accelerations and more complex flow patterns. These hydraulic variations in turn would promote local scour, deposition, and general bed material sorting across the channel, fostering bar accretion and diversifying inchannel habitat. As shown in Appendix A, spider log structures would be constructed by placing large woody debris (locally native or untreated commercial materials) to construct an interlocking framework in the channel. Woody materials would be placed on a boulder footing and secured using a combination of anchor logs keyed into the channel bed and boulder anchors. Native bedrock sized to resist transport would be used to fill in the framework, simulating accretion of coarse bedload where flow is obstructed.

Like bank stabilization, inchannel features would be constructed using a combination of hand and mechanical techniques.

Vegetation Removal

Nonnative vegetation would be removed to facilitate the success of existing native plants and newly installed native plantings. It may also be necessary to remove some native vegetation where earthwork is required to recontour the channel banks and/or construct new setback earthen berms. In addition, both native and nonnative species known to host the blue-green sharpshooter would be removed.

To ensure that vegetation removal is selective, most vegetation removal would be restricted to hand techniques and handheld equipment such as chainsaws. Where mature overstory vegetation is removed to accommodate restoration or levee construction earthwork, it may be necessary to use heavy equipment to remove stumps and rootwads. Native materials would be salvaged and stockpiled for reuse in constructing bank stabilization and inchannel features, and possibly also for transplanting during revegetation.

In some cases, herbicides would be used to facilitate vegetation removal. Herbicides would be applied only to terrestrial vegetation; aquatic herbicides are

not expected to be necessary or appropriate. Herbicides would be restricted to formulations approved for use in riparian and wetland areas.

Restoration Plantings

As described in *Restoration Approach by Reach* above, the proposed restoration strategy provides for planting of native riparian vegetation, including both under- and overstory species. Table 2-3 provides a planting list broken down by planting zone (elevation above active low-flow channel). Plant materials would include cuttings and several sizes of container stock. All materials would be locally native. As identified above, some propagules may be salvaged from native vegetation removed to accommodate bank recontouring or levee construction. If necessary, additional container stock would be obtained from native plant nurseries.

Planting activities would take place in the fall, permitting some establishment of new plantings before the onset of high temperatures and drier conditions in late spring and summer. Site preparation and planting would rely on hand techniques.

Drip irrigation would be installed to support top of bank plantings during the first few years following restoration. The lower planting zones would be watered by hand, following the schedules presented in *Restoration Maintenance and Monitoring* below.

Restoration Construction Phasing

The proposed project is too extensive and complex to construct successfully in a single phase, particularly in view of the need to limit inchannel activities to the dry season.[2] Consequently, the proponent plans to construct the project in phases over approximately the next 10 years. Actual construction sequencing would depend on project funding, but the intent is to complete construction on a reach-by-reach basis, working in a general downstream direction and prioritizing the reaches with the greatest need. Thus, it is anticipated that Reaches 1 and 2 would be completed in the first 2 project years, followed by Reaches 3 and 4, then by Reaches 7 and 8, and finally Reaches 5, 6, and 9.

Maintenance Program

The maintenance program for the Rutherford Reach of the Napa River has been developed by the Rutherford Landowner Advisory Committee (LAC) and Napa District Flood Control and Water Conservation District (District) to support the

[2] As discussed in *Environmental Commitments* below, inchannel work would be restricted to the window between April 15 and October 15, with work in the live (wetted) stream channel prohibited until May 1, and possibly as late as June 1, depending on the timing of steelhead and Chinook salmon migration each year.

proposed project and to guide implementation of routine maintenance activities within the Rutherford Reach of the Napa River. An LAC has been established to oversee implementation of the program and to coordinate maintenance activities with local landowners and vineyard managers. The LAC requested that the District Board adopt a Special Benefit Zone Project, funded through a property tax assessment program under procedures established in the District Act, to conduct maintenance in the Rutherford reach of the Napa River.

Routine maintenance activities will be funded through property tax assessments collected from local landowners through a Special Benefit Zone Project adopted by the District for the Rutherford Reach. The District will retain an assessment engineer to develop a basis for assessing individual landowners to fund the program. At this time, it is anticipated that each landowner will be assessed $2.00 per lineal foot annually (adjusted annually for inflation per the construction cost index) of streambank located within their property. However, this may change based on future needs. In years where maintenance expenditures are less than the total assessment collected by the District, any remaining funds will be retained in an interest-bearing account to fund maintenance activities conducted in future years.

Annual Maintenance Survey

District staff in coordination with the LAC will conduct routine (at least once a year) surveys to identify and assess issues of concern relative to the program objectives. Surveys will focus on identifying, mapping, and assessing:

- Actively eroding streambanks, including effectiveness of prior stabilization measures.
- Areas of excessive vegetation growth, and/or accumulations of LWD or trash that are contributing to streambank erosion.
- Storm-related damages to streambank stabilization and aquatic habitat enhancement structures
- Weed eradication, Pierce's Disease host plant status, and revegetation sites.

The District will work with the LAC to develop standard data sheets for the maintenance survey. Data sheets, aerial photographs, and GPS units will be used to document the nature and extent of the problem, and to identify recommended treatments or remedial actions. Photos will also be taken to document each problem site. The results of the survey will be compiled into a report and presented to the LAC for review. It may also be necessary to conduct interim river surveys shortly after large storm events (> 10-year flood event) to identify areas that may require immediate treatment to prevent additional streambank failure, and protect existing infrastructure and environmental resources.

Landowner Maintenance Requests

In addition to maintenance needs identified through the annual river survey, landowners will be able to submit individual maintenance requests to the LAC for review and evaluation. Maintenance requests will be limited to the following problem types: actively eroding streambanks; debris accumulations; downed trees/LWD; vegetation removal; and storm-related damages to streambank stabilization and aquatic habitat enhancement structures, and revegetation sites. Maintenance requests should be submitted to the LAC by April 1 each year to be considered for inclusion in that years' work plan. Maintenance of earthen berms, access roads, and other infrastructure is not included in the maintenance program and will be the responsibility of individual landowners.

Evaluation and Prioritization of Maintenance Activities

As described above, the annual river survey report and any individual landowner maintenance requests will be submitted to the LAC for review. The committee will evaluate and prioritize annual work activities based on the following considerations:

- Condition of existing bank stabilization and instream habitat enhancement structures.
- Potential for future significant streambank failure/erosion beyond the riparian corridor and vegetated buffer.
- Risk to adjacent infrastructure and agriculture (i.e., structures, earthen berms, roads, pumps, utilities, crops).
- Potential for future significant streambank failure/erosion.
- Potential for increased flood risk.
- Available budget

Based on an evaluation and prioritization of problems identified through the annual river survey and landowner requests, the LAC will prepare a work plan describing the location and scope of maintenance activities proposed to be conducted that year. Following completion of annual maintenance activities, the committee will prepare a supplemental report documenting work completed that year, associated costs, remaining budget, and adequacy of funding to complete required maintenance.

Maintenance Activities

As described above, the maintenance program is intended to proactively address streambank erosion and failure, in order to protect environmental resources and properties within the Rutherford Reach of the Napa River and maintain features

constructed as part of the proposed project. It also includes activities to control target invasive non-native and Pierce's Disease host plants within the riparian corridor reachwide. The maintenance program is not intended to address catastrophic streambank failure, emergency repairs, or significant streambank erosion in areas not treated by the Rutherford Reach restoration project. Such repairs would be implemented by individual landowners in coordination with appropriate agencies. Other non-emergency treatments that fall outside the scope of the maintenance program because of their scale or cost may be incorporated into the design of future phases of the Rutherford restoration project.

The following sections describe the specific types of activities included in the maintenance program. Each year, the activities identified in the maintenance committee's annual work plan will be implemented by District staff, or by landowner-supplied work crews overseen by District staff. For some activities (depending on the nature and scope of the work they entail), maintenance crews will also be required to implement measures to avoid and/or minimize environmental impacts; this is described further in the *Best Management Practices* section below.

Maintenance of Constructed Features

Constructed features such as bank stabilization areas and habitat enhancement structures will need to be monitored to ensure that they are performing correctly and identify any areas of damage or failure. Depending on their performance, some features may require repair or maintenance.

During the first 3 years following restoration, the contractor(s) selected by the County to implement the restoration project will be responsible for monitoring and maintenance of all constructed features. Once the initial post-construction monitoring and maintenance period has elapsed and the County has accepted the project as successfully completed, all project features will transition to the Rutherford Reach maintenance program, under the oversight of the Flood Control District.

Maintenance activities for constructed features are expected to include the following.

- Controlling weeds and other non-native invasive plants.
- Replanting native species.
- Hand watering.
- Installation of erosion control fabric and coir logs.
- Minor grading.
- Replacing logs and boulders.
- Installing new utility or boulder and cable anchors.

Preventative Maintenance Activities

Certain activities may be implemented proactively within the Rutherford Reach to prevent streambank erosion and failure, and associated impacts to adjacent properties and environmental resources. Preventative maintenance activities identified as part of the maintenance program for the Rutherford Reach include the following.

- Removal of accumulated debris—such as downed trees and limbs (<12 inches in diameter and /or <6 feet long), tires, shopping carts, barrels, and trash—deposited within the river channel that could potentially block or reorient floodflows and cause localized flooding and/or streambank erosion.
- Removal, relocation, and/or stabilization in place of downed trees identified as posing a flooding or erosion risk.
- Removal of in-channel vegetation that could block or reorient floodflows and cause localized flooding and/or streambank erosion.
- Removal of invasive non-native and Pierce's Disease host vegetation.
- Installation of fabric blankets, coir logs, woody material, and/or native plants, to proactively stabilize eroding banks and prevent streambank failure.

Environmental Commitments

Environmental commitments are measures and practices adopted by a project proponent to reduce or avoid adverse effects that could result from project construction, maintenance, or operation. The following sections describe the environmental commitments adopted for the proposed project. A few of the commitments are specific to the design and construction phases, but the majority of the measures described below will apply to restoration construction and to all followup monitoring and maintenance. Environmental commitments will be incorporated in construction documents (plans and specifications) prepared for the project and will thus be contractually required of all construction contractors. Commitments that apply to maintenance procedures will also be contractually enforced.

Informational Measures

Prior to project construction, the project proponent will develop informational signage to be posted in visible locations at any work sites where there is known or potential public access. The purpose of the signage will be to ensure that the public is aware of the purpose and goals of the restoration project. It will include an overview of the planned activities and the expected restoration outcomes, as well as a construction timeline. Signage will be posted in English and Spanish and will include a contact name and telephone number for further inquiries or concerns. Signage will not be required for maintenance activities because of their short duration and limited areal extent.

General Measures to Protect Water Quality

Subject to requirements of Section 402 of the federal Clean Water Act, and the National Pollutant Discharge Elimination System (NPDES) permitting process, all construction projects that disturb more than 1 acre of land are required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP, pronounced "swip"). The firm selected to prepare detailed restoration plans will also be required to prepare a SWPPP for the project and include it in project plans and specifications. The restoration construction contractor(s) will then be required to post a copy of the SWPPP at each project work site, file a notice of intent to discharge stormwater with the Regional Water Quality Control Board, and implement all measures required by the SWPPP. The County will be responsible for monitoring to ensure that the provisions of the SWPPP are effectively enforced. In the event of noncompliance, the County will have the authority to shut down the construction site or fine the responsible party or parties.

The SWPPP will include the following information and stipulations.

- A description of site characteristics, including runoff and drainage characteristics and soil erosion hazard.
- A description of proposed construction procedures and construction-site housekeeping practices, including prohibitions on discharging or washing potentially harmful materials into streets, shoulder areas, inlets, catch basins, gutters, or agricultural fields, associated drainage, or irrigation features.
- A description of measures that will be implemented for erosion and sediment control, including requirements to
  - conduct major construction activities involving excavation and spoils haulage during the dry season, to the extent possible;
  - conduct all construction work in accordance with site-specific construction plans that minimize the potential for increased sediment inputs to storm drains and surface waters;
  - grade and stabilize spoils sites to minimize erosion and sediment input to surface waters and generation of airborne particulate matter (see discussions under *Measures to Protect Air Quality* below); and
  - implement erosion control measures as appropriate to prevent sediment from entering surface waters, agricultural water features, and storm drains to the extent feasible, including the use of silt fencing or fiber rolls to trap sediments and erosion control blankets on exposed slopes.
- A Spill Prevention and Response Plan that identifies any hazardous materials to be used during construction; describes measures to prevent, control, and minimize the spillage of hazardous substances; describes transport, storage, and disposal procedures for these substances; and outlines procedures to be followed in case of a spill of a hazardous material. The Spill Prevention and Response Plan will require that hazardous and potentially hazardous substances stored onsite be kept in securely closed containers located away from drainage courses, agricultural areas, storm drains, and areas where

stormwater is allowed to infiltrate. It will also stipulate procedures, such as the use of spill containment pans, to minimize hazard during onsite fueling and servicing of construction equipment. Finally, the Spill Prevention and Response Plan will require that the County be notified immediately of any substantial spill or release.

- A stipulation that construction will be monitored by County personnel to ensure that contractors are adhering to all provisions relevant to state and federal stormwater discharge requirements, and that the County will shut down the construction site in the event of noncompliance.

Water Quality Measures for Inchannel Work

Inchannel work, including all channel and bank modifications, will be restricted to the minimum necessary to support restoration success. Inchannel work will be limited to the dry season (April 15–October 15). Work requiring stream dewatering, stream crossings, or work within the live stream will not begin before May 1.

To the extent feasible, inchannel work will be carried out by equipment operating from dry areas outside the low-flow channel. Silt fences, fiber rolls, and other appropriate sediment control measures will be used to minimize sediment input to the active channel, consistent with the project SWPPP (see above). In addition, prior to activities disturbing the bed or banks of the active low-flow channel, coffer dams will be installed and flow will be diverted around the work area. Fish and other aquatic organisms will be protected as described under *Measures to Protect Biological Resources* below.

Measures to Address Construction and Maintenance Noise

Because of the area's prevailing rural character, the project proponent has committed to the greatest possible sensitivity to minimizing construction noise effects. Before restoration activities begins, the proponent will send a notification letter to owners of all residential, agricultural, and other properties within 300 feet of active construction areas. It will identify the intended construction schedule and the expected duration of construction activities as well as providing information on the planned construction access routes and hours of work, and will include a telephone number to call with noise complaints. Noticing will not be required for maintenance activities, because of their short duration and limited areal extent.

In addition, the construction contractor selected for the project will be required to implement the following best management practices (BMPs) to minimize noise related to construction traffic and onsite construction activities. These measures will also apply to all maintenance activities.

- Normal work hours will be 7:00 a.m.–4:30 p.m., Monday through Friday. No construction will occur on Saturdays, Sundays, or County holidays.
- The construction contractor will ensure that all equipment is equipped with sound-control devices no less effective than those provided as original equipment. All equipment will be operated and maintained to meet the applicable County standards for construction noise generation. No equipment will be operated with an unmuffled exhaust.

Measures to Protect Air Quality

The principal concern about the effect of construction projects on air quality relates to the potential for earthwork and other activities to generate dust, including inhalable particulate matter (PM10) that poses a human health hazard.[3] To address the potential for dust generation, the contractor selected for project construction will be required to implement the following BMPs, which are based on the Bay Area Air Quality Management District's (BAAQMD's) *Feasible Control Measures for Construction Emissions of PM10* (see Bay Area Air Quality Management District 1999). These measures will also apply to ground-disturbing maintenance activities.

- Water all active construction areas as needed to control dust generation during earthmoving activities.
- Cover all trucks hauling soil, sand, and other loose materials, or require all trucks to maintain at least 2 feet of freeboard.
- As needed to control dust generation, apply water on all unsurfaced access roads, parking areas, and staging areas at construction sites.
- Using street sweepers, sweep all paved access roads, parking areas, and staging areas at construction sites daily or more often, as needed.
- Using street sweepers, sweep streets, including haul routes, daily or more often, as needed, if visible soil material is carried onto adjacent public streets.
- Cover inactive construction areas (previously graded areas inactive for 10 days or more).
- Enclose, cover, or water twice daily exposed stockpiles of dirt, sand, and other loose, granular construction materials.
- Limit traffic speeds in unpaved areas to 5 mph.
- Suspend excavation and grading activity when wind speeds (instantaneous gusts) exceed 25 mph.

[3] *PM10* refers to particulate matter with a diameter of 10 microns or less. Particles of this size are small enough to be drawn deeply into the lungs when inhaled and are associated with health concerns such as increased incidence of chronic respiratory ailments. Additional information is provided in Chapter 3.

Measures to Reduce Effects on Traffic and Circulation

The proponent will require the firm selected to develop detailed restoration plans and specifications to include a traffic control plan to minimize the effects of construction traffic on roadway function and safety in surrounding areas of the Napa Valley. The traffic control plan will include the following provisions and may include other measures if a further need is identified. These provisions will also apply to all maintenance activities.

- Post warning signage at points where construction traffic will enter or leave public roadways. During peak hours, use flaggers or other appropriate means to further reduce hazards related to slow-moving vehicles merging into highway traffic, if the County identifies a need.
- Maintain access, or provide appropriate alternate access, for private roads, including agricultural roads.
- Restrict all construction traffic, including haul and delivery trucks, to normal daytime business hours, unless the County identifies a need for off-hours routing to avoid impacts on peak-hour commute traffic.
- Avoid key commute routes and "rate-limiting" intersections during peak traffic periods, either by traveling different routes or by traveling at non-peak times. Work with the County to identify the routes and intersections that should be avoided, and appropriate alternate travel routes or times.
- Coordinate with local transit providers to avoid disruption of bus service.
- Post a sign at all active construction sites providing the name, telephone number, and e-mail address of the staff member to contact with concerns regarding construction traffic. Ensure that signage includes both English and Spanish versions.
- Throughout the work period, provide adequate off-road parking and staging for vehicles, equipment, and materials. Coordinate with local landowners to ensure that parking and staging do not impede agricultural or other activities. Provide offsite worker parking and a worker shuttle if necessary.

Measures to Protect Biological Resources

The following measures will apply to all construction and maintenance activities.

Vegetation Protection Measures

In order to avoid and minimize adverse effects on riparian vegetation slated to remain in place, the following guidelines will be observed.

- Before construction begins, the project engineer and a qualified biologist will identify locations for equipment and personnel access and materials staging that will minimize riparian disturbance.
- During construction, as much understory brush and as many trees as possible will be retained. The emphasis will be on retaining shade-producing and bank-stabilizing vegetation.
- When chainsaws are used to remove riparian vegetation, saws compatible with vegetable-based bar oil will be used if possible.
- When heavy equipment is required, unintentional soil compaction will be minimized by using equipment with a greater reach, or using low-pressure equipment. Disturbed soils will be decompacted when work is completed.
- Any disturbed and decompacted areas outside the restoration area will be revegetated with locally native stock in an appropriate palette.

Measures to Protect California Freshwater Shrimp

Immediately prior to the start of construction activities, the County will retain a qualified biologist to conduct preconstruction dipnet surveys for California freshwater shrimp at each inchannel work site. If the species are determined to be present, the biologist will capture and relocate them to a suitable site downstream of the construction area.

Measures to Protect Salmonids

To reduce the likelihood of adverse impacts on salmonids that use the Napa River corridor, inchannel construction, including both streambank and channel bed construction, will be limited to the dry season (April 15–October 15), with the condition that construction requiring stream dewatering, stream crossings, or work in the live stream may not commence before May 1. If necessary, upstream passage for salmonids will be provided through or around construction sites from September 1 through October 15. The determination of the need to provide passage will be based on the occurrence of more than 25 adult Chinook salmon or steelhead, on flow conditions, and on a cooperative assessment of passage needs by the proponent, NMFS, and DFG.

During inchannel work, flow will be diverted around the work area. Stream segments subject to dewatering are expected to be several hundred feet or less in length; large-scale dewatering will not be needed. Any salmonids present in the work area will be relocated under the supervision of a qualified fisheries biologist. The following sections provide additional details on procedures for diverting streamflow and relocating salmonids.

Procedures for Flow Diversion

As identified in *Water Quality Measures for Inchannel Work* above, when work occurs within the river channel, flow will be diverted around the work area and the work site will be dewatered.

Before dewatering, the project engineer and a qualified fisheries biologist will identify the best means to bypass flow around the work area to minimize disturbance to the channel and avoid direct mortality of fish and other aquatic vertebrates. Flow will be incrementally diverted at the upstream boundary of the work area. Diversion will increase progressively over a 4-hour period, by the following increments: 50%, 75%, 90%, 95%, and 100 %. This incremental reduction in flow will allow fish to move downstream.

All native aquatic vertebrates and larger invertebrates will be moved by a qualified fisheries biologist prior to dewatering. Fish will be removed from any pools that remain after flow is diverted from the project reaches of the creek, in accordance with the protocol presented in the next section (*Procedures for Fish Relocation*). The following guidelines will apply.

- The length of the dewatered stream channel and duration of dewatering will be minimized; at any given time, dewatered channel segments are not expected to exceed several hundred feet in length.
- Streamflow will be maintained to the river channel below the work area.
- If it is necessary to pump the work area to remove seepage and maintain a dry condition, pumps will be placed in flat areas well away from the channel and secured by anchoring to a tree or stake. Pumps will be refueled in an area well away from the stream channel, consistent with procedures outlined in *General Measures to Protect Water Quality* above. Pump intakes will be covered with 1/8-inch mesh to prevent entrainment of fish or amphibians, and will be checked periodically for impingement of fish and amphibians. Wastewater will be discharged to an upland location where it will not result in sediment-laden drainage back to the channel.

Procedures for Fish Relocation

As identified above, before a work area is dewatered, fish and amphibians will be captured and relocated to avoid injury and mortality and minimize disturbance. The following guidelines will apply.

- Before fish 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 should be selected to minimize the likelihood that fish will reenter the work area or become 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 CDFG scientific

collecting permit and is experienced with fish capture and handling. Complex stream habitat may require the use of electrofishing equipment, whereas in outlet pools, fish 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 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 fish from reentering the work area, the channel will be blocked by placing fine-meshed nets or screens above and below the work area. To minimize entanglement, mesh diameter will not exceed 1/8 inch. The bottom edge of the net or screen will be secured to the channel bed to prevent fish from passing under the screen. Exclusion screening will be placed in low-velocity areas to minimize fish impingement. Screens will be checked periodically and cleaned of debris to permit free flow of water.
- Handling of salmonids will be minimized. When handling is necessary, personnel will wet hands or nets before touching fish.
- 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 CDFG and NMFS in a timely fashion.
- If mortality during relocation exceeds 5%, relocation will cease and CDFG 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.

Measures to Protect Northwestern Pond Turtle

Prior to the start of construction activities, the County will retain a qualified biologist to conduct preconstruction surveys for northwestern pond turtle at each inchannel work site. Surveys will take place no more than 72 hours prior to the onset of construction activities (including site preparation) with the potential to disturb turtles or their habitat. If the species is determined to be present, the biologist will capture and relocate them to a suitable site downstream of the construction area. If preconstruction surveys identify active nests, the biologist will establish no-disturbance buffer zones around each nest using temporary orange construction fencing. The radius of the buffer zone and the duration of exclusion will be determined in consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game. The buffer zones and fencing will remain in place until the young have left the nest, as determined by a qualified biologist.

Measures for Migratory Bird and Raptor Protection

In order to avoid adverse effects related to disturbance of migratory birds (protected under the federal Migratory Bird Treaty Act, the California Fish and Game Code, and CEQA), the proponent will retain a qualified biologist to conduct preconstruction surveys for migratory birds and their nests at each work site no more than 1 week prior to the initiation of any construction activity planned to occur during the migratory bird nesting season (February 15–August 1). If preconstruction surveys identify active nests belonging to common migratory bird species, an exclusion zone will be established around each nest to minimize disturbance-related impacts on nesting birds. If active nests belonging to special-status migratory birds are identified, a larger no-activity buffer zone will be established around each nest. The minimum exclusion zone radius will be 200 feet. However, in each case, the radius of the exclusion zone/no-activity zone and the duration of exclusion will be determined in consultation with the U.S. Fish and Wildlife Service and the California Department of Fish and Game; buffers wider than 200 feet may be required, depending on the species and activities involved.

Measures for Berm Design and Construction

As part of the berm design process, the proponent will retain a qualified professional to conduct site-specific geotechnical investigations consistent with all applicable standards of professional engineering geologic/geotechnical practice. The purpose of the investigations will be to provide a geologic basis for the development of appropriate berm design. Investigations will address bedrock and Quaternary geology; geologic structure; primary and secondary seismic hazards as defined by the State of California; soils, including the potential for expansive, collapsible, or otherwise unstable soils in the project corridor; slope stability; previous history of excavation and fill placement; earthwork recommendations; relevant groundwater considerations; and any other topics

identified by the proponent, design engineer(s), geotechnical engineer, or project engineering geologist as relevant.

Topsoil Protection Measures

To minimize impacts on topsoil resources, the proponent will require all restoration contractors to implement the following measures. These measures will also apply to ground-disturbing maintenance activities.

- The area disturbance will be limited to the minimum needed to accomplish restoration grading.
- In areas where topsoil is present, topsoil will be removed, sidecast, and stockpiled for onsite reuse during revegetation. Revegetation will include topsoil replacement. Topsoil will be stockpiled separate from other excavated materials, to facilitate effective reuse.

Measures to Ensure Safety and Minimize Exposure to Hazardous Materials

In the event that hazardous materials are encountered during construction or maintenance work, all activities in the area of the discovery will stop, and the proponent will conduct Phase I, Phase II, and, if required, Phase III hazardous materials investigations to identify the nature and extent of contamination and evaluate potential impacts on project construction and human health. If necessary, the proponent will implement remediation measures consistent with all applicable local, state, and federal codes and regulations. Work will not resume until remediation is complete and has been certified by the appropriate agency. If waste disposal is necessary, the proponent will ensure that all hazardous materials are handled and disposed of by a licensed waste-disposal contractor and transported by a licensed hauler to an appropriately licensed and permitted disposal or recycling facility, in accordance with local, state, and federal requirements.

Herbicide Application Measures

The following measures will apply to all construction and maintenance activities.

- Herbicide use will be restricted to the minimum needed to ensure adequate control of invasive nonnative vegetation. Where other effective means of control are available, these will be prioritized.
- Herbicides will be applied only by California-licensed applicators.
- Herbicide application will be limited to cutting and painting stumps, or foliar or spot spray using backpack or ATV-mounted sprayers.

- Herbicides will be applied according to manufacturer's specifications in a manner that minimizes drip and drift into the stream channel.
- At this time, only U.S. Environmental Protection Agency− and California EPA−approved aquatic formulations of glyphosate and imazapyr will be used. In the future, other herbicides may be approved by these agencies for use in aquatic habitats, and could be added to the program.
- Any cuttings will be removed and transported to a suitable disposal site to prevent re-establishment. Plant materials containing viable seed will be immediately bagged and transported to a suitable site for disposal.

Measures to Avoid Glare

The proponent will ensure that the project construction documents require the floodwall to be surfaced with a non-reflective/low-glare finish. The maintenance program will also be written to require periodic assessments of the floodwall's appearance, with touch-up or replacement of the finish when necessary. The County will be responsible for long-term assessment and maintenance to ensure that the floodwall does not generate excess glare.

Waste Management Measures

Consistent with County General Plan Policy CON-88b, the proponent will require all project contractors to implement waste reduction measures, including recycling and reuse where feasible. In particular, greenwaste will be reused onsite as mulch or in bank stabilization construction where this is appropriate, and will be offhauled for composting if it cannot be reused onsite.

Chapter 3
Environmental Checklist

I. 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?	❑	■ (Construction)	■ (Post-Construction, Long Term)	❑
b.	Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings, along a scenic highway?	❑	■ (Construction)	■ (Post-Construction, Long Term)	❑
c.	Substantially degrade the existing visual character or quality of the site and its surroundings?	❑	■ (Construction)	■ (Post-Construction, Long Term)	❑
d.	Create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area?	❑	❑	■	❑

Regulatory Context

The current General Plan identifies aesthetics as one of the important factors contributing to the County's "community character," and includes goals and policies that bear directly on the preservation of aesthetic character and visual resources. Consistent with the General Plan emphasis on aesthetic values, the County's Viewshed Protection Ordinance defines standards and creates guidelines for grading and construction in hillside areas, with the specific aim of protecting views from scenic roadways.

Additional General Plan goals and policies protect land uses such as agriculture and open space that contribute to the County's aesthetic character; protect

cultural and historic resources, many of which are aesthetically as well as culturally valuable; and provide guidance for preserving dark sky values in rural areas.

For more information, see Appendix B of this IS/MND.

Existing Conditions

Napa County and Napa Valley Visual Resources

Located in California's rugged Coast Ranges, Napa County is widely known for its scenic beauty. The County's west, north, and east boundaries consist of mountainous landscapes supporting vegetation that ranges from dense evergreen forest to oak woodlands and open grassy slopes. To the south, the County borders San Pablo Bay, a segment of the San Francisco Bay/Sacramento–San Joaquin Delta Estuary (County of Napa 2005).

Central to the County is the Napa Valley, which extends from approximately the south border of the City of Napa almost to the County's northwestern border with Sonoma County. The dominant land use, and the characteristic visual element, in the valley is agriculture; vineyards and other agricultural uses occupy more than half of the land on the valley floor. Combined with remaining areas of natural vegetation, this gives the valley a generally natural, but managed, appearance, characterized by smooth transitions between land uses (County of Napa 2005).

Urbanization is concentrated in four areas—from north to south, the City of St. Helena, Town of Yountville, and Cities of Napa and American Canyon—whose edges are diffused by the presence of numerous semi-rural residences, such that abrupt visual delineations between city and farmland are rare. Partly as a result of these gradual transitions between urban and rural/agricultural uses, the built environment is present throughout the valley floor area, woven into the agricultural and natural visual fabric. The natural environment—riparian areas and remaining stands of mature valley oaks—serves as buffers between residences and agricultural uses in many locations, further integrating the appearance of diverse land uses.

Visual Character and Viewer Groups in the Project Area

Typical of the Napa Valley floor, the Rutherford Reach is located in a rural area dominated by agricultural land uses, primarily vineyards. All of the project reach borders private property. As a result, most viewers are drivers on area roadways, who see the project reach at a distance, as a component of a broader landscape. Viewed from this perspective, the project reach appears primarily as a thickly vegetated corridor forming a middleground backdrop to vineyards. A limited number of viewers (vineyard property owners and their employees and guests) experience the project reach from a closer perspective, where it assumes more

visual dominance, and individual details of the riparian corridor—structure and species composition—become more important. For both viewer groups, the project reach is an important component of the scenic rural/agricultural landscapes that are recognized by the County as a key aspect of the County's character and appeal (e.g., County of Napa 2008a).

Scenic Highways in Napa County

Napa County has about 280 miles of designated scenic roadways. The County has elected not to participate in the State Scenic Highway Program, but instead has a separate County program that employs criteria similar to those used by the State (County of Napa 2008a). Views from county-designated scenic highways are protected by the Viewshed Protection Ordinance.

Discussion of Checklist Responses

a. Scenic Vistas—*Less than Significant with Mitigation (Construction Period), Less than Significant (Post-Construction)*

The project area does not contain any specifically designated scenic vistas. However, the County General Plan repeatedly identifies scenic beauty as one of the County's most important and characteristic attributes. Therefore, this analysis treats all vistas in the project area as scenic vistas.

Project construction would result in some visual disruption related to vegetation removal, earthwork, and staging, including equipment parking, stockpiles for excavated materials destined for onsite reuse, etc. Because the aim of the project is to maximize habitat value, vegetation removal would be restricted to the minimum required to allow earthwork to proceed, and earthwork would be restricted to the minimum necessary for project success (see related information under *Environmental Commitments* in Chapter 2). Much of the area slated for reconfiguration is currently subject to bank failure; some vegetation in these areas is already downed as a result of natural processes, and more remains at risk. In addition, construction would be phased over a period of about 10 years, so at any given time the extent of visibly disturbed areas would be limited, and would be substantially less than the total project footprint. Moreover, the majority of the areas proposed for restoration are located at some distance from public-access roadways, so the visibility of disturbed areas by the general public would be quite limited. Nonetheless, because of the importance of visual quality as an aspect of Napa County's unique character, impacts could be significant. Implementation of Mitigation Measure AES-1 would reduce the visual impacts of project construction to the extent feasible, and any residual impact is considered less than significant.

Mitigation Measure AES-1—Implement Good Construction Site Housekeeping Measures and Designate Visual Disturbance Coordinator

In order to avoid or reduce adverse effects related to vegetation removal, earthwork, construction staging, and other project activities and needs, the proponent will require all contractors employed on the project to implement the following measures at all construction sites.

- Project work and staging areas will be maintained in a clean, orderly condition at all times.
- Equipment and materials will be stored in construction staging areas and/or away from public view. To the extent feasible, staging areas will be located away from public view.
- Debris such as excavation spoils and downed vegetation not slated for onsite reuse will be removed promptly at regular intervals.

Informational signage for the project will include the name and contact information for a County staff person to serve as the designated visual disturbance coordinator. This person, who may be the same staff member designated as noise coordinator, will be responsible for responding to public complaints regarding construction visual disturbance. S/he will be available during regular business hours to monitor and respond to concerns. In the event a visual disturbance complaint is received, s/he will be responsible for determining the cause of the complaint and ensuring that all reasonable measures are implemented to correct the problem.

Immediately post-construction, restored areas would still appear somewhat "unfinished" until vegetation fully re-establishes. However, the disturbed appearance associated with construction would not persist, and revegetation in riparian areas would use fast-growing native species such as willows. As a result, creekside work areas are expected to recover to a point where they are no longer conspicuous within about 2 years following construction. Moreover, because work would be phased, some work areas would be substantially recovered by the time ground is broken on the final sites; at any given time, the area in visual recovery would be substantially less than the total project footprint. Because of their comparatively short duration and the limited extent of disturbance at any given time, short-term post-construction visual impacts of earthwork and riparian restoration are expected to be less than significant. In areas where a berm is created, the gently sloped landward side of the berm (the side visible to the public) would be cultivated and planted with grapevines shortly after construction is completed; thus, almost immediately following construction, the berms would present an appearance entirely consistent with their agricultural surroundings. Impacts in these areas would also be less than significant. No mitigation is required.

Over the long-term, the appearance of the restored river channel and riparian corridor are expected to be highly natural, and as such, consistent both with adjacent river reaches, and with the overall mosaic of natural, agricultural, and built views that characterizes the Napa Valley floor. Where berms are present, they would be cultivated for vineyard use, as described above, and thus would also be visually consistent with the character of surrounding land uses. Intermittent maintenance (vegetation and sediment management) could result in some visual disturbance associated with the presence of personnel and heavy equipment, but the duration and extent of disturbance would be limited, and would not be out of character with ongoing activities on nearby agricultural lands. Lasting changes in the appearance of the river corridor as a result of maintenance could include slight alterations in channel appearance as a result of sediment removal, and thinning or localized removal of vegetation to preserve channel capacity. However, all maintenance undertakings would be designed and implemented to ensure proper channel function and maximize the natural appearance of the river corridor. Consequently, to the extent that the restored river channel and riparian corridor can be seen by the public, most viewers are expected to consider the changes positive. Long-term visual changes associated with the project would thus represent a less than significant impact, and many viewers are expected to consider them beneficial overall. No mitigation is required.

b. Scenic Highways—*Less than Significant with Mitigation (Construction Period), Less than Significant (Post-Construction)*

Several of the roadways in the project area are County-designated scenic routes, and, as discussed above, most of the public would be able to see the restoration sites only from public roadways. Consequently, impacts identified in (a) above for scenic vistas in general would also apply to views from scenic highways and other scenic routes. To summarize, visual impacts of construction disturbance could be significant, but would be reduced to the extent feasible by implementation of Mitigation Measure AES-1 above, and any residual impact is considered less than significant. Short- and long-term post-construction impacts would be less than significant, as discussed above, and many viewers are expected to consider the long-term visual outcomes of the project beneficial. No additional mitigation is required.

c. Visual Degradation of Site or Surroundings—*Less than Significant with Mitigation (Construction Period), Less than Significant (Post-Construction)*

As identified above, the project area does not contain any specifically designated scenic vistas, but this analysis treated all views in the project area as scenic vistas with particular importance to the County's community character and quality of life. As a result, the discussion presented in (a) above for scenic vistas also

applies to general changes in the visual character of the work sites and their surroundings. To summarize, visual impacts of construction disturbance could be significant, but would be reduced to the extent feasible by implementation of Mitigation Measure AES-1 above, and any residual impact is considered less than significant. Short- and long-term post-construction impacts would be less than significant, as discussed above, and many viewers are expected to consider the long-term visual outcomes of the project beneficial. No additional mitigation is required.

d. New Sources of Light or Glare—*Less than Significant with Mitigation*

The proposed project does not include any facilities that would require new or modified sources of lighting, and the majority of project construction would use natural materials and thus would not introduce new or substantially modified sources of glare. However, in Reach 4, approximately 350 linear feet of sheet-pile floodwall would be installed to protect an existing corporation yard located immediately adjacent to the channel on the right bank. The floodwall would consist of metal and thus could generate substantial glare. However, as discussed in Chapter 2 (see *Measures to Avoid Glare* under *Environmental Commitments*), the proponent has committed to require the floodwall to be surfaced with a non-reflective/low-glare finish. The maintenance program will also be written to require periodic assessments of the floodwall's appearance, with touch-up or replacement of the finish when necessary. The County will be responsible for long-term assessment and maintenance to ensure that the floodwall does not generate excess glare. With these provisions in place, impacts related to new glare sources and glare generation would be less than significant. No mitigation is required.

II. Agricultural Resources

		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 of the California Resources Agency, to non-agricultural use?	❑	❑	■	❑

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b.	Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract?	❑	❑	❑	■
c.	Involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	❑	❑	❑	■

Regulatory Context

California laws establish several mechanisms that protect agriculture and agricultural lands, including the California Land Preservation Act (Williamson Act) process and the California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP). The County General Plan envisions agriculture as the "primary land use" in the County "well into the future" (County of Napa 2008a p. AG/LU-11), and includes a number of goals and supporting policies to preserve the County's agricultural land uses. For additional information, see Appendix B of this IS/MND.

Existing Conditions

Regional Setting

Agriculture is the County's leading source of revenue. As of 2004, total agriculture was valued at $357 million, down from $393 million in the previous year (County of Napa 2005).

The County is renowned for the production of wine, and encompasses 13 appelations, or American Viticultural Areas (AVAs), including six along the Napa River. County vineyards produce both black and white wine grapes. Production of white varieties such as Chardonnay, Viognier, and Sauvigon Musque has increased in recent years, but black varieties—particularly Cabernet Sauvignon, Cabernet France, Merlot, Pinot Noir, Sangiovese, and Syrah—continue to dominate the County's production (County of Napa 2005).

The majority of the County's orchard acreage is devoted to walnuts and olives, but the County also produces almonds, apples, apricots, cherries, figs, nectarines, peaches, pears, persimmons, plums, prunes, and citrus fruits. Row crops include strawberries, specialty salad greens, and vegetables such as tomatoes and corn (County of Napa 2005).

Land Use Classification in Napa County and the Project Area

County General Plan Land Use Designations

The Napa County General Plan contains two land use designations for agricultural uses:

- Agriculture, Watershed and Open Space, and
- Agricultural Resource.

The project reaches are located in an area designated Agricultural Resource (AR). This designation is used to identify valley and foothill areas of the County where agriculture is currently, and should continue to be, a predominant land use. Permissible land uses are the same as those for the Agriculture, Watershed and Open Space designation. Incompatible uses, including urbanized uses—are to be precluded in **Agricultural Resource** areas. The minimum parcel size for the **Agricultural Resource** designation is 40 acres, with a maximum of one single-family residential unit per parcel.

Zoning Designations

The Napa County Zoning Ordinance (Title 18) provides three agricultural zoning designations: Agricultural Watershed (AW), Agricultural Preserve (AP), and Agricultural Combination (:A) District. The project reaches are in an area zoned AP. This zoning classification is applied to the County's fertile valley and foothill areas, where agricultural activities are currently taking place and should continue to be the predominant land use, where uses incompatible to agriculture should be precluded, and where the development of urban uses would be detrimental to the continuance of agriculture and the maintenance of open space.

Existing Land Uses in the Project Area

Land use planning in the project area is governed by the Napa County General Plan and Zoning Ordinance. As identified above, the project reaches are The designated as Agricultural Resource lands in the General Plan (County of Napa 2008a) and are zoned AP (Agricultural Preserve). They include lands classified as Prime Farmland, Unique Farmland, and Other Land by the FMMP. About eight parcels in the project vicinity are currently under Williamson Act contract.

Discussion of Checklist Responses

a. Conversion of Important Farmland—*Less than Significant*

Some of the project corridor is classified as Important Farmland, and additional areas are considered Unique Farmland by the State of California. Conversion of Important or Unique Farmlands to nonagricultural uses commonly represents a significant impact. However, the proposed project focuses exclusively on river restoration, and although it would remove a very small area from active cultivation, it would not alter land use designations or farmland classifications at either the local or state level, nor would it create pressure for further conversion of agricultural lands. All project-related activities would be confined to the corridor immediately along the Napa River. In areas where the channel is widened, and/or a new setback berm is constructed for flood protection, a narrow strip of lands currently in vineyards and related uses—totaling an estimated 16.7 acres for the entire project area—would be converted to floodplain terraces. The new berms have been designed with a gentle slope on the landward side to enable them to be replanted following construction, so the effect on farmland availability in bermed reaches would be minimized. Overall, the project would not decrease the value of adjacent lands as an agricultural resource, and would likely create a long-term benefit to agriculture by managing Napa River flooding more effectively.

In light of all these factors, impacts related to conversion of agricultural lands are considered less than significant, and no mitigation is required.

b. Conflict with Existing Zoning or Williamson Act—*No Impact*

The project area is designated as Agricultural Resource lands in the County General Plan (County of Napa 2008a) and is zoned AP (Agricultural Preserve). As discussed above, the Agricultural Resource designation identifies areas where agriculture is prioritized. AP zoning is applied in areas where agricultural activities are currently taking place and should continue to be the predominant land use, with open space maintained and incompatible land uses precluded. The proposed project focuses exclusively on river restoration, and thus is consistent with the open space character of both the Agricultural Resource designation and AP zoning. The project would not require removal of any Williamson Act lands from contract. Consequently, there would be no conflict with existing land use designations, zoning, or Williamson Act contracts. No mitigation is required.

c. Other Changes That Could Convert Farmland—*No Impact*

As identified in (a) and (b) above, the proposed project focuses exclusively on river restoration along the present course of the Napa River, and would not materially alter the existing land use mosaic on the Napa Valley floor. Rather, it would enhance the Valley's existing rural character and contribute to the stability of agricultural uses by improving flood management. Since the project would not alter the Valley's land use mosaic, there would be no pressure toward farmland conversion as a result of the project, and no impact related to enabled or accelerated farmland conversion. No mitigation is required.

III. 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 a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	Please see discussion in *Mandatory Findings of Significance* section of checklist.			
d.	Expose sensitive receptors to substantial pollutant concentrations?	❑	❑	■	❑
e.	Create objectionable odors affecting a substantial number of people?	❑	❑	■	❑

Regulatory Context

Air quality is protected by the federal and California Clean Air Acts and by local air district planning undertaking pursuant to the Acts. The County General Plan also contains goals and policies that are generally protective of air quality, including two goals (and supporting policies) that address odors as a factor in land use planning. For additional information, see Appendix B of this IS/MND.

Existing Conditions

Air Quality Attainment Status

As discussed in Appendix B, areas are classified as either *in attainment* or *in nonattainment* with respect to state and federal ambient air quality standards. These classifications are made by comparing actual monitored air pollutant concentrations to state and federal standards. If a pollutant concentration is lower than the state or federal standard, the area is classified as being in attainment of the standard for that pollutant. If a pollutant violates the standard, the area is considered a nonattainment area. If data are insufficient to determine whether a pollutant is violating the standard, the area is designated unclassified. This occurs in non-urbanized areas where levels of the pollutant are not a concern.

The EPA has designated Napa County as a nonattainment (other) area for the 1-hour federal ozone standard. For the 8-hour ozone standard, the EPA has classified the County as a marginal nonattainment area. For the CO standard, the EPA has classified urbanized areas within Napa County as moderate maintenance areas for CO; the rest of the County is an unclassified/attainment area. The EPA has classified the County as an unclassified/attainment area for the federal PM10 and PM2.5 standards (County of Napa 2005).

California's Air Resources Board (ARB) has classified Napa County as a serious nonattainment area for the 1-hour ozone standard. For the CO standard, the ARB has classified the County as an attainment area. For the PM10 and PM2.5 standards, the ARB has classified the County as a nonattainment area (County of Napa 2005).

Climate and Air Quality in the Project Area

Although the primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted from these sources, meteorological conditions and topography are also important factors—atmospheric conditions, such as wind speed, wind direction, and air temperature gradients interact with physical features of the landscape to determine the movement and dispersal of air pollutants.

The Napa River Watershed extends in a northwesterly direction approximately roughly 45 miles from San Pablo Bay on the south, to Calistoga on the north, and includes the central valley floor and the eastern and western mountains. Valley floor elevations in the Napa Valley range from approximately 400 feet above sea level in the northern mountains to sea level at San Pablo Bay. The mountains surrounding the valley serve as effective barriers to the prevailing northwesterly winds. In the daytime, the prevailing winds flow upvalley from the south about half of the time, with a strong upvalley wind frequently developing during warm summer afternoons which draws in air from San Pablo Bay. Occasionally daytime winds will flow downvalley from the north in the evenings, usually during the winter months. Wind speeds are generally low, with almost 50 percent of the winds below 4 miles per hour (mph). Only 5 percent of the time do wind speeds exceed 16 mph; these high wind speeds are generally are associated with winter storms and strong summer upvalley winds (County of Napa 2007b).

High summer temperatures in Napa Valley range from the low 80s (degrees Fahrenheit) at the southern end of the valley to the low 90s at the northern end. Average winter maximum temperatures range from the upper 50s to the low 60s. Minimum temperatures in the the slightly cooler northern end of the valley range from the mid- to high 30s (County of Napa 2005).

Due to the climate and terrain of the valley, the potential for air pollution could be high if there were sufficient sources of pollutants nearby. The summer and fall prevailing winds can transport ozone precursors northward from the Carquinez Strait Region to the Napa Valley, effectively trapping and concentrating pollutants when stable conditions are present. Additionally, pollutants may be recirculated by the local upslope and downslope flows created by the surrounding mountains, further contributing to air pollution in the valley. In the late fall and winter, particulate matter from motor vehicles, agricultural practices, and woodburning in fireplaces and stoves can build up in the valley because of the high frequency of light winds and stable atmospheric conditions (County of Napa 2005).

Existing air quality conditions in the project area can be characterized by monitoring data collected in the region. The nearest air quality monitoring station in the vicinity of the project area is the Jefferson Avenue monitoring station in the City of Napa, which monitors for ozone, CO, and PM10. Air quality monitoring data from the Jefferson Avenue monitoring station are summarized in Table 3-1. These data represent air quality monitoring for three years (2002–2004) for which complete data are available. As indicated in Table 3-1, the Jefferson Avenue monitoring station has experienced 3 violations of the state 1-hour ozone standard; 24.4 violations of the state PM10 standard; and no violations of the federal and state CO standard, federal 8-hour ozone standard, and federal PM10 standard during that 3-year period (County of Napa 2005).

Table 3-1. Ambient Air Quality Monitoring Data Measured at the Jefferson Avenue Station, City of Napa

Pollutant Standards	2002	2003	2004
Ozone			
Maximum 1-hour concentration (ppm)	0.116	0.105	0.092
Maximum 8-hour concentration (ppm)	0.082	0.083	0.072
Number of days standard exceeded[a]			
NAAQS 1-hour (>0.12 ppm)	0	0	0
CAAQS 1-hour (>0.09 ppm)	1	2	0
NAAQS 8-hour (>0.08 ppm)	0	0	0
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	2.36	2.49	2.00
Maximum 1-hour concentration (ppm)	4.2	4.7	3.7
Number of days standard exceeded[a]			
NAAQS 8-hour ($\geq$9.0 ppm)	0	0	0
CAAQS 8-hour ($\geq$9.0 ppm)	0	0	0
NAAQS 1-hour ($\geq$35 ppm)	0	0	0
CAAQS 1-hour ($\geq$20 ppm)	0	0	0
Particulate Matter (PM10)[b]			
National[c] maximum 24-hour concentration ($\mu g/m^3$)	66.9	40.6	59.2
National[c] second-highest 24-hour concentration ($\mu g/m^3$)	57.9	37.2	40.0
State[d] maximum 24-hour concentration ($\mu g/m^3$)	69.9	30.8	–
State[d] second-highest 24-hour concentration ($\mu g/m^3$)	60.4	27.1	–
National annual average concentration ($\mu g/m^3$)	25.4	20.6	20.1
State annual average concentration ($\mu g/m^3$)[e]	26.4	–	–
Number of days standard exceeded[a]			
NAAQS 24-hour (>150 $\mu g/m^3$)[f]	0	0	0
CAAQS 24-hour (>50 $\mu g/m^3$)[f]	24.4	0	0

Notes: CAAQS = California ambient air quality standards.
NAAQS = national ambient air quality standards.
– = insufficient data available to determine the value.

[a] An exceedance is not necessarily a violation.

[b] Measurements usually are collected every 6 days.

[c] National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods.
State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, State statistics are based on California approved samplers.

[d] State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

[e] Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored.

Source: County of Napa 2005

Sensitive Land Uses

The BAAQMD generally defines a *sensitive receptor* as a facility or land use that houses or attracts members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of sensitive receptors include schools, hospitals, convalescent facilities, and residential areas.

Napa County defines sensitive receptors/land uses as locations where people reside or where members of the population that are particularly sensitive to the effects of air pollutants—such as children, the elderly and people with illnesses—are located. Specific areas considered as sensitive receptors include residences, hospitals or healthcare facilities, parks and wildlife areas, and schools. No hospitals or healthcare facilities, parks or wildlife areas, or schools are located in the project vicinity (County of Napa 2005). Thus, sensitive receptors in the project vicinity are limited to residences located at various distances away along the east and west banks of the River between Oakville Cross Road and Zinfandel Lane.

BAAQMD Thresholds

The BAAQMD has specified significance thresholds in its *BAAQMD CEQA Guidelines* (Bay Area Air Quality Management District 1999) to determine whether mitigation is needed for project-related air quality impacts. The BAAQMD's thresholds of significance for construction- and operation-related emissions are presented below.

BAAQMD does not require quantification of construction emissions. Instead, it requires implementation of effective and comprehensive feasible control measures to reduce PM10 emissions (Bay Area Air Quality Management District 1999). PM10 emitted during construction activities varies greatly depending on the level of activity, the specific operations taking place, the equipment being operated, local soils, and weather conditions. Despite this variability in emissions, experience has shown that there are a number of feasible control measures that can be reasonably implemented to reduce PM10 emissions during construction; these measures are summarized in Chapter 2 (see *Measures to Protect Air Quality*). With these control measures in place, air pollutant emissions from construction activities are typically considered less than significant by the BAAQMD (Bay Area Air Quality Management District 1999).

Construction equipment also emits CO, PM10, and ozone precursors (reactive organic gases [ROGs] and oxides of nitrogen [NO_X]). According to the BAAQMD, these emissions are already included in the emission inventory that forms the basis for the BAAQMD's regional air quality plans and because they are not expected to impede attainment or maintenance of ozone and CO standards in the Bay Area (Bay Area Air Quality Management District 1999).

Operational emission thresholds are set forth in the BAAQMD's *CEQA Guidelines: Assessing the Air Quality Impacts of Projects and Plans* (Bay Area Air Quality Management District 1999). Project operations would result in a significant impact on air quality if the project would lead to:

- a net increase in pollutant emissions of 80 pounds per day (ppd) or 15 tons per year (tpy) of ROG, NO_X, or PM10; or
- a project-related contribution to CO concentrations exceeding the CAAQS for the 1- and 8-hour standards.
- Projects that do not result in any of the following are presumed to result in less-than-significant levels of CO emissions, and no estimation of CO concentrations is necessary (Bay Area Air Quality Management District 1999).
- Vehicle emissions of CO exceeding 550 ppd.
- Project traffic impacting intersections or roadway links operating at Level of Service (LOS) D, E or F.
- Project traffic causing intersection or roadway link LOS to decline to D, E or F.
- Project traffic increasing traffic volumes on nearby roadways by 10% or more (unless the increase in traffic volume is less than 100 vehicles per hour).

Discussion of Checklist Responses

a. Conflict with or Obstruction of Applicable Air Quality Plan—*No Impact*

A project is deemed inconsistent with air quality plans if it would result in population and/or employment growth that exceeds growth estimates included in the applicable air quality plan, which, in turn, would generate emissions not accounted for in the applicable air quality plan emissions budget. Therefore, proposed projects need to be evaluated to determine whether they would generate population and employment growth and, if so, whether that growth would exceed the growth rates included in the relevant air plans.

The proposed project focuses entirely on river restoration, and would not involve the construction of any residential, commercial, or industrial structures or infrastructure that would generate population and/or employment growth (see related discussion in the *Population and Housing* section of this checklist). Since the project would not generate growth, there would be no impact related to inconsistency with air quality planning. No mitigation is required.

b. Violation of any Air Quality Standard or Substantial Contribution to Existing or Projected Air Quality Violation——*Less than Significant with Mitigation*

Construction

As described in Chapter 2 (*Project Description*), construction activities would be phased over a 10-year period, with each phase of construction expected to last 6 months. Additionally, it is assumed that no more than 2 reaches would be under construction at any one time. Construction activities for the proposed project would include clearing and grubbing, excavation, grading, installation of large woody debris structures, and planting.

For the purposes of this analysis it was assumed that Reaches 2 and 4 would be constructed in a single phase; because of the activities involved, this represents a conservative "worst-case" scenario for construction emissions. Under this scenario, approximately 61,000 cubic yards of material would be excavated to create a series of inset floodplain benches. Of this volume, approximately 52,000 cubic yards would be used to create new earthen berms, and the remainder would be stockpiled within the project area for use during future phases of the proposed project. Approximately 3,800 cubic yards of rock would be placed at the toe of actively eroding streambanks, and 110 logs and 260 cubic yards of rock would be placed in the channel bottom to improve instream aquatic habitat within Reaches 2 and 4. In addition, approximately 350 linear feet of sheet pile floodwall would be installed in the lower portion of Reach 4. Although a detailed inventory of construction equipment is not yet available for the proposed project it can be assumed that equipment would include: two excavators, two loaders, two dozers, and an impact pile driver for floodwall installation. In addition to construction equipment, there would also be trucks delivering materials and equipment, and transporting and off-hauling excavated materials.

Based on the assumptions described above, URBEMIS 2007 model (an ARB-approved approach that is used by many California air districts to calculate emissions from a variety of projects) was used to estimate construction-related emissions. Analysis assumed the incorporation of construction dust control measures consistent with BAAQMD guidance, as described in Chapter 2 (*Project Description*). Results are presented in Table 3-2 on the following page. As shown in Table 3-2, construction of the proposed project would temporarily create emissions of fugitive dust and equipment exhaust, typical of projects that require earthmoving activities.

Table 3-2. Estimated Construction Emissions for Reaches 2 and 4

Construction Phase	Construction Emissions (pounds/day)					
	ROG	NO_X	CO	SO_2	PM Fugitive Dust	PM Exhaust
Excavation/Berm Construction (June–September)	4	32	18	0.00	19	2
Bank Stabilization/Restoration Activities (August–November)	4	37	19	0.01	1	2
2009 Maximum Daily Construction Emission	**8**	**69**	**37**	**0.01**	**20**	**4**

As discussed above, the BAAQMD has not established significance thresholds for temporary construction-related emissions; construction emissions are generally considered less than significant if the contractor implements dust control BMPs consistent with BAAQMD guidance. The County has committed to ensuring the implementation of these measures. However, short-term increases in windblown dust and/or tailpipe emissions could still create a concern, particularly where construction occurs in close proximity to residences, wineries, or other facilities. This impact is therefore considered potentially significant. Implementation of the following mitigation measures, in addition to the construction dust control measures described in Chapter 2, would reduce impacts to a less than significant level.

Mitigation Measure AQ-1: Implement Tailpipe Emission Reduction Plan

The County will require all project contractors (or, for activities conducted by County staff, the County foreperson) to prepare and implement a tailpipe emissions reduction plan to minimize air quality impacts related to site preparation, grading, construction, and maintenance. The emission reduction plan will include at least the following measures and may include other measures identified as appropriate by the County and/or contractor.

- Maintain construction equipment in good condition.
- Minimize truck idling near residences and other facilities.
- Set up stationary equipment as far as possible from residences and other facilities.

The County will be responsible for proper and effective implementation of the plan, including the following specific duties.

- Conducting periodic inspections to confirm all specified BMPs are being implemented.
- Taking corrective action to resolve issues revealed by either routine inspections or incoming complaints.

Mitigation Measure AQ-2: Provide Advance Notification of Construction Schedule and 24-Hour Hotline

The County will provide advance written notification of proposed construction activities to all property owners within 500 feet of the construction site. Notification will include a brief overview of the proposed project and its purpose, as well as the proposed construction activities and schedule. It will also include the name and contact information of the County's project manager or another County representative or designee who will be responsible for resolving any air quality concerns.

Maintenance

Project maintenance activities may require the use of heavy equipment and/or gasoline-powered hand tools that would create emissions of exhaust and fugitive dust. However, these increases would be temporary, short-lived, and highly localized. Moreover, all maintenance activities would implement the dust control measures described in Chapter 2 as well as the emission control measures described above Mitigation Measure AQ-1. With the dust control measures and Mitigation Measure AQ-1 in place, impacts are expected to be less than significant. No additional mitigation is required.

c. Cumulatively Considerable Net Increase of Any Criteria Pollutant for Which the Project Region Is a Nonattainment Area

Please see discussion of this issue in *Mandatory Findings of Significance* section.

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

Construction activities would require the use of diesel-powered equipment. In October 2000, the ARB identified diesel exhaust as a toxic air contaminant (TAC). As described in Chapter 2 (*Project Description*), construction activities would be phased over a 10-year period, with each phase of construction expected to last 6 months. Cancer risks due to diesel exhaust exposure are typically associated with chronic exposure; health risk assessments often assume a 70-year exposure period. While cancer can result from exposure periods of less than 70 years, acute exposure periods (i.e., exposure periods of several years) to diesel exhaust are not anticipated to result in an increased health risk. In addition, the use of diesel equipment during any given project phase would be limited (a small number of pieces of equipment, in use for a portion of each total 6-month

construction period). Health impacts associated with pollutants emitted by diesel equipment are thus expected to be less than significant, and no mitigation is required.

e. Creation of Objectionable Odors Affecting a Substantial Number of People—*Less than Significant*

Diesel exhaust from construction activities may generate temporary odors while construction of project improvements is underway. Once construction activities have been completed, these odors would cease. Maintenance activities would also generate temporary odors, but the odors would be short-lived and would occur intermittently throughout the project reach. Impacts related to potential generation of objectionable odors are thus expected to be less than significant. No mitigation is required.

IV. 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 California Department of Fish and Game or U.S. Fish and Wildlife Service?	❑	❑	■	❑
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 California Department of Fish and Game or U.S. Fish and Wildlife Service?	❑	❑	■	❑
c.	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marshes, vernal pools, coastal wetlands, etc.) through direct removal, filling, hydrological interruption, or other means?	❑	❑	■	❑

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	❑	❑	❑	■

Regulatory Context

Biological resources are protected by numerous federal and state regulations, including the federal Endangered Species Act, Migratory Bird Treaty Act, and Bald and Golden Eagle Protection Act, and the California Endangered Species Act, Native Plant Protection Act, and Fish and Game Code.

The County General Plan's vision includes an emphasis on the success of native species and protection of the County's biodiversity. In the Conservation Element, Conservation Goal CON-1 ("The County of Napa will conserve resources by determining the most appropriate use of land, matching land uses and activities to the land's natural suitability, and minimizing conflicts with the natural environment and the agriculture it supports") is general in scope but is supported by detailed goals directly relevant to the protection of biological resources. General Plan Policy CON-6 requires limits on development in "ecologically sensitive areas" such as riparian corridors.

For additional information, see Appendix B of this IS/MND.

Existing Conditions

Information on existing conditions at the project site was obtained from the following sources.

- Surveys conducted by Ellie Insley & Associates and Todd Adams of the Napa County Flood Control and Water Conservation District in 2003 to

support development of the conceptual restoration plan for the Rutherford Reach (Phillip Williams & Associates 2003).

- Chinook salmon (*Oncorhynchus tshawytscha*) abundance, distribution, and spawning surveys conducted by the Napa County Resource Conservation District (Napa County RCD 2006, 2007).

- Field studies, including snorkel surveys of fisheries habitat, conducted by Jones & Stokes in 2005−2007 to support development of the preliminary engineering and revegetation plans for the Rutherford Reach.

- The wetland delineation conducted for the project in December 2005 (Jones & Stokes 2005b)

- The Natural Environment Study and Biological Assessment for the Oakville Cross Road Bridge Project (Napa County Department of Public Works 2007).

- A search of the California Natural Diversity Data Base and U.S. Fish and Wildlife Service species list for the Rutherford 7.5-minute topographic quadrangle (CNDDB 2008, USFWS 2008).

Overview of Site Conditions

The following sections provide an overview of the habitats and associated fish and wildlife use found along the Rutherford Reach of the Napa River.

Riparian Habitat

As summarized in Chapter 2, the species composition and the width and extent of the riparian corridor varies considerably throughout the Rutherford Reach, depending on channel width, bank steepness, and adjacent land uses.

The width of the riparian corridor (including vegetated areas along both banks) is greatest in Reach 1 (600−800 feet). The riparian corridor in Reaches 3, 5, 6, and 7 is also relatively wide (250−400). Reaches 2, 4, 8, and 9, which are confined by levees and adjacent land use, support narrow bands of riparian vegetation (150 feet or less).

In general, Reaches 1, 2, 3, and 5 support the largest intact stands of mature riparian vegetation. Valley oak (*Quercus lobata*), coast live oak (*Quercus agrifolia*), and California walnut (*Juglans hindsii*) are the dominant species in these reaches. Reaches 3, 5, 6 and 7, where the wider channel permits development of bars and inset floodplain benches, support extensive stands of Fremont cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*), red willow (*Salix laevigata*), arroyo willow (*Salix lasiolepis*), yellow willow (*Salix*

lutea), and sandbar willow (*Salix exigua*). Overstory vegetation is relatively sparse in Reach 4, consisting of small stands or individual valley and coast live oaks. California bay (*Umbellularia californica*), blue elderberry (*Sambucus mexicana*), and California buckeye (*Aesculus californica*) are also found within the project area.

In many portions of the Rutherford Reach, the riparian understory is dominated by non-native species, including Himalayan blackberry (*Rubus discolor*), periwinkle (*Vinca major*), and wild grape (*Vitis* sp.). Other non-native invasive species such as giant reed (*Arundo donax*) are also pervasive throughout the project area. However, other areas support substantial patches of native understory species, including snowberry (*Symphoricarpos albus*), Santa Barbara sedge (*Carex barbarae*), creeping wild rye (*Leymus triticoides*), and California rose (*Rosa californica*). In these reaches, it is not unusual to find areas dominated by native overstory and understory species. These areas of high native diversity are primarily a result of invasive species removal and revegetation projects implemented by local landowners to control Pierce's disease. Additionally, in 2007 the Napa County Flood Control District began implementing a program to control giant reed within the Rutherford Reach.

Wetlands

The preliminary wetland delineation conducted by Jones & Stokes in 2005 identified and mapped a total of 55.77 acres of waters of the United States, including wetlands, within the project area that are potentially subject to U.S. Army Corps of Engineers jurisdiction under Section 404 of the Clean Water Act.

Wetlands in the project area were classified into three types:

- bars,
- benches, and
- bar/bench complexes.

In terms of their hydrogeomorphic classification, 100 of the 103 mapped wetland features were riverine flow-through wetlands, meaning that their dominant source of water is flow from the river channel, and that they do not impound flow for a long duration. These 100 wetland features comprise 7.09 of the 7.55 acres of mapped wetlands in the delineation area. The three remaining wetland features (totaling 0.46 acre) were benches classified as riverine impounding wetlands. These habitat types qualify as jurisdictional based on their adjacency to the Napa River, and their hydrophytic vegetation, hydrology, and hydric soil. However, these wetlands occur in the channel on Riverwash soils (sands and gravels listed as hydric soils on Napa County hydric soils list) and support a mixture of native and non-native riparian vegetation (e.g., willows, California grape, Himalayan blackberry) (Jones & Stokes 2005b).

Areas identified and mapped as other waters include the Napa River channel (48.22 acres), a ponded area located in Reach 3 (0.02 acres), and 8 intermittent and ephemeral drainages (0.15 acres) (Jones & Stokes 2005b).

Wildlife

The Napa River supports a diverse assemblage of terrestrial and aquatic wildlife. Mammals such as raccoons (*Procyon lotor*), striped skunk (*Mephitis mephitis*), American mink (*Mustela vison*), muskrat (*Ondatra zibethicus*), mule deer (*Odocoileus hemionus*), and coyote (*Canis latrans*) use the riparian corridor for foraging, breeding, refuge, and as a movement corridor between larger habitat areas. The river channel and adjacent riparian vegetation also support a variety of reptiles and amphibians, including Pacific chorus frog (*Pseudacris regilla*), bullfrog (*Rana catesbeiana*), and California newt (*Taricha torosa*). The riparian corridor and channel provide breeding habitat for a wide variety of birds, such as downy woodpecker (*Picoides pubescens*), yellow warbler (*Dendroica petechia brewsteri*), and yellow-breasted chat (*Icteria virens*), and foraging opportunities for migratory waterfowl and shorebirds, including great blue heron (*Ardea herodias*), snowy egret (*Egretta thula*), and belted kingfisher (*Ceryle alcyon*). Red-tailed hawks (*Buteo jamaicensis*) and Cooper's hawks (*Accipiter cooperi*) use riparian habiat along the Rutherford reach for roosting, and the red-tailed hawks nest there as well. In addition, the Rutherford Reach provides suitable habitat for California freshwater shrimp (*Syncaris pacifica*) and northwestern pond turtle (*Clemmys marmorata marmorata*),) as discussed in *Special-Status Species* below.

Aquatic Habitat

In general stream habitats within the Rutherford Reach consist of long runs and glides, with fewer deep pools, and occasional riffles. Pool depths typically exceed 3 feet and occasionally reach a maximum depth of approximately 8 feet. When present, cover in the pools consist of deep water, undercut banks, instream woody material, and overhead cover in the form of low growing riparian vegetation. Aquatic macrophytes are present at many locations and also provide cover for fish. The amount and type of cover found in the pools varies, ranging from only one or two cover types present to all cover types present in some pools. Pools with greater cover complexity appear to support greater numbers of fish than pools with lower complexity. In general, less cover and fewer cover types are present in runs and riffles compared to pools. Cover in these habitats consists of undercut banks, overhead cover from riparian vegetation, and instream woody material. The predominant substrate in the Rutherford Reach is gravel and sand-sized particles, although more sand than gravel is commonly present. Finer substrates, such as clay- and silt-sized particles, are generally absent.

Both native and non-native fish species have been observed within the Reach; however, native species were numerically dominant during the 2005 survey.

Native species observed include rainbow trout (*Oncorhynchus mykiss*), three-spined stickleback (*Gasterosteus aculeatus*), tule perch (*Hysterocarpus traski*), Sacramento pikeminnow (*Ptychocheilus grandis*), California roach (*Lavinia symmetricus*), Sacramento sucker (*Catostomus occidentalis*), hardhead (*Mylopharodon conocephalus*), and sculpin (*Cottus* sp.). Non-native fish species observed in 2005 include largemouth bass (*Micropterus salmoides*) and smallmouth bass (*M. dolomieu*), and sunfish (*Lepomis* sp.). Non-native species, when present, were typically observed in pool habitats. In general, more fish species coexist in pool habitats compared to riffle or run habitats.

A total of 22 rainbow trout were observed during the September 2005 snorkel survey and several additional rainbow trout were observed from the bank in habitats not snorkeled. No other salmonid species (e.g., Chinook salmon) were observed at that time. The estimated size of rainbow trout observed ranged from 100 mm to 300 mm. All observed rainbow trout possessed adipose fins and showed no signs of fin damage, suggesting that these rainbow trout were wild (hatchery fish typically exhibit signs of fin damage and all hatchery steelhead are given an adipose fin clip). Although rainbow trout were observed in all three habitat types (i.e., riffles [10], runs [8], and pools [4]), no more than 1 rainbow trout was observed in any pool habitat. By contrast, when rainbow trout were observed in riffle and run habitats they numbered 2−8 individuals per habitat unit. Minimum water depths in riffles and runs where rainbow trout occurred were typically greater than 10 inches deep; rainbow trout were not observed occupying habitats where water depth was shallower than 6 inches. When present, rainbow trout were observed in proximity to instream cover, such as undercut banks and instream woody material.

The observed greater abundance of rainbow trout in riffle and run habitats, compared to pool habitats, suggests that these habitat types are important to rainbow trout rearing in the Rutherford Reach. This presumed preference for riffle and run habitats, which tend to have faster water velocities than pools, probably reflects the species' need for abundant food at the warmer water temperatures typical of the Napa River (Moyle 2002). Their presumed preference for riffle and run habitats in the Rutherford Reach may also be a response to their interaction with coexisting species, which may have a competitive advantage over trout at the observed warmer water temperatures (Moyle 2002).

Ongoing surveys conducted by the Napa County Resource Conservation District to assess Chinook salmon abundance, distribution, and spawning success within the Napa River Basin have estimated that a fall run of approximately 400−600 Chinook salmon occurs annually in the mainstem Napa River and its tributaries. Rutherford Reach spawning surveys documented the presence of 103 spawning redds and 210 live Chinook salmon in 2005, and 99 spawning redds and 293 live Chinook salmon in 2006. Redds were most frequently constructed in riffles and pool tail crests, probably because these areas provide more favorable hydraulic conditions and consist of gravel and small cobble substrates. Juvenile salmon production in the Rutherford Reach is directly related to post-spawning hydrologic conditions. Large storm events in mid-December 2005 and early January 2006 scoured the river bed and mobilized bed material, destroying redds

and unhatched eggs. In contrast, mild post-spawning conditions in late 2006 and early 2007 led to significant reproductive and early rearing success for that year class. Snorkel surveys conducted in May 2007 recorded average juvenile salmon densities of 15−30 fish per riffle/run sequence (Napa County RCD 2006, 2007).

Special-Status Species

A search of the California Natural Diversity Data Base (CNDDB 2008), and reviews of a U.S. Fish and Wildlife Service species list (USFWS 2008) and environmental documents prepared for other projects near the study area (California Department of Transportation 2006) identified a total of 5 special-status plant and wildlife species that may occur within the Rutherford Reach. Table 3-3 provides a list of these species and describes their status, habitat requirements, distribution, and occurrence in the project area.

Discussion of Checklist Responses

a, d. Substantial Adverse Effect on Candidate, Sensitive, or Special-Status Species, Substantial Interference with Movement or Breeding of Native Species—*Less than Significant*

Terrestrial Wildlife

Temporary construction-related activity and noise could disturb birds and other wildlife in the project area. However, as described in Chapter 2 (*Project Description*), work would occur in selected locations spread out along the 4.5-mile project corridor and the project would be constructed in phases over a period of approximately 10 years. Thus, large intact areas of undisturbed habitat would be available for native species to use during construction. Any construction activity during the migratory bird and raptor nesting period (February 15−August 1) would require preconstruction surveys conducted by a qualified wildlife biologist and strict avoidance of active nests and nest trees, as discussed in Chapter 2 (see *Measures to Protect Biological Resources* under *Environmental Commitments*). In light of the proposed construction phasing, the extent of undisturbed habitat that would remain available, and the precautions incorporated into the project to protect nesting migratory birds, their nest, eggs, and young, impacts on terrestrial wildlife are expected to be less than significant, and no mitigation is required.

Aquatic Species

Excavation of low-level (below the Ordinary High Water Mark) inset floodplain benches, and construction of biotechnical bank stabilization and instream habitat enhancement structures could result in temporary disturbance to native aquatic species such as Chinook salmon, steelhead, rainbow trout, northwestern pond turtle, and California freshwater shrimp. However, as discussed work above and in Chapter 2, the project would be constructed in phases over a period of approximately 10 years, so in any given year work would occur in selected locations spread out along the 4.5-mile project corridor. Consequently, abundant habitat would remain available for use during construction. The project would also incorporate measures to avoid impacts on special-status species known to use the project corridor, including California freshwater shrimp, salmonids, and northwestern pond turtles. Protective measures include limiting work to the dry season and relocating individuals in areas slated for construction. With these precautions in place, impacts on aquatic species would be reduced to the extent feasible and are expected to be less than significant. No mitigation is required.

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

With the exception of wetlands, which are discussed separately in item (c) below, the only sensitive natural community affected by the proposed project would be riparian habitat.

Excavation to reduce bank slopes and create new inset floodplain benches would disturb or remove a total of 19 acres of riparian habitat. However, the proposed new floodplain benches would be sited to preserve large intact stands of healthy mature trees—recontouring is proposed for areas that are actively eroding, where many of the existing trees are being undermined and will topple into the channel as streambanks fail. Many of the existing trees are also senescent and because of the morphology of the channel are not being replaced through natural recruitment.

In addition, all of the area disturbed for construction would be revegetated once earthwork is completed; the newly excavated benches and slopes would be planted with a mixture of native overstory and understory species, resulting in greater plant diversity and structure than under existing conditions. Creation of surfaces at and below the 1.5-year flood recurrence interval would also facilitate deposition of native seed material and natural recruitment of riparian vegetation. An additional 8 acres of native over- and understory vegetation would be planted in the vegetated top-of-bank buffers created along the project corridor, so the total extent or replanted riparian habitat would exceed the extent of that disturbed or removed for construction (27 acres restored vs. 19 acres disturbed).

Table 3-3. Special-Status Species with Potential to Occur in the Project Area

Species	Status (Federal/State/CNPS)	Habitat Requirements	Distribution	Occurrence in Study Area
Plants				
Narrow-anthered California brodiaea *Brodiaea californica* var. *leptandra*	1B	Broadleafed upland forests, chaparral, cismontane woodland, lower, montane coniferous forest, valley and foothill grassland,	Known only from Lake, Napa, and Sonoma Counties	Known occurrences in eastern and western Napa County in Mt. St. Helena, Aetna Springs, Detert Reservoir, Mt. George, and Capell Valley quads. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Green jewel-flower *Strepthanthus breweri* var. *hesperidis*	1B	Chaparral, cismontane woodland, serpentine, rocky soils	Known only from Lake, Napa, and Sonoma Counties	Known occurrences in northern, central, and western Napa County in Yountville, Chiles Valley, Detert Reservoir, Rutherford, Aetna Springs, Walter Springs, Walter Springs, Knoxville, Jericho Valley, Mt. St. Helena, and St. Helena quads. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Narrow-leaved daisy *Erigeron angustatus*	1B	Chaparral	Known only from Lake, Napa, and Sonoma Counties	Collected from St. Helena in 1891. Also collected from Mt. St. Helena and Soda Creek Canyon circa 1940. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Two-carpellate western flax *Hesperolinon bicarpellatum*	1B	Serpentine chaparral	Known only from Lake, Napa, and Sonoma Counties	Documented on Howell Mountain in the early 1900s. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Colusa layia *Layia septentrionalis*	1B	Chaparral, cismontane woodland, valley and foothill grassland. Scattered colonies in fields and grassy slopes in sandy or serpentine soils	Endemic to California	Documented occurrences within the Pope Valley and on Howell Mountain. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.

Species	Status (Federal/State/CNPS)	Habitat Requirements	Distribution	Occurrence in Study Area
Sebastopol meadowfoam *Limnanthes vinculans*	FE/SE	Vernal pools, meadows and seeps	Not known outside Sonoma and Napa Counties	Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Jepson's linanthus *Linanthus jepsonii*	1B	Chaparral, grassland, and cismontane woodland. On volcanic substrates or the periphery of serpentine substrates.	Endemic to California	Documented occurrences in the Pope Valley, Calistoga, and Conn Valley. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Cobb Mountain lupine *Lupinus sericatus*	1B	Chaparral, cismontane woodland, lower montane coniferous forest. In stands of knobcone pine/oak woodland, on open wooded slopes in gravelly soils; sometimes on serpentine.	Endemic to California	Documented occurrences on Howell Mountain and in Las Posadas State Forest. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Baker's navarretia *Navarretia leucocephala bakeri*	1B	Cismontane woodland, meadows an seeps, vernal pools, valley and foothill grassland, lower montane coniferous forest. Adobe or alkaline soils.	Endemic to California	Documented occurrences in Calistoga and Pope Valley. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Sonoma beardtongue *Penstemon newberryi* var. *sonomensis*	1B	Chaparral. Crevices in rock outcrops and talus slopes.	Endemic to California	Documented occurrences on Mt. St. Helena and at Bateman Creek and the TNC Cleary Preserve. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Marsh checkerbloom *Sidalcea oregana hydrophila*	1B	Meadows and seeps, riparian forest. Wet soil of streambanks, meadows	Endemic to California	Documented occurrence on Howell Mountain at the turn of the last century. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Invertebrates				
Valley elderberry longhorn beetle *Desmocerus califomicus dimorphus*	FT	Elderberry shrubs in moist valley oak woodlands along the margins of streams and rivers.	San Joaquin and southern Sacramento Valleys; Napa	Closest recorded occurrences are from Suisun Creek in the Fairfield North quad, close to the border of the

Species	Status (Federal/State/CNPS)	Habitat Requirements	Distribution	Occurrence in Study Area
				Napa, Yolo, and Solano quads, and along Wooden Valley Creek in the Mt. George quad. Surveys conducted for the St. Helena Flood Protection Project observed only CELB in the Napa Valley area. Elderberry shrubs are found along the Rutherford Reach, but the watershed is not part of the Central Valley watershed and is outside the range of VELB.
California freshwater shrimp *Syncaris pacifica*	FE/SE	Low elevation, low gradient, perennial freshwater streams, or intermittent streams with perennial pools. Structurally diverse, undercut banks with exposed roots and overhanging vegetation.	Endemic to Marin, Sonoma, and Napa Counties	No known occurrences recorded for the Rutherford quad. Closest recorded occurrence in the Napa River upstream of the project near Calistoga. Breeding pairs have been observed south of the Pope Street Bridge, near St. Helena. Potential habitat occurs in the Rutherford Reach.
Fishes				
Central California Coastal ESU steelhead *Oncorhynchus mykiss*	FT	Ocean and freshwater rivers and streams	In streams from the Russian River to Aptos Creek, Santa Cruz County, CA (inclusive), and the drainages of San Francisco and San Pablo Bays eastward to the Napa River (inclusive), Napa County, CA, excluding the Sacramento−San Joaquin River Basin of the Central Valley	Naturally spawning populations in upstream tributaries of the Napa River, including York and Sulphur Creeks.
Chinook salmon *Oncorhynchus tshawytscha*	C (fall/late fall), FE (winter), FT (spring)	Ocean and freshwater rivers and streams	In streams and rivers of the Central Valley	Naturally spawning populations in the Napa River, including the Rutherford Reach.
Delta smelt *Hypomesus transpaciticus*	FE	Estuarine waters with a salinity range up to 14 ppt. Freshwater (up to 2 ppt salinty) edge of the	Found only from Suisun Bay upstream through the Delta in Contra Costa,	Nearest occurrence is in San Pablo Bay, outside Napa County. Unlikely to occur in the Rutherford Reach

Species	Status (Federal/State/CNPS)	Habitat Requirements	Distribution	Occurrence in Study Area
		freshwater mixing zone in the Delta	Sacramento, San Joaquin, Solano, and Yolo Counties	because of the lack of suitable habitat.
Amphibians				
California red-legged frog *Rana aurora draytonii*	FT/CSC	Quiet, permanent water in woods, forest clearings, riparian areas, and grasslands	Coast, Transverse, Sierra Nevada, and Cascade Ranges	No recorded occurrences of this species on the Napa Valley floor. The closest recorded occurrence is 10 miles east of the project area in constructed ponds near Oak Moss Creek. Also occurs in Wragg Creek, a tributary to American Creek. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat. Protocol-level surveys conducted for the Oakville Cross Road Bridge project did not observe the species.
Foothill yellow-legged frog *Rana boylii*	CSC	Streams, rivers and on their banks; often suns on rocks	Northern and central coastal ranges, foothills of the Sierra	Potential habitat occurs on tributaries to the Napa River. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Western spadefoot toad *Scaphiopus hammondii*	CSC	Grasslands with shallow temporary pools	Central Valley, bordering foothills, and coast ranges; southwestern United States	Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Reptiles				
Northwestern pond turtle *Clemmys marmorata marmorata*	CSC	Associated with permanent or nearly permanent water bodies with abundant cover and basking sites	Parts of Washington, Oregon, Nevada, and California; below 5,000 feet	Potential foraging, breeding, and dispersal habitat occurs within the Rutherford Reach. The species was observed in 1997 during surveys conducted for the Oakville Cross Road Bridge project, and a carapace was observed within the project area in 2005.

Species	Status (Federal/State/CNPS)	Habitat Requirements	Distribution	Occurrence in Study Area
Birds				
Cooper's hawk *Accipiter cooperi*	CSC	Forests and open woodlands	Migratory; occurs scattered across the US, Southern Canada, Mexico, and Central Mexico to Costa Rica	Potential roosting habitat is present in project area. Uncommon breeder in Napa County.
Black swift *Cypseloides niger*	CSC	Nests in crevices on remote cliffs	Summer visitor along Central coasts, central and south Sierra, and some southern California mountains, around cliffs and open areas.	Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Yellow warbler (nesting) *Dendroica petechia brewsteri*	CSC	Nest in shrubby growth by swamps and watercourses, in wet scrub, tree foliage, gardens, shrubberies and berry patches. Dense growth may be preferred.	Pacific Northwest and California	Summer resident. Known from suitable habitat in Napa Valley, Conn Valley, and Gordon Valley. Documented occurrence within the Calistoga quad. Potential habitat is found within the Rutherford Reach.
Peregrine falcon *Falco peregrinus anatum*	FD/SE	Protected edges of high cliffs, usually adjacent to marshes, lakes, or rivers that support plentiful bird populations	Nests in central and north Coast Ranges and Sierra Nevada; winters in Sacramento and San Joaquin Valleys	Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Bald eagle *Haliaeetus leucocephalus*	FT/SE	Coniferous forests within 1 mile of lakes, reservoirs, rivers, or creeks (nesting and roosting)	Nests primarily in Lassen, Shasta, and Plumas Counties; winters in Klamath Basin, Sacramento and San Joaquin Valleys, and along some foothill streams	Documented occurrence wintering at Lake Berryessa and Lake Hennessey. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Northern spotted owl *Strix occidentalis caurina*	FT	Dense old growth, multi-layered mixed conifer, redwood, and Douglas Fir habitats. Narrow steep-sided canyons with north-facing slopes.	Washington, Oregon, California, Utah, Colorado, New Mexico, Arizona, and Mexico	Documented occurrence at Howell Mountain and Conn Creek east of St. Helena and the forests west of the city. Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.

Species	Status (Federal/State/CNPS)	Habitat Requirements	Distribution	Occurrence in Study Area
Mammals				
Great western mastiff bat *Eumops perotis califomicus*	CSC	Open semi-arid to arid habitats with crevices in cliff faces, high buildings, trees, or tunnels for roosting. Needs large bodies of water for drinking.	Uncommon in southeastern San Joaquin Valley and Coast Ranges from Monterey County south through southern California and from the Coast east to the Colorado desert	Unlikely to occur in the Rutherford Reach because of the lack of suitable habitat.
Townsend's western big-eared bat *Corynorhinus townsendii townsendii*	CSC	Humid coastal regions of northern and central California. Roosts in limestone caves, lava tubes, mines, buildings, etc. Will only roost in the open, hanging from walls, and ceilings.	Species is found throughout the west, but subspecies limited to California coastal ranges	Unlikely to roost in the Rutherford Reach due to continual disturbance associated with viticultural activity. Documented occurrence at the McLaughlin Mine in extreme north Napa County.
Pallid bat *Antrozous pallidus*	CSC	Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting. Also in buildings and hollow trees.	Western United States	The Rutherford Reach area does not provide suitable foraging habitat.

Sources: CNDDB 2008, USFWS 2008

Key To Status

Federal

FE = Endangered—Listed (in the Federal Register) as being in danger of extinction
FT = Threatened—Listed as likely to become endangered within the foreseeable future
FP = Proposed—Officially proposed (in the Federal Register) for listing as endangered or threatened
FC = Candidate—Candidate to become a proposed species
D = Delisted (species will be monitored for 5 years)
Critical Habitat—Area essential to the conservation of a species

State

E = Endangered
T = Threatened
R = Rare

CNPS

1B = Rare or endangered in California or elsewhere

Additionally, as described in Chapter 2 (*Project Description*), the project would be constructed in phases, so impacts to existing riparian habitat would be spread out over a period of about 10 years. Thus, at any given time, the extent of riparian habitat disturbed or in recovery would be substantially less than the total project footprint.

In light of all these factors, construction-related impacts on riparian habitat are considered less than significant, and no mitigation is required.

Over the long term, project maintenance could require pruning, thinning, or limited removal or riparian vegetation. However, any such activities would be restricted to the minimum necessary to maintain the functionality of the channel and constructed project features (berms etc.), and would incorporate the same environmental commitments to protect special-status species required during project construction. Maintenance-related impacts on riparian vegetation are therefore also expected to be less than significant, and no mitigation is required.

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

Construction

Excavation of low (below the Ordinary High Water Mark) inset floodplain benches and construction of biotechnical bank stabilization and instream habitat enhancement structures could result in the removal of vegetation within areas identified as candidate jurisdictional wetlands by the project wetland delineation (Jones & Stokes 2005b). However, as described above in *Overview of Site Conditions*, wetlands within the project area occur in the channel on Riverwash soils (sands and gravels) and thus are ephemeral features naturally subject to periodic scouring by floodflows. Moreover, they support a mixture of native and non-native riparian vegetation (e.g., willows, hybrid wild grape, Himalayan blackberry) rather than native obligate wetland species.

Following construction, recontoured banks and inset terrace/floodplain surfaces would be replanted with native overstory and understory riparian species, replacing and improving the functions and values currently offered by the mixed native and non-native vegetation in existing inchannel wetlands. Creation of new inset surfaces below the Ordinary High Water Mark would also facilitate sediment deposition and trapping of native seed material and natural recruitment of riparian vegetation, potentially increasing the extent and stability of inchannel and channel-marginal wetland areas. Thus, although low-quality ephemeral inchannel wetland areas would be removed during project construction, the project is expected to benefit wetland habitat overall; impacts on wetland habitat as a result of project construction are considered less than significant and no mitigation is required.

Maintenance

Over the long term, project maintenance could result in disturbance or removal of some wetland vegetation and/or substrate. However, as discussed above for riparian vegetation, any removal of wetland vegetation would be restricted to the minimum necessary to maintain the functionality of the channel and the constructed project features (berms etc.), and would incorporate the same environmental commitments to protect special-status species required during project construction. The only wetland areas likely to be affected by substrate removal would be those within the channel itself, which are ephemeral features subject to periodic floodflow scour. In light of these factors, maintenance-related impacts on wetlands are considered less than significant. No mitigation is required.

e. Conflict with Local Policies or Ordinances Protecting Biological Resources—*No Impact*

The County General Plan contains numerous goals, policies, and action items to protect biological resources. However, project construction and maintenance would incorporate a variety of measures to avoid or reduce short-term adverse effects on sensitive habitats, wildlife, and fisheries resources, and the project would benefit inchannel and riparian habitat and stream-dependent wildlife over the long term. Consequently, the project is consistent with the General Plan's priority on conservation of biological resources, and there would be no impact related to conflicts with local policies or ordinances for biological protection. No mitigation is required.

f. Conflict with Adopted Habitat Conservation Plan—*No Impact*

The project area is not subject to any adopted habitat conservation plan, natural communities conservation plan, or other approved local, regional, or state habitat conservation plan. Thus, there would be no impact related to potential conflicts with any such plan, and no mitigation is required.

V. 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 pursuant to Section 15064.5?	❑	■	❑	❑
c.	Directly or indirectly destroy a unique paleontological resource or site?	❑	❑	❑	■
d.	Disturb any human remains, including those interred outside of formal cemeteries?	❑	■	❑	❑

Regulatory Context

Cultural and paleontological resources are protected by the federal Antiquities Act and National Environmental Policy Act, and by the California Environmental Quality Act and California Public Resources Code. The County General Plan also contains goals and policies to protect Napa County's rich archaeological and historical heritage. For additional information, see Appendix B of this IS/MND.

Project Area's Prehistory and Historic Background

Native American Period

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

west of the Sacramento River from about Princeton in the north to Benecia in the south (County of Napa 2005).

Ethnographic studies have identified known Wappo village sites within a few miles to the north and south of the project area. As with most hunter-gatherer groups in California, the Wappo settled in large, permanent villages that supported 50- to 150-person tribelets. Primary village sites were occupied continuously throughout the year, and were established in areas with abundant resources. Additional temporary camps were occupied seasonally to procure food resources that were only available during specific times of the year (County of Napa 2005).

Hispanic and American Periods

The first European explorers, Don Francisco Castro and Franciscan Friar Jose Altamira, traveled through Napa Valley in 1823 in search of a site for a new mission. They explored present-day Petaluma, Sonoma, and Napa before settling on Sonoma (County of Napa 2005).

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 the first 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 (County of Napa 2005).

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 (County of Napa 2005).

The Spanish missionaries were credited with planting the first grapevines and introducing winemaking to California. The first grape vines in Napa Valley were planted in 1838 by George Yount, using cuttings from Sonoma and San Rafael (Napa County 2005). While Yount is considered the first to plant wine grapes in Napa Valley, it was Thomas Rutherford who made the first serious investment in grape production and winemaking in the region. Rutherford, who married Yount's granddaughter Elizabeth in 1864, was given 1,040 acres at the northern end of Ranch Caymus as a wedding present and immediately began planting grapevines (Rutherford Dust Society 2008).

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. A private census conducted in the late 1880s reported over 2 million vines under cultivation in the Rutherford area alone (Rutherford Dust Society 2008). Over the

next 40 years, the wine industry weathered a series of highs and lows—*Phylloxera* infestations, Prohibition, the economic crisis of the Great Depression—but by the late 1930s the wine industry began to re-establish itself as an important agricultural industry in Napa Valley (County of Napa 2005).

Existing Conditions

Cultural Resources

Records searches conducted at the California Historical Resources Information System at Sonoma State University to support preparation of the Napa County Baseline Data Report identified a total of 370 known archaeological sites on the Napa Valley floor (County of Napa 2005). Of those known sites, three are within the project area (Table 3-4).

Table 3-4. Known Archaeological Sites Within the Project Area

Site	Notes
NAP-148	Originally recorded in 1951 when the area was uncultivated. Measures 100 feet by 30 feet with three possible house pits. However, no house pits were observed in 1977 by Offerman (1977 site record) and reported site much larger than recorded. Werner (1990) reports that obsidian could be the result of deposition of dredged materials from Napa River.
NAP-790	Recorded in 1991 by Pastron. Sparse lithic scatter discovered in vineyard plow zone and adjacent dirt vineyard access road, approximately 20 meters from the Napa River.
NAP-32	This is a very significant site containing a large midden deposit, human remains, and numerous artifacts. First excavated in 1951, subject to past damage, pothunting, and vineyard activities, but intact deposits possibly remain.

Source: County of Napa 2005

Paleontological Resources

Paleontological resources include the fossilized remains of vertebrate and invertebrate organisms, fossil tracks and trackways, and plant fossils.

The project site's paleontological sensitivity (potential to contain significant paleontological resources) was evaluated using the criteria of the Society of Vertebrate Paleontology (SVP) (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995), which have become a widely accepted discipline standard. Table 3-5 summarizes the SVP paleontological sensitivity criteria. Note that SVP defines *significant* paleontological materials as

those that meet one or more of the following criteria: provide important information shedding light on evolutionary trends and/or helping to relate living organisms to extinct organisms; provide important information regarding the development of biological communities; demonstrate unusual circumstances in the history of life; represent a rare taxon or a rare or unique occurrence; are in short supply and in danger of being destroyed or depleted; have a special and particular quality, such as being the oldest of their type or the best available example of their type; or provide 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 (Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995).

Table 3-5. Society of Vertebrate Paleontology Sensitivity Criteria

Sensitivity Level	Definition
High	Geologic units from which vertebrate or significant invertebrate 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: Society of Vertebrate Paleontology Conformable Impact Mitigation Guidelines Committee 1995.

As discussed in more detail in the following checklist section (*Geology, Soils, and Seismicity*), all project earthwork is expected to be confined to the ribbon of latest Holocene alluvial deposits along the active Napa River corridor. Although exceptions are made for materials of particular scientific importance, biological remains younger than 10,000 years are not typically considered paleontologically significant. Because of their geologic youth, the Holocene deposits of the Napa River are evaluated as having low sensitivity for paleontological resources.

Discussion of Checklist Responses

a. Adverse Change in Significance of Historical Resource—*No Impact*

Based on the results of the records search conducted for the project, no historical resources are located in the project area. Consequently, no impact on historical resources is anticipated. No mitigation is required.

b. Adverse Change in Significance of an Archaeological Resource—*Less than Significant with Mitigation*

Construction

As described above in *Existing Conditions*, the project area has been under active cultivation and has experienced ongoing ground disturbance for over 100 years. However, previous agricultural disturbance does not necessarily affect the significance of an archaeological resource. Ethnographic investigations in the project area have identified three known archaeological sites along the banks of the Rutherford Reach, one of which is considered extremely important. Project features have been sited to avoid two of the known sites, including the one considered most sensitive. The third site has been significantly disturbed by vineyard cultivation and streambank erosion, but there is still some potential for construction activities to uncover buried cultural resources at this location. Additionally, because of the long record of human occupation in the area there is some potential for construction activities in other areas to disturb previously unknown cultural resources. Depending on the extent and severity of disturbance and the nature of the materials affected, impacts on cultural resources, including the known site that could not be avoided and possibly also unknown buried resources, could be significant. Impacts would be reduced to a less than significant level by implementation of the following mitigation measures.

Mitigation Measure CUL-1: Conduct Archaeological Investigations

The proponent will retain a qualified archaeologist to formally survey and conduct preliminary archaeological testing (rapid recovery units or similar) to better determine the integrity and extent of the known archaeological site within the project area. If archaeological deposits are found to be significant, a program of data recovery in areas of proposed disturbance will be implemented.

Mitigation Measure CUL-2: Monitor Construction Activities

The proponent will retain a qualified archaeologist, as well as a Native American monitor, who will be present onsite during any ground-disturbing activities within or adjacent to known archaeological sites. If any cultural resources are discovered during these or any other project activities, *Mitigation Measure CUL-3* will also be implemented.

Mitigation Measure CUL-3: Stop Work if Cultural Resources Are Discovered During Project Activities

If buried cultural resources, such as chipped or ground stone, historic debris, building foundations, or human bone are discovered during ground-disturbing activities, work will stop in that area and within 100 feet of the find until a qualified professional archaeologist can assess the significance of the find and develop appropriate treatment measures in consultation with the County, and other appropriate authority. The County will be responsible for ensuring that the treatment measures are properly implemented.

Maintenance

Because of the long record of human occupation in the area there is some potential for project maintenance activities to disturb previously unknown cultural resources. Depending on the extent and severity of disturbance and the nature of the materials affected, impacts could be significant, but would reduced to a less than significant level by implementation of Mitigation Measures CUL-2 and CUL-3, described above. No additional mitigation is required.

c. Destruction of Unique Paleontological Resource—*No Impact*

All areas proposed for ground-disturbing activity associated with project construction and maintenance are situated on substrate of Holocene age, and thus are not considered sensitive for paleontological resources. As a result, no impact on paleontological resources (including unique paleontological resources) is anticipated, and no mitigation is required.

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

Construction

As discussed in item (b) above, although the project area has experienced ongoing ground disturbance as a result of vineyard activities, previous investigations have documented important archaeological resources, including human remains, along the banks of the Rutherford Reach. Project features have been planned to avoid known burial sites. However, because of the long record of human occupation in the area there is some potential for construction activities to disturb previously unknown cultural resources, including human remains. Any disturbance of human remains would represent a significant impact. Impacts would be reduced to a less than significant level by implementation of the

following mitigation measure, designed to ensure consistency with state law regarding the treatment of human remains (California Public Resources Code Sec. 5097).

Mitigation Measure CUL-4: Protect Human Remains, Consistent with California State Codes

If human remains are discovered or recognized at any time during project-related activities (construction or maintenance), there will be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until the Napa County Coroner has been informed and has determined that no investigation of the cause of death is required. If the remains are of Native American origin, ground-disturbing activities will not resume until the descendents of the deceased Native American(s) have made a recommendation regarding means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in California Public Resources Code Section 5097.98. The County will be responsible for ensuring that these recommendations are properly implemented. If NAHC is unable to identify a descendent or the descendent fails to make a recommendation within 24 hours after being notified by the NAHC, work may then resume.

Maintenance

Because of the long record of human occupation in the area there is some potential for project maintenance activities to disturb previously unknown cultural resources, including human remains. Any disturbance of human remains would represent a significant impact. Impacts would be reduced to a less than significant level by implementation of *Mitigation Measure CUL-4*, described above. No additional mitigation is required.

VI. Geology and Soils

	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:				

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
	1. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	❑	❑	■	❑
	2. Strong seismic groundshaking?	❑	❑	■	❑
	3. Seismic-related ground failure, including liquefaction?	❑	❑	■	❑
	4. 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 onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse?	❑	❑	■	❑
d.	Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1997), creating substantial risks to life or property?	❑	❑	■	❑
e.	Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater?	❑	❑	❑	■

Regulatory Context

The principal regulations governing assessment and mitigation of risks related to geologic hazards are California's Alquist-Priolo Earthquake Fault Zoning Act and Seismic Hazards Mapping Act, which establish statewide processes to identify hazard areas, and assign local jurisdictions the responsibility of evaluating and mitigating hazards within designated hazard areas. Grading and earthwork are regulated by the County, which has adopted the 2007 California Building Code. For additional information, see Appendix B of this IS/MND.

Existing Conditions

Geologic Setting

Napa County is located in the central portion of California's Coast Ranges geomorphic province (e.g., Norris and Webb 1990). The Coast Ranges are characterized by en echelon northwest-trending mountain ranges formed over the past 10 million years or less by active uplift related to complex tectonics of the San Andreas fault/plate boundary system (e.g., Norris and Webb 1990, Buising and Walker 1995, Atwater and Stock 1998).

The Coast Ranges Province extends westward to the coastline and beyond, including the Farallon Islands offshore. The eastern rangefront is defined by faults that have been interpreted as contractile features associated with shortening along an axis approximately normal to the rangefront (e.g., Wong et al. 1988, Sowers et al. 1992, Unruh et al. 1992), but may also locally accommodate a right-lateral component of motion (e.g., Richesin 1996).

The Napa Valley is located in the eastern Coast Ranges, which are broadly antiformal at the general latitude of the project area, consisting of a central "core" of Mesozoic units—including mafic and ultramafic rock allied with the Coast Range ophiolite and lithologically diverse units of the Franciscan complex—flanked on the west by extensive by discontinuous exposures of Miocene volcanic rocks (Sonoma Volcanics), and on the east by an upward-younging sequence of marine and terrestrial sedimentary units that ranges in age from Cretaceous (Great Valley Group) to Neogene (Monterey Group, San Pablo Group, Sonoma Volcanics, and Huichica Formation). The region's larger drainages preserve several generations of alluvial fan and stream deposits ranging in age from Pleistocene to Holocene (Wagner and Bortugno 1982, Graymer et al. 2002).

Napa Valley is flanked by hillside exposures of the Sonoma Volcanics of Miocene age. Franciscan and ultramafic rocks are also exposed locally in the hills on both sides of the Valley (Wagner and Bortugno 1982). Alluvial fan deposits of Pleistocene to Holocene age are preserved along the valley margins, in some places extending onto the valley floor. Elsewhere, the valley floor consists of terrace and alluvial basin deposits, primarily of Holocene age. A ribbon of latest Holocene alluvial deposits marks the course of the Napa River (Sowers et al. 1998). All project earthwork would take place within this geologically recent material.

Geologic Hazards

Primary Seismic Hazards—Surface Fault Rupture and Groundshaking

Typical of coastal California, Napa County is located in a seismically active area and will continue to experience earthquakes effects in the future. Several active faults are present in Napa County. These include the Hunting Creek-Berryessa fault, the West Napa fault, and the Green Valley fault, portions of all of which are zoned the State of California pursuant to the Alquist-Priolo Act. A fourth structure, the Cordelia fault, has not been zoned as of 2008 but may also be active (County of Napa 2005).

None of the County's active faults is within the immediate project area, so the risk of surface fault rupture in the project area is considered low. However, the project area could experience strong groundshaking as a result of earthquake activity on any of these faults. In addition, Napa County, including the project corridor, may also experience groundshaking generated by earthquakes on faults outside the immediate County area, including the San Andreas, Hayward, and Calaveras faults. Recent studies estimate a 62% probability of at least one earthquake with a magnitude of 6.7 or greater occurring on one of the faults of the greater San Francisco Bay Area in the next 30 years, and a 10% probability of a magnitude 7.0 or greater event during the same timeframe (U.S. Geological Survey Working Group on California Earthquake Probabilities 2003). Table 3-6 summarizes current information on earthquake recurrence intervals and maximum credible earthquake (MCE) for key structures in and near Napa County.

Table 3-6. Maximum Credible Earthquake and 30-Year Earthquake Probabilities for Principal Active Faults

Fault	Magnitude of Maximum Credible Earthquake	30-Year Probability[a]
San Andreas	6.9-7.9[a]	All ruptures: 0.24 Magnitude≥6.7: 0.24 Magnitude≥7.0: 0.18 Magnitude≥7.5: 0.09
Hayward−Rodgers Creek	6.5-7.3[a]	All ruptures: 0.40 Magnitude≥6.7: 0.27 Magnitude≥7.0: 0.11 Magnitude≥7.5: 0.00
Green Valley−Concord	6.0-6.7[a]	All ruptures: 0.26 Magnitude≥6.7: 0.04 Magnitude≥7.0: 0.00 Magnitude≥7.5: 0.00

Fault	Magnitude of Maximum Credible Earthquake	30-Year Probability[a]
Calaveras	5.8-6.9[a]	All ruptures: 0.59 Magnitude≥6.7: 0.11 Magnitude≥7.0: 0.02 Magnitude≥7.5: 0.00
Greenville	6.2-6.9[a]	All ruptures: 0.08 Magnitude≥6.7: 0.03 Magnitude≥7.0: 0.01 Magnitude≥7.5: 0.00
Macaama (South)	6.9[b]	Not Provided
West Napa	6.5[b]	Not Provided
Cordelia	>6[c]	Unknown

Sources:
[a] U.S. Geological Survey Working Group on California Earthquake Probabilities 2003
[b] International Conference of Building Officials 1997
[c] Information compiled from multiple sources by County of Napa (2005)

Secondary Seismic Hazards—Liquefaction and Ground Failure

The State of California maps areas subject to secondary seismic hazards pursuant to the Seismic Hazards Mapping Act of 1990 (see Appendix B for more detail). To date, this effort has focused on areas such as the Los Angeles Basin–Orange County region and the central San Francisco Bay region, where dense populations are concentrated along active faults. State seismic hazards maps have not been issued for the Napa Valley Area, and no such mapping is planned in the immediate future (California Geological Survey 2008).

In general, however, liquefaction risks are greatest where the shallow substrate consists of loose or unconsolidated sands or silts that are saturated by groundwater. Risks can be considered particularly high where liquefaction is known to have occurred in past earthquakes. Using these criteria, the U.S. Geological Survey has developed liquefaction susceptibility mapping for the Napa County area that identify the latest Holocene stream deposits along the Napa River as the area's most liquefaction-susceptible geologic unit. Other susceptible units include stream terrace, alluvial, and basin deposits of Holocene age, as well as alluvial deposits of late Pleistocene to Holocene age (Sowers et al. 1998; see also County of Napa 2008a). Consequently, the project corridor—situated on Holocene stream deposits—should be considered subject to substantial liquefaction risk.

Landslides

Although various types of landslide present a hazard in the County's upland areas, the project corridor is located on nearly flat topography near the axis of the Napa Valley (see discussion in County of Napa 2005). As a result, the project area is not subject to landslide hazard. However, as described in Chapter 2, bank erosion along the Napa River is locally contributing to undercutting and bank failure in some portions of the project corridor.

Soils

The active channels and inset terraces of the Napa River consist of alluvial materials in regular stream transport, and thus show minimal soil development.

Adjacent to the active River channel in the project corridor, disconnected upper terraces of the historic Napa River floodplain are underlain by soils assigned to the Yolo loam, 0–2% slopes, which formed in Recent alluvium (Lambert and Kashiwagi 1978). The surface layer of this soil unit is about 24 inches thick and typically consists of dark grayish brown and very dark grayish brown slightly acid to neutral loam and silt loam. Underlying materials consist of dark grayish brown, brown, and dark brown neutral to slightly alkaline silt loam, to a depth of 60 inches or more.

Yolo soils are well-drained and moderately permeable. Runoff is slow, and erosion hazard is slight. Effective rooting depth is 60 inches or more. Shrink-swell potential ranges from low in shallow surface soils to moderate below depths of about 6 inches (Lambert and Kashiwagi 1978).

Discussion of Checklist Responses

a. Exposure of People or Structures to Adverse Effects Involving:

1. Rupture of Known Earthquake Fault—*Less than Significant*

No faults known to be active are located within the project corridor, which is accordingly considered very unlikely to experience surface fault rupture. Moreover, the proposed project would not result in construction of structures, nor is it expected to attract additional population into the project area (see related discussion in *Population and Housing* section of this checklist). Consequently, the potential for impacts related to increased exposure of people or structures to surface fault rupture is evaluated as less than significant, and no mitigation is required.

2. Strong Seismic Groundshaking—*Less than Significant*

The project corridor is located in a seismically active area, and can be expected to experience strong earthquake groundshaking during the lifetime of the proposed project. However, as identified in item (a)(1) above, the project would not increase population in the area, and it would not result in the construction of structures. Consequently, the potential for impacts related to increased exposure of people or structures to strong seismic groundshaking is evaluated as less than significant. The project would build new berms for improved flood management, replacing the existing system of substandard agricultural berms. Because the new berms would be constructed to an improved standard, they are expected to perform better in seismic events than the existing berms; their seismic safety impacts, if any, would be beneficial. No mitigation is required.

3. Seismically Induced Ground Failure—*Less than Significant*

Substrate materials in the project corridor are considered highly susceptible to liquefaction, so the new flood protection berms could be at some risk of liquefaction damage in future earthquakes. However, they would replace an aging and inadequately constructed system of agricultural berms and would be expected to perform better than existing structures in the event of groundshaking and/or liquefaction. Impacts of constructing the new berm system are thus likely to be beneficial overall from the standpoint of seismic performance. Moreover, as identified in item (a)(1) above, the project would not increase population in the area, and it would not result in the construction of structures *per se*. Consequently, the potential for impacts related to increased exposure of people or structures to seismically induced ground failure, including liquefaction, is evaluated as less than significant overall, and no mitigation is required.

4. Landslides, Including Seismically Induced Landslides—*Less than Significant*

The project area is located on the valley floor and is not subject to landslide risk. The potential for impacts related to existing landslide hazards, including seismically induced landsliding, is thus less than significant.

Portions of the project corridor are subject to bank erosion and failure, which would be corrected by the recontouring proposed to accomplish geomorphic restoration; this would represent a beneficial impact. If cut or fill slopes constructed during the restoration process are improperly designed, they could be subject to increased risk of failure, potentially representing a significant impact. However, the project would include a site-specific geotechnical investigation to ensure appropriate design and construction. Impacts related to landslides and slope stability are thus expected to be less than significant overall, and no mitigation is required.

b. Soil Erosion, Loss of Topsoil—*Less than Significant*

Activities required for the proposed geomorphic restoration—including site clearing, excavation, and fill placement to recontour channel and terrace areas and construct the new flood protection berms—would have the potential to contribute to accelerated erosion. However, the project work areas are large enough that a SWPPP will be required for each phase of construction, as discussed in the *Hydrology and Water Quality* section of this checklist. The County would be responsible for ensuring compliance with the requirements of the SWPPP, and would have the authority to shut down construction activities in the event of noncompliance or ineffective compliance. With the SWPPP and County oversight in place, impacts related accelerated erosion during construction are expected to be less than significant. Similar measures would also be required for all maintenance activities, so long-term impacts related to erosion and sedimentation are also expected to be less than significant. No mitigation is required.

Earthwork would require removal of topsoil. However, as discussed under *Environmental Commitments* in Chapter 2, the County will require restoration contractors to sidecast and stockpile all removed topsoil so it can be reused during revegetation; site finishing will include topsoil replacement. With this commitment in place, impacts related to topsoil loss would be reduced to the extent feasible. Any residual impact is expected to be small and areally confined, and is considered less than significant. No mitigation is required.

c. Location on Unstable Geologic Units or Soil—*Less than Significant*

As identified in item (a)(4) above, portions of the project corridor are currently subject to bank erosion and failure, which would be corrected by the recontouring proposed to accomplish geomorphic restoration; this would represent a beneficial impact.

No other risks related to geologic or soil instability are currently known in the project corridor. However, to ensure site-appropriate design, geotechnical work conducted for the project would include an evaluation of the potential for collapsible or otherwise unstable soils in the project area, and the project proponent has committed to implement all recommendations of the site-specific geotechnical investigation. With this commitment in place, potential impacts related to soil instability are expected to be less than significant, and no mitigation is required.

d. Location on Expansive Soil—*Less than Significant*

As discussed above, the active channels and inset terraces of the Napa River consist of alluvial materials in regular stream transport, and thus show minimal soil development. Areas adjacent to the active River channel are underlain by soils assigned to the Yolo loam, 0–2% slopes. Shrink-swell potential ranges from low to moderate in the Yolo loam, 0–2% slopes, and is unknown in the active River alluvium but is inferred to be low where alluvium is dominated by sand and gravel, since shrink-swell behavior correlates with the presence of particular clay minerals in the fine sediment fraction.

The proposed project would not result in construction of structures per se. Design and construction of the new flood protection berms would be guided by site-specific geotechnical investigations that would include an assessment of foundation conditions, and any corrective measures needed to ensure an acceptable level of berm stability. Onsite materials used in the berms would be subject to engineering testing to verify their suitability for berm construction. As a result, impacts on berm stability as a result of expansive soils are expected to be less than significant, and no mitigation is required.

If moderately expansive soil materials are present in streambank areas, there would be some, probably minor, potential for shrink-swell behavior to result in degradation of bank stabilization treatments over time, as River level fluctuates. However, the maintenance program would be expected to identify any damage rising to the level of a performance concern, and any such damage would be corrected through the annual maintenance program. Thus, impacts on bank stabilization treatments as a result of expansive soils would also be less than significant, and do not require mitigation.

e. Location on Soils Incapable of Supporting Alternative Wastewater Disposal Systems—*No Impact*

The proposed project is entirely focused on river restoration, and does not include any uses, features, or facilities that would generate wastewater; it does not propose to construct any septic or wastewater disposal systems. Consequently, there would be no impact related to location on unsuitable substrate materials, and no mitigation is required.

VII. 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 involve handling 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.	Be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard for people residing or working in the project area?	❑	❑	❑	■
f.	Be located within the vicinity of a private airstrip and 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 to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	❑	❑	■	❑

Regulatory Context

Issues related to hazardous materials are regulated at the federal level under the Resource Conservation and Recovery Act (RCRA), Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) ("Superfund Act"), and Superfund Amendment and Reauthorization Act (SARA). The federal Environmental Protection Agency has granted the State of California primary responsibility to administer and enforce hazardous waste management programs, and a number of State laws govern handling, storage, and disposal of hazardous materials and wastes. State laws meet or exceed the level of stringency established by federal regulations. State law also governs the prevention and suppression of wildfires in areas under the jurisdiction of state fire protection agencies. For additional information, see Appendix B of this IS/MND.

Existing Conditions

Hazardous Materials

Searches of the Environmental Protection Agency's Environmapper Database, California Department of Toxic Substances Control's Hazardous Waste and Substances Site List, and the State Water Resources Control Board's list of leaking underground fuel tanks identified no hazardous waste or hazardous substance sites within the project area (California Environmental Protection Agency 2006, California Department of Toxic Substances Control 2006, State Water Resources Control Board 2006). A single leaking underground fuel tank (LUFT) site was identified outside the project area, on Oakville Cross Road approximately 0.25 mile east of Highway 29 (State Water Resources Control Board 2006). However, the project area has been under active cultivation for over 100 years and there may be unknown contamination associated with past agricultural practices (e.g., fuel and pesticide storage and use).

Airports

The Napa Valley Airport is located approximately 20 miles south of the project area. No other public airports, public use airports, or private airstrips are located in the immediate vicinity of the project area.

Wildland Fire Hazards

Napa County has a high wildland fire potential with its long, dry summers, narrow valleys and steep, hilly terrain, and fire-adapted vegetation. In the last several decades the combination of fire protection technology, environmental regulations, fire suppression policies, and developmental trends have led to

increasing fuel loads, and greater potential for catastrophic wild fires. Recognizing the need to assess fire severity, the County in collaboration with California Department of Forestry (CDF) developed a GIS-based model to determine areas of potentially high fire hazard. The model uses information on historical fire frequency, landscape characteristics, and weather to rank areas within the County *high*, *medium*, or *low* in terms of their potential for catastrophic fire. The majority of the valley floor, including the project area, was ranked as low or medium for fire risk hazard (County of Napa 2005).

Discussion of Checklist Responses

a, b. Creation of Hazard through Transport, Use, or Disposal of Hazardous Materials—*Less than Significant*

Construction

Project construction is not expected to create a hazard to the public through the routine use of hazardous materials. Hazardous materials present at the construction sites would include substances such as fuels, oils, and lubricants needed to operate construction equipment. As described in Chapter 2 (see *Environmental Commitments* section), the selected contractor would be required to prepare a Stormwater Pollution Prevention Plan (SWPPP) to ensure that water quality is protected during construction. The SWPPP will include provisions for appropriate handling of any hazardous materials used in the project area, and will include a Spill Prevention and Response Plan (SPRP) to minimize the potential for, and effects from, spills occurring during project construction. The SPRP will describe transport, storage, and disposal procedures; construction site housekeeping practices; and monitoring and spill response protocols. The County will be responsible for ensuring that both the SWPPP hazardous materials control measures and the SPRP are appropriately implemented by all contractors.

Control of invasive non-native and Pierce's Disease host plants may require limited application of herbicides. As described in Chapter 2 (see *Environmental Commitments*) herbicide application would be limited to cutting and painting stumps, or foliar or spot spray using backpack or ATV-mounted sprayers. Herbicide would be applied according to manufacturer's specifications by licensed applicators in a manner that minimizes drip and drift into the stream channel. Only state- and federally approved aquatic formulations of glyphosate and imazapyr would be used at this time, although other herbicides may be added to the "approved" list in the future, as discussed in Chapter 2.

With these procedures in place, potential impacts related to the transport, use, and disposal of hazardous materials associated with project construction are expected to be less than significant, and no mitigation is required.

Maintenance

Project maintenance activities may require the use of heavy equipment and/or gasoline-powered hand tools that would need fuel, oils, and lubricants to operate. Ongoing control of invasive non-native and Pierce's Disease host plants may also require limited application of approved herbicides. No other hazardous materials are expected to be used during routine maintenance activities. No hazardous materials would be permanently stored or disposed of onsite, and all staging, refueling, and temporary materials storage would occur at least 100 feet away from the top of the stream bank. Additionally, maintenance workers would follow the transportation, storage, disposal, and monitoring and spill response, and herbicide use protocols included in the project maintenance program (Jones & Stokes 2008).[1] The County will be responsible for ensuring that the measures provided in the project maintenance program are appropriately implemented by all maintenance workers. With these procedures in place, impacts related to the transport, use, and disposal of hazardous materials associated with routine project maintenance activities are expected to be less than significant, and no mitigation is required.

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

No schools are located within 0.25 mile of the project area, so the principal concern relates to haulage of the small quantities of fuels, lubricants, herbicides etc. that may be needed for project construction and maintenance. The nearest school, Yountville Elementary, is in Yountville, more than 3 miles from the project area. Because of this school's location away from major arterial routes, it is unlikely that project haul traffic would pass by it. Moreover, transport hazardous materials required during construction or maintenance would comply with all applicable City and other regulations. Because the would comply with all applicable regulations regarding the hazardous waste transport, handling, and use, impacts related to transport of hazardous materials in proximity to schools would be less than significant. No mitigation is required.

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

No hazardous waste or hazardous substance sites are known to occur within the project area. However, the project area has a history of agricultural use and may have areas of previously unknown contamination related to the use or storage of

[1] As discussed in Chapter 2 (see *Environmental Commitments*), the maintenance program will incorporate the same environmental measures required for project construction.

agricultural compounds such as pesticides, fertilizers, or fuels. Project construction or maintenance activities thus could encounter unknown contamination. As described in Chapter 2 (see *Environmental Commitments* setion), in the event that contamination is encountered during construction, all construction or maintenance activities in the area of the find will stop and the proponent will conduct appropriate hazardous materials investigations to identify and delineate the extent and nature of the contamination. If clean-up or remediation is required, the proponent will ensure that any hazardous waste materials removed during construction are handled, transported, and disposed of according to federal, state, and local requirements. With these procedures in place, impacts related to the discovery of unknown hazardous waste or hazardous substance sites within the project area are expected to be less than significant, and no mitigation is required.

e, f. Location in Vicinity or Public or Private Airstrip—*No Impact*

The project area is not located within 2 miles of any public or private airport or airstrip. The closest airport, the Napa Valley Airport, is located approximately 20 miles south of the project area. Consequently, the project would not conflict with any airport land use plan or operation of nearby airports, and would not pose any airport-related safety hazard to people working in the project area. Therefore, there would be no impact, and no mitigation is required.

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

The project would not interfere with any existing emergency response or evacuation plan. As described in Chapter 2 (*see Environmental Commitments* section), prior to initiating construction, the construction contractor would be required to prepare and submit a traffic control plan (TCP) to the County for review and approval. The TCP will include measures for maintaining emergency access and traffic flow during construction. This would ensure that any constructed-related impacts on emergency response or evacuation are less than significant. No mitigation is required.

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

Construction

The project area is located in area region identified as having a low to moderate fire risk hazard. The use of some types of construction equipment, including equipment with internal combustion engine and gasoline-powered hand tools,

could pose a risk of wildfire ignition. However, the construction contractor would be required to comply with existing legal requirements under the California Public Resources Code to minimize wildlife risk during construction (see Chapter 2, *Environmental Commitments* section). With these measures in place, impacts related to increased wildfire risks associated with project construction are expected to be less than significant. No mitigation is required.

Maintenance

Like construction, project maintenance activities may require the use of heavy equipment or gasoline-powered hand tools that produce a spark, fire, or flame and could pose a risk of wildfire ignition. However, maintenance workers would be required to comply with existing legal requirements under the California Public Resources Code to minimize wildlife risk during construction (see Chapter 2, *Environmental Commitments* Section). With these measures in place, impacts associated with project maintenance activities are expected to be less than significant. No mitigation is required.

VIII. 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, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	❑	❑	■	❑
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 onsite or offsite?	❑	❑	■	❑

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 onsite or offsite?	❑	❑	■	❑
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 floodflows?	❑	❑	■	❑
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.	Contribute to inundation by seiche, tsunami, or mudflow?	❑	❑	❑	■

Regulatory Context

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 Appendix B of this IS/MND.

Existing Conditions

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 (County of Napa 2005).

Surface Water Hydrology and Quality

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. Table 3-7 (following page) provides an estimate of predicted storm flows in the Napa River based on average daily and peak annual discharge data obtained from a stream gage located just upstream of the project area (11456000 Napa River near St Helena) and hydrology studies conducted by the Federal Emergency Management Agency (FEMA 1980).

Table 3-7. Rutherford Reach Discharges

Return Interval Discharge	Project Discharge, Cubic Feet per Second	Data Source
1.5	3,843	USGS gage data[†]
2	5,790	USGS gage data
10	13,000	FEMA
100	21,000	FEMA

[†] Interpolated from flood frequency analysis output (northwest hydraulic consultants 2008).

At present, the Napa River channel within the Rutherford Reach is only capable of conveying discharges during low-level storm events (less than the 10-year return interval flood). During larger floods, water overtops the channel banks in numerous locations both upstream of and within the project area, and traveling via overland flow. The Napa River is "perched" along the Rutherford Reach, such that the valley tends to slope away from the river overbanks. Therefore, water that escapes the channel becomes hydraulically separated from the river as it flows downslope toward lower spots in the valley. This creates vast areas of shallow flooding that can be over a mile wide in some sections of the Reach.

Over the years, landowners within the Rutherford Reach have constructed a series of earthen berms to protect their properties from localized flooding associated with channel overtopping. These berms, which were constructed through a variety of means using rocks and local topsoil, were not engineered, and are not certified flood protection structures. In addition, the berms are discontinuous and contain gaps where distributary/drainage channels enter the mainstem of the river, resulting in overtopping, backwatering, and shallow flooding in these locations during low-level (less than 10-year) storm events.

Surface water quality in the Napa River 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 by the San Francisco Bay Regional Water Quality Control Board (SF Bay RWQCB). As a result of this listing and concerns about adverse impacts to aquatic habitat and associated species, the SF Bay RWQCB initiated development of Total Maximum Daily Load (TMDL) programs to develop pollutant budgets and control plans for sediment and pathogens in the Napa River. The Napa River

Sediment TMDL technical report lists 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. Additionally, the TMDL report acknowledges the accomplishments of the Rutherford Dust Society and describes the Rutherford Reach restoration project as a model for voluntary and collaborative strategies to address the adverse impacts of channel incision and bank erosion on water quality and habitat conditions in the Napa River (San Francisco Bay Regional Water Quality Control Board 2005).

Groundwater Hydrology and Quality

Napa County consists of a series of roughly parallel 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 (County of Napa 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. The aquifer is unconfined except in localized areas on the valley floor where clay lenses lead to confined conditions. Most of the groundwater in the basin is stored in unconfined surficial deposits. Studies conducted by the Napa County Flood Control and Water Conservation 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 (County of Napa 2005).

Direct estimates of the volume of groundwater pumped from the North Valley groundwater basin annually can only be estimated because withdrawals, for the most part, are not metered. However, based on estimates of water needs for 2000 and 2005 and relative percentages of water available from surface water and groundwater sources, it is estimated that approximately 19,000 and 19,900 acre-feet of groundwater was extracted from the basin in 2000, and 2005, respectively. Within the project area, groundwater is pumped for both domestic and agricultural use (County of Napa 2005).

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 (County of Napa 2005).

Discussion of Checklist Responses

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

Construction

Ground-disturbing construction activities such as grading, excavation, and stockpiling of spoil materials, and runoff from construction areas, could cause soil erosion and sedimentation, and reduce water quality in the Napa River. Additionally, hazardous materials (e.g., gasoline, oils, grease, lubricants) from construction equipment could be accidently released during construction. Accidental discharge of these materials to adjacent 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 project construction would be addressed by the construction site housekeeping measures incorporated in the project SWPPP (see *Measures to Protect Water Quality* in *Environmental Commitments* section of Chapter 2), which include provisions to control erosion and sedimentation, as well as a Spill Prevention and Response Plan to avoid, and if necessary, clean up accidental releases of hazardous materials. As the project proponent, the County would be responsible for ensuring compliance with all conditions of these commitments.

During the period following construction, before vegetation is fully established, there is some potential for erosion of project features (e.g., inset flood floodplain benches and slopes, earthen berms) and associated increases in sediment loading and sedimentation. However, all project features would be hydromulched, and erosion control blankets and coir logs installed in erosion-prone areas, to prevent erosion and sedimentation. Additionally, as part of the project maintenance plan, all constructed features would be monitored annually, and any necessary remedial actions (e.g., additional planting and/or blanket and coir log installation) will be implemented by the County.

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

Long Term and Maintenance

The project would result in long-term modifications to the drainage in the Rutherford Reach of the Napa River and immediately adjacent areas along the River corridor. These modifications would restore a more natural geomorphology to the River corridor and improve the channel's ability to convey floodflows, reducing undesirable bank erosion and sediment loading effects. Consequently, they are consistent with the sediment TMDL for the Napa River and are regarded as long-term benefits to the system. No mitigation is required.

As described above in *Surface Water Hydrology and Quality*, the Napa River was placed on the Clean Water Act Section 303(d) list of "impaired" water bodies that do not meet water quality standards set by the San Francisco Bay RWQCB, and TMDL programs have been developed to address sediment and pathogens in the Napa River system. The long-term geomorphic changes resulting from the project (e.g., creation of inset floodplain benches/slopes, bank stabilization, and aquatic habitat enhancement structures) would stabilize actively eroding streambanks, reduce local flow velocities, and reduce inputs of fine sediments to the channel; control channel incision; and enhance habitat for native aquatic species. All of these outcomes are consistent with recommendations in the sediment TMDL and would represent benefits to water quality. No mitigation is required.

Project maintenance activities such as minor grading, bank toe stabilization, invasive non-native vegetation control and Pierce's disease host plant removal could cause soil erosion and sedimentation, and reduce water quality in the Napa River. Additionally, hazardous materials (e.g., gasoline, oils, grease, lubricants, herbicides) used during maintenance could be accidently released during construction. Accidental discharge of these materials to adjacent surface waters could adversely impact water quality, endanger aquatic life, and/or result in a violation of water quality standards. However, maintenance workers would be required to follow the same water quality protection measures implemented during project construction, per the project maintenance program (Jones & Stokes 2008). These measures are discussed in Chapter 2 (see *Environmental Commitments* section).The County will be responsible for ensuring that the measures provided in the project maintenance program are appropriately implemented by all maintenance workers. With these commitments, and County oversight, maintenance-related impacts to water quality and water quality standard are expected to be less than significant, and no mitigation is required.

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

Proposed project features (e.g., new earthen flood protection berms, inset floodplain benches and slopes) have been sited to avoid impacts to existing groundwater wells and pumping facilities, and no new wells or pumps would be installed as part of the project. As discussed in Chapter 2 (*Project Description*),

the new earthen berms would be constructed with a shallow (8:1) backslope to enable replanting with desired grape varietals. This would increase the base width of the berms and potentially increase the extent of impervious cover in the area, since the berms would be compacted to avoid piping. However, the backslope surface would be loosely compacted, allowing some percolation, and any storm runoff from the berms would collect on the adjacent vineyards and percolate into the aquifer. Thus, the slight increase in impervious area associated with the new earthen berms would have very little effect on groundwater recharge or on groundwater supply. Impacts are therefore expected to be less than significant, and no mitigation is required.

Proposed native plantings would require supplemental irrigation for approximately 3−5 years following installation. Irrigation would use existing sources of groundwater. However, the total planting area (27 acres) is relatively small and irrigation would be limited to handwatering of specific areas during the summer and early fall. Additionally, because the project would be implemented in phases over a period of approximately 10 years, only specific sections of the total revegetated area would require watering at any one time. Thus, irrigation of native plantings would require comparatively small quantities of water and would have very little effect on groundwater reserves/supply within the project area. Impacts are therefore expected to be less than significant, and 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

The project would not result in any changes affecting the capacity of existing or planned stormwater drainage systems. As described above in *Surface Water Hydrology and Quality*, landowners within the Rutherford Reach have constructed a discontinuous series of earthen berms to protect their properties from localized flooding associated with channel overtopping. These berms have gaps where distributary/drainage channels enter the mainstem of the river, carrying surface drainage from adjacent properties. There are also a number of culverts within the project area that convey subsurface drainage from adjacent vineyards into the river. Proposed project features (e.g., inset floodplain benches and slopes) have been sited to avoid impacts to existing drainage culverts and channels, and the new earthen berms would be constructed with gaps to allow existing channels to drain into the river. No new stormwater culverts would be installed as part of the project. Therefore, impacts on stormwater drainage systems are expected to be less than significant, and no mitigation is required.

Changes in Drainage Patterns Increased Flood Hazards

As identified above, the project is specifically designed to modify selected portions of the Napa River channel and immediately adjacent but disconnected floodplain areas. The purpose of these modifications is to restore a more natural geomorphology and improve channel and floodplain function. Because the project would involve alterations to the channel and adjacent floodplain of the Napa River, project features will be constructed within the 100- and 500-year flood hazard zones identified by FEMA. The Napa County Floodplain Management Ordinance requires any project proposed for construction within the floodplain of a stream or river to obtain a floodplain permit and to demonstrate that the project will not result in an increase in the 100-year base flood elevation.

To comply with the County permit requirements, the project proponent conducted additional topographic and hydraulic analyses, and submitted an *Application for Conditional Letter of Map Revision (CLOMR) for the Napa River Rutherford Reach Restoration* to FEMA for review and approval. Hydraulic modeling conducted to support the CLOMR application showed that water surface elevations associated with the 100-year flood event would be reduced throughout the Rutherford Reach by an average of 0.2 feet as compared to the previous flood study (FEMA 1980). However, these changes are solely a result of updated topography and refined modeling techniques. The results of the CLOMR study indicate that recontouring associated with the project would not increase base flood elevations or affect flood hazards relative to existing conditions (northwest hydraulic consultants 2008). The County received a letter from FEMA (February 28, 2008) approving the CLOMR and stipulating that it met the minimum requirements of the National Flood Insurance Program. Additionally, soils temporarily stockpiled at top of bank would be located in existing materials/equipment storage areas and would not block flood flows. Therefore, impacts related to flood hazards are expected to be less than significant, and no mitigation is required.

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

The project area is located inland, approximately 20 miles from the nearest large water body (San Pablo Bay). Consequently, there is no risk of seiche or tsunami and there would be no impact related to increase of any such risk as a result of the project. The project area is located on the valley floor approximately 0.5 mile away from the nearest hillslope area, so is unlikely to be affected by, or to increase increase the potential for, mudflows. Therefore, no impact related to increase of mudflow risks is anticipated. No mitigation is required.

IX. 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, a 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?	❑	❑	❑	■

Regulatory Context

Land use planning in unincorporated areas of Napa County is governed by the Napa County General Plan (County of Napa 2008a). The General Plan envisions agriculture as the "primary land use" in the County "well into the future" (County of Napa 2008a p. AG/LU-11), and includes a number of goals specific to agricultural preservation and related land issues. It also includes many goals that indirectly guide and constrain land use planning through protections for the County's aesthetic values, agricultural uses, riparian and wetland areas, and sensitive plant and wildlife species; and through flood protection and other safety-oriented policies. In the Conservation Element, Policy CON-6 requires the County to "impose conditions on discretionary projects which limit development in ecologically sensitive areas such as those adjacent to rivers or streamside areas." A number of General Plan goals and policies also specifically address the need to protect and preserve riparian and instream habitat values, to support the County's fisheries, and particularly native anadromous fish species (Chinook and Coho salmon, steelhead). For additional information, see Appendix B of this IS/MND.

Existing Conditions

The project corridor is entirely within the unincorporated portion of Napa County and, like much of the unincorporated County, is rural and agricultural in character. The County General Plan (County of Napa 2008a) designates the

project corridor, and surrounding lands along the Napa River, as Agricultural Resource lands (Figure AG/LU-3), and they are zoned AP (Agricultural Preserve). Lands immediately along the Napa River are also subject to the General Plan policy (Policy CON-6) requiring the County to impose conditions that limit development in ecologically sensitive areas "such as those adjacent to rivers or streamside areas."

Discussion of Checklist Responses

a. Physical Division of Existing Community—*No Impact*

The proposed river restoration would take place in a rural, agricultural area. Earthwork to restore a more functional channel geometry, bank stabilization, and other project features would be located along the immediate Napa River corridor, and would not materially alter the way the river functions in its societal context. Consequently, there would be no impact related to physical division of an established community, and no mitigation is necessary.

b. Conflict with Applicable Land Use Plan, Policy, or Regulation—*No Impact*

Land use planning in the project area is guided by the Napa County General Plan (County of Napa 2008a). Goal CON-1 in the General Plan Conservation Element stresses resource conservation based on determining appropriate land uses and minimizing conflict with the natural environment and "the agriculture it supports." Under Goal CON-1, Policy CON-1 further stipulates that the County "will preserve land for greenbelts, … flood control, … habitat for fish, wildlife and wildlife movement, native vegetation, and natural beauty," and will "encourage management of these areas in ways that promote wildlife habitat renewal, diversification, and protection." The proposed project, which is intended to support long-term sustainable restoration of Napa River stream function, geomorphology, and riparian and aquatic habitat value, is explicitly consistent with this fundamental General Plan goal and policy.

Through its emphasis on improving riparian habitat, the proposed project addresses the following additional goals from the Conservation Element.

- **Goal CON-2:** "Maintain and enhance the existing level of biodiversity."
- **Goal CON-3:** "Protect the continued presence of special-status species, including special-status plants, special-status wildlife, and their habitats …"
- **Goal CON-4:** "Conserve, protect, and improve plant, wildlife, and fishery habitats for all native species in Napa County."

- **Goal CON-5: "**Protect connectivity and continuous habitat areas for wildlife movement."

Several policies in the Conservation Element are specific about the importance of the Napa River and the County's fisheries resources, stressing stream health, fisheries resources, and the need for environmentally sensitive flood protection:

- **"Policy CON-46:** Napa County's past, present, and future are intertwined with that of the Napa River; therefore, the County is committed to improving and sustaining the health of the river, through attaining water quality and habitat enhancement goals … and completing federal, state, and local flood control projects that are consistent with 'living rivers' principles."
- **Policy CON-10: "**The County shall conserve and improve fisheries and wildlife habitat in cooperation with governmental agencies, private associations and individuals in Napa County."
- **Policy CON-11:** "The County shall maintain and improve fisheries habitat through a variety of appropriate measures, including the following …
- (d) " … programs and efforts related to fishery habitat restoration and improvement including steelhead presence surveys, development and utilization of hydraulic modeling, and removal of fish barriers.
- (e) "[managing] the removal of invasive vegetation and the retention of other riparian vegetation to reduce the potential for increased water temperatures and siltation and to improve fishery habitat."
- **Policy CON-50:** "The County will take appropriate steps to protect surface water quality and quantity, including the following:

  (b) Encourage flood control reduction projects to give full consideration to scenic, fish, wildlife, and other environmental benefits when computing costs of alternative methods of flood control."

The project would improve diversity, complexity, and overall quality of instream habitat and thus would benefit fisheries resources, consistent with Policies CON-10, CON-46, and CON-11. Its emphasis on reducing catastrophic flood hazard by restoring natural channel and floodplain function and habitat value speaks to Policy CON-50 as well.

The project area and its surrounds are designated as Agricultural Resource lands in the current County General Plan (County of Napa 2008a). Although it would require the use of a comparatively small amount (16.7 acres) of land currently in vineyards, because the project is expected to reduce risks of catastrophic flooding in adjacent vineyard lands, it would not be in conflict with the AR zoning or with adjacent agricultural uses. The project's approach is also consistent with Goal SAF-1 and Policy SAF-24 in the General Plan Safety Element, which recognize the flood conveyance capability of agricultural lands.

The project would be exempt from the County Conservation Regulations' setback requirements because it (1) would not result in the construction of

structures, and (2) would be required to obtain state and federal permits through processes protective of natural resource values.

The proposed project, which emphasizes restoring and improving habitat value, while reducing flood risks through improved stream function is thus consistent in spirit and in detail with numerous General Plan Goals and Policies and with applicable County land use and planning codes. There would be no impact related to conflicts with land use plans, policies, or regulations, and no mitigation is required.

b. Conflict with Habitat Conservation Plan—*No Impact*

The project area is not covered by any HCP or NCCP. Thus, there would be no impact related to conflict with an adopted or proposed conservation plan, and no mitigation is required.

X. 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?	❑	❑	❑	■

Regulatory Context

In California, mining and reclamation of mined lands are regulated under the Surface Mining and Reclamation Act (SMARA). SMARA establishes a state-level process to classify lands according to their mineral resources potential but makes local jurisdictions responsible for permitting mining operations and overseeing the reclamation process. In Napa County, the General Plan stresses the importance of identifying and conserving areas with significant mineral resources, and promoting mining activities where environmental impacts and

land use conflicts can be resolved. For additional information, see Appendix B of this IS/MND.

Existing Conditions

Although Napa County has supported some mining activities in the past—notably for mercury and silver—future opportunities for minerals extraction are not well known (County of Napa 2005, 2007a). Most of the County has not been mapped for mineral resources potential (MRZ or mineral resource zones mapping) by the State of California (County of Napa 2008a). However, some areas around the City of Napa are classified MRZ-2 and MRZ-3 for aggregate resources (California Department of Conservation 1987).[2]

Four mines in Napa County are currently designated as active by the State's Office of Mine Reclamation: the Napa Quarry (Syar Industries, Inc.), the Pope Creek Quarry (Don Wesner, Inc.), the Oat Hill Quarry (Napa Vallejo Waste Management Authority), and the American Canyon Quarry (Syar Industries). The Oat Hill and American Canyon Quarries have ceased active aggregate extraction; the Oat Hill Quarry completed reclamation in September 2006, and the American Canyon Quarry initiated reclamation in July 2007. At this time, the only significant quarrying activity in the County is taking place at the Napa Quarry southeast of the City of Napa, which generates about 500,000 tons per year of basalt rock for concrete aggregate (County of Napa 2007a).

The project area has not undergone MRZ mapping. The active Napa River and adjacent floodplain/terrace areas support unconsolidated river gravel and sand (see related discussion in the *Geology, Soils, and Seismicity* section of this checklist), and a site along Rutherford Road near the Rutherford Reach was identified in a previous version of the County General Plan as "mineral deposit land" for sand, gravel, and rock. However, no resources are currently recognized by the State of California or the County of Napa in the project corridor or vicinity.

Discussion of Checklist Responses

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

As discussed above, the project area does not contain mineral resources recognized as important by the State or the County. The active Napa River corridor does support unconsolidated fluvial gravel and sand that may have some

[2] MRZ-2 zoning denotes areas where areas where significant deposits are known or highly likely to be present. MRZ-3 zoning denotes areas where mineral deposits are known to be present, but their significance cannot be evaluated based on available information.

economic potential; however, these deposits are not identified as economically important by the State or the County. Consequently, there would be no impact with respect to mineral resources of local, regional, or statewide importance. No mitigation is required.

XI. Noise

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
	Would the project:				
a.	Expose persons to or generate noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies?	❑	❑	■	❑
b.	Expose persons to or generate excessive groundborne vibration or groundborne noise levels?	❑	❑	■	❑
c.	Result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	■	❑
d.	Result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	❑	❑	■	❑
e.	Be located within an airport land use plan area, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	■
f.	Be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels?	❑	❑	❑	■

Regulatory Context

Acceptable noise levels in unincorporated areas of Napa County are established by the County Noise Ordinance, which includes standards specific to construction activities, presented in Table 3-8.

Table 3-8. Napa County Noise Ordinance Noise Limits for Construction Activities

Interior Noise Zone	Residential	Commercial	Industrial
Daily 7:00 a.m. to 7:00 p.m.	75dBA	80dBA	85dBA
Daily 7:00 p.m. to 7:00 a.m.	60dBA	65dBA	70dBA

The County Noise Ordinance further prohibits the use or equipment used in construction, drilling, repair, alteration, or demolition work between the hours of 7:00 a.m. and 7:00 p.m. to prevent construction-related noise from disturbing residential or commercial property owners. For additional information, see Appendix B of this IS/MND.

Noise Terminology

Following are brief definitions of key terms used in this section.

- **Sound.** A vibratory disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.
- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.
- **Decibel (dB).** A unitless measure of sound. A sound level measurement in decibels describes the logarithmic ratio of a sound pressure level to a standard reference sound pressure level of 20 micropascals.
- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level that approximates the frequency response of the human ear. Typical A-weighted noise levels for various types of sound sources are summarized in Table 3-9.

Table 3-9. Typical A-Weighted Sound Levels

Sound Source	Sound Level (dBA)	Typical Response
Carrier deck jet operation	140	Painfully loud
Limit of amplified speech	130	

Sound Source	Sound Level (dBA)	Typical Response
Jet takeoff (200 feet) Auto horn (3 feet)	120	Threshold of feeling and pain
Riveting machine Jet takeoff (2,000 feet)	110	Very annoying
Shout (0.5 foot) New York subway station	100	
Heavy truck (50 feet) Pneumatic drill (50 feet)	90	Hearing damage (8-hour exposure)
Passenger train (100 feet) Helicopter (in flight, 500 feet) Freight train (50 feet)	80	Annoying
Freeway traffic (50 feet)	70	Intrusive
Air conditioning unit (20 feet) Light auto traffic (50 feet)	60	
Normal speech (15 feet)	50	Quiet
Living room Bedroom Library	40	
Soft whisper (15 feet)	30	Very quiet
Broadcasting studio	20	
	10	Just audible
	0	Threshold of hearing

- **Equivalent Sound Level (L_{eq}).** L_{eq} represents an average of the sound energy occurring over a specified period. In effect, L_{eq} is the steady-state sound level containing the same acoustical energy as the time-varying sound that actually occurs during the same period. The 1-hour A-weighted equivalent sound level (L_{eq}[h]) is the energy average of A-weighted sound levels occurring during a 1-hour period.
- **Day-Night Level (L_{dn}).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with a 10-dB penalty added to sound levels between 10:00 p.m. and 7:00 a.m.

A doubling of acoustical energy from a noise source results in a 3-dB increase in sound. However, given a sound level change measured with precise instrumentation, the subjective human perception of a doubling of loudness will usually be different than what is measured. Under controlled conditions in an acoustical laboratory, the trained, healthy human ear is able to discern 1-dB changes in sound levels when exposed to steady, single-frequency ("pure-tone") signals in the mid-frequency (1,000–8,000 Hz) range. In typical noisy

environments, most people are able to begin to detect sound level increases of 3 dB, and a 10-dB increase is generally perceived as a doubling of loudness. Therefore, doubling sound energy (e.g., doubling the volume of traffic on a highway) is generally perceived as a detectable but not substantial increase in sound level.

The term *noise-sensitive land use* or *sensitive receptor* is used to identify land uses such as residences, schools, libraries, hospitals, and other similar sites where excess noise would have an adverse effect on normal activities at the site.

Existing Conditions

Generally, the background ambient noise in the project area is consistent with the the rural character of this portion of the valley floor. Major sources of noise in the area include motor vehicle traffic on State Road 29, Silverado Trail, Zinfandel Lane, Rutherford Cross Road, and Oakville Cross Road; daily round-trip visits of the Napa Valley Wine Train; and farming and winery activities.

Existing L_{dn} noise levels for State Roads 29 and 128, Silverado Trail, and Zinfandel Lane are provided in Table 3-10 below (County of Napa 2007b).

Table 3-10. Existing Traffic Noise Conditions

Roadway Segment	Existing Daily Traffic Volume	L_{dn} at 100 Feet
Silverado Trail: Bale Lane to Deer Park Road	8,640	67
SR29: Zinfandel Lane to Rutherford Cross Road	20,944	70
SR29: Rutherford Cross Road to Oakville Grade	22,892	70
SR128: Napa River to St Helena Highway (SR29)	3,262	58
Zinfandel Lane: Silverado Trail to St. Helena Highway	3,071	62

Source: County of Napa 2007b

The Napa Valley Wine Train is a diesel locomotive that operates on the old Southern Pacific Railroad line. The 36-mile rail line runs from the City of Napa to the City of St. Helena daily for lunch and dinner trips, and from the City of Napa to the City of Rutherford for weekend lunch trips. The daily lunch and dinner trips are 3-hour trips, while the weekend brunch trips are 2-hour trips. The train is estimated to generate noise levels of 80 to 90 dBA (County of Napa 2007b).

The primary sources of noise related to agricultural activities in the immediate project area are tractors, harvesters, pesticide/herbicide application equipment, crushers, and frost protection equipment (wind turbines). Typical noise levels from tractors, measured at a distance of 50 feet, range from approximately 75 dBA to 95 dBA, with an average of approximately 84 dBA (County of Napa 2005). These levels are reasonably representative of noise levels associated with other wheeled and tracked farm equipment.

Noise generated by winery operations is intermittent, and varies seasonally, depending upon the activities taking place. The primary noise-generating activities and equipment associated with wineries include refrigeration equipment, bottling equipment, barrel washing, de-stemmer and press activities occurring during the harvest crush season, and delivery trucks and other vehicles. Table 3-11 below provides representative sound levels (dBA) associated with winery operations.

Table 3-11. Representative Noise Levels for Typical Winery Operations

Date	Time	Sound Sources and Measurement Locations	Leq	L_{50}	L_{25}	L_0
8/29/01	10:00 a.m.	Ambient	51	37	49	65
9/27/01	2:39 a.m.	Ambient	41	37	40	56
—	—	Three flat-bed diesel trucks over 1 hour, 105 feet to path	—	—	—	76
9/14/01	10:00 a.m.	Press activities at 60 feet to center of activity area	60	58	60	81
9/14/01	10:00 a.m.	De-stemmer at 70 feet	67	58	60	81
9/14/01	10:00 a.m.	Plastic bin washing at 60 feet	54	52	55	65
9/14/01	10:00 a.m.	Condenser/chiller at 11 feet to one side	70	70	70	72
—	—	Inside refrigeration equipment room	85	85	85	87
9/07/01	1:00 p.m.	Mobile bottling line, left side of truck, 30 feet to center	82	82	73	78
9/07/01	1:00 p.m.	Mobile bottling line, right side of truck, 30 feet to center	73	73	74	76

Source: County of Napa 2005

Noise-sensitive land uses in the project vicinity include residences and wineries located along SR28, Silverado Trail, and local roadways, and businesses located on Oakville Cross Road.[3]

Discussion of Checklist Responses

a. Exposure to/Generation of Noise Levels in Excess of Applicable Standards—*Less than Significant*

Construction

As described in Chapter 2 (*Project Description*), construction is expected to be phased over a period of 10 years, and no more than 2 of the project reaches would be under construction at any one time. Construction of each project phase is expected to occur over a maximum 6-month timeframe and work would be limited to weekdays. Additionally, project features (e.g., earthen berms, inset floodplain benches/slopes) are dispersed throughout the 4.5-mile project area and, for the most part, are not concentrated in one single location. However, noise from operation of construction equipment could affect sensitive receptors (e.g., residences, wineries) in the project vicinity.

Construction noise sources would include a variety of heavy equipment and other machinery. A detailed inventory of construction equipment that to be used for the proposed project is not available at this time, so this noise analysis assumes that equipment would be similar to that typically used in similar construction projects. Table 3-12 presents noise generation levels for various types of construction equipment. A reasonable worst-case assumption is that the three loudest pieces of equipment for each phase would operate simultaneously and continuously over at least a 1-hour period for a combined-source noise level.

Table 3-12. Construction Equipment Noise Emission Levels

Equipment	Typical Noise Level 50 feet from Source (dBA)
Backhoe	80
Bulldozer	85
Compactor	82
Concrete Mixer	85

[3] In general, neither businesses nor agricultural uses are considered noise-sensitive land uses, but in the Napa Valley, agricultural uses such as wineries and tasting rooms, as well as many tourist-focused businesses, cater to a clientele that seeks a peaceful rural/agricultural experience. Low noise levels and a general absence of intrusive sound are important aspects of the Valley's atmosphere and thus are important to the success of these endeavors. This analysis accordingly considers valley floor wineries and businesses noise-sensitive.

Equipment	Typical Noise Level 50 feet from Source (dBA)
Concrete Pump	82
Crane, derrick	88
Excavator	85
Generator	81
Grader	85
Loader	85
Roller	74
Truck	88

Source: Federal Transit Administration 2006; Massachusetts Turnpike Authority 2000 in Thalheimer 2000

The magnitude of construction noise impacts depends on the type of construction activity, the individual and combined noise levels generated by various pieces of construction equipment in use, and the distance between the activity and noise-sensitive receivers. The noise levels presented in Table 3-13 (see following page) were used to calculate estimated sound levels from construction activities at various distances from the work site. Calculations assumed simultaneous operation of a crane and two heavy trucks (the three loudest pieces of equipment, a conservative worst-case assumption) for a combined-source noise level of 93 dBA at 50 feet from the work site. The estimated noise levels presented in Table 3-13 are based on a sound propagation method for construction noise sources recommended by the U.S. Department of Transportation (Federal Transit Administration 2006). With this method a geometric attenuation rate of 6 dB per doubling of distance is assumed. Additional attenuation resulting from ground absorption is also assumed. Any shielding effects that may result from local barriers (including topography, vegetation, fences, etc.) are not included, so the analysis should be considered very conservative—the actual noise levels from activities at the work site could be somewhat lower than those shown in Table 3-13.

Table 3-13. Estimated Construction Noise in Vicinity of Active Construction Site (Maximum 1-Hour L_{eq})

Assumptions			
Source 1—Truck: sound level at 50 feet =	88 dBA		
Source 2—Truck: sound level at 50 feet =	88 dBA		
Source 3—Crane: sound level at 50 feet =	88 dBA		
Average Height of Sources (Hs) =	10 feet		
Average Height of Receiver (Hr) =	5 feet		
Ground Type (soft or hard) =	soft (unpaved)		
Calculated Noise Levels			
All Sources Combined: sound level (dBA) at 50 feet =	93 dBA		
Effective Height [Hs+Hr]/2 (feet) =	7.5 feet		
Ground Factor (G) =	0.62		
Distance Between Source and Receiver (feet)	**Geometric Attenuation (dB)**	**Ground-Effect Attenuation (dB)**	**Calculated Sound Level at this Distance from Source (dBA)**
50	0	0	93
100	-6	-2	85
200	-12	-4	77
300	-16	-5	72
400	-18	-6	69
500	-20	-6	67
600	-22	-7	65
700	-23	-7	63
800	-24	-7	61
Distance Between Source and Receiver (feet)	**Geometric Attenuation (dB)**	**Ground-Effect Attenuation (dB)**	**Calculated Sound Level at this Distance from Source (dBA)**
900	-25	-8	60
1,000	-26	-8	59
1,200	-28	-9	57
1,400	-29	-9	55
1,600	-30	-9	53
1,800	-31	-10	52
2,000	-32	-10	51
2,500	-34	-10	48
3,000	-36	-11	46

The nature of the construction noise and the overall noise level would depend on the specific construction activity being conducted. As shown in Table 3-13, exterior noise levels could exceed the County's residential noise limit of 75 dBA at sites in areas where construction occurs within 200-300 feet of residences, and the commercial noise limit of 80dBA where construction occurs within 100-200 feet of commercial establishments (e.g., wineries). Truck traffic to and from the construction sites could also have the potential to create additional noise for residences and commercial establishments located along haul routes. Thus, there is some potential for levels at the nearest noise-sensitive locations to exceed the County noise ordinance noise limits (note that analysis methods assume that construction noise levels are fairly constant over a 1-hour period, so the most stringent 30-minute standard is applied in this analysis). However, the modeled construction noise levels shown in Table 3-13 reflect a conservative condition where the loudest pieces of equipment are assumed to operate continuously for a 1-hour period. In reality, construction activities would be intermittent and short-term. Additionally, construction noise levels are well within the range of existing noise levels in the project area associated with typical farming activities (average of approximately 84 dBA) and winery operations (range of between 52 and 87 dBA).

Nonetheless, there is still some potential for significant short-term construction-related noise impacts where construction occurs in close proximity to local residences and commercial establishments. To reduce impacts on sensitive land uses as much as possible, the construction contractor would be required to implement a series of BMPs (see Chapter 2, *Environmental Commitments* section). With these measures in effect, impacts would be reduced to the extent feasible, and are expected to be less than significant. No mitigation is required.

Maintenance

Project maintenance activities may require the use of heavy equipment, or gasoline-powered hand tools that would result in increases in noise. However, these increases would be temporary, short-lived, and highly localized, and would implement the same noise abatement measures required during construction.. Therefore, impacts are expected to be less than significant, and no mitigation is required.

b. Exposure to/Generation of Excessive Groundborne Vibration Levels—*Less than Significant*

Construction activity associated with the operation of heavy equipment may generate localized groundborne vibration and noise. However, vibration from non-impact construction activity is typically below the threshold of perception when the activity is more than 50 feet from the receiver. Vibration from such activities is similar to levels generated under existing conditions by farming and

winery operations, but is a short-term effect that will end when construction is completed.

Construction of a 350–foot long sheetpile floodwall on the west bank north of Rutherford Cross Road would require the use of pile-driving equipment. The proposed floodwall site is adjacent to an existing corporation yard with a corrugated metal building. Vibration generated by pile driving would be greater than that associated with non-impact construction activities, particularly if an impact pile driver is used. Based on local soil conditions, an impact hammer is expected to generate vibration levels of 95 VdB at a distance of 50 feet from the proposed floodwall location (Federal Transit Administration 2006). This vibration level would be noticeable to people performing quiet activities (e.g., reading) in quiet parts of the building; however, it is unlikely to be noticed by workers performing normal maintenance activities inside the building or in the yard, and would be less than the 102-VdB threshold at which construction-related vibration may cause damage to concrete and steel buildings (Federal Transit Administration 2006). In addition, pile driving would be short-term, requiring a period of 2 weeks or less, and work would occur on weekdays between 7:00 a.m. and 7:00 p.m. Therefore, vibration impacts related to the temporary use of an impact pile driver are considered less than significant, and no mitigation is required.

c. Substantial Permanent Increase in Ambient Noise—*Less than Significant*

Following project construction, maintenance activities would result intermittent increases in noise. However, these increases would be temporary, short-lived, and would occur intermittently throughout the 4.5-mile project reach. In addition, as identified above, maintenance activities would incorporate the same noise abatement measures required during construction. In light of these factors,, impacts are expected to be less than significant, and no mitigation is required.

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

Construction and maintenance activities would result in temporary increases in noise. However, as discussed in the response to item (a) above, construction activities would not occur during the evening hours or holidays, and the construction contractor would be required to implement all feasible measures (see Chapter 2 *Environmental Commitments*) to reduce effects on sensitive receptors within the project area. Consequently, this impact would be less than significant, and no additional mitigation is required.

e, f. Exposure to Airport-Related Noise—*No Impact*

The proposed project is not located within an airport land use plan area or within 2 miles of any public airport or private airport or airstrip. Therefore, there would be no impact related to airport noise exposure, and no mitigation is required.

XII. 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 units, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	■
c.	Displace a substantial number of people, necessitating the construction of replacement housing elsewhere?	❑	❑	❑	■

Regulatory Context

The provision of housing in unincorporated Napa County is guided by the Housing Element of the Napa County General Plan (County of Napa 2004). For additional information, see Appendix B of this IS/MND.

Existing Conditions

Population and Housing in Napa County

As of the 2000 Census, the total population of Napa County was 124,279. Some 27,864 persons (22% of the population) were living in unincorporated areas, and the remaining 96,415 (78%) in incorporated jurisdictions. There were 45,402 households in the County in 2000, with an average household size of 2.62 persons. Most of the County's housing is located within the City of Napa, which contains 56% of all housing units, and the unincorporated areas, which contribute

another 22% of the total. The housing vacancy rate was 6.3% as of 2000 (California Department of Finance 2004).

Housing in the Project Area

The project area is within the unincorporated area of Napa County. As discussed in the *Land Use and Planning* section of this checklist, the project area is primarily rural and agricultural in nature. The County General Plan limits development in ecologically sensitive "streamside" areas, and surrounding lands are zoned for agriculture. The General Plan also limits non-agricultural residential development outside of urban areas due to the lack of public services and facilities, such as water supply and sewage disposal.

There are a few residences adjacent to the project corridor, and one vineyard maintenance building within the project limits. The existing residences adjacent to the project area are second homes and are not occupied year-round.

Discussion of Checklist Responses

a. Inducement of Population Growth—*No Impact*

The project is not expected to induce population growth in the project area, either directly or indirectly: it focuses entirely on river restoration, does not include a residential component, and would not alter existing zoning or development policies. Although the project would employ a small number of persons for the relatively short duration of construction, it would not offer sufficient short-term employment opportunities to attract a temporary worker population into the Napa County area, and it would not create long-term employment opportunities. Consequently, the project is not expected to have any impact relative to population growth, and no mitigation is required.

b, c. Displacement of Existing Housing Units or Population—*No Impact*

No residences are within the project limits, so project construction would not require the removal of any permanent or temporary housing. Consequently, no housing units or population would be displaced, and there would be no need for housing construction as a result of the project. No mitigation is required.

XIII. Public Services

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

Existing Conditions

Fire Protection

The Napa County Fire Department (NCFD) provides fire protection services and emergency response in Napa County's 728 square miles of unincorporated areas, with the exception of 83 parcels that are protected by the American Canyon Fire Protection District. This translates to approximately 30,000 residents. The NCFD also contracts to provide fire protection to several local jurisdictions and agencies within the County (County of Napa 2005).

The NCFD operates a total of 13 stations and relies on a combination of career and volunteer firefighters (Fire Department Net 2008). While the County owns its stations and equipment, it contracts with the California Department of Forestry and Fire Protection (CDF) for career employee staffing and for management and some administrative services. Dispatch occurs through the CDF/Napa County Emergency Command Center in St. Helena. The CDF

Sonoma-Lake-Napa Unit Chief serves as the County's Fire Chief, responsible for directing and coordinating fire protection services on a Countywide basis (County of Napa 2005).

Additional fire protection in the unincorporated County is provided via fire contracts and automatic agreements with the following agencies: American Canyon Fire Protection District, Napa Fire Department, St. Helena Fire Department, Calistoga Fire Department, and Napa State Hospital Fire Department. Limited services are also provided by several volunteer departments outside the County, including the Schell-Vista Fire Protection District, the Knights Valley Volunteer Fire Department and the Mountain Volunteer Fire Department (County of Napa 2005).

Police Protection

The primary responsibility for law enforcement and police services in the County rests with the Napa County Sheriff's Department (NCSD), which operates five stations, located in Napa (headquarters facility), Yountville, St. Helena, Angwin, and Lake Berryessa. The project area is on the northwest border of NCSD's Beat 2 and is served by NCSD's headquarters facility. NCSD also has mutual aid agreements with several other law enforcement agencies, including the St. Helena Police Department, City of Calistoga Police Department, City of Napa Police Department, Vallejo Police Department, and California Highway Patrol (County of Napa 2005).

As of 2003, the Sheriff's Department received approximately 40,000 calls for service annually. The average response time for all types of calls is 17 minutes. First-priority emergency/in-progress calls generally receive service within 5 minutes. Second and third priority calls have response times of 10−15 minutes, and lower priority calls may have response times up to 30−40 minutes (County of Napa 2005).

Schools

Napa County is home to six school districts: Napa Valley Unified School District, St. Helena Unified School District, Calistoga Joint Unified School District, Howell Mountain Elementary School District, Pope Valley Union Elementary School District and Fairfield-Suisun Joint Unified School District. Together, these districts operate a total of 70 elementary, middle/junior high, and high schools. The total K−12 student population in the County was estimated at almost 43,000 as of 2005, and school facilities are currently considered adequate to meet the existing demand (County of Napa 2005).

Parks

As discussed in more detail in the following section of this checklist, recreation is an important contributor to the County's quality of life, and the County boasts numerous federal, state, local, and private parks and recreational facilities. Table 3-14 lists federal, state, and County facilities.

Table 3-14. Federal, State, and County-Operated Parks and Recreational Facilities in Napa County

Facility Type	Name of Facility
Federal (Bureau of Reclamation)	Lake Berryessa
	Knoxville Off-Highway Vehicle (OHV) and Recreational Area
State	Bothe−Napa Valley State Park
	Robert Lewis Stevenson State Park
	Bale Grist Mill State Historic Park
County	Cuttings Wharf Boat Launch (Napa River)
	Skyline Wilderness Park
	Solano Avenue Bike Rest Stop
	Yountville/Napa River Ecological Reserve

Source: County of Napa 2005

Napa County also offers access to regional trail networks, including the Blue Ridge/Berryessa Natural Area trail system, and portions of the Bay Area Ridge Trail and San Francisco Bay Trail (County of Napa 2005).

Discussion of Checklist Responses

a. Provision of Public Services—*No Impact*

The proposed project would not increase population in the project area (see related discussion in *Population and Housing* section of this checklist), nor would it alter the distribution of population in the project area, either temporarily or permanently. Thus, it would not increase the demand for fire protection, police services, schools, or parks over either the short or long term.

The proposed project focuses on restoring and enhancing river function and habitat value along the Napa River; it would not construct buildings or other structures and thus would not add to the existing urban fire protection need or responsibilities in the County. Since the project area is already a quasi-natural

riparian corridor, the project would not materially alter the need for wildland fire protection.

There would be no impact related to any need to provide additional public services, and no mitigation is required.

XIV. 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?	❑	❑	❑	■

Existing Conditions

Napa County is an important regional center for recreation; leisure is the third largest labor employment sector in the County, behind manufacturing and trade/ transportation/utilities (Napa Chamber of Commerce 2008). Leisure activities in the County include wine tasting, scenic viewing, dining, cultural activities, and outdoor recreation such as fishing, hiking, camping, golf, and bicycling.

The Rutherford Reach is bounded entirely by private property. No public access to the river is available, and there are no recreational facilities in the project corridor itself. However, a number of important recreational resources are located in the general vicinity of the Rutherford Reach, including more than 30 wineries; County-designated scenic roadways (State Highway 29 north of 121, State Highway 29/128, State Highway 128, Oakville Cross Road, Silverado Trail, Zinfandel Lane); and Lake Hennessy, a City of Napa reservoir that offers angling, wildlife viewing, and hiking.

Discussion of Checklist Responses

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

As discussed in the *Population and Housing* section of this checklist, the proposed project is not expected to result in either short- or long-term population growth in the project area, so it would not result in increased recreational demand related to population growth. It would not modify or otherwise affect existing recreational facilities or resources, and thus is not expected to alter patterns of recreational demand or usage. No impact related to increased use of existing recreational facilities is anticipated, and no mitigation is required.

b. Construction or Expansion of Recreational Facilities, Adversely Affecting the Environment—*No Impact*

The proposed project does not include a recreational component, and would not require the construction of new recreational facilities or expansion of existing facilities. There would be no impact related to new recreational facilities, and no mitigation is required.

XV. Transportation and 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 that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections)?	❑	❑	■	❑
b.	Cause, either individually or cumulatively, exceedance of a level-of-service standard established by the county congestion management agency for designated roads or highways?	❑	❑	■	❑

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
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 because of a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	❑	❑	■	❑
e.	Result in inadequate emergency access?	❑	❑	■	❑
f.	Result in inadequate parking capacity?	❑	❑	■	❑
g.	Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	❑	❑	❑	■

Regulatory Context

Traffic and transportation planning in unincorporated areas of Napa County is guided by the County General Plan, which includes overall goals for traffic and transportation, and also presents the County's level of service (LOS) standards for roadways and intersections, as follows.

- LOS D or better on all county arterial roadways, except where maintaining LOS D would require the 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.

For additional information, see Appendix B of this IS/MND.

Traffic Terminology

Following are definitions of key roadway performance terms used in the analysis of project effects on traffic, based on materials published by the Transportation Research Board (2000) and Caltrans (California Department of Transportation 1999).

- **Average Daily Traffic (ADT):** The total two-way traffic volume passing a point or segment of a roadway facility during a 24-hour period.
- **Delay:** The additional travel time experienced by a vehicle or traveler because of inability to travel at optimal speed, and/or stops due to congestion or traffic control.
- **Level of service (LOS):** A 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. LOS is designated by a letter (A through F), as described in Table 3-15 below.
- **Volume to capacity (V/C) ratio:** The number of vehicles that travel on a transportation facility divided by the full vehicular capacity of that facility (the number of vehicles the facility was designed to convey). Table 3-15 shows the relationship between V/C ratio and LOS.

Table 3-15. V/C Ratio, Delay, and Traffic Flow Conditions for LOS Designations

		Average Delay (seconds per vehicle)		
LOS	**Approximate Maximum V/C**	**Stop-Controlled Intersection**	**Signalized Intersection**	**Traffic Flow Conditions**
A	0.3	≤10	≤10	Free-flow operations; vehicles unimpeded in ability to maneuver in traffic stream.
B	0.5	11–15	11–20	Reasonable free-flow conditions; only slightly restricted ability to maneuver.
C	0.7	16–25	21–35	Flows still near free-flow speed but noticeably restricted ability to maneuver.
D	0.9	26–35	36–55	Speeds begin to decline; maneuverability limited and queues begin to form.
E	1.0	36–50	56–80	Operation at capacity of roadway; maneuverability extremely limited and queues form with any disruption.
F	>1.0	>50	>80	Failure conditions indicating breakdowns in vehicular flow with long queues forming at breakdown points.

Source: California Department of Transportation 1999 (V/C ratio and flow conditions); Transportation Research Board 2000 (delay).

Existing Conditions

Vehicular Access

Roadway System and Classification

The County's roadway network is comprised of a hierarchy of roads with different classifications and characteristics. The roadway system in Napa County is focused on a primary route, State Road (SR) 29, which enters the County from the south. This primary route is augmented by a series of east-west roads such as SR12, and north-south and east-west arterial roadways. In general, Napa County's roadways can be classified as follows (County of Napa 2007b).

- **Freeways and Highways** are typically multilane divided roadways with a minimum of two lanes in each direction and full access control, with no interruption in traffic flow. Napa County has no freeways except for a small segment of I-80 that crosses the corner of the County boundary between Fairfield and Vallejo.
- **Arterials** are typically high-volume, high-speed roadways. In Napa County arterials range from multi-lane urban thoroughfares with signalized intersections to two-lane rural roads with generally unsignalized intersections.
- **Collector** streets serve as principle traffic arteries within commercial and residential areas. In rural areas of the County there are many roadways that serve as collectors, providing access between rural destinations and the regional roadway network.
- **Local Streets** provide direct access to residential, commercial, and industrial developments, and serve as connectors to collectors, and arterials that provide access to the regional roadway network.

Important Roadways

Important roadways serving the project site include the following.

- State Road (SR) 29 (St. Helena Highway) is a two lane arterial roadway that runs along the west side of the Napa Valley and is the primary connector between the cities of Napa and St. Helena.
- Silverado Trail is a two-lane arterial roadway that runs along the east side of the Napa Valley.
- Oakville Cross Road is a two-lane rural collector road that extends east-to-west from SR 29 to Silverado Trail. Oakville Cross Road delineates the southern boundary of the project area.
- Rutherford Cross Road is a two-lane rural throughway which is designated SR128. It connects SR29 to Conn Creek Road, which continues as SR128 to

Silverado Trail. Rutherford Cross Road bisects the project area approximately 2 miles north of the Oakville Cross Road.

- Zinfandel Lane is a two-lane rural collector road that extends east-to-west from SR 29 to Silverado Trail. Zinfandel Lane delineates the northern boundary of the project area.
- Other local one-lane local roadways (e.g., Galleron and Mee Lanes) connect local residences and wineries to SR29 and Silverado Trail.

Volume Thresholds on Key Area Roadways

Napa County experiences daily, weekly, and seasonal variations in traffic volumes and traffic congestion that are attributable to the agricultural economy and the number of tourists that travel to the County to visit local wineries. Some roadways experience increased traffic volumes in summer months due to tourists and recreational visitors, while others experience increased volumes in the fall due to harvest activities. In both cases, the majority of the increased traffic volume occurs outside the standard morning/evening peak traffic hours. Daily and peak-hour LOS volume thresholds (County of Napa 2005) are provided in Tables 3-16 and 3-17 below.

Table 3-16. Napa County Roadway Segment Daily LOS Volume Thresholds

Facility Class	Lanes	Type of Area	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	46,900	82,700	115,300	140,200	156,000
Arterial	2	Rural	2,600	5,300	8,600	13,800	22,300
	2	Urban	1,000	1,900	11,200	15,400	16,300
	4	Rural	17,500	28,600	40,800	52,400	58,300
	4	Urban	1,500	4,100	26,000	32,700	34,500
	6	Urban	2,275	6,500	40,300	49,200	51,800
Collector	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 to be uninterrupted-flow highways.
3. Urban arterials are assumed to be Class III with more than 4.5 signals per mile.

Source: County of Napa 2005

Table 3-17. Napa County Roadway Segment Peak-Hour LOS Volume Thresholds

Facility Class	Lanes	Type of Area	LOS A	LOS B	LOS C	LOS D	LOS E
Freeway	4	All	2,380	3,960	5,520	6,710	7,460
	6	All	3,690	6,110	8,530	10,360	11,530
	8	All	4,990	8,270	11,530	14,020	15,600
Arterial	2	Rural	260	530	860	1,380	2,230
	2	Urban	100	180	1,070	1,460	1,550
	4	Rural	1,750	2,860	4,080	5,240	5,830
	4	Urban	150	390	2,470	3,110	3,270
	6	Urban	228	620	3,830	4,680	4,920
Collector	2	All	70	180	870	1,390	1,480
	4	All	140	900	2.030	2,950	3,120

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 to be uninterrupted-flow highways.
3. Urban arterials are assumed to be Class III with more than 4.5 signals per mile.

Source: County of Napa 2005

Existing Levels of Service on Affected Roadways

Existing levels of service (LOS) for Napa County roadways were evaluated as part of the environmental impact analysis conducted for the Napa County General Plan Update now in progress (County of Napa 2007b). To assess current conditions, the County roadway system was divided into 46 roadway segments representative of the overall network. Existing (2003) and projected future (2030) weekday peak hour roadway conditions were estimated for each roadway segment. Table 3-18 provides a breakdown of existing and future LOS classifications for roadway segments located within the project area.

Table 3-18. Existing and Projected 2030 Peak Hour LOS Conditions in Project Vicinity

Roadway Segment	Existing (2003) Conditions	Projected 2030 Conditions
Silverado Trail: Bale Lane to Deer Park Road	LOS C	LOS C
Oakville Cross Road: Napa River to Highway 29	LOS B	LOS B
SR29: Rutherford Cross Road to Oakville Grade	LOS F	LOS F
Rutherford Cross Road (SR128): Napa River to St Helena Highway (SR29)	LOS C	LOS C

Roadway Segment	Existing (2003) Conditions	Projected 2030 Conditions
Zinfandel Lane: Silverado Trail to St. Helena Highway	LOS C	LOS C
Source: County of Napa 2007b		

Transit Service

Napa County provides intra- and inter-city fixed route transit services through Napa Valley Transit (VINE). VINE operates in the City of Napa, between Vallejo (Kaiser Hospital) and Calistoga (along SR29), and between St. Helena and Santa Rosa.

Rail Service

Rail transport in Napa County is limited to commercial and freight transport. No commuter rail transportation currently exists in the County. The Napa Valley Wine Train is a recreational rail line operating between the cities of Napa and St. Helena. The train provides sight-seeing opportunities and meals for riders on its route, but does not stop, board, or disembark passengers at any other location. However, Amtrak does operate fixed-route connector buses between the nearest rail stop in Martinez and locations in Napa.

Bikeways

Napa County's roadway system includes off-street trails and pathways, and on-street bicycle lanes. These facilities are used by recreational cyclists, as well as cyclists who use their bicycles for commuting. The Napa County Bicycle Plan classifies bicycle facilities into three categories, as follows (County of Napa 2007b).

- **Class I Bike Paths** are 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** are striped lanes on a street or highway, designated for use by bicycles. Vehicle parking and vehicle cross-flows are permitted at designated locations.
- **Class III Bike Routes** are usually designated by pavement markings within the vehicular traffic lane (i.e., shared use) to indicate use by cyclists

Within the project area, a Class II Bike Lane is provided on Silverado Trail, and a Class III Bike Route on Oakville Cross Road.

Discussion of Checklist Responses

a, b. Increase in Traffic or Exceedance of Level-of-Service Standard—*Less than Significant*

Construction

Construction would generate three types of traffic to and from each of the sites: construction worker commute vehicles, mobilization and demobilization of heavy construction equipment, and delivery of materials and supplies.

As described in Chapter 2, project construction is expected to be phased over a period of 10 years, and no more than two of the project reaches would be under construction at any one time. Under this scenario, it is estimated that 15 or fewer workers would be onsite during construction. Construction of each project phase is expected to occur over a maximum 6-month timeframe and work would be limited to weekdays. Over the 6-month construction period, it is estimated that construction worker vehicles would add no more than 30 round trips, or 60 individual trips, to area roadways each day.

Construction equipment would be staged onsite, meaning that once onsite, equipment would remain onsite until construction has been completed. Transportation of equipment to (mobilization) and from (demobilization) the project area and movement of equipment between designated work sites would add a small number of additional trips. Additional trips would be generated by delivery of materials and supplies (e.g., plant material, irrigation pipes), which would likely occur several times per week. Project features such as earthen berms would be constructed using onsite excavated material, so off-hauling of excavated material and/or import of fill material is expected to be minor.

Thus, construction-related trips—including worker commute trips as well as heavy equipment mobilization/demobilization and materials deliveries—would result in only a minor increase in traffic volume in the project area and would be well within existing capacity for most of the affected roadway segments. As noted in Table 3-18 above, the principal roadway segments that would serve as the access routes for construction vehicles traveling to and from the project area are currently operating at LOS B or C, well above the minimum County standard of LOS D. The only exception is the segment of SR29 that extends from Rutherford Cross Road to the Oakville Grade, which currently operates at LOS F. Any increase in traffic on this roadway segment would adversely affect traffic circulation. In addition, construction vehicles entering or exiting arterials, collectors, or local roadways and/or temporary lane closures could result in temporary delays or stoppage in the project vicinity, which could adversely affect local traffic circulation, particularly during peak hours.

To minimize these impacts, the County will require the construction contractor to prepare and adhere to, a traffic control plan (TCP) (see Chapter 2, *Environmental Commitments* section). The TCP will identify route restrictions, signage, striping,

detours, flagging operations, and/or other other strategies for use during construction to avoid effects on local traffic circulation. The plan would also include provisions for coordinating with local emergency service providers regarding construction times and lane closures to ensure unobstructed emergency access and overall traffic safety. In addition, the plan would require the contractor to avoid using SR29 (between Rutherford Cross Road and the Oakville Grade) to access construction sites during peak hours.

Implementation of the TCP is expected to avoid significant construction-related impacts on level of service, traffic flow, and safety. With this commitment in place, no mitigation is required.

Maintenance

Routine maintenance activities would generate limited amounts of traffic (2−3 vehicles) to and from each of the maintenance sites, and most activities would not require the mobilization and demobilization of heavy equipment. As described in Chapter 2, maintenance activities and locations would vary each year based on need, and most activities would be accomplished within a relatively short time frame (2−3 days). Thus, the added volume of traffic generated on area roadways by routine maintenance is expected to be very small relative to roadway capacity and existing traffic volume. Impacts would be less than significant, and no mitigation is required.

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

There are no airports in the immediate project vicinity, and the project does not include any features related to airports or air traffic. There would be no impact on air traffic or airport service, and no mitigation is required.

d, e. Increased Hazards Due to Design Features; Inadequate Emergency Access—*Less than Significant*

The proposed project would not alter the physical configuration of the roadway network or introduce unsafe design features or incompatible uses into the area. Therefore, there would be no long-term impacts on roadway or intersection safety as a result of the project.

During project construction, slow-moving construction vehicles entering, leaving, and traveling along area roadways could result in a short-term increase in traffic safety hazards. Additionally, emergency access within the project area could be affected by project construction; specifically, temporary lane closures and construction-related traffic could delay or obstruct emergency vehicles.

However, as described in Chapter 2 (see *Environmental Commitments* section), the construction contractor will be required to prepare a TCP that includes provisions to ensure unobstructed emergency access and overall traffic safety. The County will be responsible for overseeing implementation of the plan. The same types of measures would be required during maintenance. With this plan in place, impacts would be less than significant. No mitigation is required.

c. Inadequate Parking Capacity—*Less than Significant*

During project construction and maintenance, workers would park in designated staging areas. If space on the site is insufficient, the construction contractor would be required to provide adequate offsite parking and a worker shuttle. The TCP prepared by the contractor (see Chapter 2, *Environmental Commitments* section) will identify offsite parking locations and shuttling provisions (if required). Workers will be prohibited from parking on residential streets or in winery parking lots. Parking requirements for maintenance workers are expected to be minor and will be accommodated onsite. Therefore, construction- and maintenance-related parking impacts are expected to be less than significant, and no mitigation is required.

d. Conflict with Alternative Transportation Policies—*No Impact*

The project focuses on river restoration, and does not propose any improvements or modifications that would conflict with existing or proposed alternative transportation policies, plans, or programs. There would be no impact, and no mitigation is required.

XVI. 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 Regional Water Quality Control Board?	❑	❑	❑	■

		Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less-than-Significant Impact	No Impact
b.	Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	■
c.	Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	❑	❑	❑	■
d.	Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be 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?	❑	❑	❑	■

Existing Conditions

Water Supply, Wastewater Disposal, and Sanitary Sewer

Potable water supply in unincorporated areas of the County is provided by a combination of public and private entities. Water rates and service areas are determined by the providers (County of Napa 2005).

Public providers include Circle Oaks County Water District (COCWD), Congress Valley Water District (CVWD), Lake Berryessa Resort Improvement District (LBRID), Napa-Berryessa Resort Improvement District (NBRID) and the Spanish Flat Water District (SFWD) as well as the Cities of Napa, American Canyon, Calistoga, St. Helena and the Town of Yountville (County of Napa 2005).

Private and mutual water supply companies in the County include the Cannon Park Water Company, Howell Mountain Mutual Water Company, La Tierra Heights Mutual Water Company, Linda Falls Terrace Mutual Water Company, Linda Vista Mutual Water Company, Mapes Heights Mutual Water Company, Meyers Water Company, Milton Road Water Company, Rutherford Hill Mutual Water Company, Tucker Acres Mutual Water Company, Vailima Estates Mutual Water Company, and Woodland Ridge Mutual Water Company. These private and mutual companies provide the majority of private residential water service in the County (County of Napa 2005).

Wastewater disposal and sanitary sewer service in the County is provided by the Napa Sanitation District, Lake Berryessa Resort Improvement District, Napa-Berryessa Resort Improvement District, Spanish Flat Water District, American Canyon Public Works Department, Napa River Reclamation District #2109, Circle Oaks County Water District, and American Canyon Public Works Department (County of Napa 2005).

Storm Drainage

The project area is not served by City or County storm drain infrastructure. information on stormwater drainage in the project corridor is provided in the *Hydrology and Water Quality* section of this checklist.

Solid Waste Disposal

Several providers serve the County's solid waste disposal needs. The County has joined with the City of Napa and the City of Vallejo to create a joint powers authority for economical wasted disposal. The joint powers authority is by the Napa-Vallejo Waste Management Authority, which does not act as a waste collector, but owns and operates the Devlin Road Recycling and Transfer Station, where most of the County's solid waste is sorted and routed for disposal elsewhere. The Devlin Road Transfer Station is also the site of the American Canyon Landfill, and a hazardous waste collection facility serving households and small quantity business generators, a the American Canyon sanitary landfill. The Devlin Road facility currently receives an average of 560 tons of water per day (based on a 5.5-day operating week), and is permitted to receive up to 1,600 tons per day (County of Napa 2005).

Solid waste collection service in the County is provided by the Napa Valley Disposal Service (NVDS) and the Upper Valley Waste Management Agency (UVWMA), Table 3-19 summarizes these providers' service areas, facilities, existing service demand, and capacity.

Table 3-19. Solid Waste Collection and Disposal Services in Napa County

Provider	Service Area	Existing Demand	Facilities and Capacity
Napa Valley Waste Disposal Service	Southern unincorporated areas of Napa County	Averages 33 tons per day	Capacity exceeds demand. NVWDS routes its waste to the Devlin Road Recycling and Transfer Station. From there, waste is taken to Keller Canyon landfill in Contra Costa County. The Keller Canyon facility is permitted and is permitted to receive up to 3,400 tons of waste per day, and had 64.8 million cubic yards of available capacity as of January 2004.
Upper Valley Waste Management Agency	Northern Napa Valley	Averages 250 tons per day	Capacity exceeds demand. UVWMA routes its waste to the Devlin Road Recycling and Transfer Station and to the Berryessa Watershed Area Transfer Station. From the Devlin Road facility, waste is taken to the Clover Flat Landfill south of Calistoga. The Clover Flat Landfill is permitted to receive up to 600 tons of waste per day, and had a remaining capacity of 3,081,946 cubic yards as of 2001. From the Berryessa Watershed Area facility, waste is taken to the Potrero Hills Landfill in Solano County. The Potrero Hills Landfill is permitted to receive up to 4,330 tons of waste per day, and had a remaining capacity of 13.8 million cubic yards as of 2005.

Source: County of Napa 2005

Discussion of Checklist Responses

a. Exceedance of Wastewater Treatment Requirements—*No Impact*

The proposed project would not increase population in the project area (see related discussion in *Population and Housing* section of this checklist), nor would it alter the distribution of population in the project area, either temporarily or permanently. Thus, it would not alter the need for wastewater treatment in the County, and there would be no impact related to potential exceedance of wastewater treatment standards or requirements. No mitigation is required.

b. Need for Construction of New or Expanded Water or Wastewater Treatment Facilities—*No Impact*

As discussed in item (a), the proposed project would not increase population or alter the distribution of population in the project area, either temporarily or permanently. Thus, it would not increase the need for wastewater treatment in the County, and there would be no impact related to the need for construction or expansion of wastewater treatment facilities. No mitigation is required.

c. Need for Construction or Expansion of New Stormwater Drainage Facilities—*No Impact*

As identified above, the project area is not served by City or County storm drain facilities. The proposed project would not modify existing stormwater drainage facilities, nor would it construct new areas of impervious surface requiring storm drainage. It would result in some modifications to existing topography to restore channel geomorphology and construct the rolling levee berms. However, these modifications would take place in areas where storm runoff is conveyed by overland drainage, not by storm drain facilities, and the modifications would be designed to ensure appropriate site drainage. Consequently, there would be no impact related to a need for new or expanded stormwater drainage facilities, and no mitigation is required.

d. Availability of Sufficient Water Supplies to Service the Project—*No Impact*

As discussed in item (a), the proposed project would not increase population or alter the distribution of population in the project area, either temporarily or permanently, so it would not increase the need for potable water supply. The project would not expand agriculture, and thus would not increase the demand for agricultural supply. There would be no impact related to water supply availability, and no mitigation is required.

e. Determination of Inadequate Capacity by Wastewater Treatment Provider—*No Impact*

The proposed project would not increase area population, relocate residential uses, or otherwise alter land use in a way that would increase wastewater generation. There would be no impact related to wastewater treatment capacity, and no mitigation is required.

f. Exceedance of Landfill Capacity—*No Impact*

In order to prepare the proposed restoration areas for earthwork, some vegetation would need to be removed, primarily riparian growth already at risk due to bank erosion and failure. As discussed in Chapter 2 (see *Waste Handling Measures* under *Environmental Commitments*), the proponent has committed to requiring onsite reuse of greenwaste where this is feasible. If greenwaste cannot be reused appropriately onsite, it will be offhauled for composting. Thus, some large woody materials would be reused onsite to construct inchannel habitat features and biotechnical bank stabilization. Some additional material might be chipped and used as mulch in some areas. The remaining greenwaste would be removed from the site for composting. Volumes would be small, and are not expected to exceed the capacity of receiving facilities.

Following restoration, small volumes of greenwaste would continue to be generated periodically as a result of vegetation maintenance activities, including the removal of invasive nonnative species. Most or all of this material would be offhauled for composting, so it would not required disposal *per se*, and the volumes involved would be quite small, well within the capacity of local receiving facilities.

As discussed in item (a) above, the proposed project would not increase area population, relocate residential uses, or otherwise alter land use in a way that would increase residential or commercial solid waste generation.

Overall, the project's potential to increase waste generation would be very small. Project-related waste volumes could easily be accommodated as part of the project area's existing waste stream. Consequently, no impact related to exceedance of landfill capacity is anticipated, and no mitigation is required.

g. Compliance with Federal, State, and Local Solid Waste Regulations—*No Impact*

Wastes (primarily greenwaste) generated by the proposed project would be handled and disposed in accordance with all applicable federal, state, and local regulations and policies. The proposed project is not expected to result in impacts related to violation of such regulations, and no mitigation is required.

XVII. Mandatory Findings of Significance

		Potentially Significant	Less than Significant with Mitigation	Less than Significant	No Impact
a.	Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	❑	■	❑	❑
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?	❑	■	❑	❑

a. Degradation of Environment for Biological Resources, Elimination of Key Cultural Resources—*Less than Significant with Mitigation Incorporated*

Wildlife Habitat and Populations; Rare and Endangered Species

Over the short term, construction would have some potential for adverse impacts on fish, wildlife, and the quality of habitat in the project area, through impacts on water quality, removal of vegetation, and construction-related disturbance, as discussed in Section IV of this initial study checklist (*Biological Resources*). However, all of these impacts would be mitigated to less than significant levels through environmental commitments discussed in Chapter 2. Ongoing maintenance activities would have a similar potential to reduce habitat quality and/or disturb fish and wildlife, and maintenance impacts would be similarly reduced to less than significant levels through avoidance and minimization

protocols included in the project Maintenance Plan. Over the long term, the project would improve stream function and riparian habitat quality. Impacts are thus evaluated as less than significant overall, assuming implementation of the environmental commitments in Chapter 2.

California History and Prehistory

As discussed in Section V of this checklist (*Cultural Resources*), the project footprint is entirely within sediments of Holocene age and thus is not considered sensitive for paleontological resources. However, records searches conducted for the Napa County Baseline Data Report identified a total of 370 known archaeological sites on the Napa Valley floor, three of which are within the project area. One of these (NAP-32) is a particularly significant site with a large midden deposit, human remains, and numerous artifacts (County of Napa 2005). As in any area with a long history of human use and habitation, the project corridor may also contain additional unknown buried resource. The project corridor is thus considered highly sensitive for cultural resources, and project earthwork would have some potential to result in damage or loss affecting important documentation of California prehistory. To address this concern, the proponent has committed to

- ensure that work areas near known archaeological site(s) are surveyed by a qualified prior to ground-breaking, with appropriate follow-up if needed (Mitigation Measure CUL-1);
- retain a qualified archaeologist, and a Native American representative acceptable to tribal authorities, both of whom will be present onsite to monitor site preparation and construction activities within or adjacent to known archaeological sites (Mitigation Measure CUL-2);
- stop work in the event buried cultural resources are discovered during any project-related activities; have the resources assessed by a qualified professional archaeologist; and implement appropriate treatment measures (Mitigation Measure CUL-3); and
- comply with requirements of the California Public Resources Code regarding treatment of human remains (Mitigation Measure CUL-4).

The County will be responsible for ensuring that these measures are properly implemented. With these measures in place, the potential for project-related activities to destroy or eliminate important examples of the major periods of California history or prehistory is evaluated as less than significant. No mitigation is required.

b. Cumulative Impacts—*Less than Significant with Mitigation*

Detailed analysis of a project's contribution to cumulative impacts is required when (1) a significant regional impact exists, and (2) a proposed project has the potential to make a "considerable" contribution to the existing impact. Consistent with this requirement, Table 3-20 summarizes the process used to identify the cumulative impacts for which analysis is needed in this document.[4] Detailed analyses follow the table.

Broadly speaking, there are two approaches to analyzing cumulative impacts: assessing the impact based on a list of other planned or proposed projects that have been identified as having the potential to contribute to the same effects, based on their nature and the anticipated timing of project construction and operation; and assessing the impact based on projections in an approved planning document. This document uses the planning document approach, based on the current County General Plan (County of Napa 2008a) and studies and analyses conducted during its preparation (County of Napa 2005, County of Napa 2007b).

Table 3-20. Summary Evaluation of Need for Cumulative Impacts Analysis, by Resource Topic

Resource	Is There a Regional Cumulative Impact?	Project Contribution and Need for Analysis in This Document
Aesthetics	None identified. The Napa County General Plan is strongly protective of aesthetic resources.	No analysis required.
Agricultural Resources	None identified. The Napa County General Plan identifies agricultural resources as the County's "primary land use" now and into the foreseeable future (County of Napa 2008a p. AG/LU-11). Growth is stringently planned to preserve/protect agricultural land uses, and the General Plan identifies the importance of concentrating growth in the County's existing city and town areas.	No analysis required.
Air Quality	Yes. Napa County is a nonattainment area for the federal 1-hour ozone standard, a serious nonattainment area for the state 1-hour ozone standard, and a nonattainment area for the state PM10 and PM 2.5 standards. It is a marginal nonattainment area for the federal 8-hour ozone standard. Urbanized areas within the County are moderate maintenance areas for the federal CO standard.	Construction of the proposed project would temporarily increase emissions of particulate matter and exhaust gases. Analysis of cumulative air quality impacts is required.

[4] Note that if no significant cumulative impact has been identified, no cumulative analysis is required for that resource, even if the project may have incremental impacts on the resource. Repeated or additive project effects may also create a cumulative impact over time in some situations, but this is not expected to be the case for any resource with the proposed project.

Resource	Is There a Regional Cumulative Impact?	Project Contribution and Need for Analysis in This Document
Biological Resources	None identified.	No analysis required.
Cultural Resources	Yes. Throughout California, the Native American cultural legacy, including culturally important sites and traditional cultural practices, has been substantially affected by land management practices and urbanization over the past century and a half. Despite the current General Plan's protection for cultural resources, Napa County is no exception, and a significant cumulative impact is considered to exist with regard to loss of cultural resources.	As discussed in Section V of this checklist, the project corridor is known to contain three archaeological sites, at least one of which is particularly significant and has yielded human remains along with numerous artifacts. As in any area with a long history of human use, the project corridor may also preserve unknown buried resources. Project construction and maintenance thus have the potential for significant impacts on cultural resources, which could rise to a cumulatively considerable level. However, the project proponent has committed to implement mitigation measures that include prior survey of work areas near known archaeological sites, archaeologist and Native American monitoring of work in highly sensitive areas, and a "stop work" order followed by appropriate treatment if cultural resources are discovered during project activities. The proponent will also comply with all applicable codes relative to treatment of human remains, if any are uncovered. With these measures in place, impacts on cultural resources are expected to be less than significant at the project level, and the project would not make a considerable contribution to long-term regional loss of cultural resources. No further analysis is required.
Geology and Soils	None identified.	No analysis required.
Hazards and Hazardous Materials	None identified.	No analysis required.
Hydrology and Water Quality	Yes. The Napa River has been identified as impaired for sediment pursuant to Clean Water Act Section 303[d]. Although the San Francisco Bay RWQCB is developing a TMDL program for sediment in the Napa River, the impairment has not yet been addressed and continues to represent a significant cumulative impact. The technical report prepared in support of the Napa River Sediment TMDL lists streambank erosion as a primary source of fine sediments in the Napa	During construction, the proposed project would incorporate numerous measures to prevent sediment from disturbed areas from reaching surface waters. Over the long term, the proposed project would help to reduce channel incision and bank erosion and thus is expected to reduce sediment input to the Napa River. The Napa River Sediment TMDL technical report (San Francisco Bay RWQCB 2005) specifically recommends implementation of projects to stabilize actively eroding streambanks, control

Resource	Is There a Regional Cumulative Impact?	Project Contribution and Need for Analysis in This Document
	River (San Francisco Bay RWQCB 2005). In addition, over the past century, the Napa River has become increasingly incised and disconnected from its floodplain. This represents a significant cumulative impact on geomorphology and stream function.	channel incision, and restore aquatic habitat, and recognizes the Rutherford Reach restoration project as a model for such projects. Overall, the project's impact on water quality would be beneficial; the project would not make a considerable contribution to the existing cumulative impact related to sediment impairment, and no further analysis of cumulative water quality issues is required. The proposed project is specifically intended to restore the Rutherford Reach to a more functional geomorphology. It would improve channel shape and function and restore connectivity between the mainstem channel and adjacent floodplain areas. This would represent a benefit for stream geomorphology and hydraulics; no further analysis of cumulative geomorphic/stream hydraulic issues is required.
Land Use and Planning	None identified.	No analysis required.
Mineral Resources	None identified.	No analysis required.
Noise	None identified.	No analysis required.
Population and Housing	None identified.	No analysis required.
Public Services	None identified.	No analysis required.
Recreation	None identified.	No analysis required.
Transportation and Traffic	Yes. LOS on Napa County roadways was evaluated as part of the environmental impact analysis conducted for the recent General Plan update (County of Napa 2007b). Based on that analysis, several roadway segments are currently operating at substandard LOS (LOS E or F), as follows. ▪ SR12/121 from Cuttings Wharf Road to Stanley Road. ▪ SR12 from Lynch Road to Kelly Road. ▪ SR 121 from the Napa/Sonoma County line to Old Sonoma Road. ▪ SR29 from Rutherford Cross Road (SR 128) to Oakville Grade. ▪ SR29 from Chaix Lane to Zinfandel Lane.	Although it would generate a comparatively small number of vehicle trips, project construction nonetheless has the potential to make a cumulatively considerable contribution to the existing cumulative impact on traffic flow in Napa County. Additional analysis of construction traffic impacts is provided below. Routine maintenance activities would generate very limited amounts of traffic (2−3 vehicles) to and from each of the maintenance sites, most activities would not require the mobilization and demobilization of heavy equipment, and most activities would be accomplished within a relatively short time frame (2−3 days). Thus, the added volume of traffic generated on area roadways

Resource	Is There a Regional Cumulative Impact?	Project Contribution and Need for Analysis in This Document
	These areas of substandard LOS reflect a significant, if localized, cumulative impact on traffic flow in Napa County.	by routine maintenance is expected to be very small relative to roadway capacity and existing traffic volume. Maintenance traffic impacts were identified as less than significant at the project level, and are not expected to represent a considerable contribution to the existing cumulative impact on traffic flow. No further analysis of the project's maintenance traffic contribution is required.
Utilities and Service Systems	None identified.	No analysis required.

The following sections provide the detailed cumulative impacts analyses identified as necessary in Table 3-20: air quality and traffic/transportation. See discussion in Table 3-20 for background, including descriptions of the existing cumulative impacts on these resources.

In addition to the topics addressed in Table 3-20, analysis of cumulative impacts included effects related to climate change, which is an inherently cumulative issue. Based on our current scientific understanding, global climate may already be changing as a result of many human activities over a long period of time; no single proposed future project is likely to independently create or arrest climate change. However, individual projects have the potential to contribute to climate change or to exacerbate its effects on particular resources. In addition, individual projects may be affected by or interact with specific outcomes of climate change, such as sea level rise. A third section below therefore addresses climate change–related issues.

Air Quality (Criteria Pollutant Emissions)

Principal air quality concerns for project construction and maintenance relate to (1) generation of fugitive dust during restoration earthwork and (2) exhaust emissions from construction equipment. As discussed in Chapter 2 (see *Environmental Commitments* section) and above in this checklist, the County has committed to implement construction dust control measures consistent with the BAAQMD's guidance (Bay Area Air Quality Management District 1999) during all project-related activities, as well as providing a hotline number for the public to call with air quality complaints and designating a County staff member to ensure that construction-related air quality concerns are addressed promptly. With these commitments in place, construction-related emissions of criteria pollutants and air quality impacts on sensitive receptors near work sites are expected to be less than significant at the project level, and they are not expected

to make a "considerable" contribution to existing regional air quality concerns. To further reduce project emissions, the County will implement the following additional measure. With this measure in place, the project is not expected to make a cumulatively considerable contribution to regional air quality degradation.

Mitigation Measure CU-1: Require Construction Emissions Control Technology

The County will coordinate with its contractors and BAAQMD to prepare a construction emissions control plan identifying a preferred approach and demonstrating that heavy-duty (>50-horsepower) equipment and vehicles used in project construction will achieve a fleet-average 20% NO_X reduction and 45% particulate matter reduction compared to the most recent ARB fleet average at time of contracting. Control measures available to achieve emissions reduction include use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology (e.g., diesel particulate matter filters and lean-NO_X or diesel oxidation catalysts), after-treatment products, and/or other options as they become available. The County will be responsible for ensuring that the plan is properly implemented.

Climate Change–Related Issues

The proposed project would require the use of construction equipment that emits greenhouse gases (GHG) and thus may have some potential to contribute to climate change. The principal GHG source would be tailpipe emissions during restoration earthwork, when the most intensive equipment usage would occur. As of the preparation of this IS/MND, the BAAQMD has not established GHG guidelines or specific significance thresholds for GHG emissions, and there is little meaningful precedent to identify the level at which an individual project's contributions become cumulatively considerable. Therefore, to ensure that project emissions are reduced to the extent feasible and do not represent a cumulatively considerable contribution to GHG emissions, the County will implement the following mitigation measure.

Mitigation Measure CU-2: Implement Measures to Reduce GHG Emissions

The County will require all construction contractors to implement the following measures to the extent they are feasible.

- Use of biodiesel fuel in construction equipment and vehicles.
- Recycling and/or reuse of construction waste and debris.

The County will also monitor emerging GHG-reduction technologies and incorporate them into future project construction and maintenance activities as appropriate. If the BAAQMD establishes specific GHG significance thresholds or other applicable GHG guidelines during the project's lifespan, the County will ensure that future project activities are in full compliance.

Traffic and Transportation

As identified in Table 3-20, construction is the key concern with regard to the project's potential to contribute to the existing cumulative impact on County traffic flow.

Construction would generate three types of traffic to and from the project area: construction worker commute vehicles, mobilization and demobilization of heavy construction equipment, and delivery of materials and supplies. As discussed above in Section XV of the checklist, this is expected to translate to no more than about 30 round trips or 60 individual trips to area roadways each day due to workers commuting to the project sites, plus a very small number (several trips per week total) of additional trips for mobilization and demobilization of heavy construction equipment, and deliveries of materials and supplies.

Thus, construction-related trips would result in only a minor increase in traffic volume in the project area, well within existing capacity for most of roadways in the project area; most of the principal roadway segments that would serve as the construction access routes are currently operating at LOS B or C, well above the minimum County standard of LOS D. The key exception is SR29 between the Rutherford Cross Road and Oakville Grade, which currently operates at LOS F, and is projected to remain at this level through 2030 unless improvements are made. Any increase in traffic on this roadway segment would adversely affect traffic circulation. In addition, construction vehicles entering or exiting arterials, collectors, or local roadways and/or temporary lane closures could result temporary delays or stoppage in the project vicinity, which could adversely affect local traffic circulation, particularly during peak hours.

To minimize these impacts, the County will require the construction contractor to prepare and adhere to a traffic control plan (TCP) (see Chapter 2, *Environmental Commitments* section). The TCP will identify route restrictions, signage, striping, detours, flagging operations, and/or other other strategies for use during construction to avoid effects on local traffic circulation. The plan would also include provisions for coordinating with local service emergency providers regarding construction times and lane closures to ensure unobstructed emergency access and overall traffic safety. In addition, the plan will require the contractor to avoid using SR29 between Rutherford Cross Road and the Oakville Grade during peak hours. At the project-specific level, implementation of the TCP is expected to avoid significant construction-related impacts on level of service, traffic flow, and safety, as discussed in checklist Section XV above. However, if overall traffic conditions worsen as current analyses (e.g., County of Napa 200b)

suggest they are likely to, there would still be some potential for the project to make a considerable contribution to cumulative traffic impacts in Napa County.

The following mitigation measure would reduce the project's contribution to a less than considerable level.

Mitigation Measure CU-3: Coordinate Haul Traffic with Local Jurisdictions

The proponent will coordinate the timing and routing of project traffic with other County offices and with local jurisdictions, in order to minimize any potential overlap with other construction and roadway improvement projects. As appropriate, and per agreement with the affected jurisdictions, the proponent will limit construction haul and delivery trips to off-peak hours, and may also require contractors to avoid particular roadways or intersections. In particular, if additional roadways or intersections are identified as operating below the applicable County LOS standard in the future, the proponent will make every attempt to ensure that project traffic avoids these roadways/intersections at peak traffic hours.

c. Substantial Adverse Effects on Human Beings: Less than Significant with Mitigation

All of the potentially adverse effects identified in this initial study would be avoided or reduced by environmental commitments incorporated into the project, or would be mitigated to a less than significant level by implementation of measures identified in this document. No substantial adverse effect on human beings would result. The project is designed to improve stream function and habitat quality along the Rutherford Reach of the Napa River, reducing the potential for catastrophic flooding and benefiting fish and wildlife that use the River, and thus would also benefit the overall quality of life for County residents and visitors.

Environmental Factors Potentially Affected

The environmental factors checked below could potentially be affected by this project, as indicated by the checklist on the preceding pages.

[X] Aesthetics	[ ] Agricultural Resources	[X] Air Quality
[ ] Biological Resources	[X] Cultural/Paleontological Resources	[ ] Geology/Soils
[ ] Hazards and Hazardous Materials	[ ] Hydrology/Water Quality	[ ] Land Use/Planning
[ ] Mineral Resources	[ ] Noise	[ ] Population/Housing
[ ] Public Services	[ ] Recreation	[ ] Transportation/Traffic
[ ] Utilities/Service Systems	[ ] Mandatory Findings of Significance	

Determination

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.

[X] 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 to 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 an impact on the environment that is "potentially significant" or "potentially significant unless mitigated" 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the project, nothing further is required.

Signature _____ Date _____

Richard Thomasser, Watershed and Flood Control Operations Manager, Napa County Department of Public Works—Flood Control

Printed Name

Chapter 4
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Appendix A

Napa River Rutherford Reach—Draft Restoration Planset

Appendix B

Overview of Federal, State, and Local Regulations and Policies Applicable to Proposed Project

Appendix B

Overview of Federal, State, and Local Regulations and Policies Applicable to Proposed Project

Law, Policy, or Plan	Overview and Key Provisions
Aesthetics, Visual Resources	
California State Scenic Highway Program	The California Legislature initiated the California Scenic Highway Program (Streets and Highways Code Sec. 260 *et seq*.) in 1963, with the goal of preserving and protecting the state's scenic highway corridors from change that would diminish their aesthetic value. The State Scenic Highway System consists of eligible and officially designated routes. A highway may be identified as eligible for listing as a state scenic highway if it offers travelers scenic views of the natural landscape, largely undisrupted by development. Eligible routes advance to officially designated status when the local jurisdiction adopts ordinances to establish a scenic corridor protection program and receives approval from Caltrans. Scenic corridor protection programs are required to provide for regulation of land use and development within the scenic corridor; detailed land and site planning; careful attention to and control of earthmoving and landscaping activity; careful attention to design and appearance of structures and equipment; and control of outdoor advertising, including a ban on billboards. Caltrans stresses the need for citizen participation in developing the guidelines that implement these requirements (California Department of Transportation 2004a, 2004b). The County of Napa has elected not to participate in the State Scenic Highway Program, but has a County scenic roadways program (described below) that protects views along some 280 miles of designated routes.
Napa County General Plan	The County General Plan identifies aesthetics as one of the factors contributing to the County's "community character", and articulates two fundamental goals and numerous related policies that bear directly on the preservation of aesthetic character and visual resources: **Goal CC-1:** Preserve, improve, and provide visual access to the beauty of Napa County. **Goal CC-2:** Continue to promote the diverse beauty of the entire county since this beauty is intricately linked to the continued economic vitality of the region and benefits residents, businesses and visitors. Policies under **Goal CC-6** ("Preserve and enhance the night environment of the county's rural areas and prevent excessive light and glare") provide guidance for preserving dark sky values. Additional General Plan goals and policies protect land uses such as agriculture and open space that contribute to the County's aesthetic character, and cultural and historic resources, some of which also have substantial aesthetic value.

Law, Policy, or Plan	Overview and Key Provisions
Napa County Viewshed Protection Ordinance (Napa County Code 18.106)	Adopted in 2001and amended in 2003, the County's Viewshed Protection Ordinance is intended to help preserve Napa County's unique scenic quality by preventing insensitive development of hillside and ridgeline areas. It establishes standards for hillside development, with a particular focus on preserving views from roadways identified for their scenic character. Specific objectives of the Ordinance include ▪ providing guidelines to minimize the impact of structures and grading on views of existing landforms and landscape features, unique geologic features, and open space as seen from the County's designated scenic routes; ▪ protecting and preserving views of major and minor ridgelines from the County's designated scenic routes, existing and future; ▪ creating a development review process maximizing staff-level approval of projects that meet administrative standards while providing a vehicle for elevated review of projects that do not meet administrative standards; ▪ minimizing cut and fill, earthmoving, grading, and other human effects on natural terrain to ensure that finished slopes are compatible with the existing character of the landscape; and ▪ promoting architecture and designs that are compatible with hillside terrain and thus minimize visual impacts. The County uses a Viewshed Protection Combination District (established in County Code 18.01) to identify properties along major County roads and highways that are visually prominent, are located in identified scenic corridors, or are located in areas with significant geologic, topographic, or other natural features. Future development activities within a Viewshed Protection District must be designed and sited to preserve or enhance existing short-, medium-, and long-range views of significant features. However, all uses allowed without a use permit in the underlying principal zoning district are to be allowed in the Viewshed Protection Combination District without a use permit. Uses allowed with a use permit in the principal underlying zoning district may be permitted in the Viewshed Protection Combination District if a use permit is granted.
Agricultural Resources	
California Land Preservation Act (Williamson Act)	The Williamson Act allows counties and cities to establish agricultural preserves as a mechanism to protect agricultural lands. Under the Williamson Act, the local jurisdiction and landowner agree to continue agricultural activities for at least 10 years, renewed yearly thereafter unless either party files a notice of nonrenewal. In return for the agreement to continue agricultural activity, the local jurisdiction assesses property tax "at a rate consistent with [the land's] actual use, rather than potential market value" (California Department of Conservation 2006b). A notice of nonrenewal initiates the 9-year nonrenewal period, during which time the annual tax assessment gradually increases. At the end of the 9-year nonrenewal period, the contract is terminated (California Department of Conservation 2006b).
California Department of Conservation's Farmland Mapping and Monitoring Program (FMMP)	The FMMP, part of the Division of Land Resource Conservation, is responsible for mapping and monitoring Important Farmlands (including Prime Farmland, Farmland of Statewide Importance, and Unique Farmland, as defined below in *Agricultural Land*), for most of the state's agricultural areas. The goal of the FMMP is to "provide consistent, timely, and accurate land use data for use in assessing present status, reviewing trends, and planning for the future of California's agricultural land resources" to support the Division of Land Resource Conservation's aim to guide planning decisions to help agricultural and open space landowners protect their land (California Department of Conservation 2004). Planners thus use FMMP data to help assess impacts on important farmland (California Department of Conservation 2006a). FMMP classifies farmland by eight mapping categories: five categories of agricultural lands and three categories of nonagricultural lands. The characteristics of these categories are described below. FMMP updates its farmland maps every 2 years based on information from local agencies. The minimum mapping unit for all agricultural

Law, Policy, or Plan	Overview and Key Provisions
	land categories except Grazing Land is 10 acres. The minimum mapping unit for Grazing Land is 40 acres. Mapping units for nonagricultural lands vary, as described below. **Agricultural Lands** ▪ *Prime Farmland* is defined by the state as "irrigated land with the best combination of physical and chemical features able to sustain long-term production of agricultural crops." Prime Farmland has the soil quality, growing season, and moisture supply needed to produce sustained high yields. To be designated as Prime Farmland, the land must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date. ▪ *Farmland of Statewide Importance* is defined by the state as "irrigated land similar to Prime Farmland that has a good combination of physical and chemical characteristics for the production of agricultural crops." However, this land has minor shortcomings, such as greater slopes or less ability to store soil moisture than Prime Farmland. In order for land to be designated as Farmland of Statewide Importance, it must have been used for production of irrigated crops at some time during the 4 years prior to the mapping date. ▪ *Unique Farmland* is considered to consist of lower-quality soils but nonetheless is used for production of the state's leading agricultural crops. Unique Farmland is usually irrigated, but may include nonirrigated orchards or vineyards in some climatic zones in California. To qualify for this designation, land must have been used for crops at some time during the 4 years prior to the mapping date. ▪ *Farmland of Local Importance* is land identified as important to the local agricultural economy by each county's board of supervisors and a local advisory committee. ▪ *Grazing Land* is land on which the existing vegetation is suited to the grazing of livestock. This category was developed in cooperation with the California Cattlemen's Association, the University of California Cooperative Extension, and other groups interested in the extent of grazing activities. **Nonagricultural Lands** ▪ *Urban and Built-Up Lands* consist of land occupied by structures with a building density of at least 1 structure to 1.5 acres, or approximately 6 structures to a 10-acre parcel. This type of land is used for residential, industrial, commercial, construction, institutional, and public administration purposes; railroad and other transportation yards; cemeteries; airports; golf courses; sanitary landfills; sewage treatment facilities; water control structures; and other developed purposes. ▪ *Other Land* is land not included in any other mapping category. Examples include low-density rural developments and brush, timber, wetland, and riparian areas not suitable for livestock grazing. This category also includes vacant and nonagricultural land surrounded on all sides by urban development; confined livestock, poultry, or aquaculture facilities; strip mines; borrow pits; and water bodies smaller than 40 acres. ▪ *Water* includes perennial water bodies with an extent of at least 40 acres.
Napa County General Plan	The County General Plan is the fundamental land use planning document in unincorporated areas of the County. As such, it envisions agriculture as the "primary land use" in the County "well into the future" (County of Napa 2008 p. AG/LU-11), and includes the following goals for agricultural preservation and land use overall. **Goal AG/LU-1:** Preserve existing agricultural land uses and plan for agriculture and related activities as the primary land uses in Napa County. **Goal AG/LU-2:** Concentrate urban uses in the County's existing cities and town and urbanized areas.

Law, Policy, or Plan	Overview and Key Provisions
	Goal AG/LU-3: Support the economic viability of agriculture, including grape growing, winemaking, other types of agriculture, and supporting industries to ensure the preservation of agricultural lands. **Goal AG/LU-4:** Develop and implement planning policies which define a rate of population growth that perpetuates our quality of life. **Goal AG/LU-5:** With municipalities, other governmental units, and the private sector, plan for commercial, industrial, residential, recreational, and public land uses in locations that are compatible with adjacent uses and agriculture. **Goal AG/LU-6:** Create a stable and predictable regulatory environment that encourages investment by the private sector and balances the rights of individuals with those of the community and the needs of the environment. **Goal AG/LU-7:** Plan for demographic changes, environmental or climatic changes, and desired social services when siting public facilities and when considering the design of those facilities. The General Plan Conservation Element also stresses the importance of preserving agricultural lands and uses: **Goal CON-1:** The County of Napa will conserve resources by determining the most appropriate use of land, matching land uses and activities to the land's natural suitability, and minimizing conflicts with the natural environment and the agriculture it supports. Under Goal CON-1, Policy CON-2(g) encourages the use of Williamson Act contracts to conserve the County's agricultural lands. Other elements include many additional goals and policies that indirectly guide and constrain land use planning and agricultural preservation through protections for the County's aesthetic values, agricultural uses, riparian and wetland areas, and sensitive plant and wildlife species; and through flood protection and other safety-oriented policies.
Air Quality	
Air Quality management policies and standards pursuant to federal and California Clean Air Acts	Air quality is determined primarily by the type and amount of contaminants emitted into the atmosphere, the size and topography of the air basin, and its meteorological conditions. State and federal criteria pollutant emission standards have been established for six "criteria pollutants": carbon monoxide (CO), ozone (O_3), inhalable particulate matter (PM10 and PM2.5) (particulates 10 microns or less in diameter and 2.5 microns or less in diameter, respectively), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Within the San Francisco Bay Air Basin, which includes the Dublin area, the Bay Area Air Quality Management District (BAAQMD) is responsible for ensuring that these emission standards are not violated. The BAAQMD develops and enforces air quality regulations for non-vehicular sources; issues permits; participates in air quality planning; and operates a regional air quality monitoring network. Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the federal government and California have established for the six criteria pollutants. Most standards have been set to protect public health and welfare with an adequate margin of safety. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). Note that for some pollutants, separate standards have been set for different measurement periods. The national ambient air quality standards (NAAQS), which describe acceptable conditions, were first authorized by the federal Clean Air Act of 1970. Air quality is considered in "attainment" if pollutant levels are below or equal to the NAAQS continuously and exceed them no more than once each year. The California Ambient Air Quality Standards (CAAQS), which describe adverse conditions, were authorized by the State legislature in 1967. Pollution levels must be below the CAAQS before a basin is considered to be in attainment of the standard. California standards are generally more stringent than the national standards. The pollutants of greatest concern in the proposed project area are CO; ozone; and PM10 and PM2.5. Federal and State Ambient Air Quality Standards are presented in the following table.

Pollutant	Symbol	Average Time	Standard (ppm)		Standard (µg/m^3)		Violation Criteria	
			California	National	California	National	California	National
Ozone*	O_3	1 hour	0.09	NA	180	NA	If exceeded	NA
		8 hours	0.070	0.08	137	157	If exceeded	If fourth highest 8-hour concentration in a year, averaged over 3 years, is exceeded at each monitor within an area
Carbon monoxide	CO	8 hours	9.0	9	10,000	10,000	If exceeded	If exceeded on more than 1 day per year
		1 hour	20.0	35	23,000	40,000	If exceeded	If exceeded on more than 1 day per year
(Lake Tahoe only)		8 hours	6	NA	7,000	NA	If equaled or exceeded	NA
Nitrogen dioxide	NO_2	Annual average	NA	0.053	NA	100	NA	If exceeded on more than 1 day per year
		1 hour	0.25	NA	470	NA	If exceeded	NA
Sulfur dioxide	SO_2	Annual average	NA	0.03	NA	80	NA	If exceeded
		24 hours	0.04	0.14	105	365	If exceeded	If exceeded on more than 1 day per year
		1 hour	0.25	NA	655	NA	If exceeded	NA
Hydrogen sulfide	H_2S	1 hour	0.03	NA	42	NA	If equaled or exceeded	NA
Vinyl chloride	C_2H_3Cl	24 hours	0.01	NA	26	NA	If equaled or exceeded	NA
Inhalable particulate matter	PM10	Annual geometric mean	NA	NA	20	NA	If exceeded	NA
		Annual arithmetic mean	NA	NA	NA	50	NA	If exceeded at each monitor within area
		24 hours	NA	NA	50	150	If exceeded	If exceeded on more than 1 day per year
	PM2.5	Annual geometric mean	NA	NA	NA	NA	If exceeded	NA

		Annual arithmetic mean	NA	NA	12	15	NA	If 3-year average from single or multiple community-oriented monitors is exceeded
		24 hours	NA	NA	NA	65	NA	If 3-year average of 98th percentile at each population-oriented monitor within an area is exceeded
Sulfate particles	SO_4	24 hours	NA	NA	25	NA	If equaled or exceeded	NA
Lead particles	Pb	Calendar quarter	NA	NA	NA	1.5	NA	If exceeded no more than 1 day per year
		30-day average	NA	NA	1.5	NA	If equaled or exceeded	NA

Notes: All standards are based on measurements at 25ºC and 1 atmosphere pressure. National standards shown are the primary (health effects) standards. NA = not applicable.

* The U.S. Environmental Protection Agency recently replaced the 1-hour ozone standard with an 8-hour standard of 0.08 part per million. EPA issued a final rule that will revoke the 1-hour standard on June 15, 2005. However, the California 1-hour ozone standard will remain in effect.

Source: California Air Resources Board 2003.

Napa County General Plan

The Community Character Element of the County General Plan distinguishes between odors generated by agricultural activities that are an essential part of the County's character, and other "unacceptable" odors.

> **Goal CC-9:** Accept those odors which are part of the [sic] Napa County's character, while protecting people from exposure to unacceptable odors.
>
> **Goal CC-10:** Place compatible land uses where unacceptable odors already exist and minimize any new uses that generate such odors.

Policies under these goals identify the odors that are "part of [the] County's character" and provide more specific guidance for appropriate land use planning.

> **Policy CC-51:** The smells associated with wine-making, agriculture, and agricultural processes are considered to be an acceptable and integral part of the community character of Napa County, and are not considered to be undesirable, provided that normal and reasonable stewardship is followed in the operation of the wine-making or agricultural use and that odors are controlled to the extent possible consistent with the normal operation of the use.
>
> **Policy CC-52:** Land uses sensitive to odors should generally not be placed near existing nonagricultural uses which generate offensive odors. Should sensitive uses be placed near existing odor-generating uses, the sensitive use shall be responsible for either (a) accepting the odor and notifying future residents/tenants, or (b) providing filters or other equipment to reduce odors to acceptable levels.
>
> **Policy CC-53:** Odors associated with industrial and commercial uses—in particular, those generated by chemical or industrial processes—are considered generally unacceptable, and shall be required to mitigate their effects on nearby businesses and residences in accordance with standards of the Bay Area Air Quality Management District (BAAQMD).

Law, Policy, or Plan	Overview and Key Provisions
	Action Item CC-53.1: Work with the BAAQMD to disseminate information regarding regulations, monitoring, and enforcement for noxious odors. **Policy CC-54:** The County shall require that adequate buffers be maintained between air pollution or odor sources and sensitive receptors such as residences, or that filters or other mitigation be provided to reduce potential exposures to acceptable levels consistent with regulatory requirements. a) New sources of toxic air contaminants or odors proposed near residences or sensitive receptors within screening distances recommended by the California Air Resources Board (CARB) or BAAQMD shall be evaluated and adequate buffers or filters or other equipment shall be provided. b) New residences or other sensitive receptors proposed near sources of toxic air contaminants or odors within screening distances recommended by CARB or BAAQMD shall be evaluated and adequate buffers shall be established or mitigations such as filters or other equipment shall be required.
Biological Resources	
Federal Endangered Species Act (ESA)	The ESA (16 U.S. Government Code [USC] Sec. 1531 *et seq*.) protects fish and wildlife species that are listed as threatened or endangered, and their habitats. *Endangered* refers to species, subspecies, or distinct population segments that are in danger of extinction in all or a significant portion of their range. *Threatened* refers to species, subspecies, or distinct population segments that are considered likely to become endangered in the future. The ESA is administered by the USFWS for terrestrial and freshwater species and by the National Oceanographic and Atmospheric Administration's National Marine Fisheries Service (NMFS) for marine species and anadromous fishes. The ESA prohibits "take" of any fish or wildlife species listed by the federal government as endangered or threatened. (*Take* is defined as harassment, harm, pursuit, hunting, shooting, wounding, killing, trapping, capture, or collection, or the attempt to engage in any such conduct.) The ESA also prohibits removing, digging up, cutting, or maliciously damaging or destroying federally listed plants on sites under federal jurisdiction. However, Section 10[a][1][B] of the ESA establishes a process through which a "nonfederal entity" (a business or individual) can apply for a permit allowing take of federally listed species under certain, restricted circumstances. To be permissible under Section 10[a][1][B], take must occur as a corollary of otherwise lawful activities, and may not be the purpose of the activities; this is referred to as *incidental take*. Permits authorizing incidental take are issued by the USFWS and/or NMFS, depending on the species involved. A key requirement for issuance of a permit under Section 10[a][1][B] is preparation of an HCP that fully analyzes the effects of the proposed take and describes the measures that will be taken to avoid, minimize, and compensate for it.
Federal Migratory Bird Treaty Act (MBTA)	The MBTA (16 USC Sec. 703–712 *et seq*.) enacted the provisions of treaties between the United States, Great Britain, Mexico, Japan, and the Soviet Union, and authorizes the U.S. Secretary of the Interior to protect and regulate take of migratory birds. The MBTA is administered by USFWS. It establishes seasons and bag limits for hunted species, and renders taking, possession, import, export, transport, sale, purchase, and barter of migratory birds, their occupied nests, and their eggs illegal except where authorized under the terms of a valid federal permit. Activities for which permits may be issued include: scientific collecting; falconry and raptor propagation; "special purposes," which include rehabilitation, education, migratory game bird propagation, and miscellaneous other activities; control of depredating birds; taxidermy; and waterfowl sale and disposal. More than 800 species of birds are protected under the MBTA. Specific definitions of *migratory bird* are discussed in each of the international treaties; in general, however, species protected under the MBTA are those that migrate to complete different stages of their life history or to take advantage of different habitat opportunities during different seasons. Examples of migratory bird species include the yellow warbler (*Dendroica petechia*), barn swallow (*Hirundo rustica*), and Canada goose (*Branta canadensis*).

Law, Policy, or Plan	Overview and Key Provisions
Federal Bald and Golden Eagle Protection Act	The Bald and Golden Eagle Protection Act (16 USC Sec. 668 *et seq*.) makes it unlawful to import, export, take, sell, purchase, or barter any bald eagle or golden eagle, or their parts, products, nests, or eggs. *Take* includes pursuing, shooting, poisoning, wounding, killing, capturing, trapping, collecting, molesting, or disturbance. Exceptions may be granted by the USFWS for scientific or exhibition use, or for traditional and cultural use by Native Americans. However, no permits may be issued for import, export, or commercial activities involving eagles.
California Endangered Species Act (CESA)	CESA protects wildlife and plants listed as *threatened* and *endangered* by the California Fish and Game Commission, as well as species identified as candidates for such listing. It is administered by the California Department of Fish and Game (DFG). CESA requires state agencies to conserve threatened and endangered species (Sec. 2055) and thus restricts all persons from taking listed species except under certain circumstances. CESA defines *take* as any action or attempt to "hunt, pursue, catch, capture, or kill." Under certain circumstances, DFG may authorize limited take, except for species designated as *fully protected* (see discussion of fully protected species under *California Fish and Game Code* below). The requirements for an application for an incidental take permit under CESA are described in Section 2081 of the California Fish and Game Code and in final adopted regulations for implementing Sections 2080 and 2081.
California Native Plant Protection Act (CNPPA)	The CNPPA was enacted to preserve, protect, and enhance endangered and rare plants in California. It specifically prohibits the importation, take, possession, or sale of any native plant designated by the California Fish and Game Commission as rare or endangered, except under specific circumstances identified in the Act. Various activities are exempt from CNPPA, although take as a result of these activities may require other authorization from DFG under the California Fish and Game Code.
California Fish and Game Code	The California Fish and Game Code provides protection from take for a variety of species, separate from and in addition to the protection afforded under CESA. The Code defines *take* as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Species identified in the Code as *fully protected* may not be taken except for scientific research. Fully protected species are listed in various sections of the Code. For instance, fully protected birds in general are protected under Section 3511, nesting birds under Sections 3503.5 and 3513, and eggs and nests of all birds under Section 3503. Birds of prey are addressed under Section 3503.5. All other birds that occur naturally in California and are not resident game birds, migratory game birds, or fully protected birds are considered *non-game birds* and are protected under Section 3800. Section 3515 lists protected fish species and Section 5050 lists protected amphibians and reptiles. Section 4700 identifies fully protected mammals. The California mountain lion (*Felis* [*Puma*] *concolor*) is identified as a *specially protected species* in Section 4800 of the Code. Under Sections 4800–4809, it is illegal to take, injure, possess, transport, import or sell any mountain lion or any part thereof, except under specific circumstances.
Napa County General Plan	The County General Plan's vision includes an emphasis on the success of native species and protection of the County's biodiversity. In the Conservation Element, Goal CON-1 ("The County of Napa will conserve resources by determining the most appropriate use of land, matching land uses and activities to the land's natural suitability, and minimizing conflicts with the natural environment and the agriculture it supports") is general in scope but is supported by two policies directly relevant to the protection of biological resources: **Policy CON-1:** The County will preserve land for greenbelts, forest, recreation, flood control, adequate water supply, air quality improvement, habitat for fish, wildlife and wildlife movement, native vegetation, and natural beauty. The County will encourage management of these areas in ways that promote wildlife habitat renewal, diversification, and protection. **Policy CON-6:** The County shall impose conditions on discretionary projects which limit development in ecologically sensitive areas such as those adjacent to rivers or streamside areas and physically hazardous areas such as floodplains, steep slopes, high fire risk areas and geologically hazardous areas.

The Conservation Element also contains the following goals—supported by numerous policies and action items—specific to biological resources.

> **Goal CON-2:** Maintain and enhance the existing level of biodiversity.
>
> **Goal CON-3:** Protect the continued presence of special-status species, including special-status plants, special-status wildlife, and their habitats, and comply with all applicable state, federal, or local laws or regulations.
>
> **Goal CON-4:** Conserve, protect, and improve plant, wildlife, and fishery habitats for all native species in Napa County.
>
> **Goal CON-5:** Protect connectivity and continuous habitat areas for wildlife movement.
>
> **Goal CON-6:** Preserve, sustain, and restore forests, woodlands, and commercial timberland for their economic, environmental, recreation, and open space values.

Several policies in the Conservation Element are specific about the importance of the Napa River and the County's fisheries resources.

> **Policy CON-46:** Napa County's past, present, and future are intertwined with that of the Napa River; therefore, the County is committed to improving and sustaining the health of the river, through attaining water quality and habitat enhancement goals, supporting public access to the river for visual appreciation and recreational purposes, and completing federal, state, and local flood control projects that are consistent with "living rivers" principles.
>
> **Policy CON-10:** The County shall conserve and improve fisheries and wildlife habitat in cooperation with governmental agencies, private associations and individuals in Napa County.
>
> **Policy CON-11:** The County shall maintain and improve fisheries habitat through a variety of appropriate measures, including the following as well as best management practices developed over time …
>
> (d) Encourage and support programs and efforts related to fishery habitat restoration and improvement including steelhead presence surveys, development and utilization of hydraulic modeling, and removal of fish barriers.
>
> (e) Manage the removal of invasive vegetation and the retention of other riparian vegetation to reduce the potential for increased water temperatures and siltation and to improve fishery habitat.
>
> **Policy CON-27:** The County shall enforce compliance and continued implementation of the intermittent and perennial stream setback requirements set forth in existing stream setback regulations, provide education and information regarding the importance of stream setbacks and the active management and enhancement/restoration of native vegetation within setbacks, and develop incentives to encourage greater stream setbacks where appropriate …
>
> **Policy CON-50:** The County will take appropriate steps to protect surface water quality and quantity, including the following:
>
> (a) Preserve riparian areas through adequate buffering and pursue retention, maintenance, and enhancement of existing native vegetation along all intermittent and perennial streams through existing stream setbacks in the County's Conservation Regulations (also see Policy CON-27 which retains existing stream setback requirements).
>
> (b) Encourage flood control reduction projects to give full consideration to scenic, fish, wildlife, and other environmental benefits when computing costs of alternative methods of flood control.

Law, Policy, or Plan	Overview and Key Provisions
Napa County Code	Napa County Code (16.04.750) prohibits the following activities in "riparian zones." ▪ Removal of more than one native tree with DBH of 18 inches or more, more than three native trees with DBH of 12 inches or more, or more than 6 native trees with DBH of 6 inches or more, within 100 linear feet on each side of the channel. ▪ Removal of more than 500 square feet of riparian cover beyond 10 feet from top of bank. In addition, while a strip of riparian cover not more than 15 feet wide and located more than 10 feet beyond top of bank may be removed if it is to replanted as part of the same project, such removal may not ▪ involve locating any facility or structure within 10 feet of top of bank, or ▪ result in a cut or fill that would remain unprotected by slope reseeding and bank stabilization at the end of the project.
Cultural and Paleontological Resources	
Federal Antiquities Act	The federal Antiquities Act of 1906 was enacted with the primary goal of protecting cultural resources in the United States. It explicitly prohibits appropriation, excavation, injury, and destruction of "any historic or prehistoric ruin or monument, or any object of antiquity" located on lands owned or controlled by the federal government, without permission of the secretary of the federal department with jurisdiction. It also establishes criminal penalties, including fines and/or imprisonment, for these acts. As such, the Antiquities Act represents the foundation of modern regulatory protection for cultural resources.
National Environmental Policy Act	NEPA requires that federal agencies assess whether federal actions would result in significant effects on the human environment. The Council on Environmental Quality's (CEQ's) NEPA regulations further stipulate that identification of significant effects should incorporate "the degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register for Historic Places or may cause loss or destruction of significant scientific, cultural, or historic resources" (40 CFR 1508.27[b][8]).
California Environmental Quality Act	CEQA requires that public or private projects financed or approved by public agencies be assessed to determine the effects of the projects on historical resources. CEQA uses the term "historical resources" to include buildings, sites, structures, objects or districts, each of which may have historical, pre-historical, architectural, archaeological, cultural, or scientific importance. CEQA states that if implementation of a project results in significant effects on historical resources, then alternative plans or mitigation measures must be considered; however, only significant historical resources need to be addressed (CCR 15064.5, 15126.4). Therefore, before impacts and mitigation measures can be identified, the significance of historical resources must be determined. CEQA guidelines define three ways that a property may qualify as a historical resource for the purposes of CEQA review: (1) if the resource is listed in or determined eligible for listing in the California Register of Historical Resources; (2) if the resource is included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code unless the preponderance of evidence demonstrates that it is not historically or culturally significant; or (3) if the lead agency determines the resource to be significant as supported by substantial evidence in light of the whole record (California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15064.5[a]). Each of these ways of qualifying as an historical resource for the purpose of CEQA is related to the eligibility criteria for inclusion in the CRHR (California Public Resources Code 5020.1(k), 5024.1, 5024.1(g)). A historical resource may be eligible for inclusion in the CRHR if it is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; is associated with the lives of persons important in our past; embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or has yielded, or may be likely to

Law, Policy, or Plan	Overview and Key Provisions
	yield, information important in prehistory or history. Properties that are listed in or eligible for listing in the NRHP are considered eligible for listing in the CRHR, and thus are significant historical resources for the purpose of CEQA (Public Resources Code section 5024.1(d)(1)).
California Public Resources Code	Several sections of the California Public Resources Code protect paleontological resources. Section 5097.5 prohibits "knowing and willful" excavation, removal, destruction, injury, and defacement of any paleontologic feature on public lands (lands under state, county, city, district, or public authority jurisdiction, or the jurisdiction of a public corporation), except where the agency with jurisdiction has granted express permission. Section 30244 requires reasonable mitigation for impacts on paleontological resources that occur as a result of development on public lands. The sections of the California Administrative Code relating to the State Division of Beaches and Parks afford protection to geologic features and "paleontological materials" but grant the director of the state park system authority to issue permits for specific activities that may result in damage to such resources, if the activities are in the interest of the state park system and for state park purposes (California Administrative Code Sec. 4307–4309).
Napa County General Plan	Goals in the Community Character Element of the County General Plan identify the importance of protecting the County's rich archaeological and historical heritage: **Goal CC-4:** Identify and preserve Napa County's irreplaceable cultural and historic resources for present and future generations to appreciate and enjoy. **Goal CC-5:** Encourage the reuse of historic buildings by providing incentives for their rehabilitation and reuse. Numerous detailed policies and action items define approaches to ensure that these goals are achieved.
Geology, Soils, Geologic Hazards	
Federal Clean Water Act, Section 402[p]	Amendments to the federal Clean Water Act (CWA) in 1987 added Section 402[p], which created a framework for regulating municipal and industrial stormwater discharges under the NPDES program. In California, the State Water Resources Control Board (State Water Board) is responsible for implementing the NPDES program; pursuant to the state's Porter-Cologne Water Quality Control Act (Porter-Cologne Act) (see discussion in *Hydrology and Water Quality* above), it delegates implementation responsibility to the state's nine RWQCBs. Under the NPDES Phase II Rule, any construction project disturbing 1 acre or more must obtain coverage under the state's NPDES General Permit for Stormwater Discharges Associated with Construction Activity (General Construction Permit). The purpose of the Phase II rule is to avoid or mitigate the effects of construction activities, including earthwork, on surface waters. To this end, General Construction Permit applicants are required to file a Notice of Intent to Discharge Stormwater with the RWQCB that has jurisdiction over the construction area, and to prepare a SWPPP stipulating BMPs that will be in place to avoid adverse effects on water quality. Additional information on other aspects of the CWA is provided in the *Hydrology and Water Quality* section of this appendix.

Law, Policy, or Plan	Overview and Key Provisions
(California) Alquist-Priolo Earthquake Fault Zoning Act	The Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code Sec. 2621 *et seq*.), originally enacted in 1972 as the Alquist-Priolo Special Studies Zones Act and renamed in 1994, is intended to reduce the risk to life and property from surface fault rupture[1] during earthquakes. The Alquist-Priolo Act prohibits the location of most types of structures intended for human occupancy across the traces of active faults and strictly regulates construction in the corridors along active faults (earthquake fault zones). It also defines criteria for identifying active faults, giving legal weight to terms such as "active," and establishes a process for reviewing building proposals in and adjacent to Earthquake Fault Zones. Under the Alquist-Priolo Act, faults are zoned and construction along or across them is strictly regulated if they are "sufficiently active" and "well-defined." A fault is considered sufficiently active if one or more of its segments or strands shows evidence of surface displacement during Holocene time (defined for purposes of the Act as referring to approximately the last 11,000 years). A fault is considered well defined if its trace can be clearly identified by a trained geologist at the ground surface or in the shallow subsurface, using standard professional techniques, criteria, and judgment (Hart and Bryant 1997).
(California) Seismic Hazards Mapping Act	Like the Alquist-Priolo Act, the Seismic Hazards Mapping Act of 1990 (California Public Resources Code Sections 2690–2699.6) is intended to reduce damage resulting from earthquakes. While the Alquist-Priolo Act addresses surface fault rupture, the Seismic Hazards Mapping Act addresses other earthquake-related hazards, including strong groundshaking, liquefaction , and seismically induced landslides. Its provisions are similar in concept to those of the Alquist-Priolo Act: the state is charged with identifying and mapping areas at risk of strong groundshaking, liquefaction, landslides, and other corollary hazards, and cities and counties are required to regulate development within mapped Seismic Hazard Zones. Under the Seismic Hazards Mapping Act, permit review is the primary mechanism for local regulation of development. Specifically, cities and counties are prohibited from issuing development permits for sites within Seismic Hazard Zones until appropriate site-specific geologic and/or geotechnical investigations have been carried out and measures to reduce potential damage have been incorporated into the development plans.
Napa County Conservation Regulations	See *Land Use and Planning* section.
Other local policies and regulations	In California, earthwork and construction activities are regulated at the local jurisdiction level through a multi-stage permitting process—grading permits are required for most types of earthwork, and additional permits are typically needed for various types of construction. The purpose of local jurisdiction permit review is to ensure that proposed earthwork will meet the jurisdiction's adopted codes and standards. The County has adopted the 2007 California Building Code, which is based on the 2006 International Building Code but includes more stringent seismic design standards.
Hazards and Hazardous Materials	
Resource Conservation and Recovery Act (RCRA)	The Resource Conservation and Recovery Act (RCRA) enables the EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thereby regulating the generation, transport, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)	The federal Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund, was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, Superfund was amended by the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws), also called the Emergency Planning and Community Right-to-Know Act, which states that past and present

[1] *Surface fault rupture* is a rupture at the ground surface along an active fault, caused by earthquake or creep activity.

Law, Policy, or Plan	Overview and Key Provisions
(Superfund Act); Superfund Amendment and Reauthorization Act (SARA)	owners of land contaminated with hazardous substances can be held liable for the entire cost of the cleanup even if the material was dumped illegally when the property was under different ownership. These regulations also establish reporting requirements that provide the public with important information on hazardous chemicals in their communities to enhance community awareness of chemical hazards and facilitate development of state and local emergency response plans.
California hazardous materials laws and regulations	California regulations are equal to or more stringent than federal regulations. The EPA has granted the State primary oversight responsibility to administer and enforce hazardous waste management programs. State regulations require planning and management to ensure that hazardous wastes are handled, stored, and disposed of properly to reduce risks to human health and the environment. Key state laws pertaining to hazardous wastes include the following: Hazardous Materials Release Response Plans and Inventory Act of 1985 (Business Plan Act); Hazardous Waste Control Act; Emergency Services Act; California Occupational Safety and Health Administration Standards; Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), which requires labeling of substances known or suspected by the state to cause cancer; and California Government Code Section 65962.5, which requires the Office of Permit Assistance to compile a list of possible contaminated sites in the state.
State fire protection requirements for wildlands	In addition to regulating the management of hazardous wastes, state law also governs the prevention and suppression of wildfires in SRAs, which are primarily the responsibility of state fire protection agencies operating under the California Department of Forestry, and SRA areas that have been reclassified so as to become the responsibility of local jurisdictions. Key state laws pertaining to wildfires include the California Public Resources Code definition of State Responsibility Areas (California Public Resources Code Section 4125 *et seq*.) and Defensible Space requirements (California Public Resources Code Section 4290). These regulations are summarized below. **State Responsibility Areas (Public Resources Code Section 4125 *et seq*.)** The California Public Resources Code requires the designation of SRAs, which are identified based on cover, beneficial water uses, probable erosion damage, fire risks, and hazards. The financial responsibility of preventing and suppressing wildland fires in the SRA is primarily the responsibility of the state. Fire protection in areas outside the SRA are the responsibilities of local or federal jurisdictions and are referred to as local responsibility areas and federal responsibility areas, respectively. Generally, when development density within a given SRA exceeds one dwelling unit per acre on a regional basis, the land is no longer classified as an SRA and becomes the responsibility of the local jurisdiction. **Defensible Space Requirements (Public Resources Code Section 4290)** In 1987, Senate Bill (SB) 1075 was adopted to require the California Board of Forestry to establish minimum fire safety standards that apply to the SRA. Subsequently, Pubic Resources Code Section 4290 required local jurisdictions to implement these fire safe standards. The concept of defensible space is the cornerstone of fire safety regulations. The intent is to reduce the intensity of a wildland fire by reducing the volume and density of fuels (e.g., vegetation that can transmit fire from the natural growth to a building or structure), to provide increased safety for fire equipment and evacuating civilians, and to provide a point of attack or defense from a wildland fire. Defensible space is characterized by the establishment and maintenance of emergency vehicle access, emergency water reserves, street names, building identification, and fuel modification measures. The basic recommendation is to provide a minimum of 100 feet fuel clearance from all structures. To comply with the state's defensible space requirement, the local fire protection agencies require the following, at minimum: the clearance of 100 feet of flammable vegetation from around buildings; on steeper parcels, fire safe clearance requirements are determined by the local fire protection agency; the removal of branches from within 10 feet of a chimney; and the removal of all flammable vegetation from roof tops, including dry leaves and pine needles.

Law, Policy, or Plan	Overview and Key Provisions
Hydrology and Water Quality	
Federal Clean Water Act	The CWA is the primary federal law that protects the quality of the nation's surface waters, including lakes, rivers, and coastal wetlands. It operates on the principle that all discharges of pollutants into the nation's waters are unlawful unless specifically authorized by a permit; permit review is the CWA's primary regulatory tool. The following paragraphs provide additional details on specific sections of the CWA. **CWA Permits for Fill Placement in Waters and Wetlands** CWA Section 404 regulates the discharge of dredged and fill materials into "waters of the United States," or *jurisdictional waters*, which include oceans, bays, rivers, streams, lakes, ponds, and wetlands. Under Section 404, to legally place any dredged or fill material below the ordinary high water mark of any jurisdictional waters, the project proponent must obtain a permit from the Corps. Many projects require *individual* or project-specific permits. Alternatively, some projects can streamline the permitting process by obtaining coverage under an existing *Nationwide Permit* that covers a range of related or similar activities. Before any actions that may discharge dredged or fill material into surface waters or wetlands are carried out, a delineation of jurisdictional waters of the United States must be completed, following Corps protocols (Environmental Laboratory 1987), in order to determine whether the project area encompasses wetlands or other waters of the United States that qualify for CWA protection. These may include areas within the ordinary high water mark of a stream, including non-perennial streams with a defined bed and bank and any stream channel that conveys natural runoff, even if it has been realigned; and seasonal and perennial wetlands, including coastal wetlands, with a hydrologic connection to navigable waters. *Wetlands* are defined for regulatory purposes as areas "inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3, 40 CFR 230.3). Section 404 permits may be issued only for the least environmentally damaging practicable alternative. That is, authorization of a proposed discharge is prohibited if there is a practicable alternative that would have less adverse impacts and lacks other significant adverse consequences. **CWA Permits for Stormwater Discharge** CWA Section 402 regulates construction-related stormwater discharges to surface waters through the NPDES program. The NPDES program is officially administered by the EPA. However, in California, the EPA has delegated its authority to the State Water Board; the State Water Board in turn delegates implementation responsibility to the nine RWQCBs, as discussed in *Porter-Cologne Water Quality Control Act* below. The NPDES program provides for both *general permits* (those that cover a number of similar or related activities) and *individual* (activity- or project-specific*) permits*, as described in the following sections. **NPDES General Permits** Most construction projects that disturb 1 acre of land or more are required to obtain coverage under the NPDES General Construction Permit, which requires the applicant to file a public notice of intent to discharge stormwater, and to prepare and implement a SWPPP. The SWPPP must include a site map and a description of the proposed construction activities; demonstrate compliance with relevant local ordinances and regulations; and present the BMPs that will be implemented to prevent soil erosion and discharge of sediment and other construction-related pollutants to surface waters. Permittees are further required to conduct annual monitoring and reporting to ensure that BMPs are correctly implemented and that they are effective in controlling the discharge of construction-related pollutants. Projects constructed in Caltrans facilities or rights-of-way must comply with the requirements of Caltrans' statewide NPDES permit, which

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	imposes requirements similar to those of the General Construction Permit. **Individual NPDES Permits** All point source discharges to waters of the United States not covered by a general permit are required to apply for an individual NPDES permit with the local RWQCB. As conditions of permit issuance, the RWQCB issues waste discharge requirements (WDRs) and monitoring provisions to ensure compliance with CWA standards. **CWA Water Quality Certification** All projects that have a federal component[2] and may affect the quality of the state's waters must comply with CWA Section 401. Under Section 401, applicants for a federal license or permit to conduct activities that may result in the discharge of a pollutant into waters of the United States must receive certification that the discharge would not adversely affect water quality, or must have the certification requirement waived by the agency with jurisdiction. In California, Section 401 certifications and waivers are issued by the RWQCB with jurisdiction (see *Porter-Cologne Water Quality Control Act* below).
Safe Drinking Water Act	The Safe Drinking Water Act of 1974 is the primary federal law protecting the quality of the nation's drinking water. It empowers the EPA to set drinking water standards and to oversee the water providers—cities, water districts, and agencies—who actually implement those standards. It also includes provisions for the protection of surface waters and wetlands, in support of drinking water quality. Under the Safe Drinking Water Act, the EPA establishes National Primary Drinking Water Standards. These are enforceable standards based on health criteria, and they apply to all water provided by public water supply systems. They include several types of limits. The maximum contaminant level (MCL) reflects the highest concentration of a given contaminant that is allowed in drinking water supply. Similarly, maximum residual disinfectant levels (MRDLs) provide an enforceable standard for residual concentrations of substances such as chlorine/chlorides that are used for water disinfection. For other types of contaminants, treatment techniques (TTs) reflect required treatment actions and define acceptable and unacceptable outcomes; for example, the TTs for the microorganisms *Cryptosporidium* and *Giardia*, both of which are associated with gastrointestinal illness, require 99% and 99.9% removal, respectively. The EPA also establishes optional secondary standards for parameters that affect water taste, odor, and appearance. Each state has the right to choose whether to adopt and enforce the secondary standards, and California has elected to do so. In California, the EPA delegates some of its implementation authority for the Safe Drinking Water Act to the DHS' Division of Drinking Water and Environmental Management. DHS administers a wide range of regulatory programs pursuant of this responsibility, as discussed under *Drinking Water Standards* in *State Regulations* below.
(California) Porter-Cologne Water Quality Control Act	The Porter-Cologne Water Quality Control Act, passed in 1969, dovetails with the CWA (see *Clean Water Act* above). It established the State Water Board and divided the state into nine regions, each overseen by an RWQCB. The State Water Board is the primary state agency responsible for protecting the quality of the state's surface and groundwater supplies, but much of its daily implementation authority is delegated to the nine RWQCBs, which are responsible for implementing CWA Sections 401, 402, and 303[d], as discussed above. In general, the State Water Board manages water rights and regulates statewide water quality, while the RWQCBs focus on water quality within their respective regions. The Porter-Cologne Act requires the RWQCBs to develop water quality control plans (Basin Plans) that designate beneficial uses of California's major surface water bodies and groundwater basins and establish specific narrative and numerical water quality objectives for

[2] *Federal component* refers to federal agency involvement—as the project proponent, as a source of project funding, or by issuing permits required for the project to proceed.

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	those waters. *Beneficial uses* represent the services and qualities of a water body—i.e., the reasons why the water body is considered valuable. *Water quality objectives* reflect the standards necessary to protect and support those beneficial uses. Basin Plan standards are primarily implemented by using the NPDES permitting system to regulate waste discharges so that water quality objectives are met. Under the Porter-Cologne Act, Basin Plans must be updated every 3 years. The project area is located in the San Francisco Bay Basin and is under the jurisdiction of the San Francisco Bay Regional Water Quality Control Board, headquartered in Oakland.
(California) Groundwater Management Act of 19192 (AB 3030)	California's Groundwater Management Act (Water Code Sections 10750–10756) gave existing local agencies expanded authority over the management of groundwater resources in basins recognized by the California Department of Water Resources (DWR). Its intent was to promote the voluntary development of groundwater management plans in order to ensure stable groundwater supplies for the future. Under the Act, a groundwater management plan is defined as providing for "planned use of the groundwater basin yield, storage space, transmission capability, and water in storage." The Act stipulates the technical components of a groundwater management plan as well as procedures for such a plan's adoption, including passage of a formal resolution of intent to adopt a groundwater management plan, and holding a public hearing on the proposed plan. The Act also requires agencies to adopt rules and regulations to implement an adopted plan, and empowers agencies to raise funds to pay for the facilities needed to manage the basin, such as extraction wells, conveyance infrastructure, recharge facilities, and testing and treatment facilities.
Napa County General Plan	The Conservation Element of the County General Plan contains several goals for water resources protection. **Goal CON-8:** Reduce or eliminate groundwater and surface water contamination from known sources (e.g., underground tanks, chemical spills, landfills, livestock grazing, and other dispersed sources such as septic systems). **Goal CON-9:** Control urban and rural stormwater runoff and related non-point source pollutants, reducing to acceptable levels pollutant discharges from land-based activities throughout the county. **Goal CON-10:** Conserve, enhance and manage water resources on a sustainable basis to attempt to ensure that sufficient amounts of water will be available for the uses allowed by this General Plan, for the natural environment, and for future generations. **Goal CON-11:** Prioritize the use of available groundwater for agricultural and rural residential uses rather than for urbanized areas and ensure that land use decisions recognize the long-term availability and value of water resources in Napa County. **Goal CON-12:** Proactively collect information about the status of the county's surface and groundwater resources to provide for improved forecasting of future supplies and effective management of the resources in each of the County's watersheds. **Goal CON-13:** Promote the development of additional water resources to improve water supply reliability and sustainability in Napa County, including imported water supplies and recycled water projects. More specific guidance is provided in policies and action items such as Policy CON-50: **Policy CON-50:** The County will take appropriate steps to protect surface water quality and quantity, including the following: (a) Preserve riparian areas through adequate buffering and pursue retention, maintenance, and enhancement of existing native vegetation along all intermittent and perennial streams through existing stream setbacks in the County's Conservation

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	Regulations (also see Policy CON-27 which retains existing stream setback requirements). (b) Encourage flood control reduction projects to give full consideration to scenic, fish, wildlife, and other environmental benefits when computing costs of alternative methods of flood control. **Policy CON-27:** The County shall enforce compliance and continued implementation of the intermittent and perennial stream setback requirements set forth in existing stream setback regulations, provide education and information regarding the importance of stream setbacks and the active management and enhancement/restoration of native vegetation within setbacks, and develop incentives to encourage greater stream setbacks where appropriate… Water resources are also protected indirectly through General Plan goals and policies protecting open space, watersheds, and habitat values, limiting development in ecologically sensitive areas such as riparian corridors, and promoting environmentally responsible agriculture. Additionally, the General Plan contains a goal and several related policies relevant to flood hazard reduction, the most relevant of which are listed below. **Goal SAF-4:** To protect residents and businesses from hazards caused by flooding. **Policy SAF-24:** The County recognizes that agricultural open space also serves a valuable purpose in promoting safety, and that maintaining areas subject to flooding in agricultural or open space uses minimizes the impacts of flooding on homes and businesses. **Policy SAF-25:** The review of new proposed projects in a floodway shall include an evaluation of the potential flood impacts that may result from the project. This review shall include an evaluation of the project's potential to affect flood levels on the Napa River; the County shall seek to mitigate any such effects to ensure that freeboard on the Napa River in the area of the Napa River Flood Protection Project is maintained.
Napa County Conservation Regulations	See *Land Use and Planning* section.
Land Use and Planning	
Napa County General Plan	The County General Plan identifies the County's scenic beauty, agricultural resources, and rural character as keys to the high quality of life enjoyed by County residents, and presents goals, policies, and action items intended to ensure that the County continues to be " … a place with abundant natural resources, a vibrant agriculture-centric economy, an enviable quality of life, and a responsible and inclusive government." (County of Napa 2008 p. SV-2), and requires that land use decisions be evaluated for their potential effects on quality of life, the environment, and agricultural production and marketing. General Plan Policy AG/LU-114 identifies that zoning should be consistent with the General Plan's land use designations. Lands adjacent to the project corridor are designated Agricultural Resource, which restricts allowable zoning to Agricultural Preserve (AP). Under the County Zoning Ordinance, the following uses are allowed in AP districts: agriculture; one single-family dwelling unit per legal lot; small residential care and family day care homes; larger family day care homes, under certain circumstances; one guest cottage, if it meets specified conditions; wineries and related "accessory" uses and structures that existed prior to July 31, 1974; small wineries issued a certificate of exemption prior to the ordinance's adoptions, under certain conditions; minor antennas and telecommunication facilities under certain circumstances (Napa County Code 18.16.020). Other uses may be issued use permits following County review (County Code 18.16.030). Other General Plan policies bear indirectly on land use planning, including the following. **Policy CON-1:** The County will preserve land for greenbelts, forest, recreation, flood control, adequate water

supply, air quality improvement, habitat for fish, wildlife and wildlife movement, native vegetation, and natural beauty. The County will encourage management of these areas in ways that promote wildlife habitat renewal, diversification, and protection.

Policy CON-4: The County recognizes that preserving watershed open space is consistent with and critical to the support of agriculture and agricultural preservation goals.

Policy CON-6: The County shall impose conditions on discretionary projects which limit development in ecologically sensitive areas such as those adjacent to rivers or streamside areas and physically hazardous areas such as floodplains, steep slopes, high fire risk areas and geologically hazardous areas.

Policy CON-22: The County shall encourage the protection and enhancement of natural habitats which provide ecological and other scientific purposes. As areas are identified, they should be delineated on environmental constraints maps so that appropriate steps can be taken to appropriately manage and protect them.

Measure J, approved by voters in 1990, included the following policies to protect agricultural lands, which have been incorporated into the revised General Plan (County of Napa 2008 pp. AG/LU-59–60). Under the terms of Measure J, these policies will remain in effect through December 31, 2020, although the General Plan identifies them as successful in preserving agricultural land uses, and suggests that it will be essential to extend them.

Policy AG/LU-111: Limitations on General Plan Amendments relating to Agricultural, Watershed, and Open Space and Agricultural Lands:

(a) Until December 31, 2020, the provisions governing the intent and maximum building intensity for lands designated Agriculture, Watershed and Open Space and Agricultural Resource set forth in Policies AG/LU-20 and 21 (which are identical to Sections 3.F.7.a, 3.F.7.d, 3.F.8.a, and 3.F.8.d of the Land Use Element adopted on June 7, 1983, as amended through February 1, 1990), shall not be amended unless such amendment is approved by vote of the people. Until December 31, 2020, the provisions governing minimum parcel size for lands designated Agriculture, Watershed and Open Space and Agricultural Resource set forth in Policies AG/LU-20 and 21 shall not be amended to reduce minimum parcel sizes unless such amendment is approved by vote of the people.

(b) All those lands designated as Agriculture, Watershed and Open Space or Agricultural Resource on the Napa County General Plan Land Use Map adopted by the Board of Supervisors (hereinafter, "Board") on September 8, 1975, as amended through February 1, 1990 (hereinafter "Land Use Map"), shall remain so designated until December 31, 2020, unless said land is annexed to or otherwise included within a city or town, redesignated to another General Plan land use category by vote of the people, or redesignated by the Board pursuant to procedures set forth in subsections c, d, or e, below.

(c) Land designated as Agriculture, Watershed and Open Space on the Land Use Map may be redesignated to a Public Institutional General Plan area classification by the Board pursuant to its usual procedures if such redesignation is necessary to comply with the countywide siting element requirements of Public Resources Code section 41700 *et seq.* as those sections currently exist or as they may be amended from time to time, but only to the extent of designating solid waste transformation or disposal facilities needed for solid waste generated within Napa County (including the cities within the County).

(d) Except as provided in subsection (e) below, land designated as Agriculture, Watershed and Open Space or Agricultural Resource on the Land Use Map may be redesignated to a land use designation other than Agriculture, Watershed and Open Space or Agricultural Resource by the Board pursuant to its usual procedures only if the Board makes all of the following findings:

(i) Annexation to or otherwise including the land within a city or town is not likely.

(ii) The land is immediately adjacent to areas developed in a manner comparable to the proposed use.

(iii) Adequate public services and facilities are available and have the capability to accommodate the proposed use by virtue of the property being within or annexed to appropriate service districts.

(iv) The proposed use is compatible with agricultural uses, does not interfere with accepted agricultural practices, and does not adversely affect the stability of land use patterns in the area.

(v) The land proposed for redesignation has not been used for agricultural purposes in the past 2 years and is unusable for agriculture due to its topography, drainage, flooding, adverse soil conditions, or other physical reasons.

(vi) The land proposed for redesignation pursuant to subsection (d) does not exceed 40 acres for any one landowner in any calendar year, and one landowner may not obtain redesignation in the General Plan of Agriculture, Watershed and Open Space or Agricultural Resource land pursuant to subsection (d) more often than every other year. Landowners with any unity of interest are considered one landowner for purposes of this limitation.

(vii) The applicant for redesignation and its successors will not extract groundwater from the affected property or use pumped groundwater as a water source on the affected property except pursuant to a valid groundwater permit or use permit meeting the requirements of the Napa County Groundwater Conservation Ordinance, unless a final determination of exemption or waiver is made under that ordinance.

(e) Land designated as Agriculture, Watershed and Open Space or Agricultural Resource on the Land Use Map may be redesignated to another land use category by the Board if each of the following conditions is satisfied:

(i) The Board makes a finding that the application of Policy AG/LU-111(b), above, would constitute an unconstitutional taking of the landowner's property; and

(ii) n permitting the redesignation, the Board allows additional land uses only to the extent necessary to avoid said unconstitutional taking of the landowner's property.

f) Approval by a vote of the people is accomplished when a General Plan amendment is placed on the ballot through any procedure provided for in the Election Code, and a majority of the voters vote in favor of it. Whenever the Board adopts an amendment requiring approval by a vote of the people pursuant to the provisions of this subsection, the Board action shall have no effect until after such a vote is held and a majority of the voters vote in favor of it. The Board shall follow the provisions of the Election Code in all matters pertaining to such an election.

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Napa County Conservation Regulations	The County's Conservation Regulations (County Code 18.108) were enacted in 1991 to protect public health and safety and community welfare, and preserve natural resources. The Conservation Regulations were developed for consistency with the then-current General Plan's Land Use and Conservation Elements, and in turn shaped the revised elements in the recently approved General Plan update (County of Napa 2008). Key aims of the Conservation Regulations include ▪ minimizing earthwork (excavation, fill, earthmoving, and grading) operations in areas of natural terrain; ▪ minimizing soil erosion associated with earthwork soil erosion caused by earthwork; ▪ maintaining and, to the extent feasible, improving, water quality by regulating the quantity and quality of runoff entering local watercourses; ▪ preserving riparian areas and other natural habitat by controlling development near streams and rivers; ▪ encouraging development that minimizes impacts on existing landforms and preserves the County's existing vegetation and unique geologic features; and ▪ protecting drinking water supply reservoirs in sensitive domestic water supply drainages from sediment, turbidity, and pollution. Under Section 18.080.050J of the County Code, most grading and vegetation removal activities that take place under a permit issued by "a state or federal agency in compliance with applicable provisions of state or federal laws or regulations where adequate erosion control measures as determined by the County of Napa have been incorporated as part of the project" are exempt from the Conservation Regulations. Examples include activities permitted under the requirements of Clean Water Act Section 404 and/or via the Streambed Alteration Agreement process in California Fish and Game Code Section 1602. The state and federal permit review processes provide alternate pathways to achieve the goals of the Conservation Regulations, so the exemption avoids redundant review at County and State/Federal levels.
Mineral Resources	
(California) Surface Mining and Reclamation Act (SMARA)	SMARA (California Public Resources Code Sections 2710–2719) is the principal legislation addressing mineral resources in California, which was enacted in response to land use conflicts between urban growth and essential mineral production. SMARA requires the California Geological Survey (formerly the California Division of Mines and Geology) to classify California lands into Mineral Resource Zones (MRZs). The MRZ classifications are defined as follows. ▪ **MRZ-1:** Areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. ▪ **MRZ-2:** Areas where adequate information indicates that significant mineral deposits are present, or where it is judged that a high likelihood for their presence exists. ▪ **MRZ-3:** Areas containing mineral deposits, the significance of which cannot be evaluated from available data. ▪ **MRZ-4:** Areas where available information is inadequate for assignment into any other MRZ.
Napa County General Plan	The Conservation Element of the County General Plan contains the following goal for mineral resources, along with supporting policies. **Goal CON-7:** Identify and conserve areas containing significant mineral deposits for future use and promote the reasonable, safe, and orderly operation of mining and extraction and management activities, where environmental, aesthetic, and adjacent land use compatibility impacts can be adequately addressed.

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Noise	
Napa County General Plan	The Community Character Element of the County General Plan includes the following goals addressing noise as a factor in land use planning. **Goal CC-7:** Accept those sounds which are part of the County's agricultural character while protecting the people of Napa County from exposure to excessive noise. **Goal CC-8:** Place compatible land uses where high noise levels already exist and minimize noise impacts by placing new noise-generating uses in appropriate areas. These goals are supported by a number of policies, including noise level/land use compatibility guidelines, and exterior noise level standards derived from the County Noise Ordinance.
Napa County Noise Ordinance	The County Noise Ordinance (County Code 8.16) establishes exterior and interior noise level standards to protect public health, welfare, safety, and quality of life. Construction activities are exempt from the general noise standards, but are required to meet the standards in the following table where it is technically and economically feasible to do so.

	Residential Areas	Commercial Areas	Industrial Areas
Daytime Limit (7:00 a.m.−7:00 p.m.)	75 dBA	80 dBA	85 dBA
Nighttime Limit (7:00 p.m.−7:00 a.m.)	60 dBA	65 dBA	70 dBA

The Noise Ordinance also includes General Restrictions that prohibit "loud, unnecessary or unusual noise which disturbs the peace and quiet of any neighborhood or which causes any discomfort or annoyance to any reasonable person of normal sensitiveness residing in the area." Factors to be considered in evaluating whether noise violates the County's General Noise Restrictions include, but are not necessarily limited to, the following (Noise Ordinance 777 Section 1).

- The sound level of the objectionable noise.
- The sound level of the ambient noise.
- The proximity and timing of the noise in relation to residential sleeping facilities and normal sleeping hours.
- The nature and zoning of the area within which the noise emanates.
- The number of persons affected by the noise source.
- The time of day or night the noise occurs.
- The duration of the noise and its tonal or musical content.
- Whether the noise is continuous, recurrent or intermittent.
- Whether the noise is produced by a commercial or noncommercial activity.

Population and Housing	
Regional Housing Needs Assessment and Napa County	The State of California requires local government organizations to prepare periodic Regional Housing Needs Assessments (RHNAs). Local government associations—including the Association of Bay Area Governments (ABAG)—are then responsible for allocating a fair share of

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General Plan Housing Element	the overall regional housing need to each member jurisdiction. Each member jurisdiction's strategy for meeting its allocated housing responsibility and addressing any specific housing challenges it faces is presented in the Housing Element of its General Plan. By law, housing elements must be updated every 5 years. Thus, although the County General Plan has recently undergone overall revision, the Housing Element—which was revised in 2004 and will be revised again in 2005—was incorporated in its existing (2004) form. The 2004 Housing Element contains the following 12 goals. **GOAL 1:** The Housing Element of the Napa County General Plan shall plan for housing needs of all economic segments of the population residing in the Unincorporated Area of the County. **GOAL 2:** With the exception of individual single-family residences, farm labor dwellings and second units, future housing units will be constructed within designated urban areas of the county to the maximum extent feasible, in suitable locations where public services are or can reasonably be made available and adequate for the density proposed. **GOAL 3:** An important County role in the implementation of the programs of the Housing Element should be to facilitate seasonal farm worker housing, to directly support its agricultural industries. **GOAL 4:** Assure that the housing stock of the County is maintained or upgraded to reduce the number of units lost through neglect, deterioration, or conversion from affordable to market-rate or to non-residential uses. **GOAL 5:** Assure that the quality, safety and livability of designated residential areas of the County of Napa is continually maintained or improved such that the essential services and facilities are available. **GOAL 6:** Encourage housing programs and policies that maximize choice and economic integration and eliminate discrimination based on age, sex, race, color, ethnic background, marital status, religion, disability or any other arbitrary factors. **GOAL 7:** Maximize the retention of existing and provision of new affordable housing, as defined by Federal guidelines, in both rental and ownership markets within the Unincorporated Area of the County. **GOAL 8:** Facilitate coordination between private, public, and non-profit parties involved in the regulation, development, production, management, financing, sales, rental, and rehabilitation of the housing stock in the County. **GOAL 9:** The County shall work with the cities, other governmental units, citizens, the private and non-profit sectors, to plan for services, facilities and accommodations, including housing, transportation, economic development, parks and recreation, open space and other total County needs. **GOAL 10:** Encourage energy efficiency and water conservation in new construction and existing structures by enforcing state-mandated energy regulations as codified. **GOAL 11:** The County shall develop a program to ensure that the rate of creation of jobs is commensurate with the rate of development of new housing units, particularly in the affordable range. **GOAL 12:** The County shall allocate housing growth to ensure that the annual rate of growth does not exceed one percent (1.0%) to maximize protection of its agricultural lands, to match housing growth with the ability of the county to provide services, to protect its open space resources, to reduce impacts on area transportation facilities and to direct growth toward existing urban areas as required by the County's Land Use Element. These goals are supported by a number of more detailed policies. Policies are not linked to individual goals as in other General Plan elements,

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	but instead are organized into seven categories: Rehabilitation; Affordability; Special Needs; Housing Development; Housing Location, Density, and Timing; Removal of Government Constraints; and Energy and Water Conservation Policies.
Transportation and Traffic	
Napa County General Plan	The County General Plan recognizes the importance of circulation to County residents and visitors, and to the County's primary industry, agriculture, as well as unique challenges faced by the County as a community that lacks direct access to interstate freeways and is too sparsely populated to support significant investments in transit. The General Plan vision for traffic and transportation is embodied in the following goals. **Goal CIR-1:** The County's transportation system shall be correlated with the policies of the Agricultural Preservation and Land Use Element and protective of the County's rural character. **Goal CIR-2:** The County's transportation system shall provide for safe and efficient movement on well-maintained roads throughout the County, meeting the needs of Napa County residents, businesses, employees, visitors, special needs populations, and the elderly. **Goal CIR-3:** The County's transportation system shall encompass the use of private vehicles, local and regional transit, paratransit, walking, bicycling, air travel, rail, and water transport. **Policy CIR-16** under Goal CIR-2 articulates the County's level of service (LOS) standards. ▪ Policy CIR-16: The County shall seek to maintain an adequate level of service on roads and at intersections as follows. The desired level of service shall be measured at peak hours on weekdays. • The County shall seek to maintain an arterial Level of Service D or better on all county roadways, except where maintaining this desired level of service would require the installation of more travel lanes than shown on the Circulation Map. • The County shall seek to maintain a Level of Service D or better at all signalized intersections, except where the level of service already exceeds this standard (i.e., Level of Service E or F) and where increased intersection capacity is not feasible without substantial additional right-of-way. • No single level of service standard is appropriate for un-signalized intersections, which shall be evaluated on a case-by-case basis to determine if signal warrants are met. **Action Item CIR-16.1:** Work with the Napa County Transportation and Planning Agency, adjacent counties, the Metropolitan Transportation Commission, and the California Department of Transportation to monitor traffic volumes and congestion on the roadway system in Napa County.